SEMICONDUCTOR PRODUCTS

SHORT FORM CATALOG

INTEGRAL

2016

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INTRODUCTION

«INTEGRAL» JSC develops, manufactures and exports microelectronic components and electronic products. «INTEGRAL» JSC provides a full cycle of design and manufacture: from silicon substrates up to integrated circuits and semiconductor devices, from microelectronic components up to electronic.

Total labour is more than 6 thousand persons.

Mr. Vitaly A. Solodukha has been the General Director of «INTEGRAL» JSC.

The main line of activity of «INTEGRAL» JSC is design and manufacture of microelectronic products - over 70 % of the total production volume - for the branches manufacturing goods of household and consumer electronics.

«INTEGRAL» JSC exports more than 70 % of the volume of manufactured goods to the markets of the Russian Federation, Sout - East Asia, India and Western Europe.

The goods are exported to 30 countries of the world.

Manufacture of 0,35 μm design rule integrated circuits on Ø200 mm (8 inch) wafers has been set up.

The main lines of the development of «INTEGRAL» JSC are as follows: design and implementation of microelectronic components of power electronics, microsensorics and optoelectronics.

Development of production of finished electronics is to be carried out in the following lines: displays; automotive electronics and electronics and equipment for health application; cashless payment systems, payment terminals, commercial and bank equipment, smart cards, identification and record keeping systems.

«INTEGRAL» JSC is open for cooperation both in design and deliveries of products, and in terms of joint realization of long-term investment projects.

- ***BASIC TYPES OF INTEGRATED CIRCUITS MANUFACTURED:***

- Memories
- Microcontrollers, drivers, peripheral IC
- TV and audio IC
- Telecommunications IC
- Power electronics, standard analog IC
- Standard digital logic IC
- Special-purpose electronic component base
- Clock/watch, calculator IC
- Music synthesizer and electronic thermometer IC

- ***BASIC TYPES OF SEMICONDUCTOR DEVICES MANUFACTURED:***

- Bipolar transistors
- Power bipolar Darlington transistors
- Insulated gate bipolar transistors
- Bipolar transistors with integrated anti-saturating element
- Bipolar transistors with damping diode and resistor in the emitter-base circuit
- Unijunction bipolar transistors
- Low-power n- and p-channel MOSFETs
- Power n- and p-channel MOSFETs
- Microwave mixing diodes, rectifier diodes, Schottky diodes
- Power high-speed diodes and diode matrices
- Pulse diode matrices
- Power rectifier and limiter diodes

QUALITY MANAGEMENT SYSTEM

The Quality Management System of "INTEGRAL" was established more than 15 years ago, and in 1999 it was certified by "KEMA", the International Certification Center, and by "BelGISS", the National Certification Center, for compliance with ISO 9001.

The main objective of the Quality Management System is to integrate the efforts of all employees for design, manufacture and sale of high quality, competitive and technologically advanced integrated circuits, semiconductor devices, liquid crystal displays and other products maximally meeting the requirements and demands of consumers.

At present, the Quality Management System of "INTEGRAL" JSC, covers design, manufacture and supply of integrated circuits, semiconductor devices and liquid crystal displays and meets the requirements of ISO 9001 -2009 in the National System of the Republic of Belarus and DIN EN ISO 9001:2008 of the foreign certification organization DAkkS, Germany. The Quality Management System of single-crystal silicon wafer complies with the requirements of ISO 9001:2009 Standard of the Republic of Belarus.

CERTIFICATE

The Certification Body of Quality Management Systems of BelGISS confirms that the quality management system of the
Joint-Stock Company
"INTEGRAL" - holding managing company"INTEGRAL"
12/1A, Kazintsa I.P. str., Minsk,
220108, Republic of Belarus12,
including
«TRANSISTOR» branch
16, Korzhenevskogo str., Minsk,
220108, Republic of Belarus,
and «Semiconductor Devises Factory» branch,
research and design center
«Belmicrosystems» branch
12, Korzhenevskogo str., Minsk,
220108, Republic of Belarus
and «Kamerton» Branch
137, Brestskaya Str., Pinsk, Brest region,
225710, Republic of Belarus
covers
covers design, manufacture and supply integrated circuits, semiconductor devices, liquid crystal displays and single-crystal silicon wafers
and meets the requirements of
DIN EN ISO 9001:2008
Registration number: QMS-00101
Certificate Registration Date: 14.10.2011
Confirmatione date: 14.10.2014
Valid untill: 13.10.2017

CONFORMITY CERTIFICATE

Entered into the Register under No. BY/112 05.01. 002 02566

Registration date 14 October 2011
Confirmatione date 14 October 2014
Expiration date 14 October 2017

This Certificate has been issued to the
JSC "INTEGRAL" - "Integral"
Holding Management Company
12/1A, Kazintsa I.P. Str., Minsk,
220108, Republic of Belarus
including
«TRANSISTOR» branch
16, Korzhenevskogo Str., Minsk,
220108, Republic of Belarus,
and «Semiconductor Devises Factory» Branch and «Belmicrosystems» Research and Design Center Branch
12, Korzhenevskogo Str., Minsk,
220108, Republic of Belarus
and «Kamerton» Branch
137, Brestskaya Str., Pinsk, Brest region,
225710, Republic of Belarus
and attests that the quality management system applied to the
covers design, manufacture and supply integrated circuits, semiconductor devices, liquid crystal displays and single-crystal silicon wafers
conforms to the requirements of STB ISO 9001-2009

INTEGRATED CIRCUITS

• Display Driver IC

Part	Pin to Pin Compatibility	Supply Voltage, Ucc,V	LCD Voltage, V	Duty	RAM	Column Lines	Com-mon Lines	Fre-quency, kHz	Pins (Pads)	Notes
LCD Controllers and Drivers										
IZ6570AA	NJU6570AA SED1520DAA	2.4…5.5	2.4…13	1/16 1/ 32	80x32	61	16	2	(100)	Chip
IZ6570OA	NJU6570OA SED1520DOA	2.4…5.5	2.4…13	1/16 1/32	80x32	61	16	18	(100)	Chip
IZ6450	NJU6450A	2.4…5.5	3.5…10	1/16 1/32	80x32	61	16	18	(100)	Chip
IZ6451	NJU6451A	2.4…5.5	3.5…10	1/16 1/32	80x32	72	8	18	(100)	Chip
IZ7065	KS0065	2.7…5.5	3…13	1/8 1/16		40		max400	(59)	Chip
IZ7066	KS0066	4.5…5.5	3…13	1/8 1/11 1/16	80x8	40	16	350	(80)	Chip
IZ602	FL602 HT1621	2.4…5.5	2.4…Ucc	1/2 1/3 1/4	32x4	32	4	256	(48)	Chip

• LED Driver Circuits

Part	Pin to Pin Compatibility	Function	Package
IL9910N IL9910D IL9910DH IZ9910	HV9910	Universal High Brightness LED Driver, 1A	DIP-8 SO-8 SO-16 Chip
IZ9921	HV9921	20mA/50mA/30mA Switch-Mode LED Driver IC	Chip
IZ9922	HV9922		
IZ9922A	-		
IZ9923	HV9923		
IZ7150 IZ7150A	AMC7150	Power LED Driver, 1,5 A	Chip
		Power LED Driver, 0,8 A	
IL3361AD	HV9961	High-stable LED-driver IC; 8 V÷450 V supply voltage	SO-8
IL3361BD			SO-16
IZ3361			-
IL3367D	HV9967	High-voltage LED-driver IC with built-in MOSFET key, 8 V÷60 V input voltage	SO-8
IZ3367			-
IZ33120		120mA LED Driver IC with built-in MOSFET, 8 V÷450 V input voltage	Chip
IZ3302		Universal High Brightness LED Driver, 1A	Chip
IZR402U	BCR402	Constant current LED-driver; 42 V supply voltage; 18.6 V output voltage; LED-driver current: 22 mA up to 65 mA with external resistor	
IZR402R		Constant current LED-driver; 60 V supply voltage; 38.6 V output voltage; LED-driver current: 22 mA up to 65 mA with external resistor	

• Interface Integrated Circuits (Reference Date)

Parameter	IL75232N IL75232DW	ILX202N ILX202D	ILX207N ILX207DW	ILX208N ILX208D	ILX232N ILX232D	ILX485N ILX485D	ILX3221N	ILX3226N	ILX3232N ILX3232D	ILX3483N	ILX3485N	ILX3486N
ESD Voltage (kV)	0.5	2	2	2	2	4	4	4	4	4	4	4
Power Supply Voltage (V)	±9…±15 for TX 5 for RX	4.5…5.5	4.75…5.25	4.5…5.5	4.5…5.5	4.75…5.25	3…5.5	3…5.5	3…5.5	3…3.6	3…3.6	3…3.6
No, of TX/RX	3/5	2/2	5/3	4/4	2/2	1/1	1/1	1/1	2/2	1/1	1/1	1/1
No, of TX/RX on Bus						32						
Supply Current (mA)	30	10	20	20	10	0.9	0.001	0.001	1	0.001	0.001	0.001
Standard RS-232	•	•	•	•	•		•	•	•			
Standard RS-485/RS-422						•				•	•	•
AutoShutdown Plus, AutoShutdown							•	•				
Date Rate (bps)		64K	120K	120K	120K	2.5M	250K	250K	120K	250K	12M	2.5M
External Caps (µF)		4x0.1	4x0.1	4x0.1	4x1.0		4x0.1	4x0.1	4x0.1	-	-	-
Operating Temperature Range (°C)	0 ÷ +75	-40 ÷ +85										

• Real Time Clock

Part	Pin to Pin Compatibility	Function	Package
Digital timers			
IN1307N IN1307D	DS1307N/ZN	64 x 8 Serial Real Time Clock	DIP-8 SO-8
IN1356D	M41T56	512 bit (64 bit x 8) Serial Access Timekeeper SRAM	SO-8
IN1363D	PCF8563	Real Time Clock / Calendar	SO-8
IZ1325*	RX8025	Real Time Clock / Calendar with I^2C Bus	Chip

** Pilot Production*

• Real Time Clock (Reference Date)

Parameter		Symbol	IN1307N/D	IN1356D	IN1363D	IZ1325
Supply Voltage, Ucc		V	4.5….5.5	4.5….5.5	1.8….5.5	1.7….5.5
Battery Supply Voltage, VBAT		V	2.0….3.5	2.5….3.5		
Standby Current, Iccs (max)		µA	200	100 (typ)	0.55	0.48
Active Supply Current, IccA, (max)		µA	1500	300	800	
Battery Current, IBAT1 (max)		nA	500	550		
Clock Frequency, fscl (max)		kHz	100	100	400	400
Programmable Signal		Hz	1; 4096; 8192; 32768	512	1; 32; 1024; 32768	32768 [1]
Operating Temperature, TA		°C	- 40 ÷ + 85			- 40 ÷ + 85
Functions	clock	seconds	●	●	●	●
		minutes	●	●	●	●
		hours	●	●	●	●
		alarm			●	●●
	calendar	weekday	●	●	●	●
		date of the month	●	●	●	●
		month	●	●	●	●
		years	●	●	●	●
		century		●		
	programmable alarm, timer and interrupt function				●	●
	software clock calibration			●		●
	automatic power-fail detect and switch circuitry		●	●		
	interface		I²C	I²C	I²C	I^2C

1 - Programmable interrupt signal (2 Hz, 1 Hz, 1/60 Hz, 1 per hour, 1 per month)

• IC for Audio Systems

Part	Pin to Pin Compatibility	Function	Features	Package
IL34119N IL34119D	MC34119	0.25 W Low Power Mono Audio Amplifier	□ Vcc=2…16 V □ Low Quiescent Supply Current for Battery Powered Applications □ Chip Disable Input to Power Down the IC □ Drives a Wide Range of Speaker Loads (8-100 Ω) □ Output Power Exceed 250 mW with 32 Ω Speaker □ Gain Adjustable from 0 dB to 46 dB for Voice Band □ Requires Few External Components	DIP-8 SO-8
IL386N IL386D	LM386	1 W Low Power Mono Audio Amplifier	□ Vcc=4…12 V □ Battery Operation □ Low Quiescent Current Drain: 4 mA □ Voltage Gains from 20 to 200 dB □ Ground Referenced Input □ Self-Centering Output Quiescent Voltage □ Low Distortion	DIP-8 SO-8
ILA7056B	TDA7056B	5 W Mono BTL Audio Amplifier with DC Volume Control	□ Vcc=4.5…18 V □ DC volume control □ Few external components □ Mute mode □ Thermal protection □ Short-circuit proof □ No switch-on and of clicks □ Low HF radiation □ Low power consumption	SIL-9MPF
ILA7496Q	TDA7496Q	2 x 5 W Stereo Power Amplifier with linear volume adjustment	□ Vcc=11…35 V □ DC volume control □ Few external components	SIL-15P
ILA1308D	TDA1308T	2 x 0.030 W Class AB Stereo Audio Amplifier	□ Vcc=3.0…7.0 V □ Wide temperature range □ Excellent power supply ripple rejection □ Low power consumption □ Short-circuit resistant □ High performance – high signal-to-noise ratio – high slew rate – low distortion □ Large output voltage swing	SO-8
ILA8933**	TDA8933T	2x10 W Stereo 20 W Mono Class D Audio Amplifier	□ Vcc=10.0...36.0V (assymm.) □ Vcc=±5.0... ±18.0V (symm.) □ Thermal protection □ Short Circuit resistant □ High performance -high signal-to-noice ratio -high slew rate -low distortion	SO-32

*** Under Development*

• IC for Audio Systems (Reference Data)

IC's Class	Part	Pin to Pin Compatibility	Supply Voltage, V	Maximum Power, W	Gain, dB	Load resistance, Ω	Package
Low Power	IL34119N, D Mono	MC34119	2.0...16.0	0.25	80	8; 16; 32	DIP-8, SO-8
	IL386N, D Mono	LM386	4.0...12.0	1.0	26…42	8.0 (4.0; 16)	DIP-8, SO-8
	ILA1308T Class AB, Stereo	TDA1308T	3.0...7.0	2 x 0.030	70	8;16; 32; 5K	SO-8
Middle Power	ILA7056B Mono with DC Control	TDA7056B	4.5...18.0	5.0	39.5…41.5	16.0	SIL-9MPF
	ILA7496Q Stereo with Linear Volume Adjustment	TDA7496Q	10.0…32.0	2x5	28.5…31.5	8.0	SIL-15P
Large Power	ILA8933** Class D, Mono/Stereo	TDA8933T	10.0…36.0 (assym.) ±5.0... ±18.0 (symm.)	20 (mono) 2x10 (stereo)	29.0…31.0	8.0 (16.0)	SO-32

*** Under Development*

• Switches and DTMF Receivers

Part	Pin to Pin Compatibility	Function	Features	Package
IL9170N IL9170DW	HM9170	DTMF Receiver	□ Vcc=2.5…5.5 V □ Icc max=9.0 mA □ Power consumption 15 mW □ Quartz generator 3.58 MHz □ Decoding of 16 DTMF tones-pairs □ 4-bit parallel output □ PWDN	DIP-18 SO-18
IL567N IL567D	LM567	Tone Decoder	□ 20 to 1 frequency range with an external resistor □ Logic compatible output with 100 mA current sinking capability □ Bandwidth adjustable from 0 to 14% □ High rejection of out of band signals and noise □ Immunity to false signals □ Highly stable center frequency □ Center frequency adjustable from 0.01 Hz to 500 kHz	DIP-8 SO-8
IL9200N IL9200D	HM9200	DTMF generators	□ Vcc=2.5…5.5 V □ Low standby current □ Low total distortion 3.58 MHz crystal or ceramic resonator	DIP-8 SO-8

• Pulse and Tone/Pulse Dialers

Part	Pin to Pin Compatibility	Function	Features	Package
IL91531N	UM91531	Parallel Input Tone/Pulse Dialer	□ Vcc=2.5…5.5 V □ Quartz generator 3.58 MHz □ Output signal: pulse 10 Hz or DTMF □ 4-bit parallel data input from microcomputer □ Selectable Make/Break ratio □ Inter digital pause 800 ms	DIP-16
IL91214AN IL91214AD	UMS91214A	Tone/Pulse Dialer with Handfree Control and Flash Function	□ Vcc=2.0…5.5 V □ Quartz generator 3.58 MHz □ 32-digit redial memory □ Tone/Pulse switchable □ Output signal: pulse 10 Hz(20Hz) or DTMF □ Flash Function □ 4x4 keyboard □ 09 - mode output pin (IL91214BN/BDW) □ 10 – key in tone output (IL91214BN/BDW)	DIP-16 SO-16

• Single Chip Telephone IC

Part	Pin to Pin Compatibility	Function	Features	Package
IL2533N IL2533DW	AS2533	Multi-Standart CMOS Single Chip Telephone IC with Dual Soft Clipping	□ Line/speech circuit, LD/MF repertory dialler and tone ringer on one 28 pin CMOS chip □ Operating range from 13 to 100 mA (down to 5mA with reduced performance) □ Soft clipping to avoid harsh distortion □ Volume control of receive signal □ Line loss compensation selectable by pin option □ Low noise (max. - 72 dBmp) □ Real or complex impedance □ NET 4 compatible. □ LD/MF switchable dialling □ Pacifier tone during programming □ 31 digit last number redial □ Sliding cursor protocol with comparison □ Pause key for access pause or wait function □ 3 flash keys, 100 ms, 280 ms and 375/600 ms □ On chip MF filter (CEPT CS 203 compatible) □ Ring frequency discrimination □ 3-tone melody generator □ Oscillator Frequency (Resonator: Murata CSA 3.58MG312AM)-3.58 MHz □ 4x4…4x8 Keyboard	DIP-28 SO-28

• Speaker Integrated Circuits

Part	Pin to Pin Compatibility	Function	Features	Package
IL34118N IL34118DW	MC34118	Voice Switched Speakerphone Circuit	□ Ucc=3.0…6.5 V □ Icc=5.0 mA □ Improved Attenuator Gain Range: 52 dB Between Transmit and Receive □ Low Voltage Operation for Line-Powered Applications (3.0-6.5 V) □ 4-Point Signal Sensing for Improved Sensitivity □ Background Noise Monitors for Both Transmit and Receive Paths □ Microphone Amplifier Gain Set by External Resistors – Mute Function Included □ Chip Disable for Active/Standby Operation □ On Board Filter Pinned-Out for User Defined Function □ Dial Tone Detector to Inhibit Receive Idle Mode During Dial Tone Presence □ Standard 28-Pin Plastic Dip Package and SOIC Package Available □ Compatible with IL34119 Speaker Amplifier	DIP-28 SO-28
IL34119N IL34119D	MC34119	Telephone Audio Amplifier	□ Vcc=2.0…16.0 V □ Icc=2.7 mA □ Drives a wide range of speaker loads (8…100 Ω) □ Output power exceeds 250 mW with 32 Ω Speaker □ Low total harmonic distortion □ Gain adjustable 0…46 dB for voice band □ Requires few external components	DIP-8 SO-8

• Speaker Integrated Circuits (continued)

Part	Pin to Pin Compatibility	Function	Features	Package
IL3726/18N IL3726/18DW	PBL3726/18	Speaker Integrated Circuit	□ V_{LN}=3.3…4.1 V (I_L=15 mA) □ V_{LN}=11.0… 15.0 V (I_L=100mA) □ 7 Capacitors & Resistors □ Low Voltage Operating □ DTMF signal input with confidence tone □ Mute input for DTMF dialing □ Line loss compensation (line current dependent) for microphone and earpiece amplifiers □ Gain control curve adaptable to exchange supply □ DC line voltage adjustment facility	DIP-18 SO-20
ILA1062AN ILA1062AD ILA1062N ILA1062D	TEA1062A TEA1062	Low Voltage Transmission Circuit with Dialer Interface	□ Low DC line voltage; operates down to 1.6 V □ Line operation current range 10…140 mA □ Icc ≤1.35 mA □ Voltage gain range: microphone amplifier 11…52 dB telephone amplifier 20…31 dB □ Voltage regulator with adjustable static resistance □ Provides supply for external circuits □ Symmetrical high-impedance inputs □ (64 kΩ) for dynamic, magnetic or piezoelectric microphones □ Asymmetrical high-impedance inputs (32 kΩ) for electret microphones □ DTMF signal input with confidence tone □ Mute input for pulse or DTMF dialing □ Receiving amplifier for dynamic, magnetic or piezoelectric earpieces □ Large gain setting range on microphone and earpiece amplifiers	DIP-16 SO-16 DIP-16 SO-16

• Tone Telephone Ringers

Part	Pin to Pin Compatibility	Function	Features	Package
IL2418N IL2418D	KA2418	Two-Tone Telephone Ringer with Diode Bridge	□ Vcc=26 V □ Icc max=1.8 mA □ Activation voltage 12.2…13 V □ Sustaining voltage 8.0…8.8 V □ Internal Zener diodes to protect against over voltages □ High noise immunity due to built-in voltage-current hysteresis □ Ringer impedance adjustable with external components □ Output F_1=2100…2550 Hz F_2=1500…1850 Hz	DIP-8 SO-8

• IC for Smart Cards

Part	Pin to Pin Compatibility	Function	Features	Pads
IZE4406C	SLE4406C	IC for Prepaid Cards	□ Vcc=4.5...5.5 V □ 104x1 bit organization □ 3 memory areas with special characteristics (ROM, PROM, EEPROM) □ Maximum of 20480 count units □ Special security features □ Minimum of 100000 write/erase cycles □ Data retention for minimum of 10 years □ Contact configuration and serial interface in accordance to ISO standard 7816-3	5
IZE4428	SLE4428	Intelligent 1024 byte EEPROM with write protect function & security logic	□ EEPROM 1024 byte □ Security code (working as transport code during delivery) □ Byte protection □ Write/ Erase time (min)2.5 ms □ Supply Voltage, 5V □ Ambient temperature, 0 … + 70°C □ Retention time, 5years □ Health insurance card □ Access control □ Electronic tickets	5
IZE4442	SLE4442	Intelligent 256 byte EEPROM with write protect function & security logic	□ EEPROM 256 byte □ Security code (working as transport code during delivery) □ Byte protection □ Write/ Erase time (min) 2.5 ms □ Supply Voltage, 5V □ Ambient temperature, 0 … + 70°C □ Retention time, 5 years □ Health insurance card □ Access control □ Electronic tickets	5
IZ2814	MC2814	IC for Prepaid Cards	□ Internally Organized Memory 256 x 8 □ Two-wire Serial Interface □ Bidirectional Data Transfer Protocol □ Byte Write Modes □ 8-byte Page Write Modes □ Write Protection Memory □ Self-timed Write/Erase Cycle (20 ms max) □ Endurance: 100000 Cycles □ Data Retention: 10 years □ On-chip Charge Pump for Programming □ Answer to Reset □ Operation Range from -40°C to +70°C	5
IZ2814A		IC for Prepaid Cards	□ Internally Organized Memory 64 x 8 □ Two-wire Serial Interface □ Bidirectional Data Transfer Protocol □ Byte Write Modes □ 2-byte Page Write Modes □ Write Protection Memory □ Self-timed Write/Erase Cycle (20 ms max) □ Endurance: 100000 Cycles □ Data Retention: 10 years □ On-chip Charge Pump for Programming □ Answer to Reset □ Operation Range from -40°C to +70°C	5

• IC for Smart Cards (continued)

Part	Pin to Pin Compatibility	Function	Features	Pads
IZ2815A-03	SLE4436E	IC for Prepaid Cards	□ Vcc=4.5...5.5 V □ Icc=5 mA □ 221-bit EEPROM and 16 bit mask-programmable ROM □ 104 bit user memory fully compatible with IZ4406: - 64 bit identification area - 40 bit counter area including 1 bit for personalization □ 133 bit additional memory for advanced features - 4 bit counter backup (anti-tearing flags) - 1 bit initiation flag for authentication key 2 - 16 bit data area 1 for free user access - 48 bit authentication key 1 - either 64 bit data area 1 for user defined data or 48 bit authentication key 2 □ EEPROM programming time 5 ms □ Endurance minimum of 100000 write/erase cycles per bit □ Data retention for minimum of 10 years □ Contact configuration and serial interface in accordance to ISO standard 7816-3	5

• IC for identification systems

Part	Pin to pin compatibility	Function	Features	Pads
IZ2806	H4102, H4100	Amplitude-modulated transponder IC	□ For non-contact plastic card □ Operating frequency range: 100 ... 150 kHz □ ROM information capacity: 64 bit □ External inductor AC voltage value: 3min and 15 max □ Data retention with the power off: 5 years min	5
IZ2803	ATA5567	Read / write transponder IC	□ For non-contact plastic card □ Operating frequency range: 100 ... 150 kHz □ ROM information capacity: 64 bit □ External inductor AC voltage value: 3min and 15 max □ Data retention with the power off: 5 years min	4
IZ2805	RI-TRP-W9QL	Read / write transponder IC	□ Operating frequency: 134,2 kHz □ ROM capacity: 80 bit □ Frequency modulation □ Complies with ISO 11784/785	4
IZ2822	MF0 IC U11	Read / write transponder mifare IC at 13.56 MHz	□ For non-contact plastic card □ ISO14443A Standard □ Carrier operating frequency: 13.56 MHz □ Cres=50 pF □ EEPROM capacity: 512 bit, organized in 16 pages with 4 bit each □ Exchange rate: 106 kb / s □ Guaranteed data retention: 10 years	5

• IC for identification systems (continued)

Part	Pin to pin compatibility	Function	Features	Pads
IZ2824	MF1ICS20 MF1CS50	Read / write transponder mifare IC at 13.56 MHz	▫ For non-contact plastic card ▫ ISO14443A ▫ Carrier operating frequency: 13.56 MHz ▫ Amplitude modulation ▫ Cres=100 pF ▫ EEPROM capacity: 1 Kb, organized in 16 sectors with 4 blocks each ▫ Block size: 128 bit ▫ Protection of access to each sector with individual keys ▫ Exchange rate: 106 kb / s ▫ Guaranteed data retention with the power off: 10 years	5
IZ1990	DS1990A	1-Wire interface electronic key IC	▫ Power supply: 2.8 – 6.0 V ▫ Unique 64 bite code	2
IZ1991	DS1991	1-Wire interface and increased security level electronic key IC	▫ Power supply: 2.8 – 6.0 V ▫ Unique 64 bite code ▫ 3 memory blocks, 384 bit each ▫ Scratch-pad memory: 512 bit	2
IZ2009-01 IZ2009-02	DS1990	1-Wire interface and increased security level electronic key IC	▫ Power supply: 2.8 – 6.0 V ▫ Unique 64 bite code	2
IZ1961	DS1961	Secret controller IC for private key access systems	▫ 64 bit EEPROM ▫ 512 bit SHA block ▫ 64 bit scratch-pad ▫ Security code memory: 64 bit ▫ Data EEPROM: 1024 bit ▫ Register page: 64 bit ▫ CRC16 generator	2

** Implementation*
***Under development*

• IC for Control and Power Electronics

Part	Pin to Pin Compatibility	Function	Package
IL33035N IL33035DW	MC33035	Brushless DC Motor Controller	DIP-24 SO-24
IL33153PN	MC33153P	Single IGBT Gate Driver	DIP-8
IL33262N IL33262D	MC33262	Power Factor Controller (T_A= -40...+105°C)	DIP-8 SO-8
IL34262N IL34262D	MC34262	Power Factor Controller	DIP-8 SO-8
IL6562D	L6562		SO-8
IL6562N	L6562	Power Factor Controller	DIP-8
IL7101N/AN/BN IL7101D/AD/BD	GL7101	Earth Leakage Current Detector (U_T= 4..9 mV for AN) (U_T= 9..18 mV for N/D)	DIP-8 DIP-8 SO-8
IL4145AN	RV4145A	Low Power Ground Fault Interrupter	DIP-8
ILN2003AN	ULN2003A	High-Voltage High-Current Darlington Transistor Arrays	DIP-16
ILN2004AN ILN2004AD	ULN2004A	High-Voltage High-Current Darlington Transistor Arrays	DIP-16 SO-16
ILN62083N ILN62083D	TD62083AFN	8CH Darlington Sink Driver	DIP-18 SO-18
ILN62084N ILN62084D	TD62084AFN		DIP-18 SO-18
ILN62783N ILN62783D	TD62783AFN		DIP-18 SO-18
ILN62784N ILN62784D	TD62784AFN		DIP-18 SO-18

Part	Topr (°C)	I_{OUT} (max) (mA)	V_{CE} (max) (V)	I_{IN} (max) (mA)	V_{IN} (max) (V)	V_F /V_R (max) (V/V)	Designation	Package
7CH High-Voltage Drivers								
ILN2003AN	- 20 ÷ +85	500	50	1.35	30	2/50	TTL, 5V CMOS	DIP-16
ILN2004AN ILN2004AD	- 20 ÷ +85	500	50	1.35	30	2/50	6 ~ 15V PMOS, CMOS	DIP-16 SO-16
8CH High-Voltage Drivers								
ILN62083N ILN62083D	- 40 ÷ +85	500	50	1.35	30	2/50	TTL, 5V CMOS	DIP-18 SO-18
ILN62084N ILN62084D	- 40 ÷ +85	500	50	0.50	30	2/50	6 ~ 15V PMOS, CMOS	DIP-18 SO-18
ILN62783N ILN62783D	- 40 ÷ +85	-500	50	0.26	30	2/50	TTL, 5V CMOS	DIP-18 SO-18
ILN62784N ILN62784D	- 40 ÷ +85	-500	50	0.13	30	2/50	6 ~ 15V PMOS, CMOS	DIP-18 SO-18

• Automotive

Part	Pin to Pin Compatibility	Function	Package
IL33193N IL33193D	MC33193	Automotive Direction Indicator R_S=20 m**Ω**, F_n=2.2, Duty Cycle (Normal Operation) 45÷55%, Duty Cycle (One 21 W Lamp Defect) 35÷45%, Defect Lamp Detector Threshold 42.5÷56 mV, R_{SS}=220 Ω	DIP-8 SO-8
IL33193N-03 IL33193D-03	UEA1041B	Automotive Direction Indicator R_S=30 m**Ω,** F_n=2.5, Duty Cycle (Normal Operation) 45÷55%, Duty Cycle (One 21 W Lamp Defect) 35÷45%, Defect Lamp Detector Threshold 75÷95 mV, R_{SS}=220 Ω, Short Circuit Detector Threshold	DIP-8 SO-8
IL33197AN IL33197AD	MC33197A	Automotive Wash Wiper Timer Output Clamp Voltage (I_{out}=20 mA) 19.5÷22 V, Internally incorporated Zener diode 20 V	DIP-8 SO-8
IL6083N IL6083N-01	U6083B	Power Control With Interference Suppression (for N-01: Duty cycle 10… 100%, V_{S1}=24.5…28.0 V, V_{S2}=18.5…22.0 V, V_{Batt1}=16.7…21.0 V (switched on), V_{Batt1}=18.3…22.5 V (switched off), V_{TS}=10.1…10.7 V, I_S=5…17 mA)	DIP-8
IN9014N		For light control relay IC	DIP-8
IL8190N IL8190DW	CS8190ENF16 CS8190EDWF20	Precision Air-Core Tach/Speedo Driver with Return to Zero	DIP-16 SO-20
IL33290AD	MC33290	ISO K Line Serial Link Interface	SO-8
ILA82C251D	PCA82C251T	CAN transceiver for 24 V systems	SO-8
IN2515/AN/ADW/BN/BDW	MCP2515	CAN Controller	SO-18
IL33091AN IL33091AD	MC33091A	High-Side MOS Driver	DIP-8 SO-8
ILE4250GS	TLE4250G	Low-Drop Voltage Tracker (2÷36 V); 50 mA: Reverse Polarity Protection	P-TO-263-5-1 TO-220AB/5
ILE4260 ILE4260-2	TLE4260	Low-Drop Voltage Regulator 5 V; 500 mA; Reverse Polarity Protection	P-TO-220-5-12
ILE4264G IZE4264-2	TLE4264G TLE4264-2G	Low-Drop Voltage Regulator 5 V; 100 mA; Reverse Polarity Protection	P-SOT223-4-1 Chip
ILE4266G IZE4266-2	TLE4266G TLE4266-2G	Low-Drop Voltage Regulator 5 V; 100 mA; Reverse Polarity Protection	P-SOT223-4-2 Chip
ILE4267G ILE4267S	TLE4267G TLE4267S	Low-Drop Voltage Regulator 5 V; 400 mA; Reverse Polarity Protection	P-TO-220-7-180 P-TO-220-7-230
ILE4268GDW	TLE4268G	Low-Drop Voltage Regulator 5 V; 150 mA; Reverse Polarity Protection	P-DSO-20-6
ILE4270G ILE4270S ILE4270Q IL4270	TLE4270G TLE4270S	Low-Drop Voltage Regulator 5 V; 550 mA; Reverse Polarity Protection IL4270 - without “RESET”	P-TO-263-5-1 P-TO-220-5-12 P-TO-220-5-11 TO-220AB/3
ILE4271G ILE4271S	TLE4271G TLE4271S	Low-Drop Voltage Regulator 5 V; 550 mA; Reverse Polarity Protection	P-TO-220-7-180 P-TO-220-7-230
ILE4274V50/V85/V10	TLE4274	Low-Drop Voltage Regulator 5 V/8.5 V/10 V; 400 mA: Reverse Polarity Protection	TO-220AB/3
ILE4275G/S	TLE4275G	Low-Drop Voltage regulator 5 V; 400 mA: Reverse Polarity Protection	P-TO-263-5-1 TO-220AB/5
ILE4276VG/VS/V50G/V50S/V85G/V85S/V10S	TLE4276	Low-Drop Voltage Regulator 5 V/8.5 V/10 V; 400 mA: Reverse Polarity Protection	P-TO-263-5-1 TO-220AB/5
IZE4278	TLE4278	Low-Drop Voltage Regulator 5 V; 150 mA: Reverse Polarity Protection	Chip
IZ4206	TLE4206G	1 A DC Motor Driver for Serve Driver Applications	Chip
IZE4263**	TLE4263	LDO Regulator 5 V; 150 mA	Chip
IZE4279**	TLE4279	LDO Regulator 5 V; 150 mA	Chip

• Timers

Part	Pin to Pin Compatibility	Function	Package
Digital timers			
IN555N IN555D	NE555	Timer	DIP-8 SO-8
ILC555N ILC555D	GLC555	Timer	DIP-8 SO-8
IN556N IN556D	NE556	Dual Timer	DIP-14 SO-14
ILC556N	GLC556	Dual Timer	DIP-14
IN558N	NE558	Quad Timer	DIP-16
ILC558N	GLC558	Quad Timer	DIP-16

• Comparators

Part	Pin to Pin Compatibility	Function	Package
IL311AN IL311AD IL311ANM	LM311, LM211	Highly Flexible Voltage Comparators (T_A= -45...+85°C)	DIP-8 SO-8 DIP-14
IL339N IL339D	LM339	Quad Comparator	DIP-14 SO-14
IL293N IL293D	LM293	Dual Comparator (T_A= -40...+85°C)	DIP-8 SO-8
IL393N IL393D	LM393	Dual Comparator	DIP-8 SO-8

• Comparators (Reference Data)

Part	Topr (°C)	I_{IB} (nA) Max	Vio (mV) Max	Iio (nA) Max	Av (V/mV) Min	Response Time (ns) Typ	Supply Voltage (V)	Package
Single Comparators								
IL311ANM	-45 ÷ +85	250	3.0	50	150	300	+15, -15	DIP-14
IL311AN								DIP-8
IL311AD								SO-8
Dual Comparators								
IL293N	-40 ÷ +85	250	5.0	50	50	300	±2.5 ÷ ±15 or 5.0 ÷ 30	DIP-8
IL293D								SO-8
IL393N	0 ÷ +70							DIP-8
IL393D								SO-8
Quad Comparators								
IL339N	0 ÷ +70	250	5.0	50	200	300	±2.5 ÷ ±15 or 5.0 ÷ 30	DIP-14
IL339D								SO-14

• **Timers** (Reference Date)

CMOS TIMERS (ILC555N/D, ILC556N, ILC558N)								BIPOLAR TIMERS (IN55N/D, IN556N/D, IN558N)							
Parameter	Test Condition		Vcc	Value Min	Value Type	Value Max	Unit	Test Condition		Vcc	Value Min	Value Type	Value Max	Unit
Supply Voltage, Vcc	- 20°C ≤ T_A ≤ + 70°C			2		18	V	- 10°C ≤ T_A ≤ + 70°C			4.5		16	V
Supply Current, I_{CC}		ILC555	2 18	— —	60 120	200 300	µA		IN555	5 15	— —	3000 10000	6000 15000	µA
		ILC556	2 18	— —	120 240	400 600			IN556	5 15	— —	6000 16000	12000 30000	
		ILC558	2 18	— —	240 480	800 1200			IN558	15	—	16000	36000	
Timing Error Initial Accuracy, t_A	R=1– 100 kΩ, C = 0.1 µF				2.0	5.0	%	R=1– 100kΩ, C = 0.1µF				2.25		%
Drift With Temperature, ΔtA/ΔT			5 10 15		50	200 300 600	ppm /°C					150		ppm /°C
Drift With Supply Voltage, ΔtA/ΔVs			5		1.0	3.0	% / V					0.3		% / V
Threshold Voltage, V_{TH}			5	0.65xVcc	0.67xVcc	0.7xVcc	V			5 15		3.33 10		V
Trigger Voltage, V_{TRIG}			5	0.31xVcc	0.33xVcc	0.36xVcc	V			5 15	1.1 4.5	1.67 5.0	2.2 5.6	V
Trigger Current, I_{TRIG}			18 5 2	50 10 1.0			pA	V_{TRIG} = 0V				0.5	2.0	µA
Threshold Current, I_{TH}			18 5 2	50 10 1.0			pA					0.1	0.25	µA
Reset Current, I_{RST}	V_{RESET} = G_{round}		18 5 2	100 20 2.0			pA	V_{RESET} = 0V				0.1	0.4	mA
Reset Voltage, V_{RST}			18 2	0.4 0.4	0.7 0.7	1.0 1.0	V				0.4	0.7	1.0	V
Control Voltage Lead, V_{CV}				0.65xVcc	0.67xVcc	0.69xVcc	V			15 5	9.0 2.6	10 3.33	11 4.0	V
Output Voltage Low, V_{OL}	I_O = 20 mA I_O = 3.2 mA		15 5		0.4 0.2	1.0 0.4	V	I_O = 10mA I_O = 50mA I_O = 8mA I_O = 5mA		15 15 5 5		0.1 0.4 0.3 0.25	0.25 0.75 0.4 0.35	V
Output Voltage High, V_{OH}	I_O = 0.8 mA I_O = 0.8 mA		15 5	14.3 4.0	14.6 4.3		V	I_O = 100mA I_O = 200mA I_O = 100mA		15 15 5	12.75 2.75	13.3 12.5 3.3		V
Rise (Fall) Time of Output, t_{TLH}, t_{THL}	R_L = 10 MΩ, C_L = 10 pF		5	35	40	75	ns					100		ns
Guaranteed Max Osc Freq, fmax	Astable Operation			500			kHz				500			kHz
Operating Temperature, Topr				- 20 to + 70			°C				- 10 to + 70			°C
Note:	T_A = 25°C, Vcc = + 2 – + 15V unless other specified							T_A = 25°C, Vcc = + 5 – + 15V unless other specified						

• Operational Amplifiers

Part	Pin to Pin Compatibility	Function	Package
IL258N IL258D	LM258	Dual Operational Amplifier (T_A= -40 ÷ +85°C)	DIP-8 SO-8
IL358N IL358D	LM358	Dual Operational Amplifier	DIP-8 SO-8
IL224N IL224D	LM224	Quad Operational Amplifier (T_A= -40 ÷ +85°C)	DIP-14 SO-14
IL324N IL324D	LM324	Quad Operational Amplifier	DIP-14 SO-14
IL1776CN, CAN IL1776CD, CAD	MC1776C	Micropower Programmable Operational Amplifier (CAN, CAD T_A=-40÷+85°C)	DIP-8 SO-8
IL4558N IL4558D	GL4558	Dual Operational Amplifier	DIP-8 SO-8
IZ4560	NJM4560	Dual Operational Amplifier (T_A= -25 ÷ +75°C)	Chip
IZ4580	NJM4580	Dual Operational Amplifier (T_A= -40 ÷ +85°C)	Chip
IL9002N	OP-07	Low bias operational amplifier	DIP-8
IL9002AN	OP-07A	Low bias operational amplifier	DIP-8
IL8541D	AD8541	Micropower CMOS operational amplifier	Chip SO-8
IL8515D	AD8515	Low power operational amplifier	Chip SO-8
IL8615D	AD8615	Rail to Rail wide bandwidth operational amplifier	Chip SO-8

• Operational Amplifiers (Reference Data)

Part	Topr (°C)	I_{IB} (nA) Max	Vio (mV) Max	TCvio (µV/°C) Type	Iio (nA) Max	Avol (V/mV) Min	Supply Voltage (V)		Package
							Min	Max	
Micropower Programmable Operational Amplifier									
IL1776CN	0 ÷ +70	10	6.0		6.0	25	±3.0	±15	DIP-8
IL1776CD									SO-8
IL1776CAN	-40 ÷ +85								DIP-8
IL1776CAD									SO-8
Dual Operational Amplifier									
IL258N	-40 ÷ +85	250	7.0	7.0	50	25	±2.5 +5.0	±15 +30	DIP-8
IL258D									SO-8
IL358N	0 ÷ +70								DIP-8
IL358D									SO-8
IL4558N	0 ÷ +70	500	5.0		200	20		±16	DIP-8
IL4558D									SO-8
IZ4560	-25 ÷ +75	500	6.0		200	86 dB	±4	±15	Chip
IZ4580	-40 ÷ +85	500	3.0		200	90 dB	±2	±15	Chip
Quad Operational Amplifier									
IL224N	-40 ÷ +85	250	7.0	7.0	50	25	±2.5 +5.0	±15 +30	DIP-14
IL224D									SO-14
IL324N	0 ÷ +70								DIP-14
IL324D									SO-14
Low bias operational amplifier									
IL9002N	-60 ÷ +125	2.5	0.055	0.6	2.5	250	+3.0	±18	DIP-8
IL9002AN		4	0.105	1.3	3.5	150			

• µP Supervisory Circuits

Part	Pin to Pin Compatibility	Function	Package
IN1232N IN1232D	DS1232	Micro Monitor	DIP-8 SO-8
IN1705N IN1705D IN1705RN IN1705RD	DS1705	Micro Monitor (RN,RD – Push-Pull Reset Output)	DIP-8 SO-8 DIP-8 SO-8
IN1706N IN1706D IN1706SRN IN1706SRD	DS1706S	Micro Monitor (SRN, SRD - Push-Pull Reset Output)	DIP-8 SO-8 DIP-8 SO-8
IN1708N IN1708D	DS1708	Micro Monitor	DIP-8 SO-8
IL809/810LW IL809/810MW IL809/810TW IL809/810SW IL809/810RW	STM809/810LW STM809/810MW STM809/810TW STM809/810SW STM809/810RW	Reset Circuit	SOT-23-3

• µP Supervisory Circuits (Reference Data)

PARAMETER	IN1232N IN1232D	IN1705N IN1705D	IN1705RN IN1705RD	IN1706N IN1706D	IN1706SRN IN1706SRD	IN1708N IN1708D	IL809/810LW	IL809/810MW	IL809/810TW	IL809/810SW	IL809/810RW
Supply Voltage, V	4.5…5.5	1.2…5.5	1.2…5.5	1.2…5.5	1.2…5.5	1.2…5.5	1.2…5.5				
Nominal Reset Threshold, V	4.37	4.65	4.65	2.93	2.93	4.40	4.63	4.38	3.08	2.93	2.63
Minimum Reset Pulse Width, ms	250	100	100	130	130	130	140				
Push-Pull RESET Output	L, H	L	H	L	H	L, H	L/H				
Watchdog	●	●	●	●	●						
Nominal Watchdog Timeout Period (s), if available	0.15	1.6	1.6	1.6	1.6		-				
Separate Watchdog Output		●	●	●	●						
Power-Fail Comparator/Reset Input		●	●	●	●	●					
Manual-Reset Input	●	●	●	●	●	●					
Supply Current in Operating Mode, µA, max (typ)	2000 (500)	350 (100)	350 (100)	50	50	50	15 (7)				
Operating Temperature, °C	- 10 ÷ +70	- 40 ÷ +85					- 40 ÷ +85				
Package	DIP-8 SO-8	DIP-8 SO-8	DIP-8 SO-8	DIP-8 SO-8	DIP-8 SO-8	DIP-8 SO-8	SOT-23-3				

• Voltage Regulators

Part	Pin to Pin Compatibility	Output Voltage, V	Output Current, A	Output Voltage Tolerance, %	Tested Operating Junction Temp. Range, °C	Package
Positive Voltage Regulators						
КР1180ЕНХХА КР1180ЕНХХБ КР1180ЕНХХВ	78XXAC 78XXC 78XXB	5; 6; 8; 9; 10, 12; 15; 18; 20; 24	1.0	2 4 4	Tj= -10…+125 Tj= -10…+125 Tj= -45…+125	TO-220
К1261ЕНХХП	78FXX	5; 6; 8; 9:10;12;15;18;24	1.0	4	Tj= -10…+125	TO-126
К1332ЕНХХ	78MXX	5; 6; 8; 9; 12; 15; 18; 24	0,5	2 4	Tj= -10…+125	TO-126
КР1181ЕНХХА КР1181ЕНХХБ	78LXXAC 78LXXC	3.3; 5; 6; 8; 9; 12; 15; 18; 24	0.1	5 10	Tj= -10…+125	TO-92

• Voltage Regulators (continued)

Negative Regulators						
КР1179ЕНХХА КР1179ЕНХХБ КР1179ЕНХХВ	IL79XXAC IL79XXC IL79XXB	5; 6; 8; 9; 12; 15; 18; 20; 24	1.0	2 4 4	Tj= -10…+125 Tj= -10…+125 Tj= -45…+125	TO-220
КР1199ЕНХХА КР1199ЕНХХБ	79LXXAC 79LXXC	5; 6; 8; 9; 12; 15; 18; 24	0.1	5 10	Tj= -10…+125	TO-92
Low Dropout Voltage Regulators						
ILE4250G/S (Tracker)	TLE4250G	2 ÷ 36	0.05	0.5	Tj= -40…+150	P-TO-263-5-1 TO-220AB/5
ILE4260 ILE4260-2	TLE4260S	5	0.5	5 2	Tj= -40…+125	P-TO-220-5-12
ILE4264G	TLE4264G	5	0.10	2	Tj= -40…+125	P-SOT223-4-1
IZE4264-2	TLE4264-2G	5	0.10	3	Tj= -40…+125	Chip
ILE4266G	TLE4266G	5	0.10	2	Tj= -40…+125	P-SOT223-4-2
IZE4266-2	TLE4266-2G	5	0.10	3	Tj= -40…+125	Chip
ILE4267G ILE4267S	TLE4267G TLE4267S	5	0.4	2	Tj= -40…+125	P-TO-220-7-180 P-TO-220-7-230
ILE4268GDW	TLE4268G	5	0.15	2	Tj= -40…+125	SO-20
ILE4270G ILE4270S ILE4270Q	TLE4270G TLE4270S	5	0.55	2	Tj= -40…+125	P-TO-263-5-1 P-TO-220-5-12 P-TO-220-5-11
ILE4270 (without "RESET")		5	0.55	2	Tj= -40…+125	TO-220AB/3
ILE4271G ILE4271S	TLE4271G TLE4271S	5	0.55	2	Tj= -40…+125	P-TO-220-7-180 P-TO-220-7-230
ILE4274V50/V85/V10	TLE4274	5; 8.5; 10	0.4	4	Tj= -40…+150	TO-220AB/3
ILE4275G/S	TLE4275G	5	0.4	2	Tj= -40…+150	P-TO-263-5-1 TO-220AB/5
ILE4276VG/VS/V50G/V50S/V85G/V85S/V10G/V10S	TLE4276	5; 8.5; 10	0.4	4	Tj= -40…+150	
IZE4278	TLE4278	5	0.15	2	Tj= -40…+150	Chip
IZ1734-33	SSAIC1734-33	3.3	0.3	2	Tj= -40…+125	Chip
IZ1734-50	SSAIC1734-50	5	0.3	2		
IZ1735-33	SSAIC1735-33	3.3	0.5	2		
IZ1735-50	SSAIC1735-50	5	0.5	2		
IL5212G	CS5201 LD1117S	1.2	0.8	5	Tj= 0…+125	P-SOT-223-4-1
IL5218G		1.8	0.8	2		
IL5225G		2.5	0.8	2		
IL5228G		2.85	0.8	2		
IL5230G		3.0	0.8	2		
IL5233G		3.3	0.8	2		
IL5250G		5.0	0.8	2		
IL1117A-XX	AMS1117A-XX	1.2; 1.25; Adj; 1.5; 1.8; 2.5; 2.85; 3.3; 5	1.0	1.5	Tj= -40…+125	TO-220 TO-126
K1280EHXX	LM3480-XX	3.3; 5.0	0.1	4	Tj= -10…+125	TO-92
K1282EHXX	LT1084-XX	1.25; 1.5; 1.8; 2.5; 2.85; 3.3; 3.6; 5.0	5.0	1.5	Tj= -10…+125	TO-220
K1320EXX	LT1085	1.25; 1.5; 1.8; 2.5; 2.85; 3.3; 3.6; 5.0	3.0	1.5	Tj= -10…+125	TO-220
IL5219T	MIC5219	Adj;1.8; 2.5; 3.3; 5.0	1.0	2	Tj= -40…+125	TO-220 TO-126 Chip

• Voltage Regulators (continued)

Adjustable Voltage Regulators

Part	Pin to Pin Compatibility	Function	Package
IL317	LM317T	Adjustable Output Positive Voltage Regulator 1.5 A; (1.2…37 V) Tj=-40…+125°C	TO-220AB/3
IZ317L	LM317L	Adjustable Output Positive Voltage Regulator 0.1 A; (1.2…37 V) Tj=-40…+125°C	TO-92
IL2931CD	LM2931C	Adjustable Dropout Voltage Regulator 0.1 A; (3…24 V) Tj= -40…+125°C	SO-8
IL5200G	CS5201 LD1117S	Adjustable Dropout Voltage Regulator 0.8 A; (1.25 … 13.5 V) Tj= 0…+125°C	P-SOT-223-4-1

Switching Regulators

Part	Pin to Pin Compatibility	Function	Package
IL2576 – 3.3 IL2576 – 5 IL2576 – 12 IL2576 – 15 IL2576 – ADJ	LM2576 – 3.3 LM2576 – 5 LM2576 – 12 LM2576 – 15 LM2576 – ADJ	3.0 A, 15 V, Step-Down Switching Regulator	TO-220 AB/5
IL2596 – 3.3 IL2596 – 5 IL2596 – 12 IL2596 – ADJ	LM2596 – 3.3 LM2596 – 5 LM2596 – 12 LM2596 – ADJ	Power Converter 150 kHz 3 A Step-Down Voltage Regulator	TO-220 AB/5
IL1501 – 33 IL1501 – 50 IL1501 – 12 IL1501 - ADJ	AP1501 – 3.3V AP1501 – 5V AP1501 – 12V AP1501 – ADJ	150 kHz, 3 A PWM Buck DC/DC Converter	TO-220 AB/5
IZ9261 – 15 IZ9261 – 25 IZ9261 – 33 IZ9261 – 50	RT9261 – 15 RT9261 – 25 RT9261 – 33 RT9261 – 50	VFM Step-up DC/DC Converter	Chip
IL34063AN	MC34063A	Step-Up /Down/inverting Switching Regulator (I_{sw} ≤1.5A)	Dip-8
IL34063AD			SO-8
IL33063AN	MC33063A	Step-Up /Down/inverting Switching Regulator T_A =(-40…+85^{0}C)	Dip-8
IL33063AD			SO-8
IL34063S1	MC34063A	Step-Up/Down/inverting Switching Regulator (I_{sw} ≤0.8 A)	Chip
IZ1583**	MP1583	Step-Down Switching Regulator	Chip
IZ1591**	MP1591	Step-Down Switching Regulat	Chip
IZ1412**	MP1412	2A, 23V, 380KH$_Z$ Step-Down Converter	Chip
IZ2307**	MP2307	3A, 23V, 340KH$_Z$ Synchonoys Rectifced Step-Down Converter	Chip

***Under Development*

• Precision Low Voltage Reference

Part	Pin to Pin Compatibility	Function	Features	Package
K1242EP1	TL431	Programmable precision references. This monolithic IC voltage references operate as a low temperature coefficient zener which is programmable from U_{ref} to 16/37 with two external resistors. The characteristics of these references make them excellents replacements for zener diodes in many applications such as digital voltmeters, power supplies, and operation amplifier circultry.	□ Vref = 2.5…37 V □ I k max=100 mA □ Shunt Reference Dynamic Impedance Z ≤ 0.5 Ω □ Tolerance 0.5%; 1%; 2%	TO-92 SOT-23 SO-8
K142EP2ПИМ	TL432		□ Vref= 1.24…16V □ Ikmax = 100 mA □ Shunt Reference Dynamic Impedance Z ≤ 0.5 Ω □ Tolerance 0.5%; 1%	TO-92

• Precision Low Voltage Reference (continued)

IL17431	HA17431	Temperature-compensated variable shunt regulator. Includes a photocoupler by pass resistor (2kΩ)	□ Vref= 1.24…16V □ Ikmax = 100 mA □ Shunt Reference Dynamic Impedance Z ≤ 0.2 Ω (t_{yp}) □ Tolerance 0.5%	Chip

• Switching Regulators (Reference Data)

Part	T (°C)	I_{OUT} (A)	V_{IN} (V)		V_{OUT} (V)	F_{SW} (typ) (kHz)	I_{STBY} (typ) (µA)	Package
			Min	Max				
Step-Down (Buck)								
IL1509	- 40 ÷ +125	3	4.5	22	1.8, 2.5, 3.3, 5, Adj (1.23 to 22)	150	70	TO-220AB/5 Chip
IL2576	- 40 ÷ +125	3	6.0	40	3.3, 5, 12, 15, Adj (1.23 to 37)	52	80	TO-220AB/5
IL2596	- 40 ÷ +125	3	4.5	40	3.3, 5, 12, Adj (1.23 to 37)	150	80	TO-220AB/5
IL1501AT1	- 40 ÷ +125	5	4.5	40	3.3, 5, 12, Adj (1.23 to 37)	150	150	chip
IZ1583**	- 40 ÷ +85	3	4.75	23	Adj (1.22 to 21)	385		Chip
IZ1591**	- 40 ÷ +85	2	6.5	32	Adj (1.2 to 21)	330		Chip
IZ1412**	- 40 ÷ +85	2	4.75	23	Adj (0.92 to 16)	380	23	Chip
IZ2307**	- 40 ÷ +85	3	4.75	23	Adj (0.925 to 20)	340	0.3	Chip
Step-Up								
IZ9261	- 25 ÷ +85	0.250	1	4.5	1.5, 2.5, 3.3, 5	120	0.5	Chip
Step-Up /Down/Inverting								
IL33063AN IL33063AD	- 40 ÷ +85	1.5	3.0	40	Adj	33	2.5 mA	Dip-8 SO-8
IL34063AN IL34063AD	0 ÷ +70	1.5	3.0	40	Adj	33	2.5 mA	Dip-8 SO-8
IL34063S1**	0 ÷ +70	0.8	3.0	40	Adj	33	2.5 mA	Chip

***Under Development*

• PWM Controllers

Part	Pin to Pin Compatibility	Function	Package
IL494N	TL494IN	Pulse-Width-Modulation Control Circuit	DIP-16
IL6083N IL6083N-01	U6083B	Power Control With Interference Suppression (for IL6083N N-01: Duty cycle 10… 100%, V_{S1}=24.5…28.0 V, V_{S2}=18.5…22.0 V, V_{Batt1}=16.7…21.0 V (switched on), V_{batt1}=18.3…22.5 V (switched off), V_{TS}=10.1…10.7 V, I_S=5…17 mA)	DIP-8
IZ7500		Pulse-Width-Modulation Control Circuit	Chip

• Voltage Detectors

Part	Pin to Pin Compatibility	Function	Package
К1274СПХХП	KIA70XX	Voltage Detector Ucc max= 15 V; I_{OL}max<16 mA; Us= 2.1/2.3/2.5/2.7/2.9/3.1/3.3/3.5/3.6/3.7/ 3.9/ 4.2/ 4.5 V	TO-92

• **Voltage Regulators** *(Reference Data)*

Parameter		ILE4250G/S (Tracker)	ILE4260	ILE4260-2	ILE4264G	IZE4264-2	ILE4266G	IZE4266-2	ILE4267G/S	ILE4268GDW	ILE4270G/S/Q	IL4270	ILE4271G/S	ILE4274V50/V85/V10	ILE4275G/S	ILE4276VG/VS/V50G/V50S/V85G/V85S/V10G/V10S	IZE4278
Output current, mA		≤50	≤500		≤100	≤100	≤100	≤100	≤400	≤150	≤550		≤550	≤400	≤400	≤400	≤150
Input voltage (max), V		45	42 60 (≤400ms)		45	45	45	45	42 60 (≤400ms)	45	42 65 (≤400ms)		42 65 (≤400ms)	45	45	45	45
Output voltage, V		2÷36	5		5	5	5	5	5	5	5		5	5; 8.5; 10	5	5; 8.5; 10	5
Drop voltage, V		≤0.3	≤0.5		≤0.5	≤0.5	≤0.5	≤0.5	≤0.6	≤0.5	≤0.7		≤0.7	≤0.5	≤0.5	≤0.5	≤0.5
Output voltage tolerance, %	I_Q max	0.5	5	2	2	3	2	3	2	2	2		2	4	2	4	2
	I_Q = 50 mA					2		2									
Current consumption, mA	I_Q = max		≤65		≤15		≤15		≤60	≤20	≤75		≤75	≤30	≤22	≤25	≤12
	I_Q = 0.1 mA					≤0.07		≤0.07									
	I_Q = 1 mA	0.15				0.4		-						0.22	0.20	0.22	
	I_Q ≤ 30 mA	≤3															
	I_Q = 50 mA					≤4		≤4									
Shot-circuit proof		●	●		●	●	●	●	●	●	●	●	●	●	●	●	●
Overvoltage protection			●						●		●	●	●				
Reverse polarity protection		●	●		●	●	●	●	●	●	●	●	●	●	●	●	●
Overtemperature protection		●	●		●	●	●	●	●	●	●	●	●	●	●	●	●
Adjustable Reset	Time		●						●	●	●		●		●		●
	Threshold		●						●	●	●		●		●		●
On/off logic									●								
Watchdog										●			●				●
Inhibit Input							●	●	●				●			●	
Junction Temperature, °C		- 40 ÷ +150	- 40 ÷ +125											- 40 ÷ +150			- 40 ÷ +125
Package		P-TO-263-5-1 TO-220AB/5	TO-220AB/5		P-SOT223-4-1	Chip	P-SOT223-4-2	Chip	P-TO-220-7-180 P-TO-220-7-230	SO-20	P-TO-263-5-1 P-TO-220-5-12 P-TO-220-5-11	TO-220AB/3	P-TO-220-7-180 P-TO-220-7-230	TO-220AB/3	P-TO-263-5-1 TO-220AB/5	P-TO-263-5-1 TO-220AB/5	Chip

• **Voltage Regulators** *(Reference Data)*

Parameter		IL5212G	IL5218G	IL5225G	IL5228G	IL5230G	IL5233G	IL5250G	IL5200G	IZ1734-33	IZ1734-50	IZ1735-33	IZ1735-50	IL2931CD	IL317	IZ317L
Output current, mA		≤800	≤800	≤800	≤800	≤800	≤800	≤800	≤800	≤300	≤300	≤500	≤500	100	1500	100
Input voltage (max), V		15	8	10	10	12	15	15	15	12	12	12	12	40	40	
Output voltage, V		1.2	1.8	2.5	2.85	3	3.3	5	1.25-13.5	3.3	5	3.3	5	3-24	1.2-37	
Drop voltage, V		≤1.2	≤1.2	≤1.2	≤1.2	≤1.2	≤1.2	≤1.2	≤1.2	0.47	0.4	0.65	0.51	≤0.6	≤2.5	
Output voltage tolerance, %	I_Q max	5	2	2	2	2	2	2	2	2	2	2	2	5	0.07%/V	
Current consumption, mA	I_Q = max	10	10	10	10	10	10	10	10	0.08	0.08	0.09	0.09	6	0.1 (Io=0.5A)	
Shot-circuit proof		●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Overvoltage protection														●		
Reverse polarity protection														●		
Overtemperature protection		●	●	●	●	●	●	●	●					●	●	
On/off logic														●		
Junction Temperature, °C		0 ÷ +125								- 40 ÷ +125						
Package		P-SOT223-4-1								Chip				SO-8	TO-220AB/3	Chip

• Power Supply ICs

Part	Pin to Pin Compatibility	Function	Package
K1294EEXXX	TSM1051	Constant Voltage and Constant Current Controller For Adaptors and Battery Chargers	DIP-8 Chip
IL1051(14V) IL1052(20V) IL1053(40V)		Constant Voltage and Constant Current Controller For Adaptors and Battery Chargers	Chip
К1301ПНХХ	ICL7660	CMOS Voltage Converter	DIP-8, SO - 8 Chip

• IW4000AN, D(DW) Series

Part	Pin to Pin Compatibility	Function	Package
IW4001AN,AD	CD4001AN,AD	Quad 2-Input NOR Gate	DIP-14, SO-14
IW4002AN,AD	CD4002AN,AD	Dual 4-Input NOR Gate	DIP-14, SO-14
IW4011AN,AD	CD4011AN,AD	Quad 2-Input NAND Gate	DIP-14, SO-14
IW4012AN,AD	CD4012AN,AD	Dual 4-Input NAND Gate	DIP-14, SO-14
IW4013AN,AD	CD4013AN,AD	Dual D-Type Flip-Flop	DIP-14, SO-14
IW4015AN,AD	CD4015AN,AD	Dual 4-Bit Shift Register	DIP-16, SO-16
IW4017AN,AD	CD4017AN,AD	Decade Counter/Driver	DIP-16, SO-16
IW4019AN,AD	CD4019AN,AD	Quad AND-OR Gate	DIP-16, SO-16
IW4020AN,AD	CD4020AN,AD	14-Bit Binary Divide Counter	DIP-16, SO-16
IW4023AN,AD	CD4023AN,AD	Triple 3-Input NAND Gate	DIP-14, SO-14
IW4025AN,AD	CD4025AN,AD	Triple 3-Input NOR Gate	DIP-14, SO-14
IW4028AN,AD	CD4028AN,AD	BCD-to-Decimal Decoder	DIP-16, SO-16
IW4029AN,AD	CD4029AN,AD	Binary or BCD-Decade Counter	DIP-16, SO-16
IW4030AN,AD	CD4030AN,AD	Quad Exclusive-OR Gate	DIP-14, SO-14
IW4034AN,ADW	CD4034AN,AD	8-Bit Shift Register	DIP-24, SO-24
IW4043AN,AD	CD4043AN,AD	Quad NOR R-S Latch (3-State)	DIP-16, SO-16
IW4049AN,AD	CD4049AN,AD	Hex Buffer/Converter	DIP-14, SO-14
IW4050AN,AD	CD4050AN,AD	Hex Buffer/Converter	DIP-16, SO-16
IW4051AN,AD	CD4051AN,AD	Single 8-Channel Multiplexer/Demultiplexer	DIP-16, SO-16
IW4052AN,AD	CD4052AN,AD	Differential 4-Channel Multiplexer/Demultiplexer	DIP-16, SO-16
IW4066AN,AD	CD4066AN,AD	Quad Bilateral Switch	DIP-14, SO-14
IW4069AN,AD	CD4069AN,AD	Hex Inverter	DIP-14, SO-14
IW4093AN,AD	CD4093AN,AD	Quad 2-Input NAND Schmitt Trigger	DIP-14, SO-14
IW4502AN,AD	CD4502AN,AD	Hex Inverter/Buffer	DIP-16, SO-16
IW4516AN,AD	CD4516AN,AD	Presettable Binary Up/Down Counter	DIP-16, SO-16
IW4520AN,AD	CD4520AN,AD	Dual Binary Up Counter	DIP-16, SO-16

• IW4000BN, D(DW) Series

Part	Pin to Pin Compatibility	Function	Package
IW4001BN,BD	CD4001BN,BD	Quad 2-Input NOR Gate	DIP-14, SO-14
IW4002BN,BD	CD4002BN,BD	Dual 4-Input NOR Gate	DIP-14, SO-14
IW4006BN,BD	CD4006BN,BD	18-Bit Static Shift Register	DIP-14, SO-14
IW4008BN,BD	CD4008BN,BD	4-Bit Full Adder	DIP-16, SO-16
IW4011BN,BD	CD4011BN,BD	Quad 2-Input NAND Gate	DIP-14, SO-14
IW4012BN,BD	CD4012BN,BD	Dual 4-Input NAND Gate	DIP-14, SO-14
IW4013BN,BD	CD4013BN,BD	Dual D-Type Flip-Flop	DIP-14, SO-14
IW4015BN,BD	CD4015BN,BD	Dual 4-Bit Static Shift Register	DIP-16, SO-16
IW4016BN,BD	CD4016BN,BD	Quad Bilaterial Switch	DIP-14, SO-14
IW4017BN,BD	CD4017BN,BD	Decade Counter/Driver	DIP-16, SO-16
IW4018BN,BD	CD4018BN,BD	Presettable Divide-by-N Counter	DIP-16, SO-16
IW4019BN,BD	CD4019BN,BD	Quad AND-OR Gate	DIP-16, SO-16
IW4020BN,BD	CD4020BN,BD	14-Bit Binary Divide Counter	DIP-16, SO-16

• IW4000BN, D(DW) Series (continued)

Part	Pin to Pin Compatibility	Function	Package
IW4021BN,BD	CD4021BN,BD	8-Bit Shift Register	DIP-16, SO-16
IW4022BN,BD	CD4022BN,BD	Divide-by-8 Counter/Divider	DIP-16, SO-16
IW4023BN,BD	CD4023BN,BD	Triple 3-Input NAND Gate	DIP-14, SO-14
IW4025BN,BD	CD4025BN,BD	Triple 3-Input NOR Gate	DIP-14, SO-14
IW4027BN,BD	CD4027BN,BD	Dual J-K Flip-Flop	DIP-16, SO-16
IW4028BN,BD	CD4028BN,BD	BCD-to-Decimal Decoder	DIP-16, SO-16
IW4029BN,BD	CD4029BN,BD	Binary or BCD-Decade Counter	DIP-16, SO-16
IW4030BN,BD	CD4030BN,BD	Quad Exclusive-OR Gate	DIP-14, SO-14
IW4034BN,BDW	CD4034BN,BD	8-Bit Shift Register	DIP-24, SO-24
IW4035BN,BD	CD4035BN,BD	4-Bit Parallel-In/Parallel-Out Shift Register	DIP-16, SO-16
IW4040BN,BD	CD4040BN,BD	12-Bit Binary Counter	DIP-16, SO-16
IW4042BN,BD	CD4042BN,BD	Quad Clocked D-Latch	DIP-16, SO-16
IW4043BN,BD	CD4043BN,BD	Quad NOR R-S Latch (3-State)	DIP-16, SO-16
IW4049BN,BD	CD4049BN,BD	Hex Buffer/Converter	DIP-16, SO-16
IW4050BN,BD	CD4050BN,BD	Hex Buffer/Converter	DIP-16, SO-16
IW4051BN,BD	CD4051BN,BD	8-Channel Analog Multiplexer/Demultiplexer	DIP-16, SO-16
IW4052BN,BD	CD4052BN,BD	Dual 4-Channel Analog Multiplexer/Demultiplexer	DIP-16, SO-16
IW4053BN,BD	CD4053BN,BD	Triple 2-Channel Analog Multiplexer/Demultiplexer	DIP-16, SO-16
IW4059AN,ADW	CD4059AN,AD	Programmable Counter	DIP-24, SO-24
IW4060BN,BD	CD4060BN,BD	14-Bit Binary Divide/ Counter	DIP-16, SO-16
IW4066BN,BD	CD4066BN,BD	Quad Bilateral Switch	DIP-14, SO-14
IW4068BN,BD	CD4068BN,BD	8-Input NAND Gate	DIP-14, SO-14
IW4069UBN,UBD	CD4069UBN,UBD	Hex Inverter	DIP-14, SO-14
IW4070BN,BD	CD4070BN,BD	Quad Exclusive-OR Gate	DIP-14, SO-14
IW4071BN,BD	CD4071BN,BD	Quad 2-Input OR Gate	DIP-14, SO-14
IW4072BN,BD	CD4072BN,BD	Dual 4-Input OR Gate	DIP-14, SO-14
IW4073BN,BD	CD4073BN,BD	Triple 3-Input AND Gate	DIP-14, SO-14
IW4075BN,BD	CD4075BN,BD	Triple 3-Input OR Gate	DIP-14, SO-14
IW4077BN,BD	CD4077BN,BD	Quad Exclusive-NOR Gate	DIP-14, SO-14
IW4081BN,BD	CD4081BN,BD	Quad 2-Input AND Gate	DIP-14, SO-14
IW4093BN,BD	CD4093BN,BD	Quad 2-Input NAND Schmitt Trigger	DIP-14, SO-14
IW4098BN,BD	CD4098BN,BD	Dual Monostable Multivibrator	DIP-16, SO-16
IW40107BN,BD	CD40107BN,BD	Dual 2-Input NAND Buffer/Driver	DIP-14, SO-14
IW4502BN,BD	CD4502BN,BD	Hex Inverter/Buffer	DIP-16, SO-16
IW4503BN,BD	CD4503BN,BD	Hex Buffer	DIP-16, SO-16
IW4511BN,BD	CD4511BN,BD	BCD-to-7-Segment Latch Decoder/Driver	DIP-16, SO-16
IW4516BN,BD	CD4516BN,BD	Presettable Binary Up/Down Counter	DIP-16, SO-16
IW4518BN,BD	CD4518BN,BD	Dual BCD Up Counter	DIP-16, SO-16
IW4519BN,BD	CD4519BN,BD	Quad AND/OR Select Gate	DIP-16, SO-16
IW4520BN,BD	CD4520BN,BD	Dual Binary Up Counter	DIP-16, SO-16
IW4528BN,BD	CD4528BN,BD	Dual Monostable Multivibrator	DIP-16, SO-16
IW4531BN,BD	NEF4531BN,BD	12-Bit Checker Tree	DIP-16, SO-16
IW4541BN,BD	CD4541BN,BD	Programmable Timer	DIP-14, SO-14
IW4543BN,BD	CD4543BN,BD	BCD-to-7-Segment Latch/Decoder/Driver for Liquid-Crystal Display	DIP-16, SO-16
IW4585BN,BD	CD4585BN,BD	4-Bit Comparator	DIP-16, SO-16

• IN74ACXXXXN, D (DW) Series

Part	Pin to Pin Compatibility	Function	Package
IN74AC00N,D	MC74AC00N,D	Quad 2-Input NAND Gate	DIP-14, SO-14
IN74AC02N,D	MC74AC02N,D	Quad 2-Input NOR Gate	DIP-14, SO-14
IN74AC04N,D	MC74AC04N,D	Hex Inverter	DIP-14, SO-14
IN74AC05N,D	CD74AC05N,D	Hex Inverter, OC	DIP-14, SO-14
IN74AC08N,D	MC74AC08N,D	Quad 2-Input AND Gate	DIP-14, SO-14
IN74AC10N,D	MC74AC10N,D	Triple 3-Input Positive-NAND Gate	DIP-14, SO-14
IN74AC11N,D	MC74AC11N,D	Triple 3-Input AND Gate	DIP-14, SO-14
IN74AC14N,D	MC74AC14N,D	Hex Schmitt-Trigger Inverter	DIP-14, SO-14
IN74AC20N,D	CD74AC20N,D	Dual 4-Input NAND Gate	DIP-14, SO-14
IN74AC21N,D	own	Dual 4-Input AND Gate	DIP-14, SO-14
IN74AC27N,D	own	Triple 3-Input NOR Gate	DIP-14, SO-14
IN74AC32N,D	MC74AC32N,D	Quad 2-Input OR Gate	DIP-14, SO-14
IN74AC34N,D	own	Hex Non-Inverter	DIP-14, SO-14
IN74AC74N,D	MC74AC74N,D	Dual D-Type Flip-Flop	DIP-14, SO-14
IN74AC86N,D	MC74AC86N,D	Quad 2-Input Exclusive-OR Gate	DIP-14, SO-14
IN74AC109N,D	MC74AC109N,D	Dual J-K Positive-Edge-Triggered Flip-Flop	DIP-16, SO-16
IN74AC112N,D	CD74AC112N,D	Dual J-K Negative-Edge-Triggered Flip-Flop	DIP-16, SO-16
IN74AC125N,D	T74AC125N,D	Quad 3-State Buffer	DIP-14, SO-14
IN74AC132N,D	MC74AC132N,D	Quad 2-Input NAND Schmitt-Trigger Inverter	DIP-14, SO-14
IN74AC138N,D	MC74AC138N,D	3-8 Decoder/Demultiplexer	DIP-16, SO-16
IN74AC139N,D	MC74AC139N,D	Dual 2-4 Decoder/Demultiplexer	DIP-16, SO-16
IN74AC151N,D	MC74AC151N,D	8-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74AC153N,D	MC74AC153N,D	Dual 4-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74AC157N,D	MC74AC157N,D	Quad 2-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74AC158N,D	MC74AC158N,D	Quad 2-1 Data Selector/Multiplexer, INV	DIP-16, SO-16
IN74AC161N,D	MC74AC161N,D	4-Bit Synchronous Binary Counter, Asynchronous Reset	DIP-16, SO-16
IN74AC163N,D	MC74AC163N,D	4-Bit Synchronous Binary Counter, Synchronous Reset	DIP-16, SO-16
IN74AC164N,D	CD74AC164N,D	8-Bit Serial-In Parallel-Out Shift Register	DIP-14, SO-14
IN74AC174N,D	MC74AC174N,D	Hex D-Type Flip-Flop	DIP-16, SO-16
IN74AC175N,D	MC74AC175N,D	Quad D-Type Flip-Flop	DIP-16, SO-16
IN74AC192N,D	MC74AC192N,D	Synchronous Decade Up/Down Counter	DIP-16, SO-16
IN74AC193N,D	CD74AC193N,D	4-Bit Synchronous Binary Up/Down Counter	DIP-16, SO-16
IN74AC240N,DW	MC74AC240N,D	Octal Buffer/Line Driver, INV (3-State)	DIP-20, SO-20
IN74AC241N,DW	MC74AC241N,D	Octal Buffer/Line Driver, NINV (3-State)	DIP-20, SO-20
IN74AC244N,DW	MC74AC244N,D	Octal Buffer/Line Driver NINV (3-State)	DIP-20, SO-20
IN74AC245N,DW	MC74AC245N,D	Octal Bus Transceiver, NINV (3-State)	DIP-20, SO-20
IN74AC251N,D	MC74AC251N,D	8-I Data Selector/Multiplexer (3-State)	DIP-16, SO-16
IN74AC253N,D	MC74AC253N,D	Dual 4-1 Data Selector/Multiplexer, NINV (3-State)	DIP-16, SO-16
IN74AC257N,D	MC74AC257N,D	Quad 2-1 Data Selector/Multiplexer, NINV (3-State)	DIP-16, SO-16
IN74AC258N,D	MC74AC258N,D	Quad 2-1 Data Selector/Multiplexer, INV (3-State)	DIP-16, SO-16
IN74AC273N,DW	MC74AC273N,D	Octal D-Type Flip-Flop	DIP-20, SO-20
IN74AC299N,DW	MC74AC299N,D	8-Bit Universal Shift/Storage Register (3-State)	DIP-20, SO-20
IN74AC323N,DW	CD74AC323N,D	8-Bit Universal Shift/Storage Register (3-State)	DIP-20, SO-20
IN74AC373N,DW	MC74AC373N,D	Octal D-Type Latch (3-State)	DIP-20, SO-20
IN74AC374N,DW	MC74AC374N,D	Octal D-Type Flip-Flop (3-State)	DIP-20, SO-20
IN74AC533N,DW	MC74AC533N,D	Octal D-Type Latch, INV (3-State)	DIP-20, SO-20
IN74AC534N,DW	MC74AC534N,D	Octal D-Type Flip-Flop, NINV (3-State)	DIP-20, SO-20
IN74AC563N,DW	MC74AC563N,D	Octal D-Type Transparent Latch	DIP-20, SO-20
IN74AC564N,DW	MC74AC564N,D	Octal Edge-Triggered Flip-Flop	DIP-20, SO-20
IN74AC573N,DW	MC74AC573N,D	Octal Transparent Latch (3-State)	DIP-20, SO-20
IN74AC574N,DW	MC74AC574N,D	Octal D-Type Flip-Flop, NINV (3-State)	DIP-20, SO-20
IN74AC620N,DW	MC74AC620N,D	Octal Bidirectional Bus Transceiver, INV	DIP-20, SO-20
IN74AC623N,DW	MC74AC623N,D	Octal Bidirectional Bus Transceiver, NINV	DIP-20, SO-20
IN74AC640N,DW	MC74AC640N,D	Octal Bus Transceiver (3-State)	DIP-20, SO-20

• IN74ACXXXXN, D(DW) Series (continued)

Part	Pin to Pin Compatibility	Function	Package
IN74AC643N,DW	MC74AC643N,D	Octal Bus Transceiver (3-State)	DIP-20, SO-20
IN74AC651N,DW	CD74AC651N,D	Octal Bus Transceiver/Register, INV (3-State)	DIP-24, SO-24
IN74AC652N,DW	own	Octal Bus Transceiver/Register, NINV (3-State)	DIP-24, SO-24
IN74AC810N,D	MC74AC810N,D	Quad Exclusive-NOR Gate	DIP-14, SO-14
IN74AC4006N,D	own	18-Bit Static Shift Register	DIP-14, SO-14
IN74AC4015N,D	own	Dual 4-Bit Static Shift Register	DIP-16, SO-16
IN74AC4035N,D	own	4-Bit Parallel-In/Parallel-Out Shift Register	DIP-16, SO-16
IN74AC4520N,D	own	Dual 4-Bit Synchronous Binary Counter	DIP-16, SO-16

• IN74ACTXXXXN, D(DW) Series

Part	Pin to Pin Compatibility	Function	Package
IN74ACT00N,D	MC74ACT00N,D	Quad 2-Input NAND Gate	DIP-14, SO-14
IN74ACT02N,D	MC74ACT02N,D	Quad 2-Input NOR Gate	DIP-14, SO-14
IN74ACT04N,D	CD74ACT04N,D	Hex Inverter	DIP-14, SO-14
IN74ACT05N,D	CD74ACT05N,D	Hex Inverter, OC	DIP-14, SO-14
IN74ACT08N,D	MC74ACT08N,D	Quad 2-Input AND Gate	DIP-14, SO-14
IN74ACT10N,D	MC74ACT10N,D	Triple 3-Input Positive-NAND Gate	DIP-14, SO-14
IN74ACT11N,D	MC74ACT11N,D	Triple 3-Input AND Gate	DIP-14, SO-14
IN74ACT14N,D	MC74ACT14N,D	Hex Schmitt-Trigger Inverter	DIP-14, SO-14
IN74ACT20N,D	CD74ACT20N,D	Dual 4-Input NAND Gate	DIP-14, SO-14
IN74ACT21N,D	own	Dual 4-Input Positive-AND Gate	DIP-14, SO-14
IN74ACT27N,D	own	Triple 3-Input NOR Gate	DIP-14, SO-14
IN74ACT32N,D	MC74ACT32N,D	Quad 2-Input OR Gate	DIP-14, SO-14
IN74ACT34N,D	own	Hex Non-Inverter	DIP-14, SO-14
IN74ACT74N,D	MC74ACT74N,D	Dual D-Type Flip-Flop	DIP-14, SO-14
IN74ACT86N,D	MC74ACT86N,D	Quad 2-Input Exclusive-OR Gate	DIP-14, SO-14
IN74ACT109N,D	MC74ACT109N,D	Dual J-K Positive-Edge-Triggered Flip-Flop	DIP-16, SO-16
IN74ACT112N,D	MC74ACT112N,D	Dual J-K Negative-Edge-Triggered Flip-Flop	DIP-16, SO-16
IN74ACT125N,D	own	Quad 3-State Buffer	DIP-14, SO-14
IN74ACT132N,D	MC74ACT132N,D	Quad 2-Input NAND Schmitt-Trigger Inverter	DIP-14, SO-14
IN74ACT138N,D	MC74ACT138N,D	3-8 Decoder/Demultiplexer	DIP-16, SO-16
IN74ACT139N,D	MC74ACT139N,D	Dual 2-4 Decoder/Demultiplexer	DIP-16, SO-16
IN74ACT151N,D	MC74ACT151N,D	8-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74ACT153N,D	MC74ACT153N,D	Dual 4-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74ACT157N,D	MC74ACT157N,D	Quad 2-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74ACT158N,D	MC74ACT158N,D	Quad 2-1 Data Selector/Multiplexer, INV	DIP-16, SO-16
IN74ACT161N,D	MC74ACT161N,D	4-Bit Synchronous Binary Counter, Asynchronous Reset	DIP-16, SO-16
IN74ACT163N,D	MC74ACT163N,D	4-Bit Synchronous Binary Counter, Synchronous Reset	DIP-16, SO-16
IN74ACT164N,D	CD74ACT164N,D	8-Bit Serial-In Parallel-Out Shift Register	DIP-14, SO-14
IN74ACT174N,D	MC74ACT174N,D	Hex D-Type Flip-Flop	DIP-16, SO-16
IN74ACT175N,D	CD74ACT175N,D	Quad D-Type Flip-Flop	DIP-16, SO-16
IN74ACT192N,D	own	Synchronous Decade Up/Down Counter	DIP-16, SO-16
IN74ACT193N,D	CD74ACT193N,D	4-Bit Synchronous Binary Up/Down Counter	DIP-16, SO-16
IN74ACT240N,DW	MC74ACT240N,D	Octal Buffer/Line Driver, INV (3-State)	DIP-20, SO-20
IN74ACT241N,DW	MC74ACT241N,D	Octal Buffer/Line Driver, NINV (3-State)	DIP-20, SO-20
IN74ACT244N,DW	MC74ACT244N,D	Octal Buffer/Line Driver NINV (3-State)	DIP-20, SO-20
IN74ACT245N,DW	MC74ACT245N,D	Octal Bus Transceiver, NINV (3-State)	DIP-20, SO-20
IN74ACT251N,D	MC74ACT251N,D	8-I Data Selector/Multiplexer (3-State)	DIP-16, SO-16
IN74ACT253N,D	MC74ACT253N,D	Dual 4-1 Data Selector/Multiplexer, NINV (3-State)	DIP-16, SO-16
IN74ACT257N,D	MC74ACT257N,D	Quad 2-1 Data Selector/Multiplexer, NINV (3-State)	DIP-16, SO-16
IN74ACT258N,D	MC74ACT258N,D	Quad 2-1 Data Selector/Multiplexer, INV (3-State)	DIP-16, SO-16
IN74ACT273N,DW	MC74ACT273N,D	Octal D-Type Flip-Flop	DIP-20, SO-20
IN74ACT299N,DW	MC74ACT299N,D	8-Bit Universal Shift/Storage Register (3-State)	DIP-20, SO-20

• IN74ACTXXXXN, D(DW) Series (continued)

Part	Pin to Pin Compatibility	Function	Package
IN74ACT323N,DW	MC74ACT323N,D	8-Bit Universal Shift/Storage Register (3-State)	DIP-20, SO-20
IN74ACT373N,DW	MC74ACT373N,DW	Octal D-Type Latch (3-State)	DIP-20, SO-20
IN74ACT374N,DW	MC74ACT374N,DW	Octal D-Type Flip-Flop (3-State)	DIP-20, SO-20
IN74ACT533N,DW	MC74ACT533N,DW	Octal D-Type Latch, INV (3-State)	DIP-20, SO-20
IN74ACT534N,DW	MC74ACT534N,DW	Octal D-Type Flip-Flop, NINV (3-State)	DIP-20, SO-20
IN74ACT563N,DW	MC74ACT563N,DW	Octal D-Type Transparent Latch	DIP-20, SO-20
IN74ACT564N,DW	MC74ACT564N,DW	Octal Edge-Triggered Flip-Flop	DIP-20, SO-20
IN74ACT573N,DW	MC74ACT573N,DW	Octal Transparent Latch (3-State)	DIP-20, SO-20
IN74ACT574N,DW	MC74ACT574N,DW	Octal D-Type Flip-Flop, NINV (3-State)	DIP-20, SO-20
IN74ACT620N,DW	MC74ACT620N,DW	Octal Bidirectional Bus Transceiver, INV	DIP-20, SO-20
IN74ACT623N,DW	MC74ACT623N,DW	Octal Bidirectional Bus Transceiver, NINV	DIP-20, SO-20
IN74ACT640N,DW	MC74ACT640N,DW	Octal Bus Transceiver (3-State)	DIP-20, SO-20
IN74ACT643N,DW	MC74ACT643N,DW	Octal Bus Transceiver (3-State)	DIP-20, SO-20
IN74ACT651N,DW	CD74ACT651D	Octal Bus Transceiver/Register, INV (3-State)	DIP-24, SO-24
IN74ACT652N,DW	own	Octal Bus Transceiver/Register, NINV (3-State)	DIP-24, SO-24
IN74ACT810N,D	IN74ACT810D	Quad Exclusive-NOR Gate	DIP-14, SO-14
IN74ACT4006N,D	own	18-Bit Static Shift Register	DIP-14, SO-14
IN74ACT4015N,D	own	Dual 4-Bit Static Shift Register	DIP-16, SO-16
IN74ACT4035N,D	own	4-Bit Parallel-In/Parallel-Out Shift Register	DIP-16, SO-16
IN74ACT4520N,D	own	Dual 4-Bit Synchronous Binary Counter	DIP-16, SO-16

• IN74VHCXXXD(DW)

Part	Pin to Pin Compatibility	Function	Package
IN74VHC00D	TC74VHC00D	Quad 2-Input NAND Gate	SO-14
IN74VHC02D	TC74VHC02D	Quad 2-Input NOR Gate	SO-14
IN74VHC08D	TC74VHC08D	Hex Inverter, OC	SO-14
IN74VHC32D	TC74VHC32D	Quad 2-Input AND Gate	SO-14
IN74VHC74D	TC74VHC74D	Quad 2-Input OR Gate	SO-14
IN74VHC125D	TC74VHC125D	Quad 3-State Buffer	SO-14
IN74VHC126D	TC74VHC126D	Quad 3-State Buffer	SO-14
IN74VHC240DW	TC74VHC240D	Octal Buffer/Line Driver, INV (3-State)	SO-20
IN74VHC241DW	TC74VHC241D	Octal Buffer/Line Driver, NINV (3-State)	SO-20
IN74VHC244DW	TC74VHC244D	Octal Buffer/Line Driver NINV (3-State)	SO-20
IN74VHC373DW	TC74VHC373D	Octal D-Type Latch (3-State)	SO-20
IN74VHC374DW	TC74VHC374D	Octal D-Type Flip-Flop (3-State)	SO-20

• IN74VHCTXXXD(DW)

Part	Pin to Pin Compatibility	Function	Package
IN74VHCT00D	TC74VHCT00D	Quad 2-Input NAND Gate	SO-14
IN74VHCT02D	TC74VHCT02D	Quad 2-Input NOR Gate	SO-14
IN74VHCT08D	TC74VHCT08D	Hex Inverter, OC	SO-14
IN74VHCT32D	TC74VHCT32D	Quad 2-Input AND Gate	SO-14
IN74VHCT74D	TC74VHCT74D	Quad 2-Input OR Gate	SO-14
IN74VHCT125D	TC74VHCT125D	Quad 3-State Buffer	SO-14
IN74VHCT126D	TC74VHCT126D	Quad 3-State Buffer	SO-14
IN74VHCT240DW	TC74VHCT240D	Octal Buffer/Line Driver, INV (3-State)	SO-20
IN74VHCT241DW	TC74VHCT241D	Octal Buffer/Line Driver, NINV (3-State)	SO-20
IN74VHCT244DW	TC74VHCT244D	Octal Buffer/Line Driver NINV (3-State)	SO-20
IN74VHCT373DW	TC74VHCT373D	Octal D-Type Latch (3-State)	SO-20
IN74VHCT374DW	TC74VHCT374D	Octal D-Type Flip-Flop (3-State)	SO-20

• IN74HCXXXXAN, D(DW) Series

Part	Pin to Pin Compatibility	Function	Package
IN74HC00AN,AD	MC74HC00AN,AD	Quad 2-Input NAND Gate	DIP-14, SO-14
IN74HC02AN,AD	MC74HC02AN,AD	Quad 2-Input NOR Gate	DIP-14, SO-14
IN74HC03AN,AD	MC74HC03AN,AD	Quad 2-Input NAND Gate, OC	DIP-14, SO-14
IN74HC04AN,AD	MC74HC04AN,AD	Hex Inverter	DIP-14, SO-14
IN74HC05AN,AD	SN74HC05AN,AD	Hex Inverter, OC	DIP-14, SO-14
IN74HC08AN,AD	MC74HC08AN,AD	Quad 2-Input AND Gate	DIP-14, SO-14
IN74HC10AN,AD	MC74HC10AN,AD	Triple 3-Input NAND Gate	DIP-14, SO-14
IN74HC11AN,AD	MC74HC11AN,AD	Triple 3-Input AND Gate	DIP-14, SO-14
IN74HC14AN,AD	MC74HC14AN,AD	Hex Schmitt-Trigger Inverter	DIP-14, SO-14
IN74HC20AN,AD	MC74HC20AN,AD	Dual 4-Input NAND Gate	DIP-14, SO-14
IN74HC21AN,AD	MC74HC21AN,AD	Dual 4-Input Positive-AND Gate	DIP-14, SO-14
IN74HC22AN,AD	MC74HC22AN,AD	Dual 4-Input Positive-NAND Gate, OC	DIP-14, SO-14
IN74HC27AN,AD	MC74HC27AN,AD	Triple 3-Input Positive-NOR Gate	DIP-14, SO-14
IN74HC30AN,AD	MC74HC30AN,AD	8-Input Positive-NAND Gate	DIP-14, SO-14
IN74HC32AN,AD	MC74HC32AN,AD	Quad 2-Input OR Gate	DIP-14, SO-14
IN74HC74AN,AD	MC74HC74AN,AD	Dual D-Type Flip-Flop	DIP-14, SO-14
IN74HC75AN,AD	MC74HC75AN,AD	Quad Bistable Latch	DIP-16, SO-16
IN74HC85AN,AD	MC74HC85AN,AD	4-Bit Magnitude Comparator	DIP-16, SO-16
IN74HC86AN,AD	MC74HC86AN,AD	Quad 2-Input Exclusive-OR Gate	DIP-14, SO-14
IN74HC109AN,AD	MC74HC109AN,AD	Dual J-K Positive-Edge-Triggered Flip-Flop	DIP-16, SO-16
IN74HC112AN,AD	MC74HC112AN,AD	Dual J-K Negative-Edge-Triggered Flip-Flop	DIP-16, SO-16
IN74HC123AN,AD	MC74HC123AN,AD	Dual Monostable Multivibrator with Reset	DIP-16, SO-16
IN74HC125AN,AD	MC74HC125AN,AD	Quad 3-State Buffer	DIP-14, SO-14
IN74HC132AN,AD	MC74HC132AN,AD	Quad 2-Input NAND Schmitt-Trigger Inverter	DIP-14, SO-14
IN74HC138AN,AD	MC74HC138AN,AD	3-8 Decoder/Demultiplexer	DIP-16, SO-16
IN74HC139AN,AD	MC74HC139AN,AD	Dual 2-4 Decoder/Demultiplexer	DIP-16, SO-16
IN74HC151AN,AD	MC74HC151AN,AD	8-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74HC153AN,AD	MC74HC153AN,AD	Dual 4-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74HC154AN,ADW	MC74HC154AN,ADW	4-16 Decoder/Demultiplexer (3-State)	DIP-24, SO-24
IN74HC155AN,AD	MM74HC155AN,AD	Dual 2-4 Decoder/Demultiplexer	DIP-16, SO-16
IN74HC157AN,AD	MC74HC157AN,AD	Quad 2-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74HC158AN,AD	MC74HC158AN,AD	Quad 2-1 Data Selector/Multiplexer, INV	DIP-16, SO-16
IN74HC161AN,AD	MC74HC161AN,AD	4-Bit Synchronous Binary Counter, Asynchronous Reset	DIP-16, SO-16
IN74HC163AN,AD	MC74HC163AN,AD	4-Bit Synchronous Binary Counter, Synchronous Reset	DIP-16, SO-16
IN74HC164AN,AD	MC74HC164AN,AD	8-Bit Serial-In Parallel-Out Shift Register	DIP-14, SO-14
IN74HC165AN,AD	MC74HC165AN,AD	8-Bit Parallel-in Serial-Out Shift Register	DIP-16, SO-16
IN74HC166AN,AD	CD74HC166AN,AD	8-Bit Parallel-in Serial-Out Shift Register	DIP-16, SO-16
IN74HC174AN,AD	MC74HC174AN,AD	Hex D-Type Flip-Flop	DIP-16, SO-16
IN74HC175AN,AD	MC74HC175AN,AD	Quad D-Type Flip-Flop	DIP-16, SO-16
IN74HC192AN,AD	CD74HC192AN,AD	Synchronous Decade Up/Down Counter	DIP-16, SO-16
IN74HC193AN,AD	CD74HC193AN,AD	4-Bit Synchronous Binary Up/Down Counter	DIP-16, SO-16
IN74HC221AN,AD	CD74HC221AN,AD	Dual Monostable Multivibrator with Reset	DIP-16, SO-16
IN74HC240AN,ADW	MC74HC240AN,ADW	Octal Buffer/Line Driver, INV (3-State)	DIP-20, SO-20
IN74HC241AN,ADW	MC74HC241AN,ADW	Octal Buffer/Line Driver, NINV (3-State)	DIP-20, SO-20
IN74HC244AN,ADW	MC74HC244AN,AD	Octal Buffer/Line Driver NINV (3-State)	DIP-20, SO-20
IN74HC245AN,ADW	MC74HC245AN,AD	Octal Bus Transceiver, NINV (3-State)	DIP-20, SO-20
IN74HC251AN,AD	MC74HC251AN,AD	8-I Data Selector/Multiplexer (3-State)	DIP-16, SO-16
IN74HC253AN,AD	MC74HC253AN,AD	Dual 4-1 Data Selector/Multiplexer, NINV (3-State)	DIP-16, SO-16
IN74HC257AN,AD	MC74HC257AN,AD	Quad 2-1 Data Selector/Multiplexer, NINV (3-State)	DIP-16, SO-16
IN74HC258AN,AD	CD74HC258AN,AD	Quad 2-1 Data Selector/Multiplexer, INV (3-State)	DIP-16, SO-16
IN74HC273AN,ADW	MC74HC273AN,AD	Octal D-Type Flip-Flop	DIP-20, SO-20
IN74HC279AN,AD	MC74HC279AN,AD	Quad Set/Reset Latch	DIP-16, SO-16
IN74HC283AN,AD	CD74HC283AN,AD	4-Bit Full Adder	DIP-16, SO-16
IN74HC299AN,ADW	MC74HC299AN,AD	8-Bit Universal Shift/Storage Register (3-State)	DIP-20, SO-20
IN74HC323AN,ADW	MC74HC323AN,AD	8-Bit Universal Shift/Storage Register (3-State)	DIP-20, SO-20
IN74HC365AN,AD	MC74HC365AN,AD	Hex Buffer/Line Driver (3-State)	DIP-16, SO-16

• IN74HCXXXXAN, D(DW) Series (continued)

Part	Pin to Pin Compatibility	Function	Package
IN74HC367AN,AD	MC74HC367AN,AD	Hex Buffer/Line Driver (3-State)	DIP-16, SO-16
IN74HC373AN,ADW	MC74HC373AN,AD	Octal D-Type Latch (3-State)	DIP-20, SO-20
IN74HC374AN,ADW	MC74HC374AN,AD	Octal D-Type Flip-Flop (3-State)	DIP-20, SO-20
IN74HC393AN,AD	MC74HC393AN,AD	Dual 4-Bit Binary Counter	DIP-14, SO-14
IN74HC533AN,ADW	MC74HC533AN,AD	Octal D-Type Latch, INV (3-State)	DIP-20, SO-20
IN74HC534AN,ADW	MC74HC534AN,AD	Octal D-Type Flip-Flop, NINV (3-State)	DIP-20, SO-20
IN74HC573AN,ADW	MC74HC573AN,AD	Octal Transparent Latch (3-State)	DIP-20, SO-20
IN74HC574AN,ADW	MC74HC574AN,AD	Octal D-Type Flip-Flop, NINV (3-State)	DIP-20, SO-20
IN74HC595AN,AD	MC74HC595AN,AD	8-Bit Shift Register with Output Latch	DIP-16, SO-16
IN74HC597AN,AD	MC74HC597AN,AD	8-Bit Shift Register with Input Latch	DIP-16, SO-16
IN74HC620AN,ADW	SN74HC620AN,AD	Octal Bidirectional Bus Transceiver, INV	DIP-20, SO-20
IN74HC623AN,ADW	SN74HC623AN,AD	Octal Bidirectional Bus Transceiver, NINV	DIP-20, SO-20
IN74HC640AN,ADW	MC74HC640AN,AD	Octal Bus Transceiver (3-State)	DIP-20, SO-20
IN74HC651AN,ADW	CD74HC651AN,AD	Octal Bus Transceiver/Register (3-State)	DIP-24, SO-24
IN74HC652AN,ADW	CD74HC652AN,AD	Octal Bus Transceiver/Register, NINV (3-State)	DIP-24, SO-24
IN74HC874AN,ADW	own	Dual 4-Bit D-Type Flip Flop	DIP-24, SO-24
IN74HC4015AN,AD	MC74HC4015AN,AD	Dual 4-Bit Static Shift Register	DIP-16, SO-16
IN74HC4046AN,AD	MC74HC4046AN,AD	Phase-Locked Loop	DIP-16, SO-16
IN74HC4051AN,AD	MC74HC4051AN,AD	8-Channel Analog Multiplexer/Demultiplexer	DIP-16, SO-16
IN74HC4052AN,AD	MC74HC4052AN,AD	Dual 4-Channel Analog Multiplexer/Demultiplexer	DIP-16, SO-16
IN74HC4053AN,AD	MC74HC4053AN,AD	Triple 2-Channel Analog Multiplexer/Demultiplexer	DIP-16, SO-16
IN74HC4094AN,AD	CD74HC4094AN,AD	8-Bit Shift and Bus Register	DIP-16, SO-16

• IN74HCTXXXAN, D(DW) Series

Part	Pin to Pin Compatibility	Function	Package
IN74HCT00AN,AD	MC74HCT00AN,AD	Quad 2-Input NAND Gate	DIP-14, SO-14
IN74HCT02AN,AD	MC74HCT02AN,AD	Quad 2-Input NOR Gate	DIP-14, SO-14
IN74HCT04AN,AD	MC74HCT04AN,AD	Hex Inverter	DIP-14, SO-14
IN74HCT08AN,AD	MC74HCT08AN,AD	Quad 2-Input AND Gate	DIP-14, SO-14
IN74HCT10AN,AD	MC74HCT10AN,AD	Triple 3-Input NAND Gate	DIP-14, SO-14
IN74HCT14AN,AD	MC74HCT14AN,AD	Hex Schmitt-Trigger Inverter	DIP-14, SO-14
IN74HCT20AN,AD	MC74HCT20AN,AD	Dual 4-Input NAND Gate	DIP-14, SO-14
IN74HCT27AN,AD	MC74HCT27AN,AD	Triple 3-Input Positive-NOR Gate	DIP-14, SO-14
IN74HCT30AN,AD	MC74HCT30AN,AD	8-Input Positive-NAND Gate	DIP-14, SO-14
IN74HCT32AN,AD	MC74HCT32AN,AD	Quad 2-Input OR Gate	DIP-14, SO-14
IN74HCT74AN,AD	MC74HCT74AN,AD	Dual D-Type Flip-Flop	DIP-14, SO-14
IN74HCT85AN,AD	MC74HCT85AN,AD	4-But Magnitude Comparator	DIP-16, SO-16
IN74HCT86AN,AD	MC74HCT86AN,AD	Quad 2-Input Exclusive-OR Gate	DIP-14, SO-14
IN74HCT125AN,AD	MC74HCT125AN,AD	Quad 3-State Buffer	DIP-14, SO-14
IN74HCT126AN,AD	MC74HCT126AN,AD	Quad 3-State Buffer	DIP-14, SO-14
IN74HCT132AN,AD	MC74HCT132AN,AD	Quad 2-Input NAND Schmitt-Trigger Inverter	DIP-14, SO-14
IN74HCT138AN,AD	MC74HCT138AN,AD	3-8 Decoder/Demultiplexer	DIP-16, SO-16
IN74HCT139AN,AD	MC74HCT139AN,AD	Dual 2-4 Decoder/Demultiplexer	DIP-16, SO-16
IN74HCT151AN,AD	MC74HCT151AN,AD	8-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74HCT153AN,AD	MC74HCT153AN,AD	Dual 4-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74HCT155AN,AD	MM74HCT155AN,AD	Dual 2-4 Decoder/Demultiplexer	DIP-16, SO-16
IN74HCT157AN,AD	MC74HCT157AN,AD	Quad 2-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74HCT163AN,AD	MC74HCT163AN,AD	4-Bit Synchronous Binary Counter, Synchronous Reset	DIP-16, SO-16
IN74HCT164AN,AD	MC74HCT164AN,AD	8-Bit Serial-in Parallel-Out Shift Register	DIP-14, SO-14
IN74HCT165AN,AD	MC74HCT165AN,AD	8-Bit Parallel-in Serial-Out Shift Register	DIP-16, SO-16
IN74HCT174AN,AD	MC74HCT174AN,AD	Hex D-Type Flip-Flop	DIP-16, SO-16
IN74HCT240AN,ADW	MC74HCT240AN,AD	Octal Buffer/Line Driver, INV (3-State)	DIP-20, SO-20

• IN74HCTXXXXAN, D(DW) Series (continued)

Part	Pin to Pin Compatibility	Function	Package
IN74HCT241AN,ADW	MC74HCT241AN,AD	Octal Buffer/Line Driver, NINV (3-State)	DIP-20, SO-20
IN74HCT244AN,ADW	MC74HCT244AN,AD	Octal Buffer/Line Driver NINV (3-State)	DIP-20, SO-20
IN74HCT245AN,ADW	MC74HCT245AN,AD	Octal Bus Transceiver, NINV (3-State)	DIP-20, SO-20
IN74HCT251AN,AD	MC74HCT251AN,AD	8-1 Data Selector/Multiplexer, INV (3-State)	DIP-16, SO-16
IN74HCT273AN,ADW	MC74HCT273AN,AD	Octal D-Type Flip-Flop	DIP-20, SO-20
IN74HCT283AN,AD	CD74HCT283AN,AD	4-Bit Adder	DIP-16, SO-16
IN74HCT299AN,ADW	MC74HCT299AN,AD	8-Bit Universal Shift/Storage Register (3-State)	DIP-20, SO-20
IN74HCT323AN,ADW	MC74HCT323AN,AD	8-Bit Universal Shift/Storage Register (3-State)	DIP-20, SO-20
IN74HCT373AN,ADW	MC74HCT373AN,AD	Octal D-Type Latch (3-State)	DIP-20, SO-20
IN74HCT374AN,ADW	MC74HCT374AN,AD	Octal D-Type Flip-Flop (3-State)	DIP-20, SO-20
IN74HCT573AN,ADW	MC74HCT573AN,AD	Octal Transparent Latch (3-State)	DIP-20, SO-20
IN74HCT574AN,ADW	MC74HCT574AN,AD	Octal D-Type Flip-Flop, NINV (3-State)	DIP-20, SO-20
IN74HCT620AN,ADW	SN74HCT620AN,AD	Octal Bidirectional Bus Transceiver, INV	DIP-20, SO-20
IN74HCT623AN,ADW	own	Octal Bidirectional Bus Transceiver, NINV	DIP-20, SO-20
IN74HCT640AN,ADW	own	Octal Bus Transceiver (3-State)	DIP-20, SO-20
IN74HCT874AN,ADW	MC74HCT874AN,AD	Dual 4-Bit D-Type Flip-Flop	DIP-24, SO-24

• IN74LVXXXN, D(DW) Series

Part	Pin to Pin Compatibility	Function	Package
IN74LV00N,D	74LV00N,D	Quad 2-Input NAND Gate	DIP-14, SO-14
IN74LV02N,D	74LV02N,D	Quad 2-Input NOR Gate	DIP-14, SO-14
IN74LV04N,D	74LV04N,D	Hex Inverter	DIP-14, SO-14
IN74LVU04N,D	74LVU04N,D	Hex Inverter	DIP-14, SO-14
IN74LV08N,D	74LV08N,D	Quad 2-Input AND Gate	DIP-14, SO-14
IN74LV14N,D	74LV14N,D	Hex Schmitt-Trigger Inverter	DIP-14, SO-14
IN74LV32N,D	74LV32N,D	Quad 2-Input OR Gate	DIP-14, SO-14
IN74LV74N,D	74LV74N,D	Dual D-Type Flip-Flop	DIP-14, SO-14
IN74LV86N,D	74LV86N,D	Quad 2-Input Exclusive-OR Gate	DIP-14, SO-14
IN74LV138N,D	74LV138N,D	3-8 Decoder/Demultiplexer	DIP-16, SO-16
IN74LV139N,D	74LV139N,D	Dual 2-4 Decoder/Demultiplexer	DIP-16, SO-16
IN74LV164N,D	74LV164N,D	8-Bit Serial-In Parallel-Out Shift Register	DIP-14, SO-14
IN74LV174N,D	74LV174N,D	Hex D-Type Flip-Flop	DIP-16, SO-16
IN74LV240N,DW	74LV240N,D	Octal Buffer/line Driver, INV (3-State)	DIP-20, SO-20
IN74LV241N,DW	74LV241N,D	Octal Buffer/Line Driver, NINV (3-State)	DIP-20, SO-20
IN74LV244N,DW	74LV244N,D	Octal Buffer/Line Driver, NINV (3-State)	DIP-20, SO-20
IN74LV245N,DW	74LV245N,D	Octal Bus Transceiver, NINV (3-State)	DIP-20, SO-20
IN74LV273N,DW	74LV273N,D	Octal D-Type Flip-Flop	DIP-20, SO-20
IN74LV373N,DW	74LV373N,D	Octal D-Type Latch (3-State)	DIP-20, SO-20
IN74LV374N,DW	74LV374N,D	Octal D-Type Flip-Flop (3-State)	DIP-20, SO-20
IN74LV573N,DW	74LV573N,D	Octal Transparent Latch (3-State)	DIP-20, SO-20
IN74LV574N,DW	74LV574N,D	Octal D-Type Flip-Flop, NINV (3-State)	DIP-20, SO-20
IN74LV620N,DW	74LV620N,D	Octal Bidirectional Bus Transceiver, INV	DIP-20, SO-20
IN74LV623N,DW	74LV623N,D	Octal Bidirectional Bus Transceiver, NINV	DIP-20, SO-20
IN74LV640N,DW	74LV640N,D	Octal Bus Transceiver (3-State)	DIP-20, SO-20

• IN74XXXN, D Series

Part	Pin to Pin Compatibility	Function	Package
IN7401N	SN7401N	Quad 2-Input NAND Gate, OC	DIP-14
IN7406N,D	SN7406N,D	Hex Inverter/Buffer with High-Voltage Output, OC	DIP-14, SO-14
IN7420N	SN7420N	Dual 4-Input NAND Gate	DIP-14
IN7450N	SN7450N	Dual 2-Wide 2-Input AND-OR-Invert Gate	DIP-14
IN7472N	SN7472N	J-K Flip-Flop	DIP-14
IN74141N	SN74141N	BCD-to-Decimal Decoder/Driver	DIP-16
IN74145N	SN74145N	BCD-to-Decimal Decoder, OC	DIP-16
IN74154N	SN74154N	4-16 Decoder/Demultiplexer	DIP-24
IN74175N	SN74175N	Quad D-Type Flip-Flop	DIP-16

• IN74LSXXXN, D(DW) Series

Part	Pin to Pin Compatibility	Function	Package
IN74LS04N,D	CD74LS04N,D	Hex Inverter	DIP-14, SO-14
IN74LS05N,D	CD74LS05N,D	Hex Inverter, OC	DIP-14, SO-14
IN74LS06N,D	CD74LS06N,D	Hex Inverter/Buffer with High-Voltage Output, OC	DIP-14, SO-14
IN74LS07N,D	CD74LS07N,D	Hex Buffer with High-Voltage Output, OC, 30 V	DIP-14, SO-14
IN74LS14N,D	CD74LS14N,D	Hex Schmitt-Trigger Inverter	DIP-14, SO-14
IN74LS86N,D	CD74LS86N,D	Quad 2-Input Exclusive-OR Gate	DIP-14, SO-14
IN74LS138N,D	CD74LS138N,D	3-8 Decoder/Demultiplexer	DIP-16, SO-16
IN74LS157N,D	CD74LS157N,D	Quad 2-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74LS161AN,AD	CD74LS161AN,AD	4-Bit Binary Counter	DIP-16, SO-16
IN74LS164N,D	CD74LS164N,D	8-Bit Parallel-Out Shift Register	DIP-14, SO-14
IN74LS244N,DW	CD74LS244N,DW	Octal Buffer/Line Driver, NINV (3-State)	DIP-20, SO-20
IN74LS245N,DW	CD74LS245N,DW	Octal Bus Transceiver, NINV (3-State)	DIP-20, SO-20

• IN74ALSXXXXN, D(DW) Series

Part	Pin to Pin Compatibility	Function	Package
IN74ALS00AN,AD	SN74ALS00AN,AD	Quad 2-Input Positive-NAND Gate	DIP-14, SO-14
IN74ALS01N,D	SN74ALS01N,D	Quad 2-Input Positive-NAND Gate, OC	DIP-14, SO-14
IN74ALS02N,D	SN74ALS02N,D	Quad 2-Input Positive-NOR Gate	DIP-14, SO-14
IN74ALS03AN,AD	SN74ALS03AN,AD	Quad 2-Input Positive-NAND Gate, OC	DIP-14, SO-14
IN74ALS04AN,AD	SN74ALS04AN,AD	Hex Inverter	DIP-14, SO-14
IN74ALS05AN,AD	SN74ALS05AN,AD	Hex Inverter, OC	DIP-14, SO-14
IN74ALS08N,D	SN74ALS08N,D	Quad 2-Input Positive-AND Gate	DIP-14, SO-14
IN74ALS09N,D	SN74ALS09N,D	Quad 2-Input Positive-AND Gate, OC	DIP-14, SO-14
IN74ALS10AN,AD	SN74ALS10AN,AD	Triple 3-Input Positive-NAND Gate	DIP-14, SO-14
IN74ALS11AN,AD	SN74ALS11AN,AD	Triple 3-Input Positive-AND Gate	DIP-14, SO-14
IN74ALS12AN,AD	SN74ALS12AN,AD	Triple 3-Input Positive-NAND Gate, OC	DIP-14, SO-14
IN74ALS14N,D	SN74ALS14N,D	Hex Schmitt-Trigger Inverter	DIP-14, SO-14
IN74ALS15AN,AD	SN74ALS15AN,AD	Triple 3-Input Positive-AND Gate, OC	DIP-14, SO-14
IN74ALS20AN,AD	SN74ALS20AN,AD	Dual 4-Input Positive-NAND Gate	DIP-14, SO-14
IN74ALS21N,AD	SN74ALS21N,AD	Dual 4-Input Positive-AND Gate	DIP-14, SO-14
IN74ALS22BN,BD	SN74ALS22BN,BD	Dual 4-Input Positive-NAND Gate, OC	DIP-14, SO-14
IN74ALS27N,D	SN74ALS27N,D	Triple 3-Input Positive-NOR Gate	DIP-14, SO-14
IN74ALS30AN,AD	SN74ALS30AN,AD	8-Input Positive-NAND Gate	DIP-14, SO-14
IN74ALS32N,D	SN74ALS32N,D	Quad 2-Input Positive-OR Gate	DIP-14, SO-14
IN74ALS33AN,AD	SN74ALS33AN,AD	Quad 2-Input Positive-NOR Buffer, OC	DIP-14, SO-14

• IN74ALSXXXXN, D(DW) Series (continued)

Part	Pin to Pin Compatibility	Function	Package
IN74ALS51N,D	SN74ALS51N,D	AND-OR-Invert Gate	DIP-14, SO-14
IN74ALS54N,D	SN74ALS54N,D	4-Wide AND-OR-Invert Gate	DIP-14, SO-14
IN74ALS55N,D	SN74ALS55N,D	2-Wide 4-Input AND-OR-Invert Gate	DIP-14, SO-14
IN74ALS74AN,AD	SN74ALS74AN,AD	Dual D-Type Flip-Flop	DIP-14, SO-14
IN74ALS75N,D	SN74ALS75N,D	Quad Bistable Latch	DIP-16, SO-16
IN74ALS85N,D	SN74ALS85N,D	4-Bit Magnitude Comparator	DIP-16, SO-16
IN74ALS86N,D	SN74ALS86N,D	Quad 2-Input Exclusive-OR Gate	DIP-14, SO-14
IN74ALS90N,D	SN74ALS90N,D	4-Bit Decade Counter	DIP-14, SO-14
IN74ALS93N,D	SN74ALS93N,D	4-Bit Binary Counter	DIP-14, SO-14
IN74ALS107N,D	SN74ALS107N,D	Dual J-K Flip-Flop with Clear	DIP-14, SO-14
IN74ALS109N,D	SN74ALS109N,D	Dual J-K Positive-Edge-Triggered Flip-Flop	DIP-16, SO-16
IN74ALS112AN,AD	SN74ALS112AN,AD	Dual J-K Negative-Edge-Triggered Flip-Flop	DIP-16, SO-16
IN74ALS113AN,AD	SN74ALS113AN,AD	Dual J-K Negative-Edge-Triggered Flip-Flop	DIP-14, SO-14
IN74ALS114AN,AD	SN74ALS114AN,AD	Dual J-K Negative-Edge-Triggered Flip-Flop	DIP-14, SO-14
IN74ALS123N,D	SN74ALS123N,D	Dual Monostable Multivibrator with Reset	DIP-16, SO-16
IN74ALS125N,D	SN74ALS125N,D	Quad 3-State Buffer	DIP-14, SO-14
IN74ALS136N,D	SN74ALS136N,D	Quad 2-Input Exclusive-OR Gate, OC	DIP-14, SO-14
IN74ALS138N,D	SN74ALS138N,D	3-8 Decoder/Demultiplexer	DIP-16, SO-16
IN74ALS139N,D	SN74ALS139N,D	Dual 2-4 Decoder/Demultiplexer	DIP-16, SO-16
IN74ALS151N,D	SN74ALS151N,D	8-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74ALS153N,D	SN74ALS153N,D	Dual 4-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74ALS154N,DW	SN74ALS154N,D	4-16 Decoder/Demultiplexer (3-State)	DIP-24, SO-24
IN74ALS155N,D	SN74ALS155N,D	Dual 2-4 Decoder/Demultiplexer	DIP-16, SO-16
IN74ALS157N,D	SN74ALS157N,D	Quad 2-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74ALS158N,D	SN74ALS158N,D	Quad 2-1 Data Selector/Multiplexer, INV	DIP-16, SO-16
IN74ALS160AN,AD	SN74ALS160AN,AD	Synchronous Decade Counter, Asynchronous Reset	DIP-16, SO-16
IN74ALS161AN,AD	SN74ALS161AN,AD	4-Bit Synchronous Binary Counter, Asynchronous Reset	DIP-16, SO-16
IN74ALS162AN,AD	SN74ALS162AN,AD	Synchronous Decade Counter, Synchronous Reset	DIP-16, SO-16
IN74ALS163AN,AD	SN74ALS163AN,AD	4-Bit Synchronous Binary Counter, Synchronous Reset	DIP-16, SO-16
IN74ALS164N,D	SN74ALS164N,D	8-Bit Serial-In Parallel-Out Shift Register	DIP-14, SO-14
IN74ALS165N,D	SN74ALS165N,D	8-Bit Parallel-in Serial-Out Shift Register	DIP-16, SO-16
IN74ALS166N,D	SN74ALS166N,D	8-Bit Parallel-in Serial-Out Shift Register	DIP-16, SO-16
IN74ALS170N,D	SN74ALS170N,D	4-by-4 Register File, OC	DIP-16, SO-16
IN74ALS173AN,AD	SN74ALS173AN,AD	4-Bit D-Type Register (3-State)	DIP-16, SO-16
IN74ALS174N,D	SN74ALS174N,D	Hex D-Type Flip-Flop	DIP-16, SO-16
IN74ALS175N,D	SN74ALS175N,D	Quad D-Type Flip-Flop	DIP-16, SO-16
IN74ALS181N,DW	SN74ALS181N,D	4-Bit Arithmetic Logic Unit	DIP-24, SO-24
IN74ALS182N,D	SN74ALS182N,D	Look-Ahead Carry Generator	DIP-16, SO-16
IN74ALS190N,D	SN74ALS190N,D	Synchronous Decade Up/Down Counter	DIP-16, SO-16
IN74ALS191N,D	SN74ALS191N,D	4-Bit Synchronous Binary Up/Down Counter	DIP-16, SO-16
IN74ALS192N,D	SN74ALS192N,D	Synchronous Decade Up/Down Counter	DIP-16, SO-16
IN74ALS193N,D	SN74ALS193N,D	4-Bit Synchronous Binary Up/Down Counter	DIP-16, SO-16
IN74ALS240AN,ADW	SN74ALS240AN,AD	Octal Buffer/Line Driver, INV (3-State)	DIP-20, SO-20
IN74ALS241AN,ADW	SN74ALS241AN,AD	Octal Buffer/Line Driver, NINV (3-State)	DIP-20, SO-20
IN74ALS242AN,AD	SN74ALS242AN,AD	Quad Bus Transceiver, INV (3-State)	DIP-14, SO-14
IN74ALS243AN,AD	SN74ALS243AN,AD	Quad Bus Transceiver, NINV (3-State)	DIP-14, SO-14
IN74ALS244AN,ADW	SN74ALS244AN,AD	Octal Buffer/Line Driver, NINV (3-State)	DIP-20, SO-20
IN74ALS245AN,ADW	SN74ALS245AN,AD	Octal Bus Transceiver, NINV (3-State)	DIP-20, SO-20
IN74ALS251N,D	SN74ALS251N,D	8-1 Data Selector/Multiplexer, INV (3-State)	DIP-16, SO-16
IN74ALS253N,D	SN74ALS253N,D	Dual 4-1 Data Selector/Multiplexer, NINV (3-State)	DIP-16, SO-16
IN74ALS257AN,AD	SN74ALS257AN,AD	Quad 2-1 Data Selector/Multiplexer, NINV (3-State)	DIP-16, SO-16
IN74ALS258AN,AD	SN74ALS258AN,AD	Quad 2-1 Data Selector/Multiplexer, INV (3-State)	DIP-16, SO-16
IN74ALS259N,D	SN74ALS259N,D	8-Bit Addressable Latch	DIP-16, SO-16
IN74ALS273N,DW	SN74ALS273N,D	Octal D-Type Flip-Flop	DIP-20, SO-20
IN74ALS279N,D	SN74ALS279N,D	Quad Set/Reset Latch	DIP-16, SO-16
IN74ALS280N,D	SN74ALS280N,D	9-Bit Odd/Even Parity Generator/Checker	DIP-14, SO-14

• IN74ALSXXXXN, D(DW) Series (continued)

Part	Pin to Pin Compatibility	Function	Package
IN74ALS295BN,BD	SN74ALS295BN,BD	4-Bit Universal Shift Register	DIP-14, SO-14
IN74ALS298N,D	SN74ALS298N,D	Quad 2-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74ALS299N,DW	SN74ALS299N,D	8-Bit Universal Shift/Storage Register (3-State)	DIP-20, SO-20
IN74ALS323N,DW	SN74ALS323N,D	8-Bit Universal Shift/Storage Register (3-State)	DIP-20, SO-20
IN74ALS352N,D	SN74ALS352N,D	Dual 4-1 Data Selector/Multiplexer	DIP-16, SO-16
IN74ALS353N,D	SN74ALS353N,D	Dual 4-1 Data Selector/Multiplexer (3-State)	DIP-16, SO-16
IN74ALS368N,D	SN74ALS368N,D	Hex Bus Driver (3-State)	DIP-16, SO-16
IN74ALS373N,DW	SN74ALS373N,D	Octal D-Type Latch (3-State)	DIP-20, SO-20
IN74ALS374AN,ADW	SN74ALS374AN,AD	Octal D-Type Flip-Flop (3-State)	DIP-20, SO-20
IN74ALS377AN,ADW	SN74ALS377AN,AD	Octal D-Type Flip-Flop with Enable	DIP-20, SO-20
IN74ALS393N,D	SN74ALS393N,D	Dual 4-Bit Binary Counter	DIP-14, SO-14
IN74ALS465AN,ADW	SN74ALS465AN,AD	Octal Buffer, NINV (3-State)	DIP-20, SO-20
IN74ALS466AN,ADW	SN74ALS466AN,AD	Octal Buffer, INV (3-State)	DIP-20, SO-20
IN74ALS573N,DW	SN74ALS573N,D	Octal Transparent Latch (3-State)	DIP-20, SO-20
IN74ALS574N,DW	SN74ALS574N,D	Octal D-Type Flip-Flop (3-State)	DIP-20, SO-20
IN74ALS640BN,BDW	SN74ALS640BN,BD	Octal Bus Transceiver (3-State)	DIP-20, SO-20
IN74ALS643AN,ADW	SN74ALS643AN,AD	Octal Bus Transceiver (3-State)	DIP-20, SO-20
IN74ALS670N,D	SN74ALS670N,D	4-by-4 Register File (3-State)	DIP-16, SO-16
IN74ALS873N,DW	SN74ALS873N,D	Dual 4-Bit D-Type Latch (3-State)	DIP-24, SO-24
IN74ALS874N,DW	SN74ALS874N,D	Dual 4-Bit D-Type Flip-Flop	DIP-24, SO-24
IN74ALS1000AN,AD	SN74ALS1000AN,AD	Quad 2-Input Positive-NAND Buffer	DIP-14, SO-14
IN74ALS1002AN,AD	SN74ALS1002AN,AD	Quad 2-Input Positive-NOR Buffer	DIP-14, SO-14
IN74ALS1003AN,AD	SN74ALS1003AN,AD	Quad 2-Input Positive-NAND Buffer, OC	DIP-14, SO-14
IN74ALS1004N,D	SN74ALS1004N,D	Hex Inverting Driver	DIP-14, SO-14
IN74ALS1005N,D	SN74ALS1005N,D	Hex Inverting Buffer, OC	DIP-14, SO-14
IN74ALS1008AN,AD	SN74ALS1008AN,AD	Quad 2-Input Positive-NAND Buffer	DIP-14, SO-14
IN74ALS1010AN,AD	SN74ALS1010AN,AD	Triple 3-Input Positive-NAND Buffer	DIP-14, SO-14
IN74ALS1011AN,AD	SN74ALS1011AN,AD	Triple 3-Input Positive-AND Buffer	DIP-14, SO-14
IN74ALS1020AN,AD	SN74ALS1020AN,AD	Dual 4-Input Positive-NAND Buffer	DIP-14, SO-14
IN74ALS1032AN,AD	SN74ALS1032AN,AD	Quad 2-Input Positive-OR Buffer/Driver	DIP-14, SO-14
IN74ALS1034N,D	SN74ALS1034N,D	Hex Driver	DIP-14, SO-14
IN74ALS1035N,D	SN74ALS1035N,D	Hex Noninverting Buffer, OC	DIP-14, SO-14

• FUNCTIONAL SELECTION

GATES

Function	Part	Technology										Pins
		74AC	74ACT	74VHC	74VHCT	74HC	74HCT	74LV	74	74LS	74ALS	
Positive-NAND Gates												
8-Input	30					x	x				x	14
Dual 4-Input	20	x	x			x	x		x		x	14
	40											14
	1020										x	14
Triple 3-Input	10	x	x			x	x				x	14
	1010										x	14
Quad 2-Input	00	x	x	x	x	x	x	x			x	14
	132	x	x			x	x					14
	1000										x	14
Positive-NAND Gates, OC												
Dual 4-Input	22					x	x				x	14
Triple 3-Input	12										x	14
Quad 2-Input	01								x		x	14
	03					x					x	14
	1003										x	14
Positive-AND Gates, OC												
Triple 3-Input	15										x	14
Quad 2-Input	09										x	14
Positive-AND Gates												
Dual 4-Input	21	x	x			x	x				x	14
Triple 3-Input	11	x	x			x					x	14
	1011										x	14
Quad 2-Input	08	x	x	x	x	x	x	x			x	14
	1008										x	14
Positive-OR Gates												
Quad 2-Input	32	x	x	x	x	x	x	x			x	14
	1032										x	14
Positive-NOR Gates												
Triple 3-Input	27	x	x			x	x				x	14
Quad 2-Input	02	x	x	x	x	x	x	x			x	14
	33										x	14
	1002										x	14
Exclusive-OR Gates												
Quad 2-Input	86	x	x	x	x	x	x	x		x	x	14
	810	x	x									14
Quad 2-Input, OC	136										x	14
AND-OR Gates												
2-Wide 4-Input	55										x	14
4-Wide 2-3-3-2 Input	54										x	14
Dual 2-Wide 2-Input	51										x	14
Expandable Gates												
Dual 2-Wide AND-OR-Invert	50								x			14
4-Wide AND-OR-Invert	53											14
Dual 4-Input Expander	60											14

• FUNCTIONAL SELECTION (continued)

HEX INVERTERS/NONINVERTERS

Function	Part	Technology										Pins
		74AC	74ACT	74VHC	74VHCT	74HC	74HCT	74LV	74	74LS	74ALS	
Hex Inverters	04	x	x			x	x	x		x	x	14
	U04							x				14
	05	x	x			x				x	x	14
	06								x	x		14
	14	x	x			x	x	x		x	x	14
	16											14
	1004										x	14
	1005										x	14
Hex Noninverters	34	x	x									14

DRIVERS AND BUS TRANSCEIVERS

Function	Part	Technology										Pins
		74AC	74ACT	74VHC	74VHCT	74HC	74HCT	74LV	74	74LS	74ALS	
Hex Drivers												
Hex Drivers	07									x		14
	1034										x	14
	1035										x	14
Noninverting Hex Buffers/Drivers	365					x						16
	367					x						16
	368										x	16
Drivers with 3-State Outputs												
Quad Buffer Drivers	125	x	x	x	x	x	x				x	14
	126			x	x		x					14
Octal Buffer/Drivers, NINV	241	x	x	x	x	x	x	x			x	20
	244	x	x	x	x	x	x	x		x	x	20
	465										x	20
Octal Buffer Drivers, INV	240	x	x	x	x	x	x	x			x	20
	466										x	20
Bus Transceivers with 3-State Outputs												
Quad Transceiver, NINV	243										x	14
Quad Transceiver, INV	242										x	14
Octal Transceiver	245	x	x			x	x	x		x	x	20
	620	x	x			x	x	x				20
	640	x	x			x	x	x			x	20
	643	x	x								x	20
Octal Bus Transceivers with Registers	651	x	x			x						24
	652	x	x			x						24
True Output Transceiver	623	x	x			x	x	x				20
50/75-Ohm Line Drivers												
Quad 2-Input Positive-NOR	128											14

• FUNCTIONAL SELECTION (continued)

FLIP-FLOPS

Function	Part	Technology										Pins
		74AC	74ACT	74VHC	74VHCT	74HC	74HCT	74LV	74	74LS	74ALS	
Dual and Single Flip-Flops												
Single J-K	72								x			14
Dual J-K Edge-Triggered	107										x	14
	109	x	x			x					x	16
	112	x	x			x					x	16
	113										x	14
	114										x	14
Dual D-Type	74	x	x	x	x	x	x	x			x	14
Quad and Hex Flip-Flops												
Quad D-Type	175	x	x			x			x		x	16
Hex D-Type	174	x	x			x	x	x			x	16
Quad J-K	279					x	x				x	16
D-Type Flip-Flops												
Octal (3-State)	374	x	x	x	x	x	x	x			x	20
	574	x	x			x	x	x			x	20
Octal with Clear	273	x	x			x	x	x			x	20
Dual 4-Bit with Clear	874					x	x				x	24
Octal with Enable	377										x	20
Octal Inverting (3-State)	534	x	x			x						20
	564	x	x									

LATCHES AND MULTIVIBRATORS

Function	Part	Technology										Pins
		74AC	74ACT	74VHC	74VHCT	74HC	74HCT	74LV	74	74LS	74ALS	
Latches												
4-Bit Bistable	75					x					x	16
Quad Set/Reset	279					x	x				x	16
Transparent (3-State)	373	x	x	x	x	x	x	x			x	20
	573	x	x			x	x	x			x	20
Dual 4-Bit Transparent (3-State)	873										x	24
Inverting Transparent	533	x	x			x						20
	563	x	x									20
8-Bit Addressable	259										x	16
Multivibrators												
Dual Monostable with Clear	123					x					x	16
	221					x						20

• FUNCTIONAL SELECTION (continued)

REGISTERS

Function	Part	Technology										Pins
		74AC	74ACT	74VHC	74VHCT	74HC	74HCT	74LV	74	74LS	74ALS	
Shift Registers												
8-Bit Universal	198											24
	299	x	x			x	x				x	20
	323	x	x			x	x				x	20
4-Bit Parallel-in/ Parallel-out	295										x	14
	4035	x	x									16
8-Bit Serial-in Parallel-Out	164	x	x			x	x	x		x	x	14
8-Bit Parallel-in Serial-Out	165					x	x				x	16
	166					x					x	16
Dual 4-Bit Static	4015	x	x			x						16
8-Bit Shift and Store	4094					x						16
	4006	x	x									14
Shift Registers with Latches												
Serial-in Parallel-Out with Output Latches	595					x						16
Parallel-in Serial-Out with Input Latches	597					x						16
Register Files												
4-by-4, OC (3-State)	170										x	16
	670										x	16
Other Registers												
4-Bit D-Type Register (3-State)	173										x	16

COUNTERS

Function	Part	Technology										Pins
		74AC	74ACT	74VHC	74VHCT	74HC	74HCT	74LV	74	74LS	74ALS	
Synchronous Counters												
4-Bit Decade, Asynchronous Reset	160										x	16
	162										x	16
Decade Up/Down	190										x	16
	192	x	x			x					x	16
4-Bit Binary, Asynchronous Reset	161	x	x			x				x	x	16
	163	x	x			x	x				x	16
4-Bit Binary Up/Down	191										x	16
	193	x	x			x					x	16
Asynchronous Counters												
4-Bit Decade	90										x	14
4-Bit Binary	93										x	14
Dual 4-Bit Binary	393					x					x	14
	4520	x	x									16

• FUNCTIONAL SELECTION (continued)

DECODERS, DATA SELECTORS/MULTIPLEXERS

Function	Part	Technology										Pins
		74AC	74ACT	74VHC	74VHCT	74HC	74HCT	74LV	74	74LS	74ALS	
Data Selectors/Multiplexers												
Quad 2-1	157	x	x			x	x			x	x	16
	158	x	x			x					x	16
	298										x	16
	257	x	x			x					x	16
	258	x	x			x					x	16
Dual 4-1	153	x	x			x	x				x	16
	253	x	x			x					x	16
	352										x	16
	353										x	16
8-1	151	x	x			x	x				x	16
	152											14
	251	x	x			x	x				x	16
16-1	150											24
Analog Multiplexers/Demultiplexers												
8-Channel	4051					x						16
Dual 4-Channel	4052					x						16
Triple 2-Channel	4053					x						16
Decoders												
Dual 2-4	139	x	x			x	x	x			x	16
	155					x	x				x	16
3-8	138	x	x			x	x	x		x	x	16
4-16	154					x			x		x	24
BCD-to-Decimal	141								x			16
	145								x			16
Digital Loops												
Phase-Lock Loop	4046					x						16

COMPARATORS AND ERROR DETECTION CIRCUITS

Function	Part	Technology										Pins
		74AC	74ACT	74VHC	74VHCT	74HC	74HCT	74LV	74	74LS	74ALS	
Comparators												
4-Bit Magnitude Comparator	85					x	x				x	16
Parity Generators/Checkers												
8-Bit Odd/Even Parity	180											14
9-Bit Odd/Even Parity	280										x	14

ARITHMETIC CIRCUITS

Function	Part	Technology										Pins
		74AC	74ACT	74VHC	74VHCT	74HC	74HCT	74LV	74	74LS	74ALS	
4-Bit Arithmetic Logic Unit	181										x	24
Look-Ahead Carry Generator	182										x	16
4-Bit Full Adder	283					x	x					16

• FAMILY CHARACTERISTICS

DC Characteristics (Max)

Parameters	TTL			CMOS									Units
	74	74LS	74ALS	4000A	4000B	74AC	74ACT	74VHC	74VHCT	74HC	74HCT	74LV	
Supply Voltage Range, $V_{CC}(V_{DD})$	5±5%	5±5%	5±10%	3…15	3…18	2…6	5±10%	2…5.5	5±5%	2…6	5±10%	1.0…5.5	V
Operating Temperature, T_A	-10…+70	0…+70	-10…+70	-45…+85	-55…+125	-45…+85	-45…+85	-40…+85	-40…+85	-55…+125	-55…+125	-40…+125	°C
High -Level Input Voltage, V_{IH} (min)	2	2	2	0.8xV_{DD}	0.7xV_{DD}	0.7xV_{CC}	2	0.7xV_{CC}	2	0.7xV_{CC}	2	0.7xV_{CC}	V
Low -Level Input Voltage, V_{IL} (max)	0.8	0.8	0.8	0.2xV_{DD}	0.3xV_{DD}	0.3xV_{CC}	0.8	0.3xV_{CC}	0.8	0.3xV_{CC}	0.8	0.3xV_{CC}	V
High-Level Output Voltage, V_{OH} (min)	2.4	V_{CC}-2	V_{CC}-2	V_{DD}-1	V_{DD}-0.05	V_{CC}-0.1	V_{CC}-0.1	3.8	3.8	V_{CC}-0.1	V_{CC}-0.1	V_{CC}-0.2	V
Low-Level Output Voltage, V_{OL} (max)	0.4	0.5	0.5	0.05	0.05	0.1	0.1	0.44	0.44	0.1	0.1	0.2	V
High-Level Input Current, I_{IH}	40	20	20	+1	+0.3	+1	+1	+1	+1	+1	+1	+1	μA
Low-Level Input Current, I_{IL}	-1600	-400	-100	-1	-0.3	-1	-1	-1	-1	-1	-1	-1	μA
High-Level Output Current, I_{OH}	-0.4	-0.4	-0.4	-0.25 at V_0=4.5 V V_{DD}=5.0 V	-4.2 at V_0=2.5 V V_{DD}=5.0 V	-24 at V_0=V_{CC}-0.8	-24 at V_0=V_{CC}-0.8	-8	-8	-4 at V_0=V_{CC}-0.8	-4 at V_0=V_{CC}-0.8	-16	mA
Low-Level Output Current, I_{OL}	16	8	8	0.5 at V_0=0.5 V V_{DD}=5.0 V	0.88 at V_0=0.4 V V_{DD}=5.0 V	24 at V_0=0.4 V	24 at V_0=0.4 V	8	8	4 at V_0=0.4 V	4 at V_0=0.4 V	16	mA
DC Noise Margin, DCM	0.4/0.4	0.3/0.7	0.3/0.7	1.0 at V_{DD}=5 V 1.0 at V_{DD}=10 V	1.5 at V_{DD}=5 V 3.0 at V_{DD}=10 V 4.0 at V_{DD}=15 V	1.25/1.25	0.7/2.4	1.25/1.25	0.7/2.4	1.25/1.25	0.7/2.4	0.8/0.8	V

• FAMILY CHARACTERISTICS

DC Characteristics (Type)

Parameters		TTL			CMOS									Units
		74	74LS	74ALS	4000A	4000B	74AC	74ACT	74VHC	74VHCT	74HC	74HCT	74LV	
Supply Current for Gate, I_G		3.4	0.4	0.2	0.0004	0.0001	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	mA
Power Supply for Gate, P_G		10	2	1	0.0025	0.0001	0.0025	0.0025	0.0025	0.0025	0.001	0.001	0.001	mW
Propagation Delay Time, T_P		10	7	5	40 at V_{DD}=5 V 20 at V_{DD}=10 V	40 at V_{DD}=5 V 20 at V_{DD}=10 V 15 at V_{DD}=15 V	5	5	5.3	5.5	8	8	10	ns
Clock Frequency, F_{max}		35 C_L=15 pF	40 C_L=15 pF	45 C_L=50 pF	5 at V_{DD}=5 V 10 at V_{DD}=10 V C_L=15 pF	5 at V_{DD}=5 V 10 at V_{DD}=10 V 14 at V_{DD}=15 V C_L=50 pF	140 C_L=50 pF	140 C_L=50 pF	115 C_L=50 pF 170 C_L=15 pF	140 C_L=50 pF 160 C_L=15 pF	30 C_L=50 pF	30 C_L=50 pF	40 C_L=50 pF	MHz
COMPATIBLE	Inputs V_{IL}/V_{IH}	TTL	TTL	TTL	CMOS	CMOS	CMOS	TTL, CMOS	TTL at V_O=3.3V, CMOS	TTL, CMOS	CMOS	TTL, CMOS	CMOS	-
	Outputs V_{OL}/V_{OH}	TTL	TTL	TTL	TTL, CMOS	TTL, CMOS	TTL, CMOS	TTL, CMOS	TTL, CMOS	TTL	TTL, CMOS	TTL, CMOS	TTL, CMOS	-

• FAMILY CHARACTERISTICS

AC Characteristics

Parameters	Performance		TTL			CMOS									Units
Propagation Delay, t_{PHL}/t_{PHL}	Gate, NOR or NAND	Type	**7400**	**74LS00**	**74ALS00**	**4001A**	**4001B**	**74AC00**	**74ACT00**	**74VHC00**	**74VHCT00**	**74HC00**	**74HCT00**	**74LV00**	ns
			10 C_L=15 pF	7 C_L=15 pF	5 C_L=50 pF	80 at V_{DD}=5 V 40 at V_{DD}=10 V C_L=15 pF	60 at V_{DD}=5 V 25 at V_{DD}=10 V 20 at V_{DD}=15 V C_L=50 pF	5 C_L=50 pF	5 C_L=50 pF	5.4 C_L=50 pF 3.9 C_L=15 pF	5.9 C_L=50 pF 5.4 C_L=15 pF	8 C_L=50 pF	8 C_L=50 pF	10 C_L=50 pF	
		Max	22 C_L=15 pF	15 C_L=15 pF	11 C_L=50 pF	120 at V_{DD}=5 V 60 at V_{DD}=10 V C_L=15 pF	110 at V_{DD}=5 V 60 at V_{DD}=10 V 48 at V_{DD}=15 V C_L=50 pF	8.5 C_L=50 pF	9.5 C_L=50 pF	8.5 C_L=50 pF 6.5 C_L=15 pF	8.5 C_L=50 pF 7.5 C_L=15 pF	22 C_L=50 pF	28 C_L=50 pF	14 C_L=50 pF	ns
Propagation Delay, t_{PHL}/t_{PHL} (Clock to Q)	Counter	Type	**74163**	**74LS163**	**74ALS163**	**4163A**	**4163B**	**74AC163**	**74ACT163**	**74VHC163**	**74VHCT163**	**74HC163**	**74HCT163**	**74LV163**	sn
			16 C_L=15 pF	18 C_L=15 pF	10 C_L=50 pF	450 at V_{DD}=5 V 150 at V_{DD}=10 V C_L=15 pF	180 at V_{DD}=5 V 80 at V_{DD}=10 V 65 at V_{DD}=15 V C_L=50 pF	5 C_L=50 pF	6 C_L=50 pF	6 C_L=50 pF 4.9 C_L=15 pF	8.5 C_L=50 pF 7.7 C_L=15 pF	20 C_L=50 pF	20 C_L=50 pF	18 C_L=50 pF	
		Max	38 C_L=15 pF	27 C_L=15 pF	26 C_L=50 pF	650 at V_{DD}=5 V 250 at V_{DD}=10 V C_L=15 pF	360 at V_{DD}=5 V 160 at V_{DD}=10 V 130 at V_{DD}=15 V C_L=50 pF	9.5 C_L=50 pF	12 C_L=50 pF	10.5 C_L=50 pF 8.5 C_L=15 pF	14.5 C_L=50 pF 13.5 C_L=15 pF	28 C_L=50 pF	28 C_L=50 pF	23 C_L=50 pF	ns
Propagation Delay, t_{PHL}/t_{PHL} (Clock to Q)	Flip-Flop, D-Type	Type	**7474**	**74LS74**	**74ALS74**	**4013A**	**4013B**	**74AC74**	**74ACT74**	**74VHC74**	**74VHCT74**	**74HC74**	**74HCT74**	**74LV74**	ns
			25 C_L=15 pF	25 C_L=1 5pF	13 C_L=50 pF	150 at V_{DD}=5 V 75 at V_{DD}=10 V C_L=15 pF	150 at V_{DD}=5 V 65 at V_{DD}=10 V 45 at V_{DD}=15 V C_L=50 pF	6 C_L=50 pF	6 C_L=50 pF	6.1 C_L=50 pF 4.6 C_L=15 pF	6.3 C_L=50 pF 5.8 C_L=15 pF	20 C_L=50 pF	24 C_L=50 pF	25 C_L=50 pF	
		Max	40 C_L=15 pF	40 C_L=15 pF	18 C_L=50 pF	400 at V_{DD}=5 V 150 at V_{DD}=10 V C_L=15 pF	300 at V_{DD}=5 V 130 at V_{DD}=10 V 90 at V_{DD}=15 V C_L=50 pF	10 C_L=50 pF	11.5 C_L=50 pF	10.5 C_L=50 pF 8.5 C_L=15 pF	10.0 C_L=50 pF 9.0 C_L=15 pF	30 C_L=50 pF	36 C_L=50 pF	35 C_L=50pF	ns

• CMOS IC for LCD Wrist-Watches and Clocks

Part (Pin to Pin Compatibility)	Display			Functions				Multi-plexing Ratio	Supply Current without Load max, μA	V_{DD}, V	Notes
	Digits	Flags	Marks	Hour Minute Second Month Date	Alarm	Chrono-graph	12H/ 24H				
Digital watch											
IZ6099F/ L/C/E (KS5199)	3.5		1	+			12	1/2	1.5	1.5	
IZ6099K	3.5		1	+			12/24		1.5	1.5	
IZ6199	3.5		1	+			12	1/2	1.5	3.0	IZ6099+EL
IZ6018	12	-	8	+	+	+	12/24	1/3	2.0	3.0	°C: -20÷+60 °F: -4÷+140
Analog clock											
IZ33173	Output pulse duration 31.25 ms								2.0	1.5	Clock IC
IZ33567									1.5	1.5	Clock with alarm, snooze, crescendo

• Electronic Thermometer IC

Part	Pin to Pin Compatibility	Function	Features	Pads
IZ8016		100° Digital thermometer °C/°F	□ Measurement temperature range: from -50°C to +50°C (from -58°F to +122°F) □ Resolution: 0.2°C (°F) □ Accuracy: ±1°C (°F) □ Supply voltage 1.5V □ Measurement cycle 1, 3, 5 & 10 seconds (on default– 10 seconds) □ Measuring RC-oscilator with external resistor & capacitor □ 32 kHz clock RC-oscilator with build-in capacity □ Serial interface □ Build-in circuit of non-linear digital correction □ 3.5 digit LCD with double multiplex	36
IZ8005	HT7501	Medical thermometer	□ Supply voltage 1.5V □ Measurement temperature range: from +32.00°C to+43.00°C □ Accuracy: ±0.1°C □ Resolution: 0.01°C □ Selftesting □ Alarm signal □ Storage of measurements results (highest temperature) □ Automatic switch-off after 8 min 40 sec □ One button on/off switching	37
IZ8071		Digital medical thermometer	□ Measurement temperature range: from 32 to 42°C (from 89.6 to 107.6°F) □ Measurement accuracy: ±0.05°C – for range from 35 to 38°C, ±0.1°C – for ranges from 32 to 35°C & from 38°C to 42°C □ Resolution: 0.0025°C □ RC-oscillator with own frequency 32.32kHz (external resistance) with adjustment function □ Build-in LCD driver circuit 3COM x 11SEG, 1/3 duty, 1/2 bias	42
IN18B20D IN18B20	DS18B21	Integrated circuit of digital sensor-measurer of temperature for industrial temperature range	□ Measurement temperature range: from -55°C to +125°C □ Temperature value is converted to 12-bit digital code □ Accuracy of temperature indication can be programmed by customer form 9 to 12 bit □ Alarm signal for case of temperature excess of threshold values determined (programmed) by customer □ Unique 64-bit serial number for each IC, not available for changes by customer □ Data read/write operation from memory of IC, 1-wire interface of data transfer	SO-8 TO-92

• Melody IC

Part	Maximum Number of Tunes (Notes)	Vcc, V	Supply Current, μA		Package
			Operating	Stand-by	
BT8028-XX	16 (64)	1.3 – 3.3	< 60	< 1.0	TO-92
BT8031-XX	2 (127)	2.0 – 5.0	<1000	< 5	TO-92

XX – Melody code

DISCRETE SEMICONDUCTORS

• Power N-Channel MOSFETs

Part	Function	Package
IFP50N06	N-Channel MOSFET 60 V; 0.023 Ω– 50 A	TO-220/3
IFP70N06	N-Channel MOSFET 60 V; 0.015 Ω– 70 A	Chip
IFP85N06	N-Channel MOSFET 60 V; 0.012 Ω– 85 A	Chip
IFP75N75	N-Channel MOSFET 75 V; 0.017 Ω– 75 A	Chip
IFP75N08	N-Channel MOSFET 80 V; 0.015 Ω– 75 A	TO-220/3
IFP630	N-Channel MOSFET 200 V; 0.400 Ω– 9 A	Chip
IFF630		Chip
IFP640	N-Channel MOSFET 200 V; 0.180 Ω– 18 A	Chip
IFF640		Chip
IFP634	N-Channel MOSFET 250 V; 0.450 Ω– 8 A	Chip
IFF634		Chip
IFP730	N-Channel MOSFET 400 V; 0.950 Ω– 6 A	TO-220/3
IFF730		TO-220FP
IFP740	N-Channel MOSFET 400 V; 0.550 Ω– 10 A	TO-220/3
IFF740		TO-220FP
IFP830	N-Channel MOSFET 500 V;1.400 Ω– 5 A	TO-220/3
IFF830		TO-220FP
IFP840	N-Channel MOSFET 500 V; 0.850 Ω– 8 A	TO-220/3
IFF840		TO-220FP
IFP13N50	N-Channel MOSFET 500 V; 0.490 Ω– 13 A	Chip
IFW20N50	N-Channel MOSFET 500 V; 0.260 Ω– 20 A	Chip
IFL50N50	N-Channel MOSFET 500 V; 0.120 Ω– 50 A	Chip
IFP1N60	N-Channel MOSFET 600 V; 12.000 Ω– 0,9 A	TO-220/3
IFU1N60		I-PAK
IFD1N60		D-PAK
IFU2N60	N-Channel MOSFET 600 V; 5.0 Ω–1,8 A	I-PAK
IFD2N60		D-PAK
IFP2N60	N-Channel MOSFET 600 V; 5.0 Ω– 2 A	TO-220/3
IFF2N60		TO-220FP
IFP4N60	N-Channel MOSFET 600 V; 2.5 Ω– 4.0 A	TO-220/3
IFF4N60		TO-220FP
IFP7N60	N-Channel MOSFET 600 V; 1.2 Ω– 7 A	TO-220/3
IFF7N60		TO-220FP
IFP10N60	N-Channel MOSFET 600 V; 0.8 Ω– 10 A	Chip
IFF10N60		Chip
IFP12N60	N-Channel MOSFET 600 V; 0.7 Ω– 12 A	Chip
IFF12N60		Chip
IFW20N60	N-Channel MOSFET 600 V; 0.32 Ω– 20 A	Chip
IFW24N60	N-Channel MOSFET 600 V; 0.26 Ω– 24 A	Chip
IFW28N60	N-Channel MOSFET 600 V; 0.24 Ω– 28 A	Chip
IFL40N60	N-Channel MOSFET 600 V; 0.16 Ω– 40 A	Chip
IFU1N65	N-Channel MOSFET 650 V; 13.0 Ω– 1 A	Chip
IFD1N65		Chip
IFU2N65	N-Channel MOSFET 650 V; 5.5 Ω– 2 A	Chip
IFD2N65		Chip
IFP2N65		Chip
IFF2N65		Chip
IFP4N65	N-Channel MOSFET 650 V; 2.7 Ω– 4 A	Chip
IFF4N65		Chip
IFP7N65	N-Channel MOSFET 650 V; 1.3 Ω– 7 A	Chip
IFF7N65		Chip
IFP10N65	N-Channel MOSFET 650 V; 0.85 Ω– 10 A	Chip
IFF10N65		Chip
IFF12N65	N-Channel MOSFET 650 V; 0.8 Ω– 12 A	Chip
IFF12N65		Chip

• Power N-Channel MOSFETs (continued)

Part	Function	Package
IFP1N80	N-Channel MOSFET 800 V; 18.0 Ω– 1,2 A	TO-220/3
IFU1N80		I-PAK
IFF3N80	N-Channel MOSFET 800 V; 5.0 Ω– 3 A	TO-220FP
IFW10N80	N-Channel MOSFET 800 V; 1.1 Ω– 10 A	TO-247
IFW9N90	N-Channel MOSFET 900 V; 1.4 Ω– 9 A	TO-247
IFW11N90	N-Channel MOSFET 900 V; 1.1 Ω– 11 A	TO-247
IWP5NK80	N-Channel MOSFET 800 V; 2.4 Ω– 4.3 A	TO-220/3
IZ024N	N-Channel MOSFET 55 V; 0.075 Ω- 17 A	Chip

• Fast (Ultrafast) Rectifying Diode (FRD, UFRD)

Part	Pin to Pin Compatibility	Peak. Rectified Direct current $I_{R.MAX.}$ (A)	Non repetive Peak Surge Current $I_{P.\ max}$ (A)	Max Reverse Voltage $U_{REV.MAX}$ (V)	Max.Reverse Recovery Time t_{REC} ns	Max. instantaneous forward voltage U_R V	Max. instantaneous reverse current (T=25°C) $I_{REV.}$,mA	Package
IWR0520F	MUR0520F	5	35	200	250	1.1	50	TO-220
IWR0520U	MUR0520U	5	35	200	25	1.2	50	TO-220

• Photo-diode

Part	Pin to Pin Compatibility	Function	Package
IWPH01-02A	S2506-02	Photo-diode	Special 2-pin package

• Power Zener Diodes

Part	Pin to Pin Compatibility	Function	Package
IZ3527	MR2537L	Power limiting diode for rectifying bridges of alternator plant I_{RECT}=35A; U_{BR}=18-23V	DO-21 TO-220
IZ3549	MR2535L	Power limiting diode for rectifying bridges of alternator plant I_{RECT}=35A; U_{BR}=36-46V	DO-21 TO-220
IZ3563	MR2563L	Power limiting diode for rectifying bridges of alternator plant I_{RECT}=35A; U_{BR}=50-60V	DO-21 TO-220

• Bipolar Transistors

Part	Pin to Pin Compatibility	Polarity	P_C max, W	V_{CB} max, V	V_{CE} max, V	V_{EB} max, V	I_C max, mA	h_{FE}	V_{CE} sat, V	I_{CBO}, μA	F_T, MHz	Package
КТ520А КТ520Б	MPSA42 MPSA43	NPN	0.625	300 200	300 200	6	500	>40	0.5 0.4	100	50	TO-92
КТ521А КТ521Б	MPSA92 MPSA93	PNP	0.625	300 200	300 200	5	500	>40	0.5 0.4	100	50	TO-92
КТ814А КТ814Б КТ814В КТ814Г	 BD136 BD138 BD140	PNP	10		40 50 70 100	5	1500	40…275 40…275 40…275 30…275	0.6	50	40	TO-126
КТ8225А	BU941ZP	NPN	155	350	350	5	15000	>300	2.7	100		TO-218

• Unijunction Transistors

Part	Pin to Pin Compatibility	P max, W	Vb, b2 max, V	Ie pulse, A	Ie rev, μA	Veb sat, V	η	Package
КТ132А КТ132Б	2N2646 2N2647	0.3	35	2.0	12.0 0.2	0.7…3.5	0.56…0.75 0.68…0.82	Case 22A-01
КТ133А КТ133Б	2N4870 2N4871	0.3	35	1.5	1.0	0.7…2.5	0.56…0.75 0.70…0.85	TO-92

• Power Thyristors and Triacs

Part	Pin to Pin Compatibility	Repetitive Peak Off-State Voltages V_{DRM}, V_{RRM} V	RMS On-State Current $I_{T(RMS)}$ A	I^2t for Fusing I^2t, A^2c	Off-State Leakage Current I_D, I_R mA	Holding Current I_H mA	Latching Current I_L mA	Gate Trigger Current I_{GT} mA	Peak Gate Current I_{GM} A	Package
КУ251А КУ251Б	MCR100-8 КУ251Б	600 800	1.0	0.415	≤0.05	≤5	≤5	≤0.2	8,0	TO-92
Triac КУ613А КУ613Б	 BTA208-600B BTA208-800B	 600 800	8.0	21	≤0.5	≤90	≤60	≤50	2.0	TO-220AB

Foundry business

- Semiconductor IC and Discrete Devices Manufacturing under the Customer's Design (delivery on base of Probe Test)
- Semiconductor IC and Discrete Devices Manufacturing under the Customer's Design (delivery on the base of PCM)
- Wafer Fab Service – execution of separate Process Flow Steps or blocks (Metal sputtering, film deposition, EPI growing, back grinding, wafers testing and so on)
- Raw Si substrate and EPI manufacturing under the Customer's Spec

Production Capacity available for Foundry Business:

- 8'' wafer production line (0.5-0.35μm design rule)
- 6'' wafer production line (0.8-1.2 μm design rule)
- 4'' wafer production line (1.2-3.0 μm design rule)

Basic Process available:

a) Integrated Circuits:
- DMOS
- CMOS
- BiCMOS
- CDMOS
- BiCDMOS
- Bipolar

b) Discrete devices:
- D-MOS (≤1000 V)
- Multi-Epi (≤700 V)
- Bipolar
- Process for high frequency devices (≤300 V)

Si substrates and EPI, manufacturing and delivery (according to the Customer's Spec):

- 3", 4", 6", 8'' wafers
- EPI parameter range: d=0.5...80 μm, ρ=0.1...50 Ω • cm

Mask making:

- Mask Set manufacturing under the Customer's Spec (GDS II and DB):
  a) for contact lithography
  b) for Projection Reduction (Stepper lithography) (1:1/1:5/1:10)
- Pellicles manufacturing under the Customer's Spec
- Manufacture of photomasks with P/R coatings (glass and quartz substrates)

Contract management

Packaging:

- IC and Discrete Devices assembly (packaging) with Testing
- IC and Discrete Devices assembly (packaging) without Testing
- IC and Discrete Devices assembly (packaging) with Testing and Marking

Packages Types available:

a) Integrated Circuits:
- SOP (8-28 LD)
- DIP (8-40 LD)
- SHRINK DIP (30, 42, 52, 56 LD)
- QFP (48, 64, 100 LD)
- SIL (3, 8, 13, 17 LD)
- SIP (9LD)
- TO -220 (3, 5, 7 LD)
- SOT -23, SOT -143, SOT -223

b) Discrete devices:
- Case 22A-01
- DO-34, DO-35
- MELF, miniMELF
- SOT -23, SOT -143, SOT -223
- ISOWATT
- TO-18, TO-39, TO-72, TO-92, TO-126,
- TO-218, TO-220
- KD-17
- DPAK, D2PAK

Fabless service

IC and discrete devices design:

- IC Design according to the Customer's Data Sheet (Spec) and Process Development
- Discrete Devices Design according to the Customer's Data Sheet (Spec) and Process development
- GDS II and Tape out
- Engineering Consulting service
- Reengineering

Supplementary services

Design of electronic devices/ instruments and manufacture of samples as per Customer's requirements:

- Design and manufacture of PCB
- Design and manufacture of LCD:
  - TN-type ("twist") for electronic clock/watch, calculators, etc,
  - STN-type ("supertwist") for general purposes

Other services:

- Design and manufacture of quartz tooling and accessories, tools
- Design and manufacture of molds, punches, casting/transfer molds
- Marking blocks manufacturing
- High-precision stamping of lead frames for IC manufacturing

Process Name	Process Description	Application, features
BIPOLAR PROCESSES		
20 V, p-n junction isolation "Bp30-20"	Number of masks, pcs. 8-13 Min design rule, μm 6.0 Substrate: Si/B-doped/ p-type/ Thk 460/ Res 10/ (111) Buried layers: Si/ Sb-doped/ n-type/Thk 6.0/Res 20; Si/ B-doped /p-type/Thk 1.95/Res210; Epi layer: Si/ P-doped/ n-type/ Thk 9/ Res 2.0; Isolation: p-n junction p-base depth, μm 2.2 N+emitter depth, μm 1.7 Emitter size, μm 9*9 Distance between transistors, μm 4 Switching: contacts 1, μm 3*3 space line Me 1, μm 9.0 contacts 2, μm 4*4 space line Me 2, μm 12.0	Small and medium-scale integration digital-analogue IC, VDD < 18 V NPN transistor vertical: βn=150 Uce=28 V PNP transistor lateral: βp=35 Uce=45 V PNP transistor vertical: βp=35 Uce=45 V I2L gate Capacitors: emitter-base; collector-base; Me-n+; Me1-Me2. Resistors in layers: Isolation; Base; Resistor
20 V, p-n junction isolation "Bp30C-20" complementary	Number of masks, pcs. 12-14 Min design rule, μm 6.0 Substrate: Si/B-doped/ p-type/ Thk 460/ Res 10/ (111) Buried layers: Si/Sb-doped/n-type/Thk 6.0/Res 20; Si/ B-doped/p-type/Thk 1.95/Res210; Epi layer: Si/P-doped/ n-type/ Thk 8/ Res 1.5; Isolation: p-n junction p-base depth, μm 2.0 N+emitter depth, μm 1.7 Emitter size, μm 7*7 Distance between transistors, μm 4 Switching: contacts 1, μm 3*3 space line Me 1, μm 9.0 contacts 2, μm 4*4 space line Me 2, μm 12.0	Small and medium-scale integration digital-analogue IC, VDD < 18 V NPN transistor vertical: βn=150 Uce=27 V PNP transistor lateral: βp=30 Uce=35 V PNP transistor vertical: βp=45 Uce=35 V PNP Vertical with isolated collector: βp=80 Uce=30 V Capacitors: emitter-base; collector base; Me-n+; Me1-Me2. Resistors in layers: Isolation; Base; Resistor
40 V, p-n junction isolation "Bp30-40"	Number of masks, pcs. 8-13 Min design rule, μm 8.0 Substrate: Si/B-doped/ p-type/Thk 460/Res 10/ (111) Buried layers: Si/Sb-doped/ n-type/Thk 6.0/Res20; Si/B-doped/ p-type/Thk 1.95/Res210 ; Epi layer: Si/P-doped/ n-type/Thk 13/ Res 3.5; Isolation: p-n junction p-base depth, μm 2.0 N+emitter depth, μm 1.7 Emitter size, μm 9*9 Distance between transistors, μm 4 Switching: contacts 1, μm 3*3 space line Me 1, μm 9.0 contacts 2, μm 4*4 space line Me 2, μm 14.0	Small -scale integration digital-analogue IC, VDD < 40 V NPN transistor vertical: βn =150 Uce=48 V PNP transistor lateral: βp =65 Uce=60 V PNP transistor vertical: βp =60 Uce=60 V Capacitors: emitter-base; collector-base; Me-n+; Me1-Me2. Resistors in layers: Isolation; Base; Resistor. PolySi

Process Name	Process Description	Application, features
5 V, «Isoplanar – 1» "BpI-30-5"	Number of masks, pcs. 15 Min design rule, μm 3.0 Substrate: Si/B-doped/ p-type/Thk 460/Res 10/ (111); Buried layers: Si/Sb-doped/ n-type/Thk 2.5/Res 35; Si/ B-doped/ p-type/Thk 1.95/Res210; Epi layer: Si/P-doped/ n-type/Thk 1.5/Res 0.3; Isolation: LOCOS + p^+ - guard rings p-base depth, μm 0.854 N+ emitter depth, μm 0.55 Emitter size, μm 2*3 Distance between transistors, μm 2 Switching: contacts 1, μm 2*3 space line Me 1, μm 6.5 contacts 2 , μm 4*4 space line Me 2, μm 10.0	Small and medium-scale integration digital-analogue IC, V_{DD} < 5V NPN transistor vertical: βn =100 Uce= 8 V PNP transistor lateral: βp =25 Uce=20 V **Resistors in layer: Base**
Bipolar technology for the manufacture of voltage regulators of positive and negative polarity, one metallization level	Number of masks, pcs. 7-10 Min design rule, μm 4-5 Substrate: Si/B-doped/ p-type/Thk 460/Res 10/ (111) Buried layers: Si/Sb-doped/ n-type/Thk5/Res25; Si/Boron-doped/ p-type/Thk 1.6/Res510; Epi layer: Si/P-doped/ n-type/Thk 13,3/ Res 3.6; Isolation: p-n junction p-base depth, μm 1,8÷2,8 N+emitter depth, μm 0,9÷2,2 Deep collector, separation and emitter layers have been carried out by method of diffusion Capacitor dielectric: Si oxide or Si nitride Interlayer dielectric: medium temperature PSG Metallization: Al 1,4 μm Passivation: low temp. PSG 1,0 μm	NPN Vertical: h_{21E} =(100-300) U_{CE} ≥38V PNP Lateral: h_{21E} ≥20 U_{CE} ≥38V Capacitor: n^+ - Al ***Resistors in layer:*** **Base; resistor**
Bipolar technology for the manufacture of positive and negative polarity voltage regulators, two metallization levels	Number of masks, pcs. 11-13 Min design rule, μm 4-5 Substrate: Si/B-doped/ p-type/Thk 460/Res 10/ (111) Buried layers: Si/Sb-doped/ n-type/Thk5/Res17; Si/B-doped/ p-type/Thk 1.6/Res510; Epi layer: Si/P-doped/ n-type/Thk 10/ Res 1,25; Isolation: p-n junction Deep collector, separation and emitter layers have been carried out by method of diffusion. Base, resistor layers – by method of ion implantation Capacitor dielectric: Si oxide or Si nitride p-base depth, μm 1,8÷2,8 N+emitter depth, μm 0,9÷2,2 The first interlayer dielectric: medium temperature PSG+ Si_3N_4 The second interlayer dielectric: low temperature PSG The first metallization level AlSiCuTi 0,55 μm The second metallization level AlSi, Al 1,4 μm Passivation: low temp. PSG 1,0 μm	NPN Vertical: h_{21E} =(80-200) U_{CE} ≥18 V PNP Lateral: h_{21E} ≥40 U_{CE} ≥20V Capacitor: n^+ - Al ***Resistors in layer:*** **Base; resistor**

Process Name	Process Description	Application, features
Bipolar technology for the manufacture of high-power npn-transistors with operating voltage of 1500 V	Substrate: Si/ P-irradiated /Res 102- 90 8 masks (contact): Base: ion implantation depth, μm 20-26 Emitter : diffusion, depth, μm 10-15 collector-base p-n junction protection : SiPOS Metallization : Al 4, 5 μm Radiation treatment to ensure dynamics Backside matting Backside: Ti-Ni-Ag sputtering	$U_{CE=}$ 1500 V U_{CE} = (700-800) V Ic= (5-12) A
Bipolar technology for high-power npn-transistors manufacturing with the range of operating voltages: 160-300 V	Epi structure: Substrate: Si/Sb-doped/ n-type/Res 0,01 (111): Thickness of Epi layer, μm 35,50 Resistivity, Ohm/cm 23, 7-8 masks (contact) Base: ion implantation, depth, μm 2,8-4,6 Emitter: diffusion, depth, μm 1,4-2,8 collector-base p-n junction protection: SiPOS Metallization : Al 1,4 μm Backside: Ti-Ni-Ag (Sn-Pb-Sn) Passivation: low temp. PSG	$U_{CB=}$ (160-300) V U_{CE} = (160-300) V Ic= (0,1-1,5) A h_{21E} > 25
Bipolar technology for the manufacture of high-power npn-transistors with the range of operating voltages: 300-700 V	Epi structure Substrate: Si/ Sb-doped/ n-type/Res 0,01 (111): Thickness of Epi layer, μm 50-80 Resistivity, Ohm/cm 40-50 7-8 masks (contact), Base: ion implantation, depth, μm 2,8-4,6 Emitter: diffusion, depth, μm 1,4-2,8 collector-base p-n junction protection: SiPOS Metallization : Al 1,4 ; 4, 5 μm Backside: Ti-Ni-Ag Passivation: Low temp. PSG	$U_{CB=}$ (300-700) V U_{CE} = (300-400) V Ic= (0,5-8,0) A h_{21E} =(8-40)
Bipolar technology for the manufacture of high-power npn-transistors with Darlington	Epi structure: Substrate: Si/ Sb-doped/ n-type/Res 0,01 (111): Thickness of Epi layer, μm 27-38 Resistivity, Ohm/cm 8-21 6-7 masks (contact), Base: ion implantation, depth, μm 6-8 Emitter: diffusion, depth, μm 2,5-5,5 collector-base p-n junction protection : SiPOS Metallization : Al 4, 5 μm Backside: Ti-Ni-Ag Passivation: ow temp. PSG	$U_{CB=}$ (300-350) V U_{CE} = (150-350) V Ic= (5-15) A h_{21E} >100
Bipolar technology for the manufacture of npn-transistors with the range of operating voltages: 200-300 V	Epi structure Substrate: Si/B-doped/ p-type/ Res 0,03/ (111): Thickness of Epi layer, μm 40-45 Resistivity, Ohm/cm 40-50 7 masks (contact) Base:Phosphorous ion implantation, depth, μm 3-5,5 Emitter: boron diffusion collector-base p-n junction protection : SiPOS Metallization : Al 1,4 μm Backside: Ti-Ni-Sn-Pb-Sn	$U_{CB=}$ (250-300) V U_{CE} = (200-250) V Ic= (0,4-0,5) A h_{21E} >40

Process Name	Process Description	Application, features
Bipolar technology for the manufacture of npn-transistors with the range of collector current: 7,5÷16 A	Epi structure Substrate: Si/B-doped/ p-type/ Res 0,05/ (111): Thickness of Epi layer, μm 25-28 Resistivity, Ohm/cm 8-11 7 masks (contact) Base:Phosphorous ion implantation, depth, μm 4,5-7,5 Emitter: boron diffusion, depth, μm 1,4-2,5 p-n junction protection : SiO_2, Ta_2O_5 Metallization : Al 4, 0 μm Backside: Ti-Ni-Ag	$U_{CB=}$ (80-160) V U_{CE} = (30-90) V Ic= (7,5-16) A h_{21E} >15
Bipolar technology for the manufacture of high-power npn-transistors with Darlington	Epi structure: Substrate: Si/ B-doped/ p-type/ Res 0,05/ (111): Thickness of the layer, μm 25-33 Resistivity, Ohm/cm 10-18 6,7 masks (contact), Base: Phosphorous ion implantation, depth, μm 6-8 Emitter: boron diffusion, depth, μm 2,5-5,5 p-n junction protection : SiO_2, Ta_2O_5 Metallization : Al 4, 5 μm Backside: Ti-Ni-Ag	$U_{CB=}$ (60-70) V U_{CE} = (60-70) V Ic= (2,0-12) A h_{21E} >500
Bipolar technology for the manufacture of tiristors, triacs	Substrate: Si/ P-irradiated / Res 35 10 masks (contact, two-side) Base: boron diffusion, depth, μm 35-45 Cathode : phosphorous diffusion, depth, μm 15-18 p-n junction protection: SiPOS, Si_3N_4, medium temp. PSG Metallization : Al 2,0 μm Passivation: low temp. PSG, Si_3N_4 Backside: Ti-Ni-Ag	I_T (on-state) = 2,0 A Ubr = (600-800)V
Shottky diodes with Mo barrier	Number of masks, pcs. 4 Size, mm 0.76x0.76÷4x4 Substrate: Si/As-doped/ n-type/Thk 460/Res 0.0035 (111) Epi layer: Si/ P-doped/ n-type/Thk 4.5/Res (0.6-0.8) Isolation: p-n junction with field-type oxide Metallization: Al+Mo+Ti-Ni-Ag	Fast silicon Shottky diodes for switched mode power supplies Urev V 40-150 Irev. μa < 250 Idirect max. A 1-30
15 V, p-n junction isolation	Number of masks, pcs. 10-13 Min design rule, μm 6.0 Substrate: Si/B-doped/ p-type/ Thk 460/ Res 10/ (111) Buried layers: Si/Sb-doped/ n -type/Thk 6.0/Res 20; Si/B-doped/ p-type/Thk 1.95/Res210; Epi layer: Si/ P-doped/ n-type/ Thk 8/ Res 4.5; Isolation: p-n junction p-base depth, μm 2.4 N+emitter depth, μm 1.7 Emitter size, μm 6 Distance between transistors, μm 6 Switching: contacts 1, μm 4 space line Me 1, μm 13	Small and medium-scale integration digital-analogue IC, V_{DD} < 18 V NPN Vertical: βn=150 Uce=28 V PNP Lateral: βp=35 Uce=45 V PNP Vertical: βp=35 Uce=45 V Capacitor: Me-n+emitter Resistors in PolySi layer

Process Name	Process Description	Application, features
20 V, p-n junction isolation	Number of masks, pcs. 13 Min design rule, µm 6.0 Substrate: Si/B-doped/ p-type/ Thk 460/ Res 10/ (111) Buried layers: Si/Sb-doped/ n-type/Thk 5/Res 17; Si/B-doped/ p-type/Thk 1.6/Res510; Epi layer: Si/P-doped/ N-type/ Thk 10/ Res 1.25; Isolation: p-n junction p-base depth, µm 2.4 N+emitter depth, µm 1.7 Emitter size, µm 6 Distance between transistors, µm 6 Switching: contacts 1, µm 4 space line Me 1, µm 13.0 contacts 2, µm 4*4 space line Me 2, µm 12.0	Small and medium-scale integration digital-analogue IC, V_{DD} < 18 V NPN Vertical: βn=150 Uce=28 V PNP Lateral: βp=35 Uce=45 V PNP Vertical: βp=35 Uce=45 V I^2L gate Capacitors: emitter-base; collector-base; Me-n+; Me1-Me2. Resistors in layers: Isolation; Base; Resistor
CMOS PROCESSES		
CMOS, 0.35 µm, 1 polySi, 2 metals, 200 mm wafer	Number of photolithographies, pcs. 14 Design rule, µm 0.35 Substrate: 725KDB0,015(100) Epitaxial layer: 15KDB12 2 retrograde wells Interlayer dielectric: SACVD SiO2 + PC TEOS, µm 1.05 µm Gate SiO2, Å 120 Channel length NMOS/PMOS, µm 0.6 N&P LDD- drains Titanium silicide Metal I Ti/AlCu / Ti /TiN PolySi pitch, µm 1.0 Contacts 1 (W-filled), µm ø 0.5 Metal 1 pitch, µm 0.95 Metal 2 Ti/AlCu Contacts 2 (W-filled), µm ø 0.5 Metal 2 pitch, µm 1.2	Digital IC, highly-resistant, Epitaxy =5 V NMOS: Vtn=0.6 V, Usd >7 V PMOS: Vtp=-0.6 V, Usd >7 V
CMOS, 0.35 µm, 1 polySi, 2 metals, 200 mm wafer	Number of photolithographies, pcs. 15 Design rule, µm 0.35 Substrate: 725KDB0,015(100) Epitaxial layer: 15KDB12 2 retrograde wells Interlayer dielectric: SACVD SiO2 + PC TEOS, µm 1.05 µm Gate SiO2, Å 70 Channel length NMOS/PMOS, µm 0.35 N&P LDD- drains Titanium silicide Metal I Ti/AlCu / Ti /TiN PolySi pitch, µm 0.8 Contacts 1 (W-filled), µm ø 0.5 Metal 1 pitch, µm 0.95 Metal 2 Ti/AlCu Contacts 2 (W-filled), µm ø 0.5 Metal 2 pitch, µm 1.1	Digital IC, highly-resistant, Epitaxy = 3 V NMOS: Vtn=0.6 V, Usd >5 V PMOS: Vtp=-0.6 V, Usd >5 V

Process Name	Process Description	Application, features
CMOS, 0.35 µm, 2 polySi, 3 metals, 200 mm wafer	Number of photolithographies, pcs. 22 Design rule, µm 0.35 Substrate: 725KDB0,015(100) Epitaxial layer: 15KDB12 2 retrograde wells for high-voltage transistors 2 retrograde wells for low-voltage transistors Interlayer dielectric: SACVD SiO2 + PC TEOS, µm 1.05 µm Gate SiO2, Å 70 for low-voltage transistors 350 for high-voltage transistors Channel length NMOS/PMOS, µm 0.35 for low-voltage transistors NMOS/PMOS, µm 1.0 for high-voltage transistors N&P LDD- drains Titanium silicide Metal I,2 Ti/AlCu / Ti /TiN Contacts 1 (W-filled), µm ø 0.4 Metal 1 pitch, µm 0.95 Metal Ti/AlCu Contacts 2,3 (W-filled), µm ø 0.5 Metal 2 pitch, µm 1.1	Digital IC, Epitaxy =2.4,6.0 V For 3.0 V NMOS: Vtn=0.6 V, Usd >5 V PMOS: Vtp=-0.6 V, Usd >5 V For 5.0 V NMOS: Vtn=1.0 V, Usd >8 V PMOS: Vtp=-0.9 V, Usd >8 V
CMOS, 0.35 µm, 2 polySi, 3 metals, E2PROM option, 200 mm wafer	Number of photolithographies, pcs. 27 Design rule, µm 0.35 Substrate: 725KDB0,015(100) Epitaxial layer: 15KDB12 2 wells Interlayer dielectric: SACVD SiO2 + PC TEOS, µm 1.05 µm Gate SiO2, Å 250 Tunnel oxide, Å 75 Capacitor dielectric Si3N4, Å 250 Channel length NMOS/PMOS, µm 0.35 for low-voltage transistors NMOS/PMOS, µm 2.5/1.0 for high-voltage transistors N&P LDD- drains Titanium silicide Metal I,2 Ti/AlCu / Ti /TiN Contacts 1 (W-filled) ø 0.5 Metal 1 pitch, µm 0.95 Metal 3 Ti/AlCu Contacts 2,3 (W-filled), µm ø 0.5 Metal 2 pitch, µm 1.1	Digital IC with EEPROM, Epitaxy =2.4,6.0 V For low-voltage transistors NMOS: Vtn=0.5 V, Usd >7 V PMOS: Vtp=-0.6 V, Usd >7 V For high-voltage transistors Vtn=0.6 V, Usd >16 V PMOS: Vtp=-0.6 V, Usd >9 V
15 V, 5.0 µm CMOS, 1 PolySi, 1 Me, not self-aligned gate	Number of masks, pcs. 9 Design rule, µm 5.0 Substrate: Si/P-doped/ n-type/Thk 460/Res 4.5 (100) P-well depth, µm 10 Gate SiO_2, Å 950 Interlayer dielectric: medium temp. PSG Channel length: NMOS/PMOS, µm 5/6 space line PolySi, µm 5.5 contacts, µm Ø2 space line Me, µm 8	Small and medium-scale integration logic IC, $V_{DD} < 20$ V NMOS: Vtn= 1.1 V, Usd >27 V PMOS: Vtp= -1.0 V, Usd >29 V

Process Name	Process Description	Application, features
5 V, 1.5 µm CMOS, 1 PolySi, 2 Me	Number of masks, pcs. 14 Design rule, µm 1.5 Substrate: Si/ P-doped/n-type/Res 4.5 N/P-well depth, µm 5/5 Interlayer dielectric: BPSG Interlevel dielectric: PE oxide Gate SiO_2, Å 245, Channel length: NMOS/PMOS, µm 1.4/2.0, N LDD-drains space line PolySi , µm 3.4 contacts 1, µm 1.5*4.5 space line Me 1, µm 6.0 contacts 2, µm 3.0*4.5 space line Me 2, µm 9.5	Small and medium-scale integration logic IC, $V_{DD} < 5$ V NMOS: Vtn= 0.8 V, Usd >12 V PMOS: Vtp= -0.8 V, Usd >12 V
5 V, 2 µm CMOS, 1 PolySi, 1 Me	Number of masks, pcs. 11 Design rule, µm 2.0 Substrate: Si/ /n -type/ Phosphorus/Res 4.5, 2 wells N/P-well depth, µm 6/7 Gate SiO2, Å 425/300 Interlayer dielectric: BPSG Channel length: NMOS/PMOS, µm 2.5 Space line PolySi, µm 4.5 Contacts, µm 2.4*2.4 Space line Me, µm 8.5	Small and medium-scale integration logic IC, $V_{DD} < 5$ V NMOS: Vtn=0.6/ 0.5 V, Usd >12 V PMOS: Vtp=-0,7V/-0,5, Usd >14 V
5 V, 1.6 µm CMOS, 2 PolySi, 1 Me, EEPROM, 150 mm wafers	Number of masks, pcs. 17 Design rule, µm 1.6 Substrate: Si/B-doped/p-type/Res 12 2 wells N/P-well depth, µm 5/6 Gate SiO2, Å 425 Tunnel SiO2, Å 77 Interlayer dielectric-1: Si3N4, Å 350 Interlayer dielectric -2: BPSG, Å 7000 Built-in transistors Channel length: NMOS/PMOS Low-voltage transistors, µm 2.4 High- voltage transistors, µm 3.6 Space line PolySi 1, µm 3.2 Space line PolySi 2, µm 4.2 Contacts, µm Ø 1.2 Space line Me, µm 4.4	Medium-scale integration EEPROM, V_{DD}: 2,4 V… 6 V NMOS: Vtn=(0,65±0,25)V, Usd ≥12 V PMOS: Vtp=-(0,8±0,2)V, Usd ≤-12 V HV- NMOS: Vtn=(0,45±0,15)V Usd≥17 V HV- PMOS: Vtp=-(0,8±0,2)V Usd ≤-16 V

Process Name	Process Description	Application, features
5 V, 1.2 µm CMOS, 2 PolySi, 2 Me, low voltage EEPROM, 150 mm wafers	Number of masks, pcs. 3 (marked) Design rule, µm 1.2 Substrate: Si/B-doped/ p-type/Res 12, 2 wells N/P-well depth, µm 5/6 Gate SiO2: Low voltage transistors, Å 250 High voltage transistors, Å 350 Tunnel SiO2, Å 77 Interlayer dielectric-1: Si3N4, Å 350 Interlayer dielectric -2: BPSG, Å 7000 Interlevel dielectric: PEoxide+SOG+ PEoxide Channel length: Low voltage NMOS/PMOS, µm 1.4/1.6 High voltage NMOS/PMOS, µm 2.6/2.6 N & P LDD- drains Built-in transistors Space line PolySi 1, µm 3.2 Space line PolySi 2, contact free, µm 2.4 Space line PolySi 2, with contact, µm 4,6 Contacts-1, µm Ø 1.2 Space line Me 1, contact free, µm 3.2 Space line Me 2, with contact, µm 4,4 Contacts 2, µm Ø 1.4 Space line Me 2, contact free, µm 4.4 Space line Me 2, with contact, µm 4,8	LSI EEPROM, V_{DD}: 2,4 V… 6 V LV NMOS: Vtn=(0.4-0,8)V, Usd≥12 V LV PMOS: Vtp=-(0.5-0,9)V, Usd ≤-12 V HV- NMOS: Vtn=(0,3-0,6)V, Usd≥17 V HV- PMOS: Vtp=-(0,6-1,0)V, Usd ≤-15 V
1.5 V, 1.6 µm CMOS, 1 PolySi, 1 Me, ***low threshold, 150mm wafers***	Number of masks, pcs. 11 Design rule, µm 1.6 Substrate: Si/ B-doped/ p-type/Res 12 2 wells N/P-well depth, µm 5/6 Gate SiO2, Å 300 Interlayer dielectric – BPSG Channel length: NMOS/PMOS, µm 2.0 space line PolySi , µm 3.2 contacts, µm Ø 1.5 space line Me, µm 3.6	Medium-scale integration digital IC for electronic timepieces and micro calculators, V_{DD} 1.5 V÷3 V. NMOS: Vtn= 0.5 V, Usd >10 V PMOS: Vtp= -0.5 V, Usd >10 V
5 V, 1.5 µm CMOS, 1 PolySi, 1 Me, 150mm wafers	Number of masks, pcs. 16 Design rule, µm 1.5 Substrate: Si/B-doped/ p-type/Res 12 2 wells N/P-well depth, µm 5/6 Interlayer dielectric: BPSG Gate SiO2, Å 250 Interlayer dielectric: BPSG, Transistor built in ROM, Buried contacts, Channel length: NMOS/PMOS, µm 1.5 N & P LDD- drains, space line PolySi, µm 2.5 contacts, µm Ø 1.5 space line Me, µm 3.5	Digital IMC, microcontrollers with VDD= 5V NMOS: Vtn= 0.6V, Usd >10 V PMOS: Vtp= 1.0V, Usd >13 V

Process Name	Process Description	Application, features
5 V, 1.5 µm CMOS, 1 PolySi, 1 Me, PolySi-resistors, 150mm wafers	Number of masks, pcs. 17 Design rule, µm 1.5 Substrate: Si/B-doped/p-type/Res 12; 2 wells N/P-well depth, µm 5/6 P-type PolySi resistors, Bipolar vertical NPN transistor Gate SiO2, Å 250 Interlayer dielectric: BPSG Channel length: NMOS/PMOS, µm 1.7 N&P LDD- drains, Space line PolySi, µm 2.5 Contacts, µm Ø 1.3 Space line Me, µm 3.5	Supply voltage controllers NMOS: Vtn= 0.5 V, Usd >10 V PMOS: Vtp= 0.5V, Usd >10 V
3-5 V, 0.8 µm CMOS, 1 PolySi (2 PolySi), 2 Me, 150mm wafers	Number of masks, pcs. 14 (16) Design rule, µm 0.8 Substrate: Si/P-doped/ n-type/Res 4.5 or Si/B-doped/ p-type/Res 12; 2 wells N/P-wells depth, µm 4/4 Interlayer dielectric: BPSG Gate SiO2, Å 130 /160 Channel length NMOS/PMOS, µm 0.9/1.0 N&P LDD- drains, Me I Ti-TiN/Al-Si/TiN Space line PolySi, µm 1.9 Contacts 1, µm Ø 0.9 Space line Me 1 2.2, Me 2 Al-Si/TiN Contacts 2, µm Ø 0.9 Space line Me 2, µm 2.4	IC for telephony, customized IC, VDD 3 V… 5 V NMOS: Vtn=0.6 V, Usd >10 V PMOS: Vtp=-0.7 V, Usd >10 V
3-5 V, 0.8 µm CMOS, 1 PolySi (2 PolySi), 2 Me, 200mm wafers	Number of masks, pcs. 14 (16) Design rule, µm 0.8 Substrate: Si/ P-doped/n-type/Res 4.5 or Si/B-doped/ p-type/Res 12; 2 wells N/P-wells depth, µm 4/4 Interlayer dielectric: SACVD SiO2 + PE (TEOS) 1,05 µm Gate SiO2, Å 130/160 NMOS/PMOS channel length, µm 0.9/1.0 N&P LDD- drains, Me I i/AlCu/Ti/TiN Space line PolySi, µm 1.9 Contacts 1 (filled in by W), µm Ø 0.7 Space line Me 1, µm 2.2 Me2 Ti/AlCu Contacts 2 (filled in by W), µm Ø 0.7 Space line Me 2, µm 2.4	IC for telephony, customized IC, VDD 3 V… 5 V NMOS: Vtn=0.6 V, Usd >10 V PMOS: Vtp=-0.7 V, Usd >10 V
1.5 V, 3.0 µm CMOS, 1 PolySi 1 Me, not self-aligned gate	Number of masks, pcs. 9 Design rules, µm 3,0-5,0 Substrate: Si/P-doped/ n-type/Res 4.5 P-well depth, µm 6-8 Gate SiO2, Å 800 Interlayer dielectric: medium temp. PSG Channel length: NMOS/PMOS, µm 3 Space line PolySi, µm 10 Contacts , µm 5 Space line Me, µm 12	Clock/ watch IC of small and medium-scale integration, VDD < 1.5 V NMOS: Vtn=0.7/0.5 V, Usd >8 V, Ic>4mA PMOS: Vtp=-0.7 V/-0.5, Usd >8 V, Ic>2mA

Process Name	Process Description	Application, features
5 V, 3 μm CMOS, 1 PolySi, 1 Me	Number of masks, pcs. 11 Design rule, μm 2.0 Substrate: Si/P-doped/ n-type/Res 4.5 N/P-wells depth, μm 6-8 Gate SiO2, Å 425 / 300 Interlayer dielectric: BPSG Channel length: NMOS/PMOS, μm 3-4 Space line PolySi, μm 10 Contacts, μm 4*4 Space line Me, μm 10	Small and medium-scale integration logic IC, VDD < 5 V NMOS: Vtn=0.8-1.2 V, Ic >4 mA. Ubr>8V PMOS: Vtp=0.8-1.2 V, Ic >2 mA, Ubr>8V
1.2 μm CMOS, 1 PolySi, 2 Me	Number of masks, pcs. 11 Design rules, μm 1.2 Substrate: Si/B-doped/ p-type/Res 12 N/P-wells depth, μm 5/6 Gate SiO2, Å 250-300 Interlayer dielectric: BPSG Channel length: NMOS/PMOS, μm 1.4/1.6 Space line PolySi, μm 2.8 Contacts, μm 1.6x1.6 Space line Me1, μm 3.4 Space line Me2, μm 3.0	CMOS master-slice chip NMOS: Vtn=0.7 V, Ic >11.5 mA. Ubr>12V PMOS: Vtp=0.8 V, Ic >4.5 mA, Ubr>12V
1.2 μm CMOS PROM, 2 PolySi, 2 Me, zappable link	Number of masks, pcs. 11 Design rule, μm 1.2 Substrate: Si/B-doped / p-type/Res 12 N/P-well depth, μm 5/6 Gate SiO2, Å 250-300 Interlayer dielectric: BPSG Channel length: NMOS/PMOS, μm 2.0 Contacts, μm 2.0x2.0 Space line Me1, μm 8 Space line Me 2, μm 10	CMOS master-slice chip NMOS: Vtn=1.0 V, Ic >10 mA. Ubr>12V PMOS: Vtp=1.0 V, Ic >4.0 mA, Ubr>12V
BIPOLAR CDMOS PROCESSES		
8 V, 0.8 μm, BiCMOS, 3 Poly Si, 2 Me, PolySi-emitters, 150mm wafers	Number of masks, pcs. 26 Design rule, μm 0.8 Substrate: Si/B-doped/ p-type/Res 3 Epitaxy: Si/P-doped/ n-type/ Thk 2.4/ Res 4.5 p-well depth with p+cc, μm 4.3 n-well depth with n+cc, μm 4.3 Gate SiO2, Å 130 Interlayer dielectric: BPSG Interlevel dielectric: PEoxide+ SOG NMOS/PMOS channel length, μm 0.9/1.0 N&P LDD- drains, Me I Ti-TiN/Al-Si/TiN Me II Ti/Al-Si/TiN NPN emitter size, μm 1.2*3.2 Space line PolySi 2, μm 1.8 Contacts 1, μm Ø 0.9 Space line Me 1, μm 2.2 Contacts 2, μm Ø 0.9 Space line Me 2, μm 2.4	Analogue-digital IC for TV-receivers, Ucc=8V NMOS: Vtn=0.6 V, Usd >12 V PMOS: Vtp=-0.9 V, Usd >12 V NPN vertical: βn =120 Uce=10 V PNP lateral: βp =45 Uce=13 V

Process Name	Process Description	Application, features
200 V, p-n junction isolation, 1 PolySi, 1 Me, NDMOS/PDMOS, high-voltage transistors	Number of masks, pcs. 19 Min design rule, μm 4.0 Substrate: Si/B-doped/ p-type/ Thk 460/ Res 12/ (100) Buried layers: Si/Sb-doped/ n-type/Thk 30/Res 5. Si/B-doped/ p-type/Thk 300/Res2.0 ; Epi layer: Si/ P-doped/ n-type/ Thk 27/ Res 8.0; Isolation: p-n junction P-well depth, μm 6.5 NDMOS base depth, μm 3.0 Gate SiO2, Å 900 NPN p-base depth, μm 2.5 N+emitter depth, μm 0.8 Interlayer dielectric – medium temp. PSG 0,55μm +SIPOS 0.1μm + medium temp. PSG 1,1μm Channel length (gate): N/PDMOS, μm 6 Space line PolySi, μm 8 Contacts, μm Ø4 Space line Me, μm 12	Small -scale integration analogue IC, VDD < 210 V NPN Vertical: βn =70 Uce=50 V NDMOS: Vtn= 2.0 V, Usd >200 V PDMOS: Vtp= -1.0 V, Usd >200 V NMOS: Vtn= 1.5V, Usd >20V Resistors in layer: NPN base, P-drain, PolySi. Capacitors: PolySi-Si (SiO2 900 Å) PolySi-Al (SiO2 1600 Å)
BiCDMOS 48 V, p-n junction isolation, 1 PolySi, 1 Me	Number of masks, pcs. 16 Min design rule, μm 3.0 Substrate: Si/B-doped/ p-type/ Thk 460/ Res 12/ (100) Buried layers: Si/Sb-doped/ n-type/Thk 20/Res 6; Si/B-doped/ p-type/Thk 250/Res2.0 Epi layer: Si/P-doped/ n-type/ Thk 12/ Res 1.5; Isolation: p-n junction P-well depth, μm 5.0 Gate SiO2, Å 750 Interlayer dielectric – Medium temp. PSG, μm 0,8	Power electronics actuator IC NPN Vertical: h21E=25-90 Uce=20-70 V PNP Lateral: h21E=2,2-30 Uce=25-60 V NDMOS: Vtn=1.8-2.6B, Usd=60-100 V Low voltage PMOS: Vtp=0.8-1.4 V, Usd =20-35 V High voltage PMOS: Vtp=1.2-2.2 V, Usd =30-80 V NMOS transistor: Vtn=1.1-1.7 V, Usd =15-25 V
BiCDMOS 600 V, p-n junction isolation, 1 PolySi, 1 Me	Number of masks, pcs. 15 Min design rule, μm 3.0 Substrate: Si/B-doped/ p-type/ Thk 460/ Res 60/ (100) Isolation: p-n junction NDMOS base depth, μm 2.5 Gate SiO2, Å 750 Interlayer dielectric – medium temp. PSG, μm 0,8	SMPS-IC Low voltage NPN: h21E 50 min, Uce 30V min PNP Lateral: h21E=2,2-30 Uce=25-60 V NDMOS: Vtn=1.2-3.0 V, Usd ≥30 V Low voltage PMOS: Vtp=0.8-2.0 V, Usd ≥18 V High voltage PMOS: Vtp=0.8-2.0 V, Usd ≥22 V Low voltage NMOS: Vtn=0.8-2.0 V, Usd ≥18 V High voltage NMOS: Vtn=0.8-2.0 V, Usd ≥600 V

Process Name	Process Description	Application, features
90 V, p-n junction isolation, 1 PolySi, 1 Me, NMOS/PMOS low-voltage transistors, NDMOS/PDMOS high-voltage lateral transistors, power vertical NDMOS transistor, bipolar vertical NPN & lateral PNP transistors	Number of masks, pcs. 19 Min design rule, µm 4.0 Substrate: Si/B-doped/ p-type/ Thk 460/ Res 12/ (100) Buried layers: Si/Sb-doped/ n-type/Thk 20/Res 6; Si/B-doped/ p-type/Thk 250/Res2.0 ; Epi layer: Si/P-doped/ n-type/ Thk 10/ Res 1.5; Isolation: p-n junction P-well depth, µm 6.5 NDMOS base depth, µm 2.5 Gate SiO2, Å 750 NPN p-base depth, µm 2.5 N+emitter depth, µm 0.5 Interlayer dielectric - BPSG, µm 0,8 Channel length (gate): N/PMOS, µm Ø 4 Space line PolySi, µm 7 Contacts, µm 2 Space line Me, µm 8	Small and medium-scale integration analogue IC, VDD < 90 V NPN Vertical: βn =50 Uce=20 V PNP Lateral: βp =25 Uce=20 V LNDMOS: Vtn= 2.0 V, Usd >90 V LPDMOS: Vtp= -1.4 V, Usd >90 V NMOS: Vtn= 1.2 V, Usd >18 V PMOS: Vtp= 1.5 V, Usd >18 V VNDMOS: Vtn= 2.0 V, Usd >70 V Resistors in layer: NDMOS base, P-drain, PolySi. Capacitors: PolySi-Si (SiO2 750Å) PolySi-Al (SiO2 8000 Å)
BiCDMOS, LOCOS isolation, 1 PolySi, 1 Me, NMOS/PMOS transistors	Number of masks, pcs. 15 Min design rule, µm 2.8 Substrate: Si/B-doped/ p-type/ Res 80 Isolation: LOCOS P-well depth, µm 6.5 N-well depth, µm 4.5 NDMOS base depth, µm 2.4 Gate SiO2, Å 600 Interlayer dielectric – Medium temp. PSG, µm 0,6 Channel length (gate): N/PMOS, µm 2.0 Contacts, µm 2.0x2.0 Space line Me 1, µm 8 Space line Me 2, µm 10	Low-voltage transistors: NMOS: Vtn= 1.8 V, Usd >16 V PMOS: Vtp= 1.5 V, Usd >16 V NPN: h21e= 100-300 Resistors in layer: PolySi 1= 20-30 Ohm/sq High-voltage transistors : NDMOS: Vtn= 1.0÷1.8 V, Usd ≥500 V PDMOS: Vtp= 0.7÷2.0 V, Usd ≥700
DMOS PROCESSES		
Power field MOS transistors, Umax= 60÷900 V, 150 mm wafers	Number of masks, pcs. 8 Min design rule, µm 2.0 Substrate: Si/Sb-doped/ n-type/Res 0,015; Si/ As-doped/ n-type/ Res 0,003 Epi layer: thickness (8÷75) µm Resistivity (0,67÷31,5) Ohm/cm Gate oxide (60÷100) nm Interlayer dielectric medium temp. oxide + BPSG Passivation PEoxide + PE SI3N4	MOSFET NMOS: Vtn=2÷4 V Umax= 60÷900 V
Field N DMOS transistors	Number of masks, pcs. 7-9 Min design rule, µm 3.0 Substrate: Si/Sb-doped/ n-type/Res 0,01 Epi layer: Thickness (9÷42) µm Resistivity (0,7÷16) Ohm/cm Gate oxide (42,5÷80) nm Interlayer dielectric - medium temp. PSG Passivation: low temp. PSG	MOSFET Low-power Vtn= 0,6-3,0V Ubr=50-200V Pmax=1,0 Watt High-power Vtn= 2,0-4,0V Ubr=50-600V Pmax=200 Watt

Process Name	Process Description	Application, features
Field P DMOS transistors	Number of masks, pcs. 7-9 Min design rule, μm 3.0 Substrate: Si/B-doped/ p-type/Res 0,005 Epi layer: thickness (15-34) μm Resistivity (2÷21) Ohm/cm Gate oxide (42,5÷80) nm Interlayer dielectric medium temp. PSG Passivation: low temp. PSG	MOSFET Low-power Vtn= 0,8-2,0V Ubr=50-240V Pmax=1,0 Watt High-power Vtn= 2,0-4,0V Ubr=60-100V Pmax=150 Watt

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