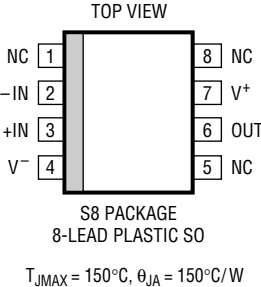
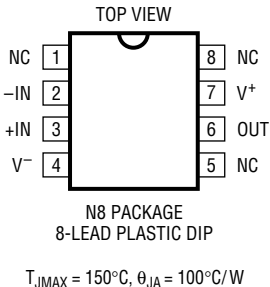


ABSOLUTE MAXIMUM RATINGS

Total Supply Voltage (V^+ to V^-) 28V
 Input Current $\pm 15\text{mA}$
 Output Short-Circuit Duration (Note 1) Continuous
 Operating Temperature Range 0°C to 70°C

Storage Temperature Range -65°C to 150°C
 Junction Temperature (Note 2) 150°C
 Lead Temperature (Soldering, 10 sec) 300°C

PACKAGE/ORDER INFORMATION

 S8 PACKAGE 8-LEAD PLASTIC SO $T_{JMAX} = 150^\circ\text{C}$, $\theta_{JA} = 150^\circ\text{C/W}$	ORDER PART NUMBER	 N8 PACKAGE 8-LEAD PLASTIC DIP $T_{JMAX} = 150^\circ\text{C}$, $\theta_{JA} = 100^\circ\text{C/W}$	ORDER PART NUMBER
	LT1252CS8		LT1252CN8
	S8 PART MARKING		
	1252		

ELECTRICAL CHARACTERISTICS $0^\circ\text{C} \leq T_A \leq 70^\circ\text{C}$, $V_S = \pm 5\text{V}$ to $\pm 12\text{V}$, unless otherwise noted.

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
V_{OS}	Input Offset Voltage			5	15	mV
$+I_B$	Noninverting Bias Current			1	15	μA
$-I_B$	Inverting Bias Current			20	100	μA
A_{VOL}	Large-Signal Voltage Gain	$V_S = \pm 5\text{V}$, $V_O = \pm 2\text{V}$, $R_L = 150\Omega$	560	1500		V/V
PSRR	Power Supply Rejection Ratio	$V_S = \pm 3\text{V}$ to $\pm 12\text{V}$	60	70		dB
CMRR	Common-Mode Rejection Ratio	$V_S = \pm 5\text{V}$, $V_{CM} = \pm 2\text{V}$	55	65		dB
V_{OUT}	Maximum Output Voltage Swing	$V_S = \pm 12\text{V}$, $R_L = 500\Omega$ $V_S = \pm 5\text{V}$, $R_L = 150\Omega$	± 7.0 ± 2.5	± 10.5 ± 3.7		V V
I_{OUT}	Maximum Output Current		30	55		mA
I_S	Supply Current			8.5	18	mA
R_{IN}	Input Resistance		1	10		$\text{M}\Omega$
C_{IN}	Input Capacitance			3		pF
SR	Power Supply Range	Dual	± 2		± 12	V
		Single	4		24	V
SR	Input Slew Rate	$A_V = 1$		125		V/ μs
	Output Slew Rate	$A_V = 2$		250		V/ μs

ELECTRICAL CHARACTERISTICS $0^{\circ}\text{C} \leq T_A \leq 70^{\circ}\text{C}$, $V_S = \pm 5\text{V}$ to $\pm 12\text{V}$, unless otherwise noted.

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
t_r	Small-Signal Rise Time	$V_S = \pm 12\text{V}$, $A_V = 2$		3.5		ns
	Rise and Fall Time	$V_S = \pm 5\text{V}$, $A_V = 2$, $V_{OUT} = 1V_{P-P}$		5.2		ns
t_p	Propagation Delay	$V_S = \pm 5\text{V}$, $A_V = 2$		3.5		ns

Note 1: A heat sink may be required to keep the junction temperature below absolute maximum when the output is shorted indefinitely.

$$\text{LT1252CN8: } T_J = T_A + (P_D \times 100^{\circ}\text{C/W})$$

$$\text{LT1252CS8: } T_J = T_A + (P_D \times 150^{\circ}\text{C/W})$$

Note 2: T_J is calculated from the ambient temperature T_A and power dissipation P_D according to the following formulas:

TYPICAL AC PERFORMANCE

BANDWIDTH

V_S	A_V	R_L	R_F	R_G	SMALL SIGNAL –3dB BW (MHz)	SMALL SIGNAL –0.1dB BW (MHz)	SMALL SIGNAL PEAKING (dB)
± 12	1	150	2370	None	282	45	1.9
± 12	–1	1000	1100	1100	58	17	0.1
± 12	–1	150	909	909	73	34	0.1
± 12	2	1000	1210	1210	253	20	0.1
± 12	2	150	909	909	142	38	0.1
± 12	5	1000	1000	249	73	25	0.1
± 12	5	150	866	215	75	31	0.1
± 12	10	1000	909	100	67	26	0.1
± 12	10	150	768	84.5	69	32	0.1
± 5	1	1000	2210	None	260	10	2.4
± 5	1	150	1300	None	232	50	0.8
± 5	–1	1000	1000	1000	50	11	0.1
± 5	–1	150	732	732	69	34	0.1
± 5	2	1000	909	909	133	24	0.1
± 5	2	150	787	787	100	30	0.1
± 5	5	1000	825	205	62	21	0.1
± 5	5	150	698	174	66	30	0.1
± 5	10	1000	750	82.5	58	22	0.1
± 5	10	150	619	68.1	60	30	0.1

NTSC VIDEO (Note 1)

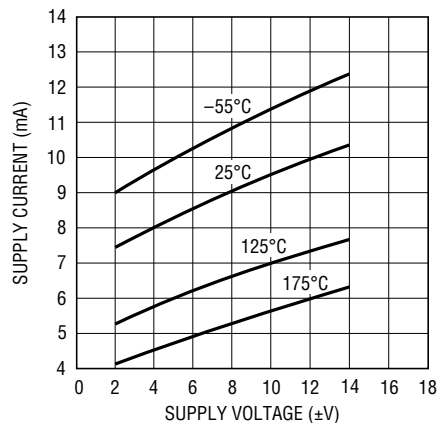
V_S	A_V	R_L	R_F	R_G	DIFFERENTIAL GAIN	DIFFERENTIAL PHASE
± 12	2	1000	1000	1000	0.02%	0.02°
± 12	2	150	1000	1000	0.03%	0.04°
± 5	2	1000	1000	1000	0.02%	0.08°
± 5	2	150	1000	1000	0.01%	0.09°

Note 1: Differential Gain and Phase are measured using a Tektronix TSG 120 YC/NTSC signal generator and a Tektronix 1780R Video Measurement Set. The resolution of this equipment is 0.1% and 0.1°. Ten identical

amplifier stages were cascaded giving an effective resolution of 0.01% and 0.01°.

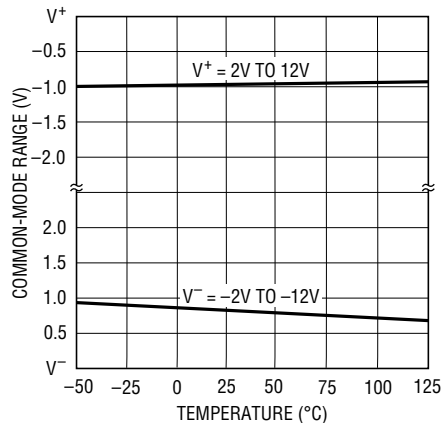
TYPICAL PERFORMANCE CHARACTERISTICS

Supply Current vs Supply Voltage



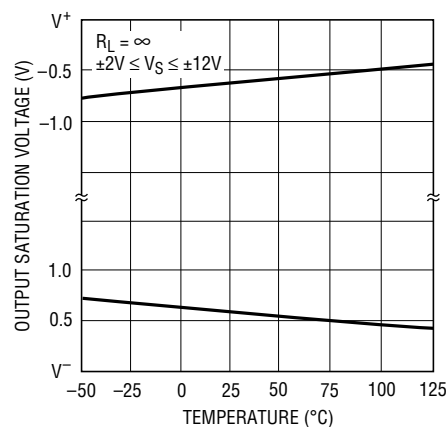
LT1252 • TPC01

Input Common-Mode Limit vs Temperature



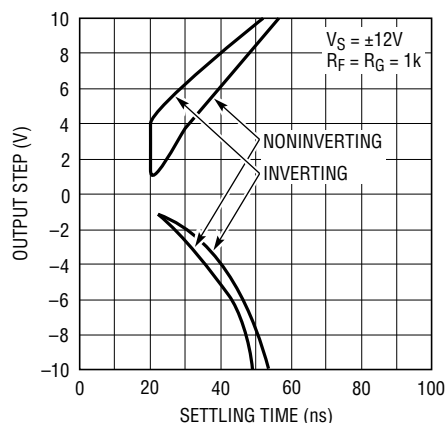
LT1252 • TPC02

Output Saturation Voltage vs Temperature



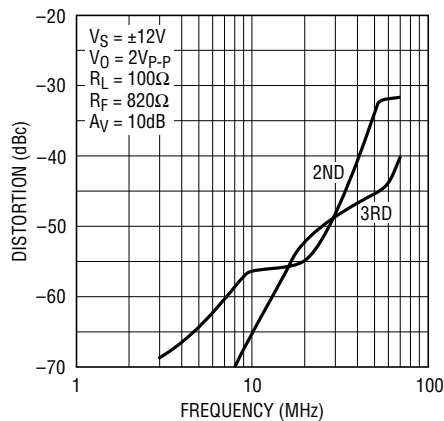
LT1252 • TPC03

Settling Time to 10mV vs Output Step



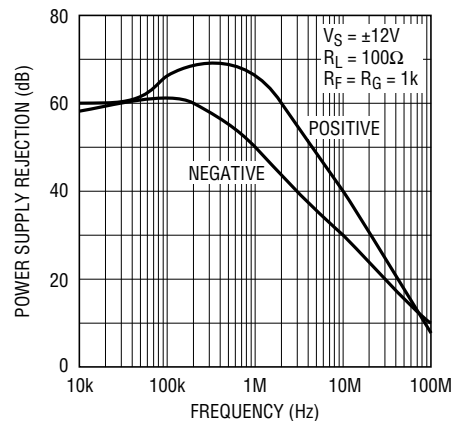
LT1252 • TPC04

2nd and 3rd Harmonic Distortion vs Frequency



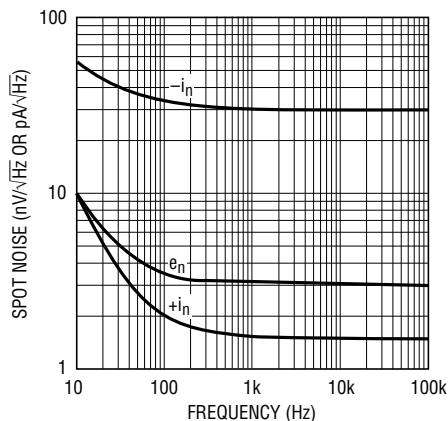
LT1252 • TPC05

Power Supply Rejection vs Frequency



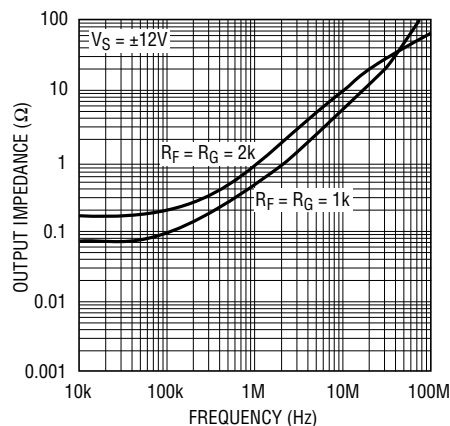
LT1252 • TPC06

Spot Noise Voltage and Current vs Frequency



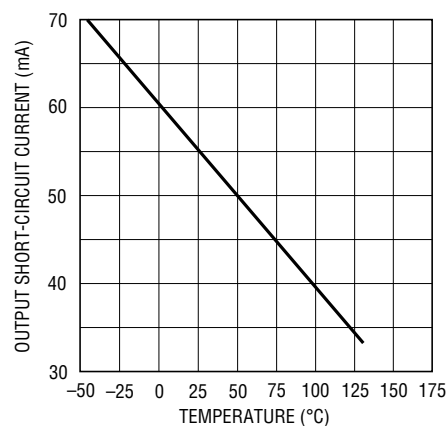
LT1252 • TPC07

Output Impedance vs Frequency



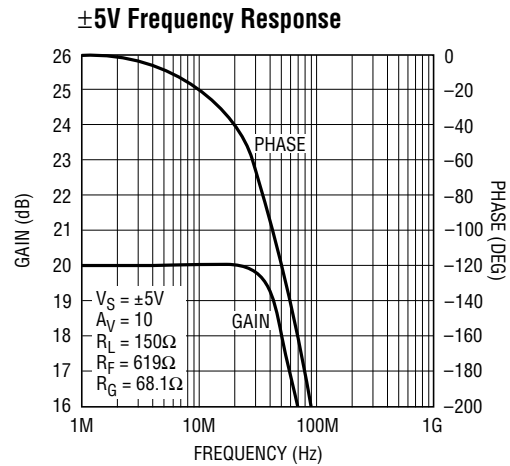
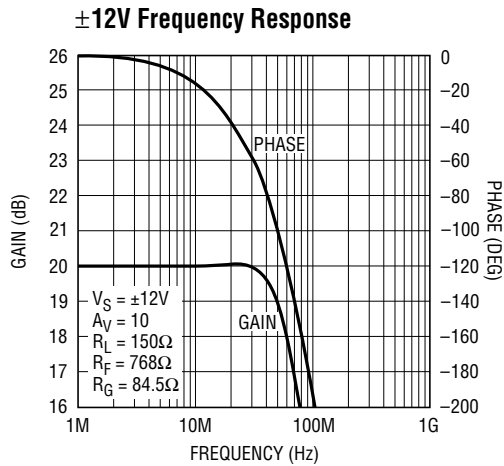
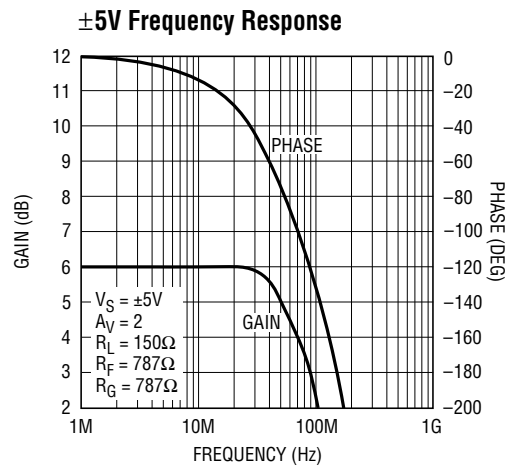
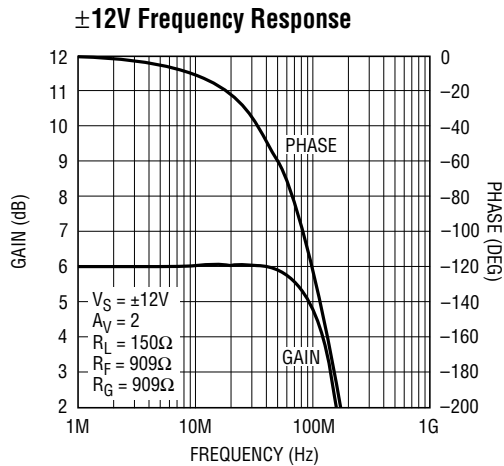
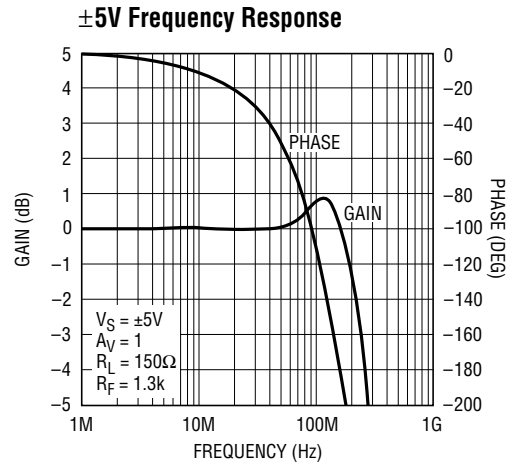
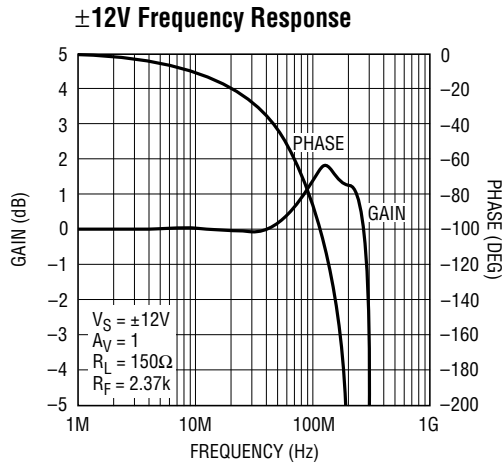
LT1252 • TPC08

Output Short-Circuit Current vs Junction Temperature



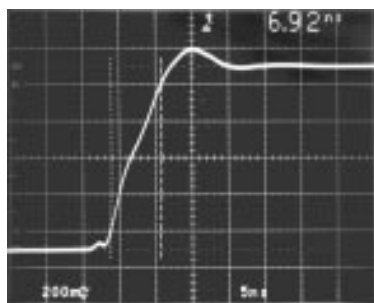
LT1252 • TPC09

TYPICAL PERFORMANCE CHARACTERISTICS



TYPICAL PERFORMANCE CHARACTERISTICS

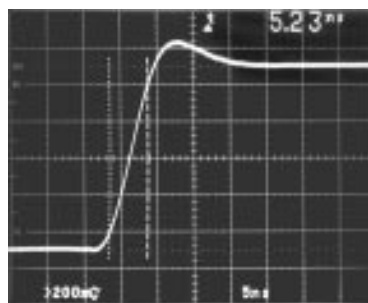
Transient Response



$V_S = \pm 5V$
 $A_V = 1$
 $R_L = 150\Omega$
 $R_F = 619\Omega$
 $V_O = 1V$

LT1252 • TPC16

Transient Response

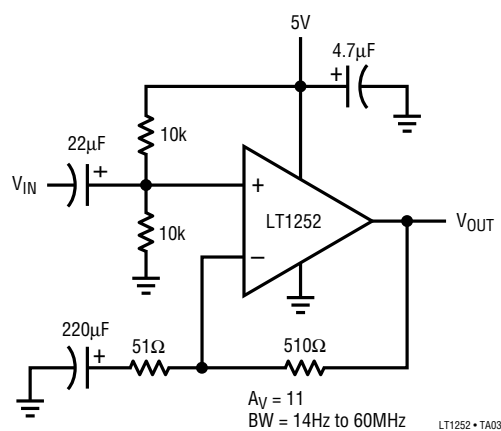


$V_S = \pm 5V$ $R_F = 619\Omega$
 $A_V = 10$ $R_G = 68.1\Omega$
 $R_L = 150\Omega$ $V_O = 1.5V$

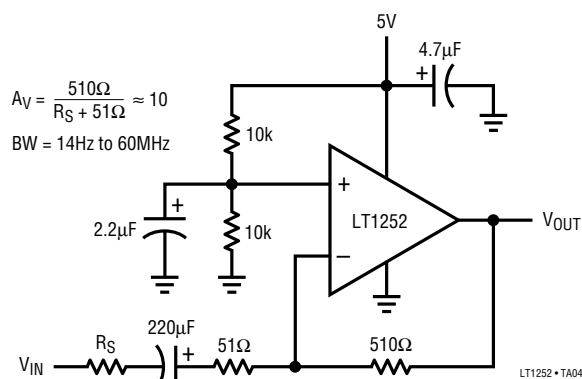
LT1252 • TPC17

TYPICAL APPLICATIONS

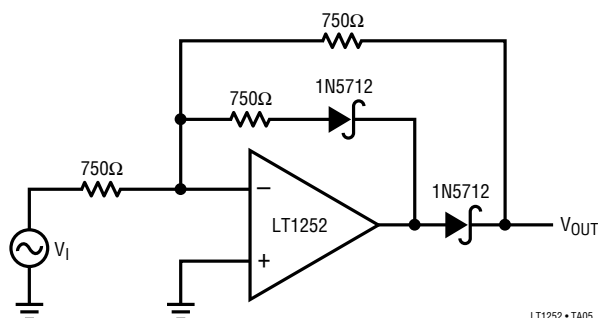
Single Supply AC-Coupled Amplifier
Noninverting



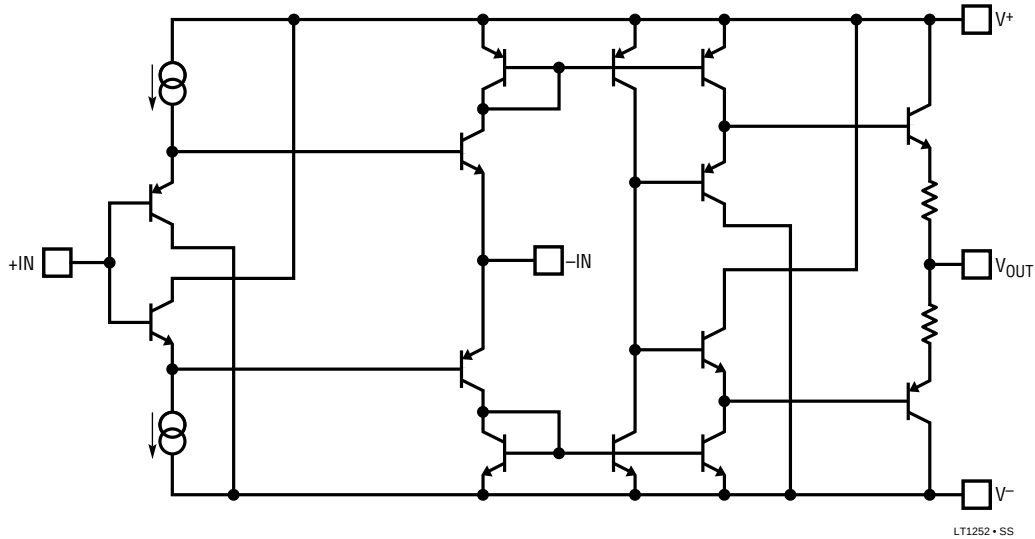
Single Supply AC-Coupled Amplifier
Inverting



Half Wave Rectifier



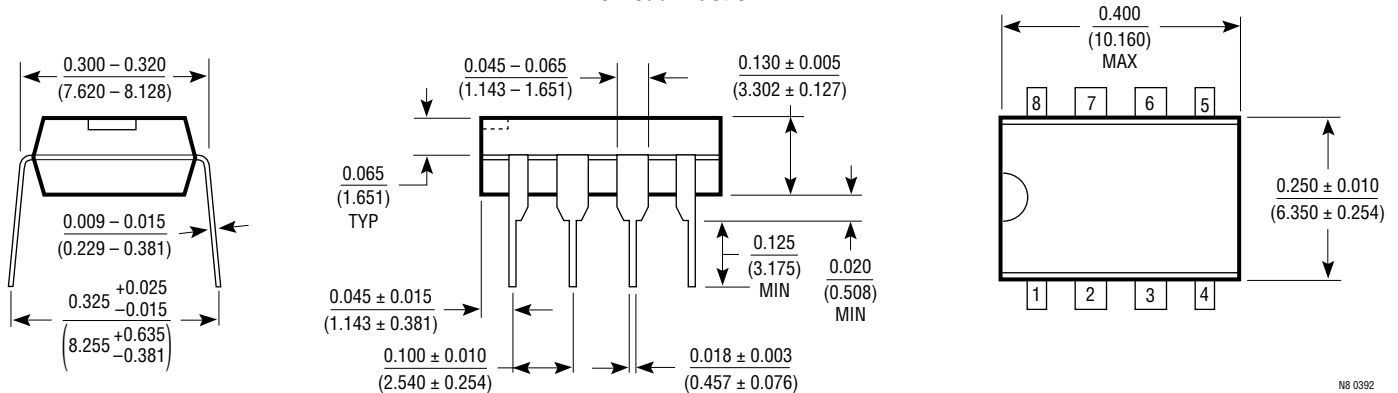
SIMPLIFIED SCHEMATIC



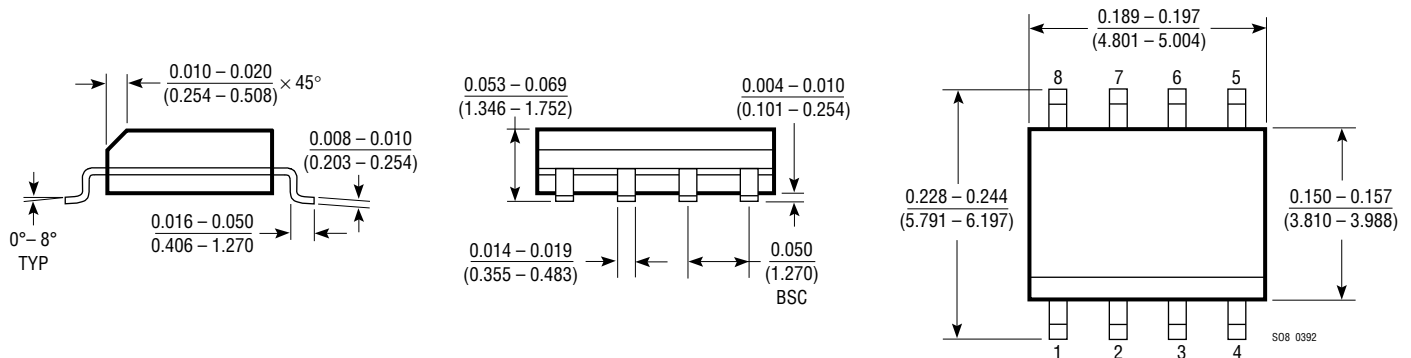
PACKAGE DESCRIPTION

Dimensions in inches (millimeters) unless otherwise noted.

N8 Package 8-Lead Plastic DIP



S8 Package 8-Lead Plastic SOIC



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