

Description

The PD4558 consists of two high performance operational amplifiers. The IC features high gain, low equivalent input noise voltage, high input resistance, excellent channel separation, wide range of operating voltage and internal frequency compensation.

It can work with $\pm 18V$ maximum power supply voltage or single power supply up to 36V.

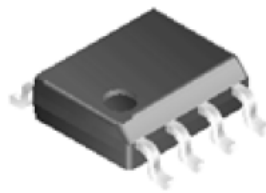
The PD4558 is available in DIP-8 and SOIC-8 packages.

Feature

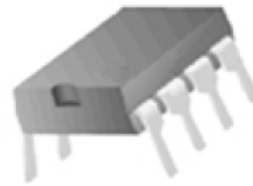
- Internally Frequency Compensated
- Large Signal Voltage Gain:100dB Typical
- Gain and Phase Match between Amplifiers
- Gain Bandwidth Product(at 10kHz):5.5MHz
- Pin to Pin Compatible with MC1458

Application

- Audio AC-3 Decoder System
- Audio Amplifier



SOIC-8



DIP-8

Figure 1. Package Types of PD34063

Pin Configuration

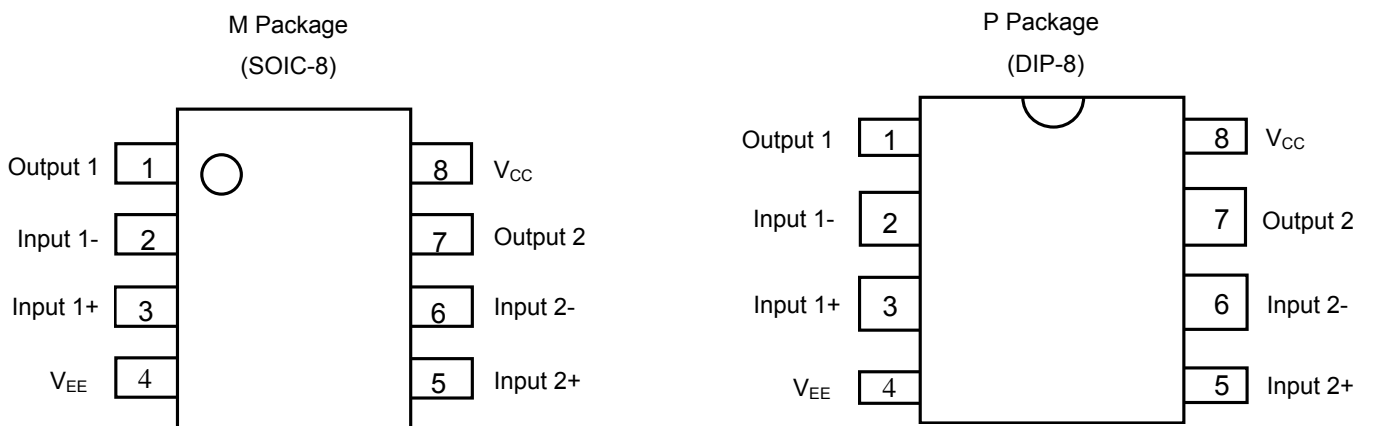


Figure 2. Pin Configuration of PD4558(Top View)

Functional Block Diagram

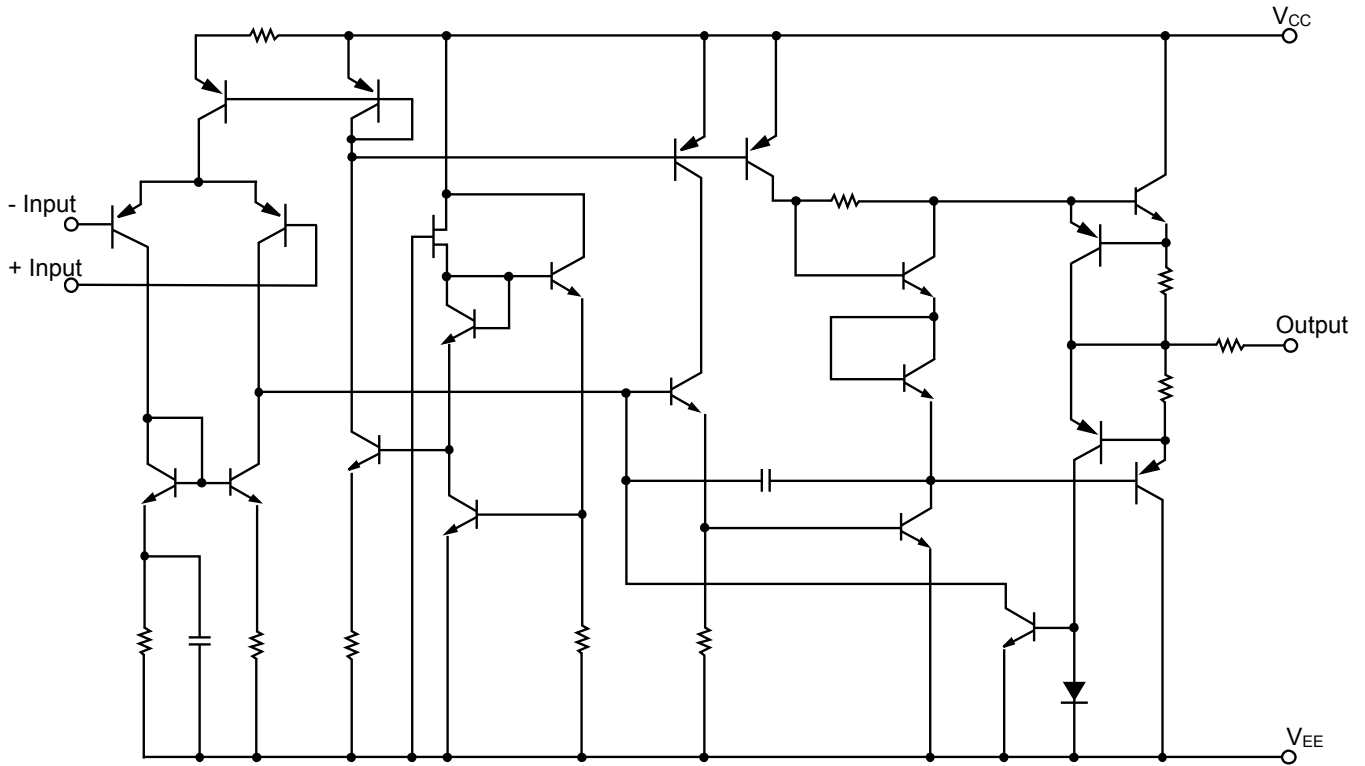
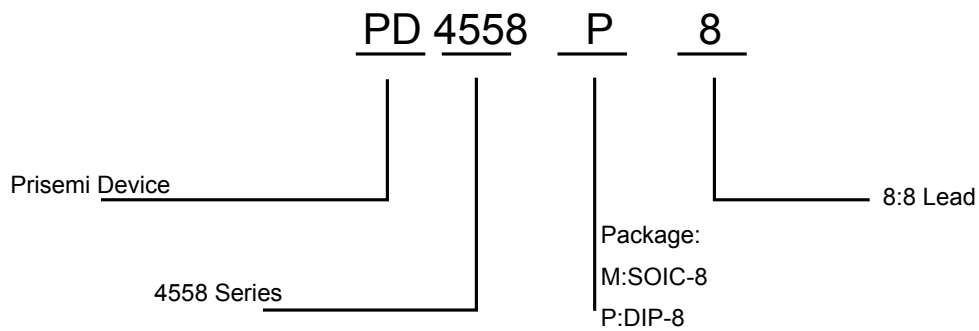


Figure 3. Functional Block Diagram of PD4558 (Each Amplifier)

Naming Rule



Electrical Characteristics

Operating Conditions: $V_{CC}=+15V, V_{EE}=-15V, T_A=25^{\circ}C$, unless otherwise specified.

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Input Offset Voltage	V_{IO}	$V_{OUT}=0V$		1	5	mV
Input Offset Current	I_{IO}	$V_{CM}=0V$		10	200	nA
Input Bias Current	I_{IB}	$V_{CM}=0V$		70	500	nA
Large Signal Voltage Gain	A_{VD}	$R_L=2K\Omega, V_O=\pm 10V$	85	100		dB
Supply Voltage Rejection Ratio	SVR	$R_S \leq 10 K\Omega$	77	100		dB
Supply Current	I_{CC}	All Amplifiers, No Load		2.5	4.5	mA
Input Common Mode Voltage Range	V_{ICM}		± 12			V
Common Mode Rejection Ratio	CMRR	$R_S \leq 10 K\Omega$	70	95		dB
Output Voltage Swing	V_O	$R_L \geq 10 K\Omega$	± 12	± 14		V
		$R_L \geq 2 K\Omega$	± 10	± 13		
Slew Rate	SR	$V_I = \pm 10V, R_L = 2 K\Omega,$ $C_L = 100pF, \text{unity gain}$		1.8		V/ μs
Rise Time	T_R	$V_I = \pm 20mV, R_L = 2 K\Omega,$ $C_L = 100pF, \text{unity gain}$		0.3		μs
Overshoot	K_{OV}	$V_I = \pm 20mV, R_L = 2 K\Omega,$ $C_L = 100pF, \text{unity gain}$		15		%
Input Resistance	R_I			0.5		M Ω
Output Resistance	R_O			45		Ω
Unity Gain Bandwidth	B	Gain=0dB		2.8		MHz
Gain Bandwidth Product	GBWP	$V_I = \pm 10mV, R_L = 2 K\Omega,$ $C_L = 100pF, f = 10KHz$		5.5		MHz
Total Harmonic Distortion Plus Noise	THD+N	$f = 1KHz, A_V = 6dB,$ $R_L = 10 K\Omega, V_O = 1V_{RMS}$		0.002		%
Equivalent Input Noise Voltage Density	e_N	$R_S = 100\Omega, f = 1KHz$		10		$\frac{nV}{\sqrt{Hz}}$
Thermal Resistance(Junction to Case)	θ_{Jc}	DIP-8		55		$^{\circ}C/W$
		SOIC-8		81		

Typical Performance Characteristics

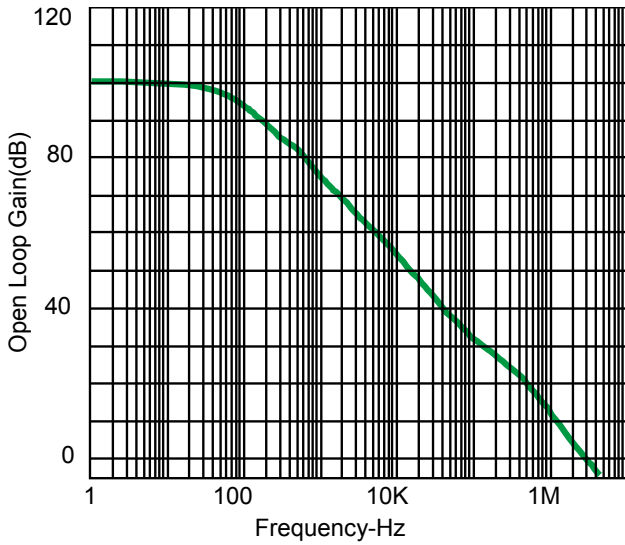


Figure 4. Open Loop Voltage Gain vs. Frequency

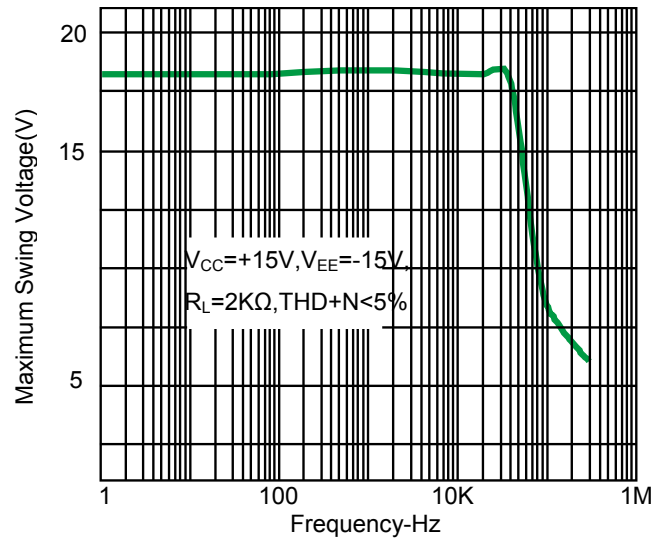


Figure 5. Maximum Output Voltage Swing vs. Frequency

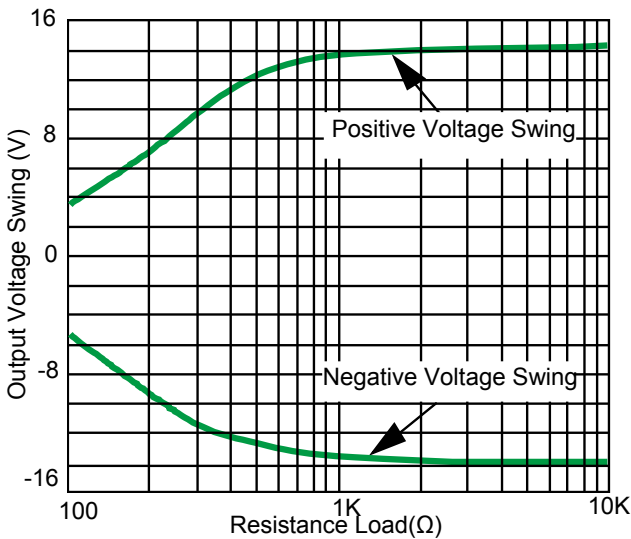


Figure 6. Maximum Output Voltage Swing vs. Load Resistance

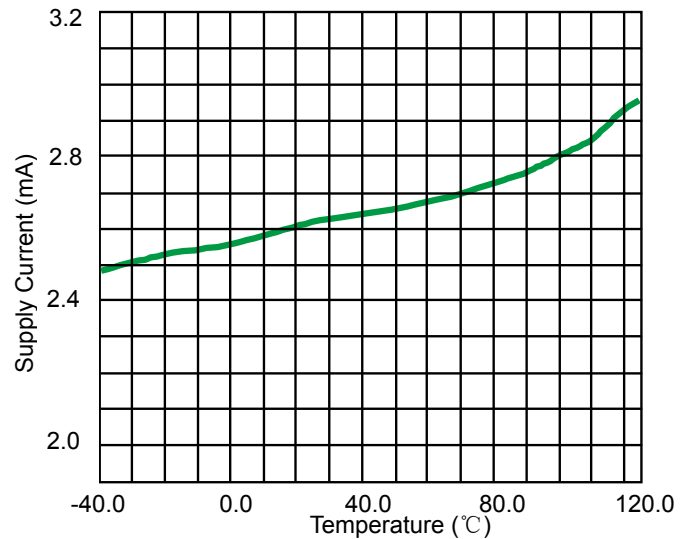


Figure 7. Supply Current vs. Temperature

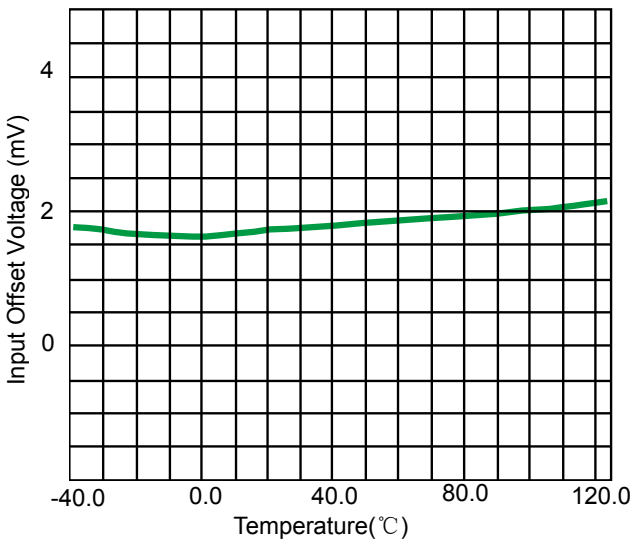


Figure 8. Input Offset Voltage vs. Temperature

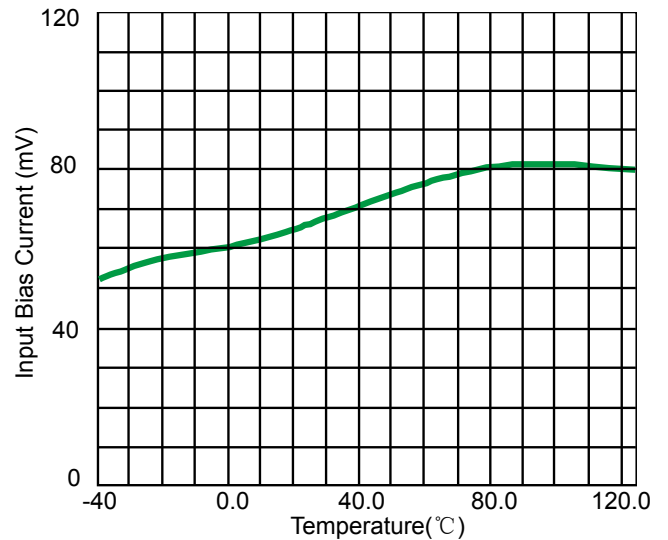


Figure 9. Input Bias Current vs. Temperature

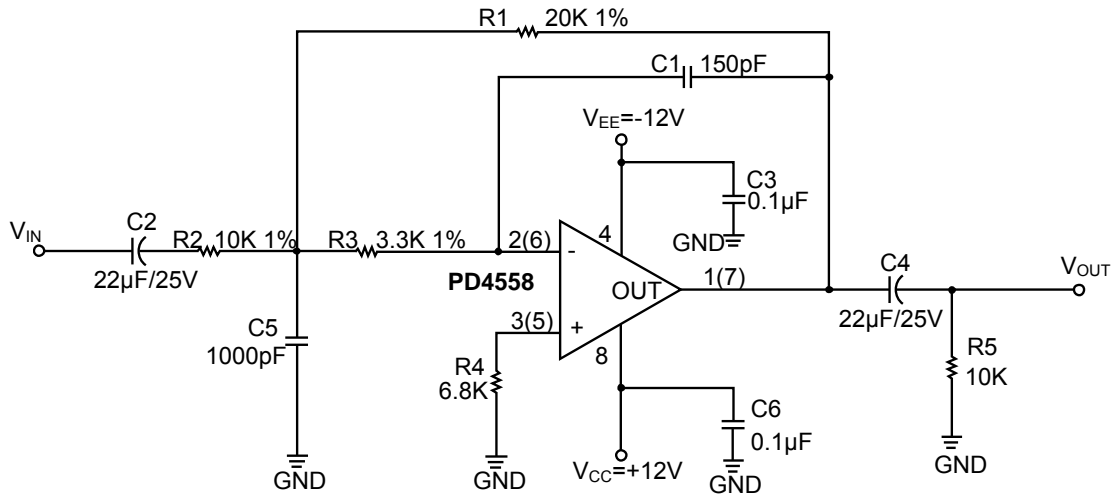
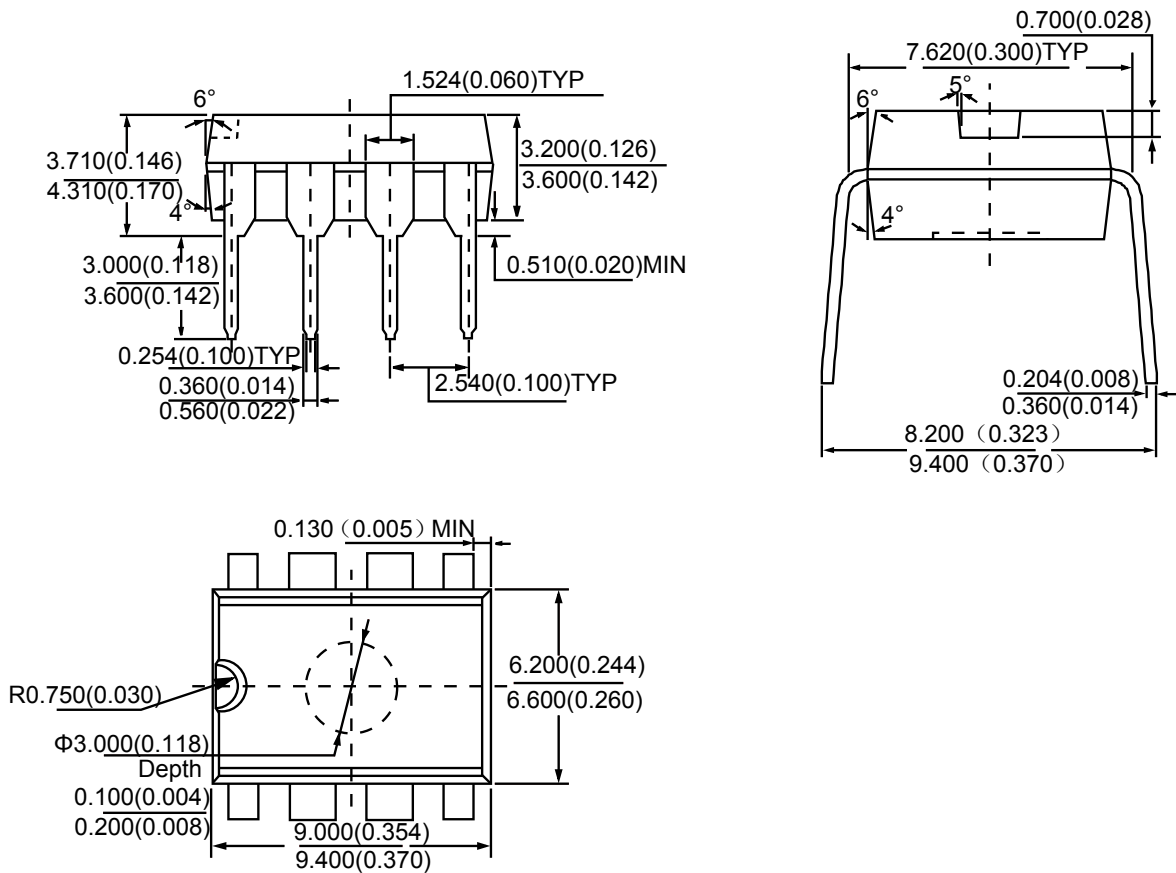


Figure 10. Typical Application of PD4558 in Audio 2nd order Low Pass Filter
 ($f_o=50.6\text{kHz}$, $Q=0.7015$, Input impedance=10K, Gain=6dB, Group delay=4.48µs)

Product dimension (DIP-8)

DIP-8

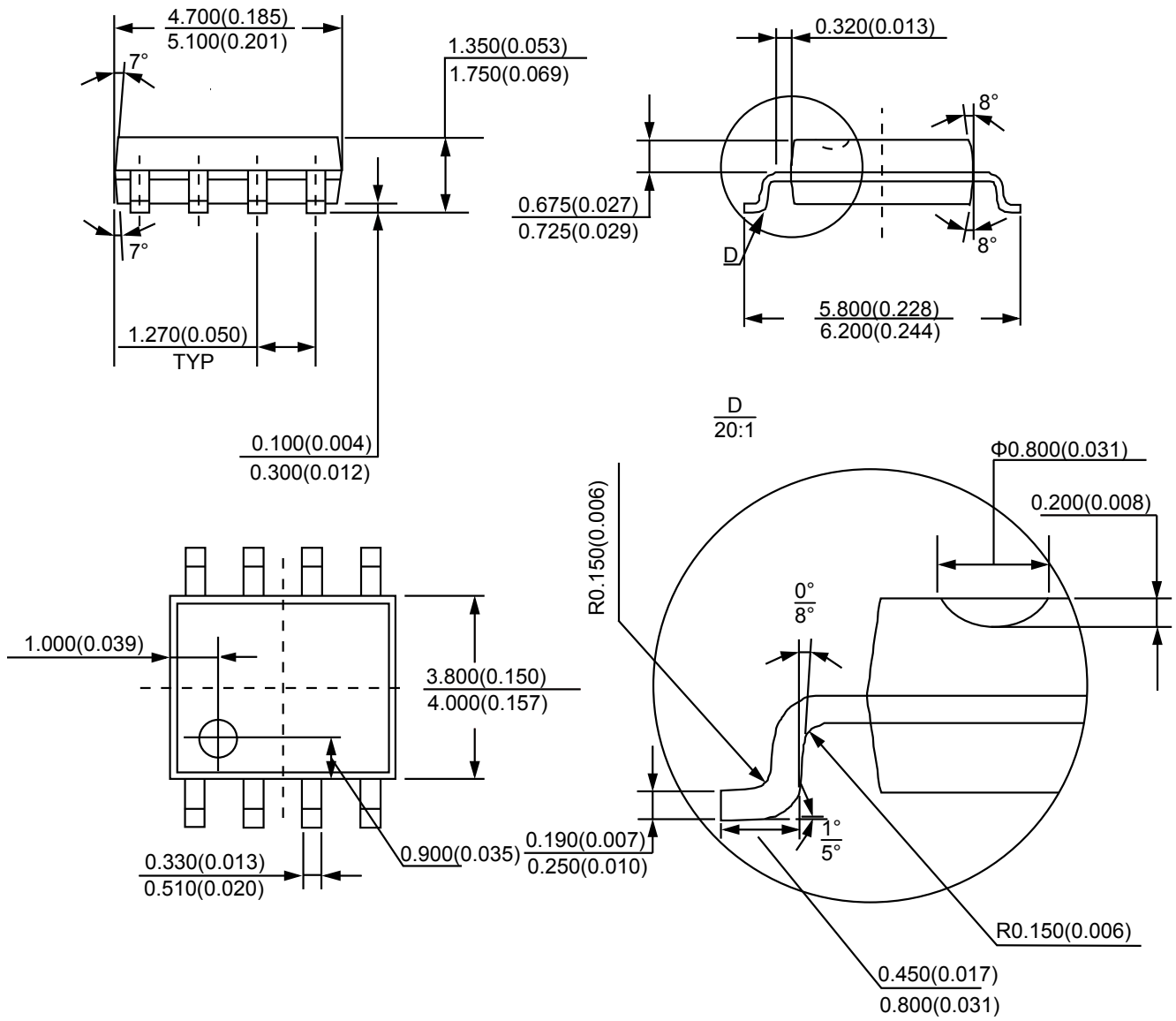
Unit:mm(inch)




Product dimension (SOIC-8)

SOIC-8

Unit:mm(inch)



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