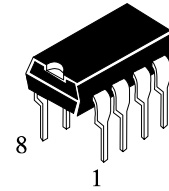


IL358N

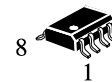
Low Power Dual Operational Amplifier

The IL358 contains two independent high gain operational amplifiers with internal frequency compensation. The op-amps operate over a wide voltage range. The low power drain makes the IL358 a good choice for battery operation.

- Internally frequency compensated for unity gain
- Large DC voltage gain
- Single or Split Supply Operation
- Input common-mode voltage range to ground
- Large output voltage swing: 0V DC to $V_{CC}-1.5V$ DC
- Power drain suitable for battery operation
- Low input offset voltage and offset current
- Differential input voltage range equal to the power supply voltage



N SUFFIX
PLASTIC



D SUFFIX
SOIC

ORDERING INFORMATION

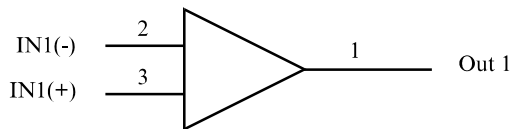
IL358N Plastic

IL358D SOIC

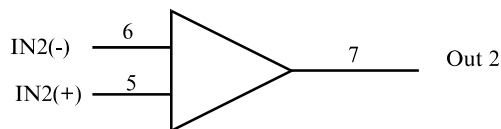
IZ358 Chip

$T_A = 0^\circ$ to 70° C for all packages

BLOCK DIAGRAM



IN1(-) 2
IN1(+) 3
1 Out 1



IN2(-) 6
IN2(+) 5
7 Out 2

PIN 4 = GND
PIN 8 = V_{CC}

IL358N

MAXIMUM RATINGS*

Symbol	Parameter	Value	Unit
V_{CC}	Power Supply Voltages Single Supply Split Supplies	32 ± 16	V
V_{IDR}	Input Differential Voltage Range (1)	± 32	V
V_{ICR}	Input Common Mode Voltage Range	-0.3 to 32	V
t_S	Short-Circuit duration of Output	100	ms
I_{IN}	Input Current, per pin (2)	50	mA
T_J	Junction Temperature Plastic Packages	150	$^{\circ}\text{C}$
T_{stg}	Storage Temperature Plastic Packages	-55 to +125	$^{\circ}\text{C}$
T_L	Lead Temperature, 1mm from Case for 10 Seconds	260	$^{\circ}\text{C}$

*Maximum Ratings are those values beyond which damage to the device may occur. Functional operation should be restricted to the Recommended Operating Conditions.

Notes:

1. Split Power Supplies.
2. $V_{IN} < -0.3\text{V}$

RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Min	Max	Unit
V_{CC}	DC Supply Voltage	± 2.5 or 5.0	± 15 or 30	V
T_A	Operating Temperature, All Package Types	0	+70	$^{\circ}\text{C}$

IL358N

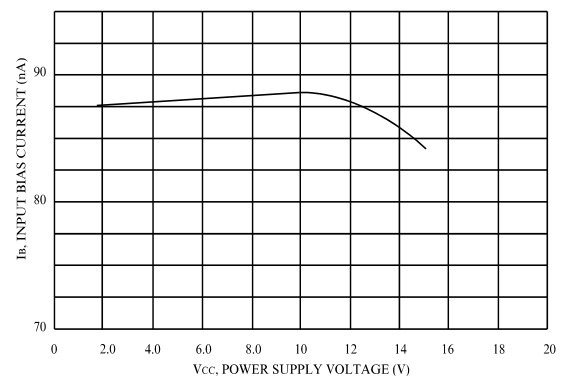
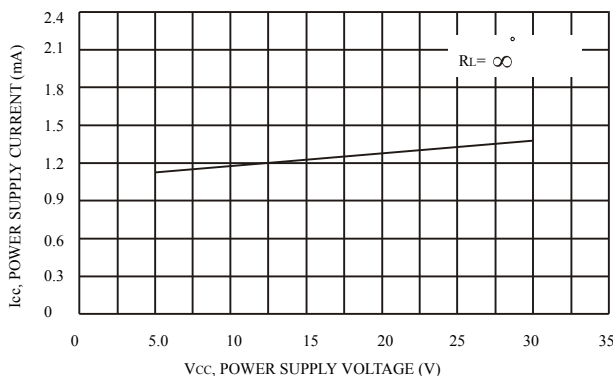
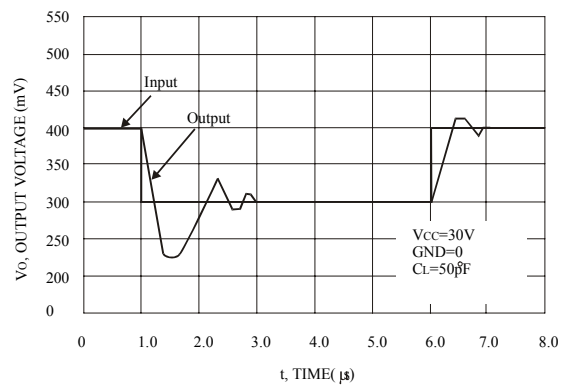
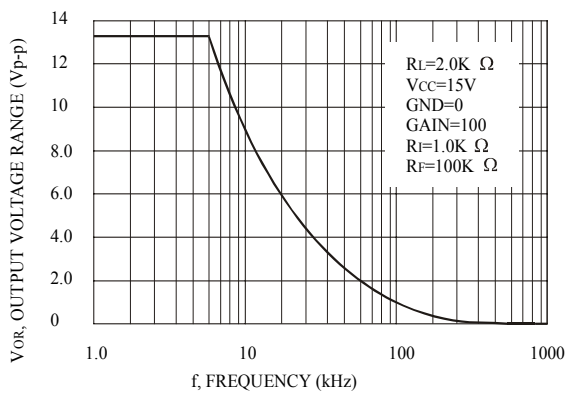
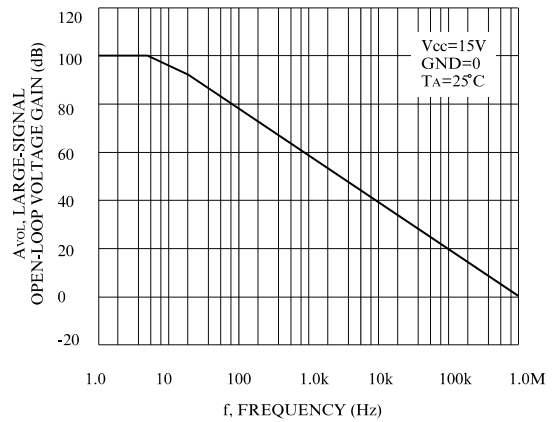
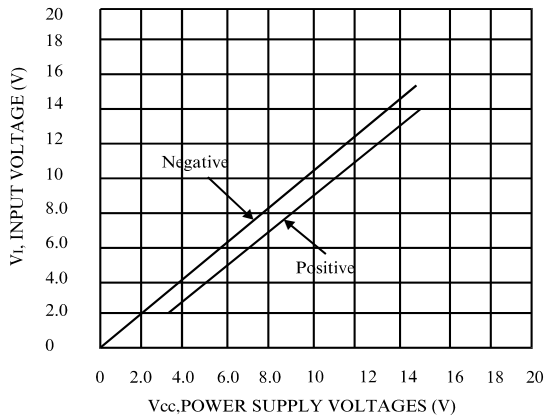
DC ELECTRICAL CHARACTERISTICS (T_A=0 ÷ +70°C)

Symbol	Parameter	Test Conditions	Guaranteed Limit		Unit
			Min	Max	
V _{IO}	Maximum Input Offset Voltage	V _{CC} =5.0-30V, R _S =0Ω, V _O =1.4V V _{ICR} =0V -(V _{CC} -1.5V)* V _{ICR} =0V -(V _{CC} -2.0V)		7.0* 9.0	mV
I _{IO}	Maximum Input Offset Current	V _{CC} =5.0-30V, V _O =1.4V		±50* ±150	nA
I _{IB}	Maximum Input Bias Current	V _{CC} =5.0-30V, V _O =1.4V		-250* -500	nA
V _{ICR}	Input Common Mode Voltage Range	V _{CC} =30V	0 0	V _{CC} -1.5V* V _{CC} -2.0V	V
I _{CC}	Maximum Power Supply Current	R _L =∞, V _{CC} =30V, V _O =15V R _L =∞, V _{CC} =5V, V _O =2.5V		2 1.2	mA
A _{VOL}	Minimum Large Signal Open-Loop Voltage Gain	V _{CC} =15V, R _L =2KΩ	25* 15		V/mV
V _{OH}	Minimum Output High-Level Voltage Swing	V _{CC} =5V, R _L =2KΩ* V _{CC} =30V, R _L =2KΩ V _{CC} =30V, R _L =10KΩ	3.3* 26 27		V
V _{OL}	Maximum Output Low-Level Voltage Swing	V _{CC} =5V, R _L =10KΩ		20	mV
CMR	Common Mode Rejection	V _{CC} =5-30V, R _S =10KΩ	65*		dB
PSR	Power Supply Rejection	V _{CC} =5-30V	65*		dB
I _{SC}	Maximum Output Short Circuit to GND	V _{CC} =5.0V, V _O =0V		60*	mA
I _{O+}	Minimum Source Output Current	V _{CC} =15V, V _{ID} =1.0V	20*		mA
I _{O-}	Minimum Output Sink Current	V _{CC} =15V, V _O =15V, V _{ID} =-1.0V V _{CC} =15V, V _O =0.2V, V _{ID} =-1.0V	10* 12*		mA μA
V _{IDR}	Differential Input Voltage Range	All V _{IN} ≥GND or V-Supply (if used)		V _{CC} *	V

* T_A= +25°C

NOTE: Guaranteed Limits of DC Electrical Characteristics are given for T_A=0, +70°C as the information for chips

TYPICAL PERFORMANCE CHARACTERISTICS ($T_A = +25^\circ\text{C}$)

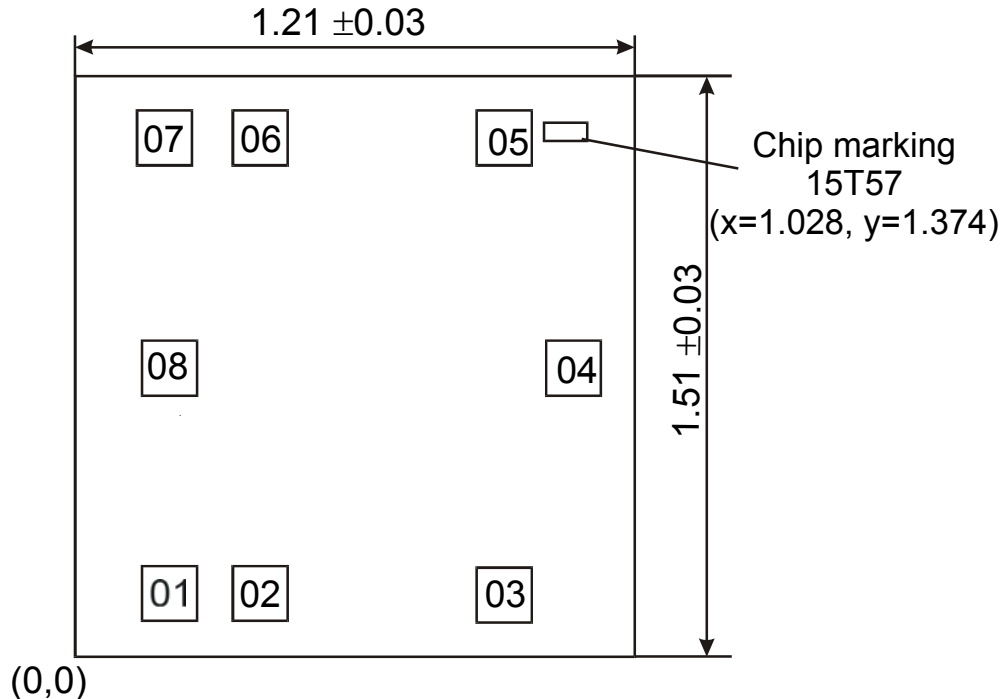


IL358N

TYPICAL DC ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$)

Symbol	Parameter	Test Conditions	Value	Unit
$\Delta V_{IO}/\Delta T$	Input Offset Voltage Drift	$R_S=0\Omega, V_{CC}=30V$	7.0*	$\mu\text{V}/^\circ\text{C}$
$\Delta I_{IO}/\Delta T$	Input Offset Current Drift	$R_S=0\Omega, V_{CC}=30V$	10*	$\text{nA}/^\circ\text{C}$
CS	Channel Separation	$f=1\text{KHz} \div 20\text{KHz}, V_{CC}=30V$	-120	dB

* $T_A = 0 \div +70^\circ\text{C}$



CHIP PAD DIAGRAM IZ358

Pad size 0.110 x 0.110 mm (Pad size is given as per passivation layer)

Thickness of chip 0.35 ± 0.02 mm

PAD LOCATION

PAD NO	Symbol	X	Y
01	OUT1	0.087	0.085
02	IN1(-)	0.267	0.085
03	IN1(+)	0.852	0.085
04	GND	1.003	0.695
05	IN2(+)	0.852	1.305
06	IN2(-)	0.267	1.305
07	OUT2	0.087	1.305
08	V_{CC}	0.087	0.695