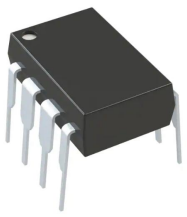
HM4800
Stereo 290mW 8Ω Speaker Driver

General Description

The HM4800 is an integrated class AB stereo head- phone amplifier contained in an SOP8 or a DIP8 plastic package The HM4800 is capable of delivering 290mW of max . output power to an 8 load with less than 10% (THD+N) from a 5V power supply . The device has been primarily developed for portable digital audio applications.



DIP8

SOP8

Features

- Operating Voltage
  - Single Supply 2V to 7V
  - Dual Supply ±1.0V to ±3.5V
- High Signal-to-Noise Ratio 100dB
- High Slew Rate 5V/μs
- Low Distortion -65dB
- Output Power at 10% THD+N
  - into 8Ω 290mW
  - Into 16Ω 190mW
- Large Output Voltage Swing
- Excellent Power Supply Ripple Rejection
- Low Power Consumption
- Short-circuit Elimination
- Wide Temperature Range
- No Switch ON/OFF Clicks
- Available in 8 pin SOP or DIP Package

Package Information

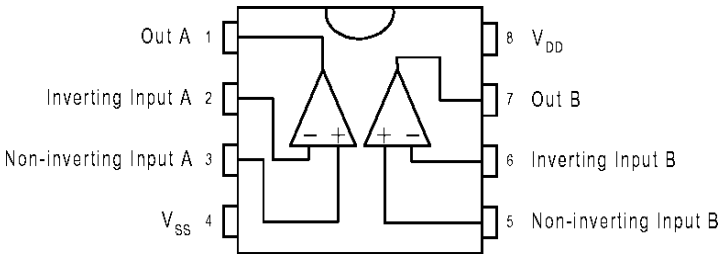
Part NO.	Package Description	Package Marking	Package Option
HM4800	SOP8	H&M SEMI HM4800 XXXX	100/Tube 4000/Reel
HM4800	DIP8	H&M SEMI HM4800 XXXX	50/Tube

H&M SEMI:Trademark HM4800:Part NO. XXXX:Lot NO.

Applications

- Portable Digital Audio
- Personal Computers
- Microphone Preamplifier

Pin Configuration



HM4800(DIP8/SOP8)

Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit
V_{DD}	Supply Voltage	7	V
$T_{SC\ (O)}$	Output Short-circuit Duration, at T_A=25 C, P_{TOT}=1W	20	S
T_A	Operating Ambient Temperature range	-40 to 85	C
T_J	Maximum Junction Temperature	150	C
T_{STG}	Storage Temperature Range	-65 to +150	C
T_S	Soldering Temperature,10 seconds	260	C
V_{ESD}	Electrostatic Discharge	-3000 to 3000 *1	V

Note: *1. Human body model : C=100pF, R=1500 , 3 positive pulses plus 3 negative pulses

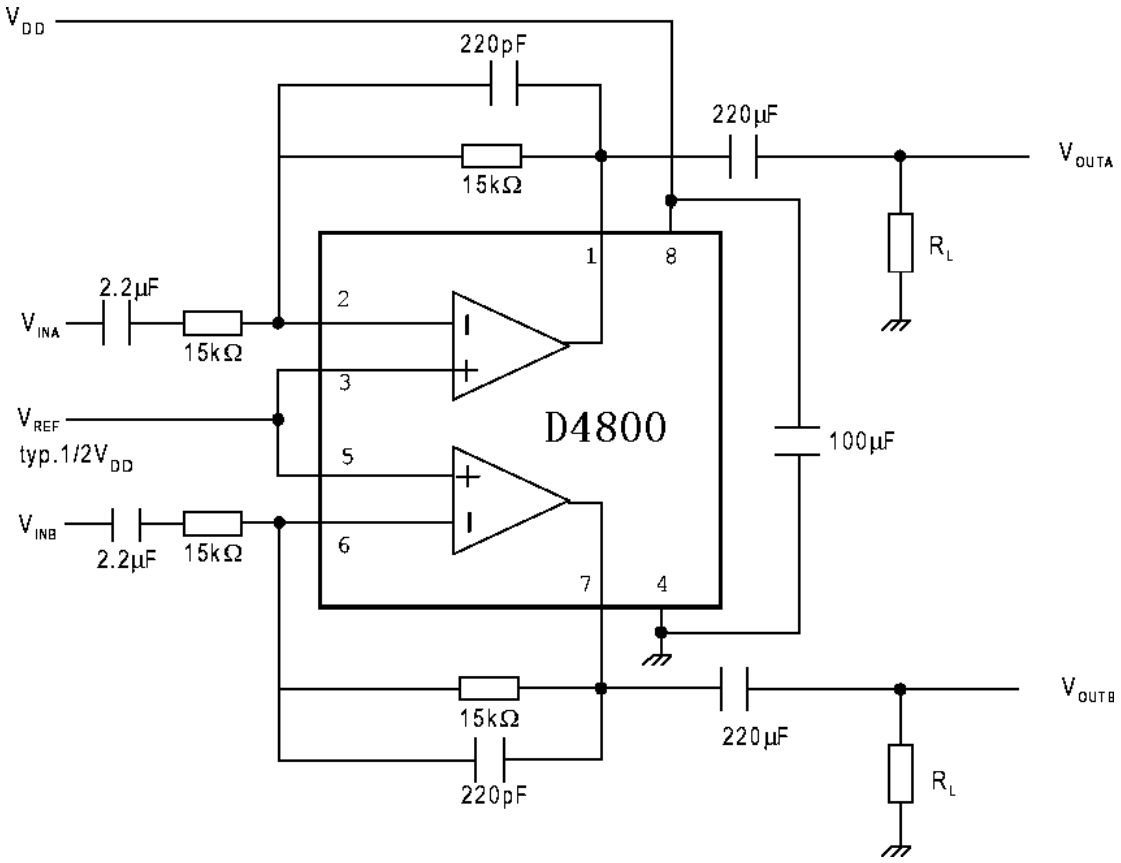
Thermal Characteristics

Parameter Name	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient in Free Air DIP8 SOP8	$R_{\theta ja}$	 109 210	℃/W

Electrical Characteristics （Unless otherwise specified Ta=25°C，f=1KHz）

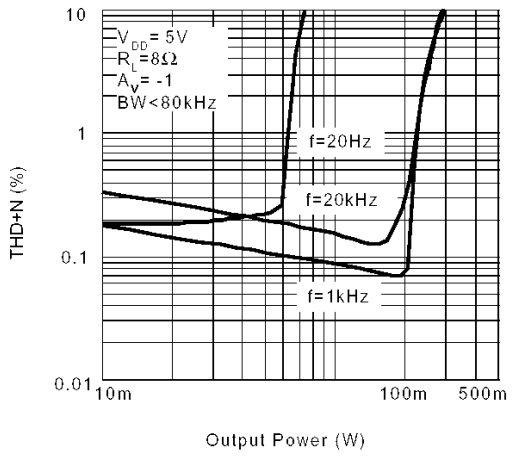
Symbol	Parameter	Test Conditions	HM4800			Unit
			Min.	Typ.	Max.	
V_{DD}	Power Supply Voltage		2.0		5.5	V
V_{DD}=5V						
I_{DD}	Supply Current	No Load		2.5		mA
$V_{I(OS)}$	Input Offset Voltage			5	50	mV
AC Characteristics						
(THD+N)/S	Total Harmonic Distortion plus Noise to Signal Ratio	P_O =200mW, R_L=8 , f=1kHz P_O =120mW, R_L=16 , f=1kHz		0.1 0.05	0.3 0.1	%
P_O	Output Power	(THD+N)/S=0.2%, f=1kHz R_L=8 R_L=16		 210 140		mW
P_O	Output Power	(THD+N)/S=10%, f=1kHz R_L=8 R_L=16		 290 190		mW
PSRR	Power Supply Rejection Ratio	C_B=2.2 F,V_{RIPPLE}=200mVrms, f=120Hz		55		dB
S/N	Signal to Noise Ratio	R_L=8		20		Vrms
V_{DD}=3V						
I_{DD}	Supply Current	No Load		2.2		mA
$V_{I(OS)}$	Input Offset Voltage			5		mV
AC Characteristics						
(THD+N)/S	Total Harmonic Distortion plus Noise to Signal Ratio	P_O =50mW, R_L=8 , f=1kHz P_O =40mW, R_L=16 , f=1kHz		0.15		%
P_O	Output Power	(THD+N)/S=0.2%, f=1kHz R_L=8 R_L=16		 60 45		mW
P_O	Output Power	(THD+N)/S=10%, f=1kHz R_L=8 R_L=16		 90 65		mW

Test And Application Circuits

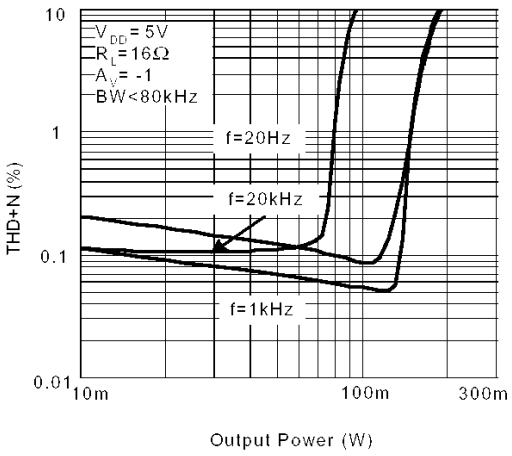


Characteristics Curves

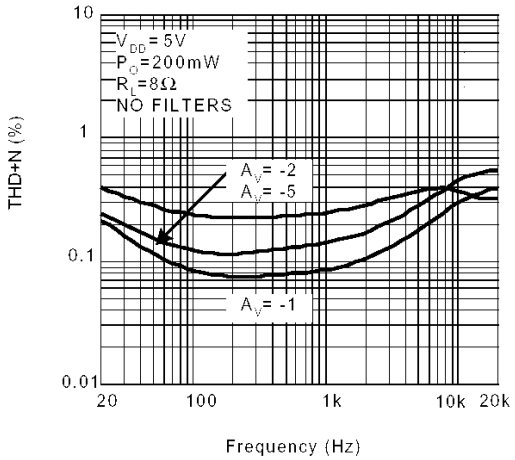
THD+N vs Output Power



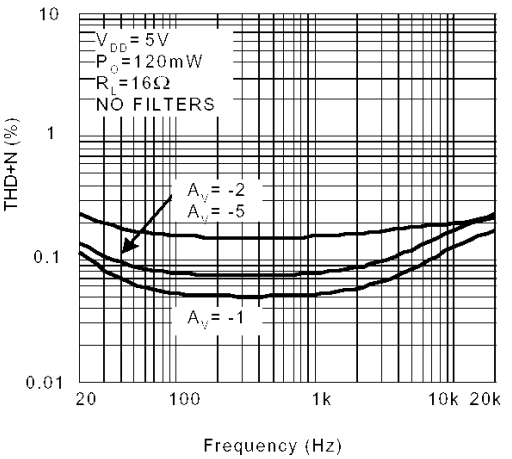
THD+N vs Output Power



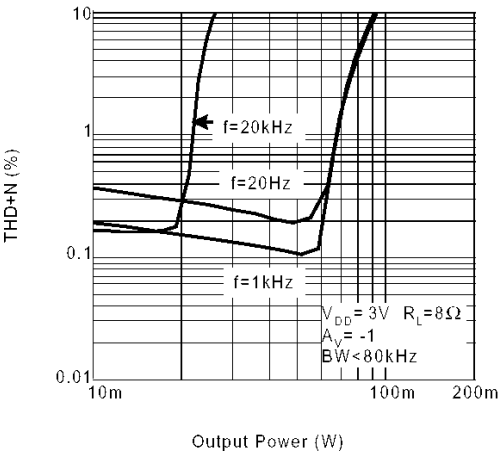
THD+N vs Frequency



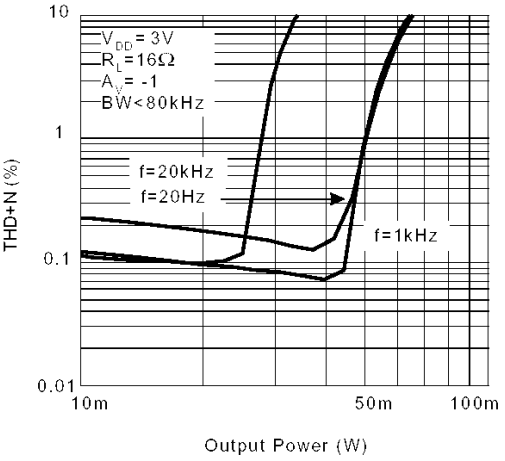
THD+N vs Frequency



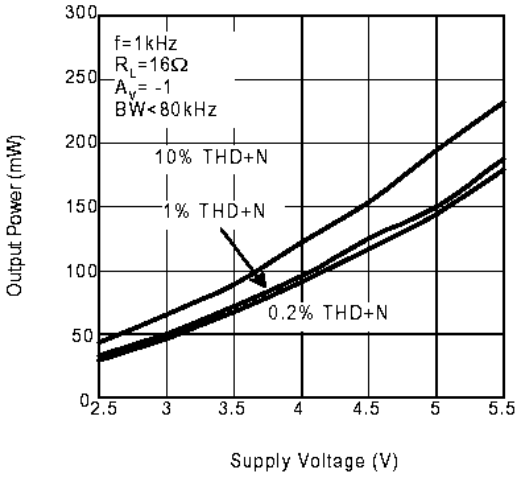
THD+N vs Output Power



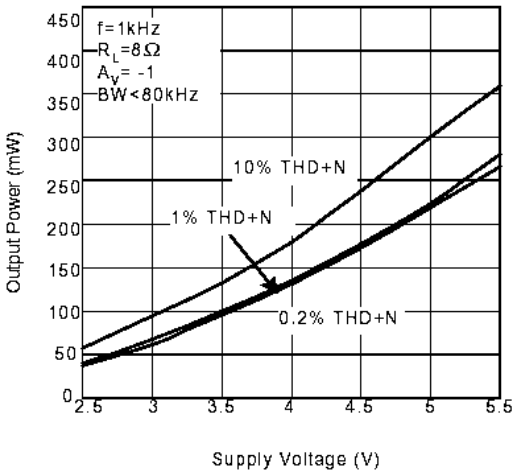
THD+N vs Output Power



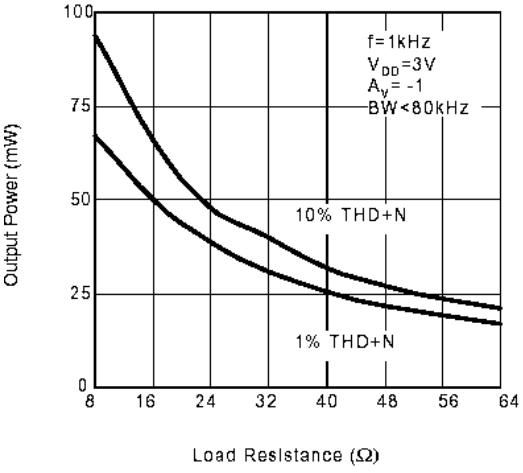
Output Power vs Supply Voltage



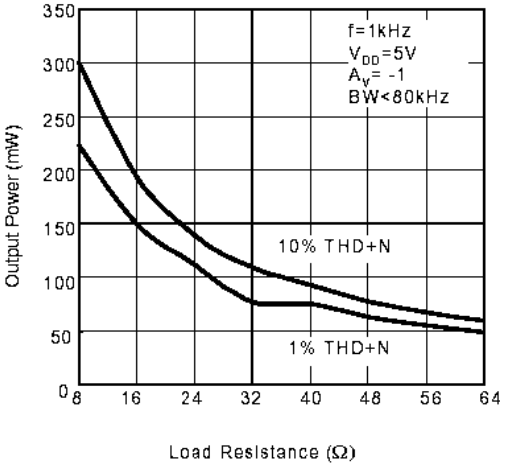
Output Power vs Supply Voltage



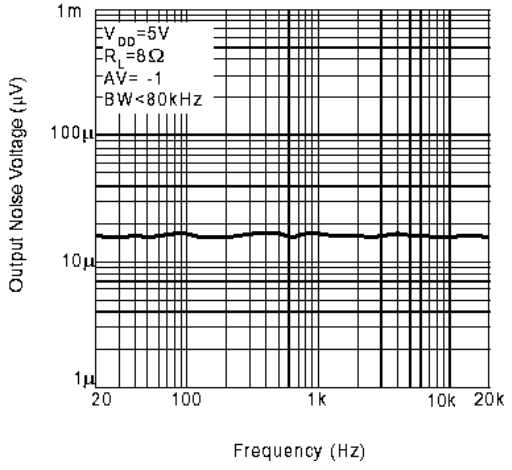
Output Power vs Load Resistance



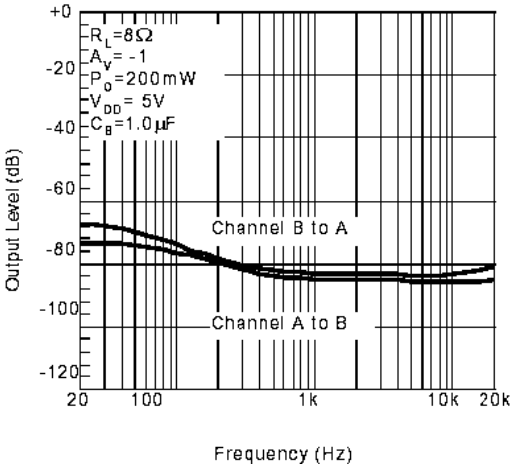
Output Power vs Load Resistance



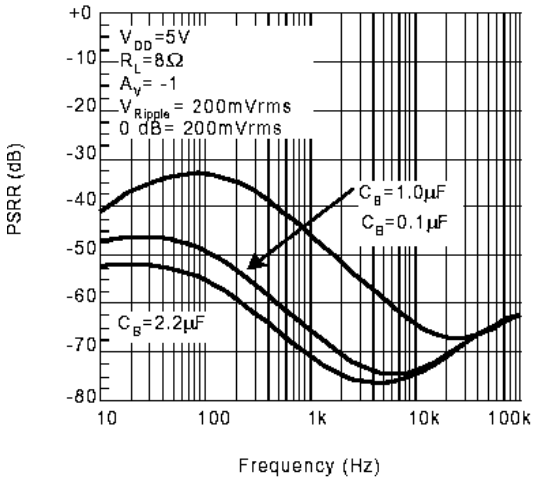
Noise Floor



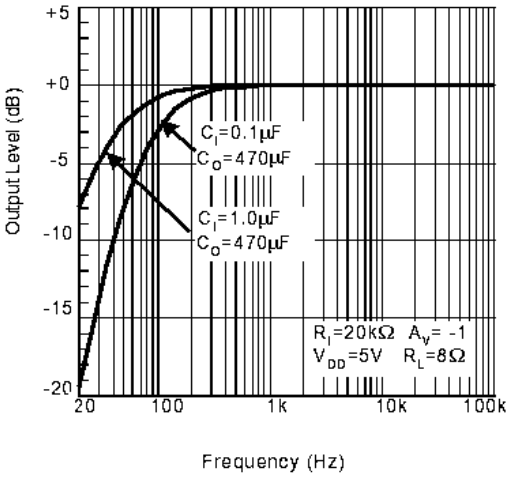
Channel Separation



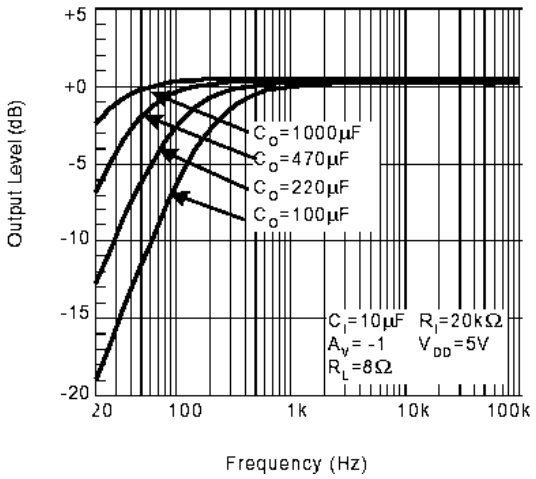
Power Supply Rejection Ratio



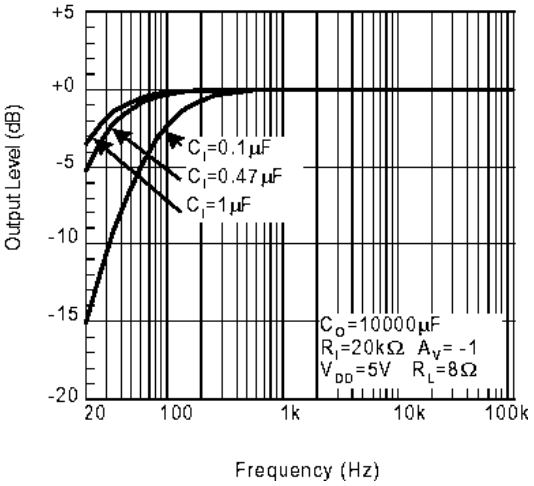
Typical Application Frequency Response



Frequency Response vs Output Capacitor Size

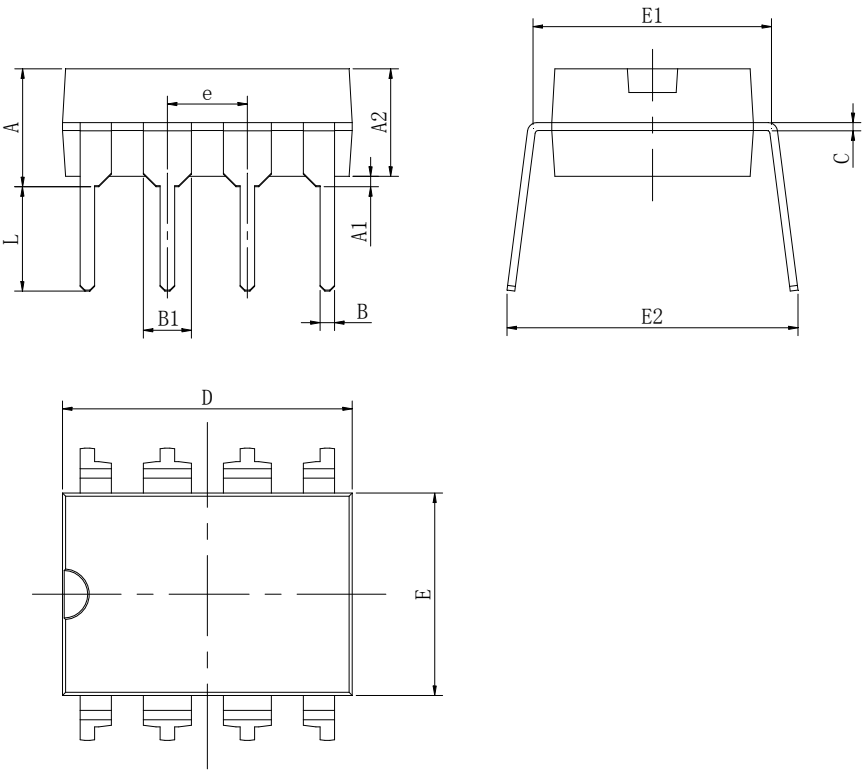


Frequency Response vs Output Capacitor Size



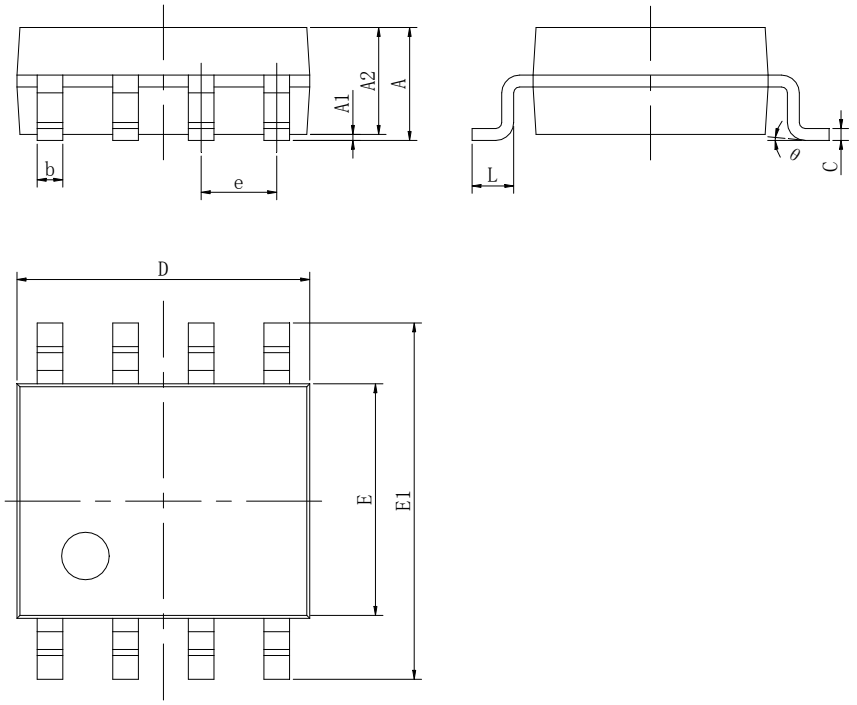
Outline Dimensions

DIP8 Unit:mm



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	3.710	4.310	0.146	0.170
A1	0.510		0.020	
A2	3.200	3.600	0.126	0.142
B	0.380	0.570	0.015	0.022
B1	1.524(BSC)		0.060(BSC)	
C	0.204	0.360	0.008	0.014
D	9.000	9.400	0.354	0.370
E	6.200	6.600	0.244	0.260
E1	7.320	7.920	0.288	0.312
e	2.540(BSC)		0.100(BSC)	
L	3.000	3.600	0.118	0.142
E2	7.800	9.000	0.307	0.354

SOP8 Unit:mm



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.800	0.053	0.071
A1	0.000	0.250	0.000	0.010
A2	1.250	1.550	0.053	0.061
b	0.300	0.510	0.011	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.201
E	3.800	4.000	0.150	0.157
E1	5.800	6.300	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

Statements

- H&M SEMI reserves the right to make changes without further notice to any products or specifications herein. Before customers place an order, customers need to confirm whether datasheet obtained is the latest version, and to verify the integrity of the relevant information.

- Failure or malfunction of any semiconductor products may occur under particular conditions, customers shall have obligation to comply with safety standards when customers use H&M SEMI products to do their system design and machine manufacturing, and take corresponding safety measures in order to avoid potential risk of failure that may cause personal injury or property damage.

- The product upgrades without end, H&M SEMI will wholeheartedly provide customers integrated circuits that have better performance and better quality.