



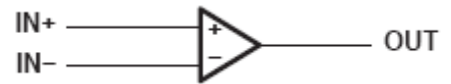
DESCRIPTION

The SL358 consists of two independent, high gain, internally frequency compensated operational amplifiers which were designed specifically to operate from a single power supply over a wide range of voltages. Operation from split power supplies is also possible and the low power supply current drain is independent of the magnitude of the power supply voltage. Application areas include transducer amplifiers, dc gain blocks and all the conventional op amp circuits.

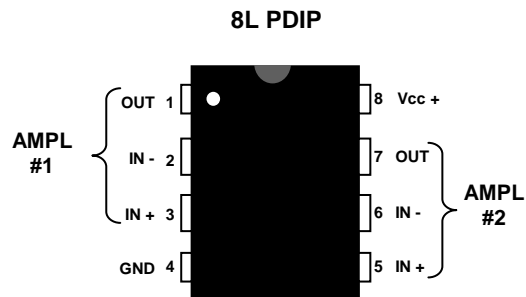
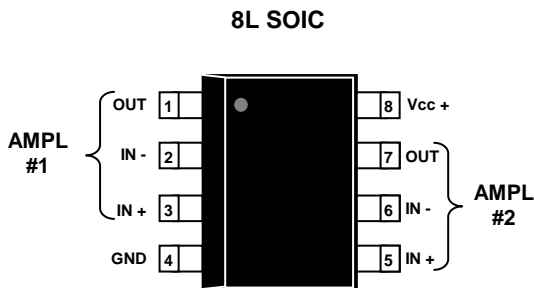
FEATURES

- Wide range of supply voltages
- Low supply current drain independent of supply voltage
- Low input biasing current
- Low input offset voltage and offset current
- Input common-mode voltage range includes ground
- Differential input voltage range equal to the power supply voltage
- DC voltage gain 100 V/ mV Typ
- Internally frequency compensation

SYMBOL (each amplifier)



PIN CONFIGURATION – Top View

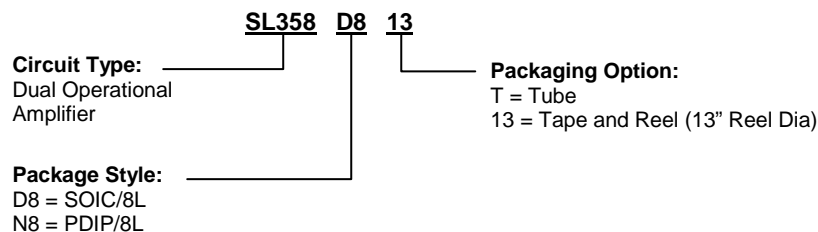


PACKAGE TOP MARKING:  
(For both 8L SOIC/PDIP)

SL358  
FYMXXXS  
GYYWW

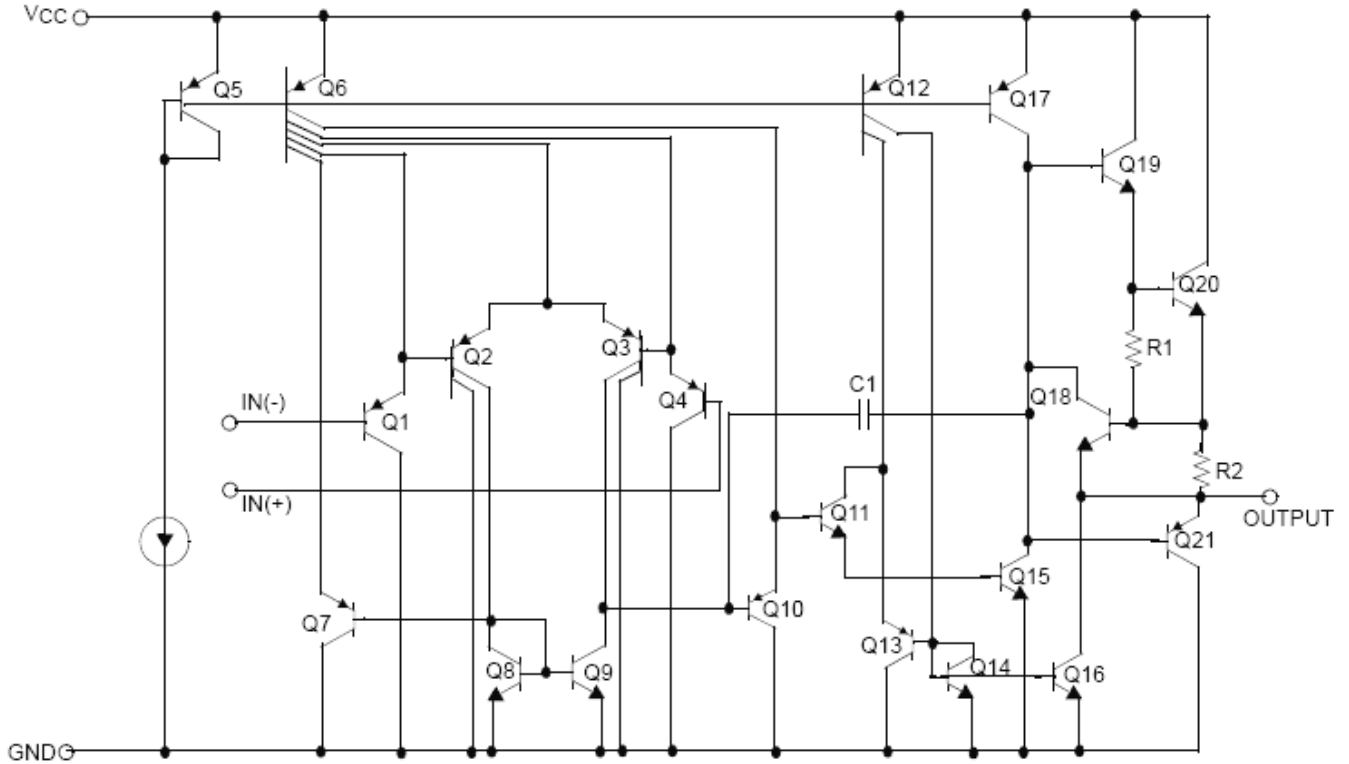
Line 1: Device  
 Line 2: Lot No. Code  
 F – Foundry Code (C)  
 YMXXX – 5 Character Lot No.  
 S – Split Code  
 Line 3: Date Code  
 G – Assembly Vendor Code  
 YY – Year  
 WW – Workweek

ORDERING INFORMATION





**SCHEMATIC DIAGRAM**  
(each amplifier only)



**ABSOLUTE MAXIMUM RATINGS**

Parameter	Symbol	SL358	Unit
Supply Voltage	$V_{CC}$	36	V
Input Voltage	$V_I$	-0.3 to +36	V
Input Current at $V_{IN} = -0.3V$	$I_{in}$	50	mA
Operating Temperature Range	$T_{OPR}$	-10 to +85	°C
ESD	-	700	V



**ELECTRICAL CHARACTERISTICS**

at specified free-air temperature,  $V_{CC} = 5V$  (unless otherwise noted)

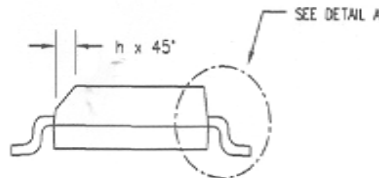
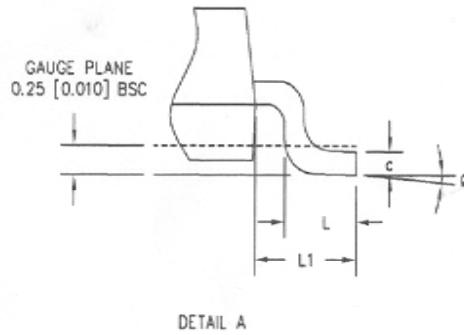
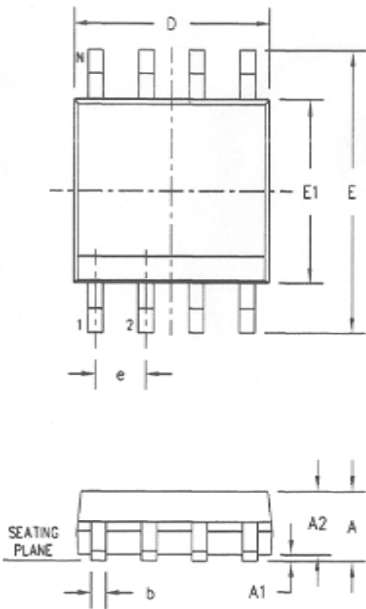
PARAMETER / SYMBOL	TEST CONDITIONS*	SL358			UNIT	
		MIN	TYP	MAX		
$V_{IO}$ Input offset voltage	$V_{CC} = 5V$ to MAX, $V_{IC} = V_{ICR}$ min, $V_O = 1.4V$	25 °C		3	7	mV
		Full range			9	
$dV_{IO}$ Average temperature coefficient of input offset voltage		Full range		7		$\mu V/^\circ C$
$I_{IO}$ Input offset current	$V_O = 1.4V$	25 °C		2	50	nA
		Full range			150	
$dI_{IO}$ Average temperature coefficient of input offset current		Full range		10		$pA/^\circ C$
$I_{IB}$ Input bias current	$V_O = 1.4V$	25 °C		-20	-250	nA
		Full range			-500	
$V_{ICR}$ Common-mode input voltage range	$V_{CC} = 5V$ to MAX	25 °C	0 to $V_{CC} - 1.5$			V
		Full range	0 to $V_{CC} - 2$			
$V_{OH}$ High-level output voltage	$R_L \geq 2k\Omega$ (NOTE 1)	25 °C	$V_{CC} - 1.5$			V
	$V_{CC} = MAX$ , $R_L = 2k\Omega$	Full range	26			
	$V_{CC} = MAX$ , $R_L \geq 10k\Omega$	Full range	27	28		
$V_{OL}$ Low-level output voltage	$R_L \geq 10k\Omega$	Full range		5	20	mV
$A_{VD}$ Large-signal differential voltage amplification	$V_{CC} = 15V$ , $V_O = 1V$ to $11V$ , $R_L \geq 2k\Omega$	25 °C	25	100		V/mV
		Full range	15			
CMRR Common-mode rejection ratio	$V_{CC} = 5V$ to MAX, $V_{IC} = V_{ICR}$ min	25 °C	65	80		dB
$k_{SVR}$ Supply voltage rejection ratio ( $\Delta V_{CC} / \Delta V_{IO}$ )	$V_{CC} = 5V$ to MAX	25 °C	65	100		dB
$V_{O1} / V_{O2}$ Crosstalk attenuation	$f = 1kHz$ to $20kHz$	25 °C		120		dB
$I_O$ Output current	$V_{CC} = 15V$ , $V_{ID} = 1V$ , $V_O = 0$	25 °C	-20	-30		mA
		Full range	-10			
	$V_{CC} = 15V$ , $V_{ID} = -1V$ , $V_O = 15V$	25 °C	10	20		$\mu A$
		Full range	5			
$V_{ID} = -1V$ , $V_O = 200mV$	25 °C	12	30			
$I_{OS}$ Short-circuit output current	$V_{CC}$ at $5V$ , GND at $-5V$ , $V_O = 0$	25 °C		$\pm 40$	$\pm 60$	mA
$I_{CC}$ Supply current (two amplifiers)	$V_O = -2.5V$ , No load	Full range		0.7	1.2	mA
	$V_{CC} = MAX$ , $V_O = 0.5V_{CC}$ , No load	Full range		1	2	
Slew rate	$V_{CC} = 15V$ , $V_I = 0.5$ to $3V$ , $R_L = 2k\Omega$ , $C_L = 100pF$ ; Unity gain	25 °C		0.4		V/ $\mu s$
Gain bandwidth	$V_{CC} = 30V$ , $f = 100kHz$ , $V_{IN} = 10mV$ , $R_L = 2k\Omega$ , $C_L = 100pF$	25 °C		700		kHz
THD Total harmonic distortion	$f = 1kHz$ , $A_V = 20dB$ , $R_L = 2k$ , $V_O = 2V_{pp}$ , $C_L = 100pF$	25 °C		0.04		%

\* All characteristics are measured under open-loop conditions with zero common-mode input voltage unless otherwise specified. "MAX"  $V_{CC}$  for testing purposes is  $30V$ . Full range is  $-10$  to  $+85^\circ C$ .



8L-SOIC PACKAGE DIMENSION

8-Lead SOIC Plastic  
Surface Mounted Package  
SLI Package Code: D8



SYM	DIMENSION IN INCHES			DIMENSION IN MM		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.059	0.062	0.065	1.50	1.57	1.65
A1	0.004	0.008	0.010	0.10	0.20	0.25
A2	0.051	0.054	0.057	1.30	1.37	1.45
b	0.013	0.016	0.020	0.33	0.41	0.51
c	0.007	0.008	0.010	0.18	0.20	0.25
D	0.191	0.193	0.195	4.85	4.90	4.95
E1	0.151	0.153	0.155	3.84	3.89	3.94
E	0.228	0.234	0.240	5.79	5.94	6.10
e	0.050			1.27		
L	0.020	0.024	0.032	0.51	0.61	0.81
L1	0.039	0.041	0.043	0.99	1.04	1.09
Ø	0*	-	B*	0*	-	B*
h	0.011	0.015	0.019	0.28	0.38	0.48

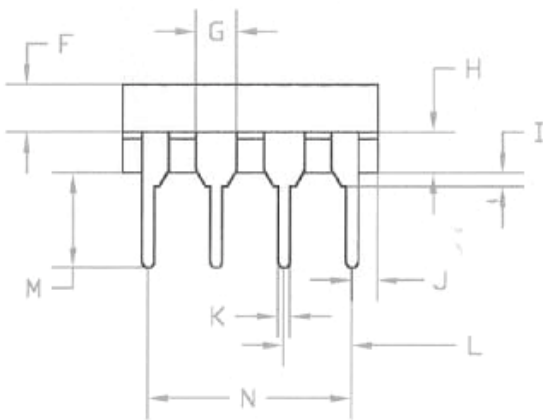
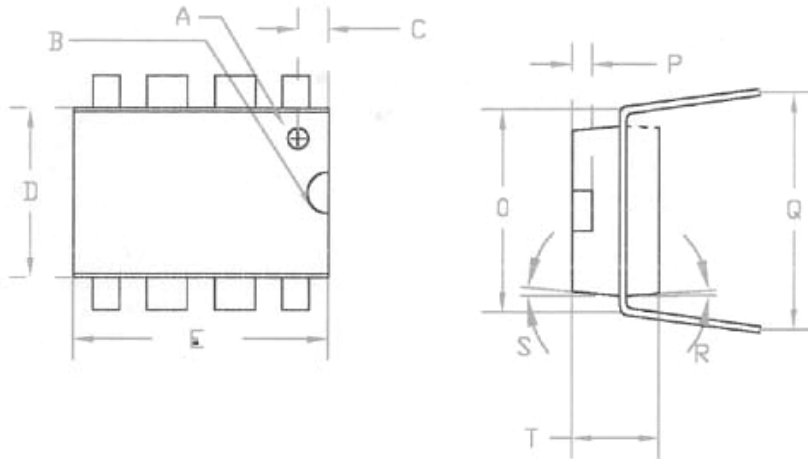
NOTES:

1. DIMENSION D DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. DIMENSION E1 DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSIONS.
2. COPLANARITY APPLIES TO THE TERMINALS. COPLANARITY SHALL NOT EXCEED 0.003" [0.08 mm].
3. BASED FROM JEDEC NS-012 VARIATION AA.



8L-PDIP PACKAGE DIMENSION

8-Lead PDIP Plastic  
SLI Package Code: N8

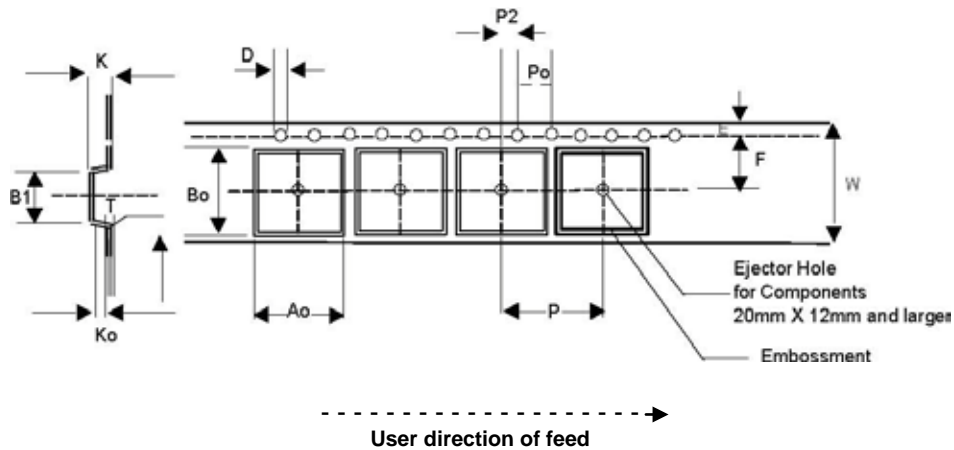


SYMBOL	INCHES			
	MIN	MAX	NOMINAL	TOLERANCE
A			Ø0.031X	OPT0.015
B			r 0.030	
C			0.045	
D			0.250	
E			0.370	±0.005
F			0.060	
G			0.060	
H			0.060	±0.002
I			0.020	
J			0.0375	
K	0.16	0.022	0.019	±0.003
L			0.100	
M	0.145	0.155	0.150	±0.005
N			0.300	
O			0.300	
P			0.030	
Q	0.320	0.380	0.350	±0.03
R			3°	
S			5°	
T			0.130	



PACKAGE MECHANICAL DRAWING

Surface Mountable Tape & Reel Specifications in mm (inch)  
(SOIC)

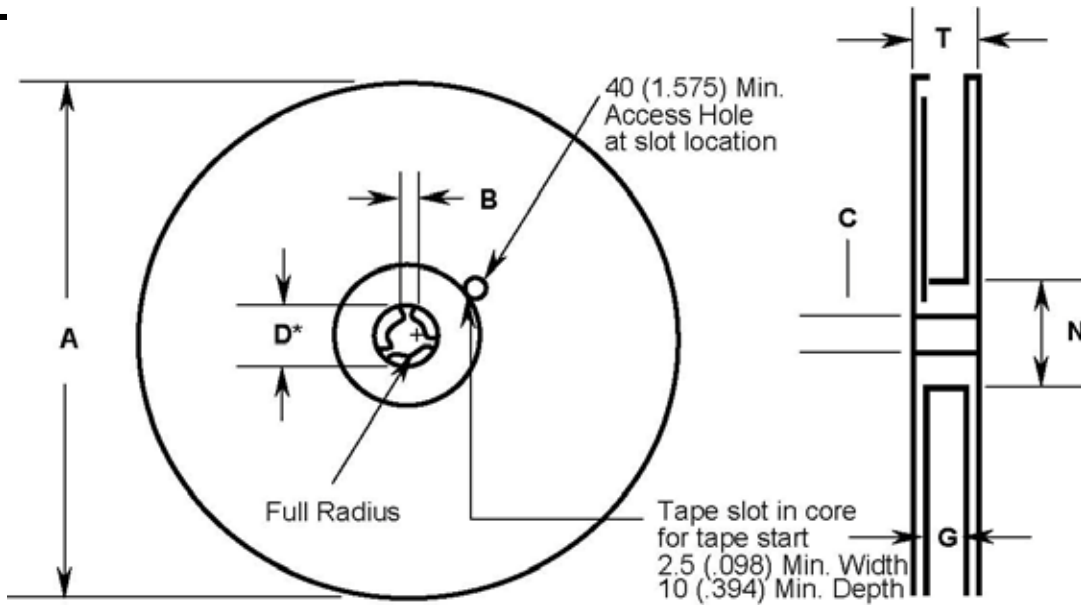


Tape Size (W)	D	E	P0	T (Max)	A0, B0, K0	T1 (Max)	Constant Dimensions
8, 12, 16, 24mm	1.55±0.05 (.061±.002)	1.75±0.10 (.069±.004)	4.0±0.10 (.157±.004)	0.400 (.016)	See Note	0.100 (.004)	

Tape Size (W)	B1 Max.	D1 Min.	F	K Max.	P2	
8 mm	4.2 (.165)	1.0 (.039)	3.5±0.05 (.138±.002)	2.4 (.094)	2.0±.05	
12 mm	8.2 (.323)	1.5 (.059)	5.5±0.05 (.217±.002)	4.5 (.177)	.079±.002	Variable Dimensions

Per Package Requirement					
Components	Tape Width (W) mm	Cavity Pitch (P) mm	Devices per Reel		
			7" Reel	13" Reel	
SOIC 8L	12	8	-	2500	

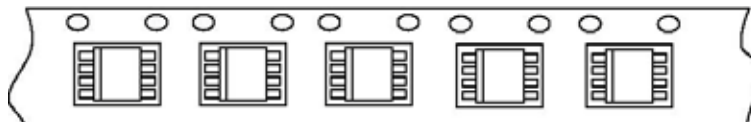
**Note:** Ao Bo Ko are determined by component size. The clearance between the component and the cavity must be within 0.05 [.002] min. to 0.50 [.020] max. for 8mm tape, 0.05 [.002] min to 0.65 [.026] max for 12mm tape.



REEL DIMENSIONS							
Tape Size	A Max.	B Min.	C	D* Min.	N Min.	G	T Max.
8mm	330 (12.992)	1.5 (.059)	13.0±0.20 (.152±.008)	20.2 (.795)	50 (1.973)	8.4±1.5 0.0 (.331±.059) 0.0	14.4 (.567)
12mm	330 (12.992)	1.5 (.059)	13.0±0.20 (.152±.008)	20.2 (.795)	50 (1.973)	12.4±2.0 0.0 (.488±.078) 0.0	14.4 (.567)

MECHANICAL POLARIZATION

SOIC-8L DEVICE



User direction of feed ----->