

1.25 WATT FULLY DIFFERENTIAL AUDIO POWER AMP W/INTERNAL FEEDBACK RESISTORS DETECTOR

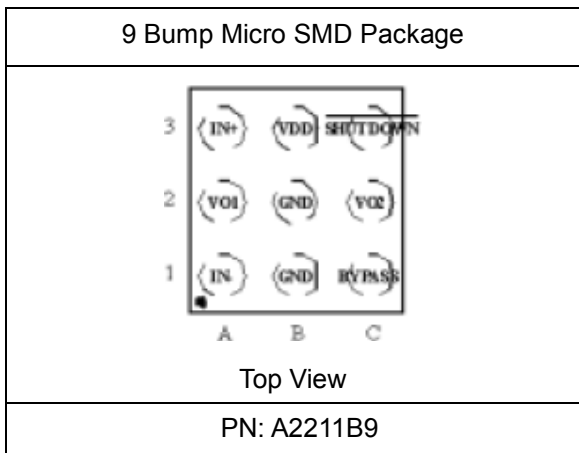
A2211

Description

The A2211 is a fully differential audio power amplifier designed for portable communication device applications. It is capable of delivering 1.25 watt of continuous average power to an 8Ω BTL load with less than 1% distortion (THD+N) from a 5V battery voltage. It operates from 2.2V to 5.5V.

Features like 86dB PSRR at 217Hz, improved RF-rectification immunity, the space-saving 8-pin MSOP8 and 9-bump Micro SMD package, the advanced pop & click circuitry, a minimal count of external components and low-power shutdown mode make A2211 idea for wireless handsets. The A2211 is unity-gain stable, and the gain can be configured by external input resistors and internal feedback resistors.

Ordering Information

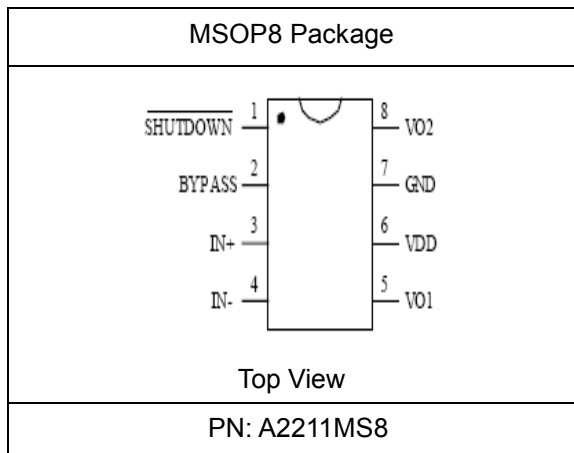


Features

- Fully Differential Amplifier
- Improved PSRR at 217Hz ($V_{DD} > 3.0V$) 86dB(Typ)
- Power Output at 5.0V & 1% THD 1.25W(Typ)
- Power Output at 3.6V & 1% THD 0.6W(Typ)
- Ultra Low Shutdown Current 0.1uA(typ)
- Improved pop & click Circuitry Eliminates Noise During turn-on and turn-off Transitions
- Thermal Overload Protection Circuitry
- No Output Coupling Capacitors, Bootstrap Capacitors required
- Unity-Gain Stable
- External Gain Configuration Capability

Application

- Wireless Handsets
- Portable Audio Devices
- PDA
- Handheld Computer



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Pin Description

MSOP8	9-Bump Micro SMD	Symbol	Type	Functions
1	C3	Shutdown	I	Shutdown Pin, Active Low
2	C1	Bypass	I	Common Mode Voltage. Connect a Bypass Capacitor to GND for Common Mode Voltage Filtering. The Bypass Capacitor is Optional.
3	A3	IN+	I	Positive Differential Input
4	A1	IN-	I	Negative Differential Input
5	A2	V01	O	Positive Differential Output
6	B3	V _{DD}	I	Power Supply
7	B1, B2	GND	I	Ground
8	C2	V02	O	

Operation Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Power Supply Voltage	V _{DD}	2.2		5.5	V
Operating Temperature Range	T _A	-40		85	°C

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Electrical Characteristics

Test Condition:

1. $V_{DD}=5V$ (The following specifications apply for 8Ω load, $A_v=1V/V$, $T_A=25^\circ C$, unless otherwise noted.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_{DD}	Quiescent Power Supply Current	$V_{IN}=0V$, no Load		2.5	5	mA
		$V_{IN}=0V$, $R_L=8\Omega$		4	8	
I_{SD}	Shutdown Current	$V_{SHUTDOWN}=GND$		0.01	1	μA
P_o	Output Power	THD=1%(max, F=1KHz)		1.25		W
THD+N	Total Harmonic Distortion +Noise	$P_o=0.6W_{rms}$, F=1KHz		0.02		%
PSRR	Power Supply Rejection Ratio	Vripple=200mV sinep-p				dB
		F=217Hz (note1)		-88		
		F=1KHz (note2)		-83		
		F=217Hz (note2)		-83		
		F=1KHz (note2)		-83		
CMRR	Common Mode Rejection Ratio	F=217Hz $V_{CM}=200mV_{pp}$		-78		dB
V_{OS}	Output Offset	$V_{IN}=0V$		2	8	mV
V_{SDIH}	Shutdown Voltage Input High		1.5			V
V_{SDIL}	Shutdown Voltage Input Low				0.5	V
A_v	Closed Loop Gain		36K Ω	40K Ω	44K Ω	V / V
			Ri	Ri	Ri	

Note1: Unterminated Input

Note2: 10 Ω Terminated Input

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2. $V_{DD}=3.6V$ (The following specifications apply for 8Ω load, $A_v=1V/V$, $T_A=25^\circ C$, unless otherwise noted.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
I_{DD}	Quiescent Power Supply Current	$V_{IN}=0V$, no Load		2	4.5	mA
		$V_{IN}=0V$, $R_L=8\Omega$		3.5	7.5	
I_{SD}	Shutdown Current	$V_{SHUTDOWN}=GND$		0.01	1	μA
P_o	Output Power	THD=1%(max, F=1KHz		0.6		W
THD+N	Total Harmonic Distortion +Noise	$P_o=0.4W_{rms}$, F=1KHz		0.02		%
PSRR	Power Supply Rejection Ratio	Vripple=200mV sinep-p				dB
		F=217Hz (note3)		-86		
		F=1KHz (note4)		-83		
		F=217Hz (note4)		-83		
		F=1KHz (note4)		-83		
CMRR	Common Mode Rejection Ratio	F=217Hz $V_{CM}=200mV_{pp}$		-76		dB
V_{OS}	Output Offset	$V_{IN}=0V$		2	8	mV
V_{SDIH}	Shutdown Voltage Input High		1.5			V
V_{SDIL}	Shutdown Voltage Input Low				0.5	V
A_v	Closed Loop Gain		36K Ω	40K Ω	44K Ω	V / V
			Ri	Ri	Ri	

Note3: Unterminated Input

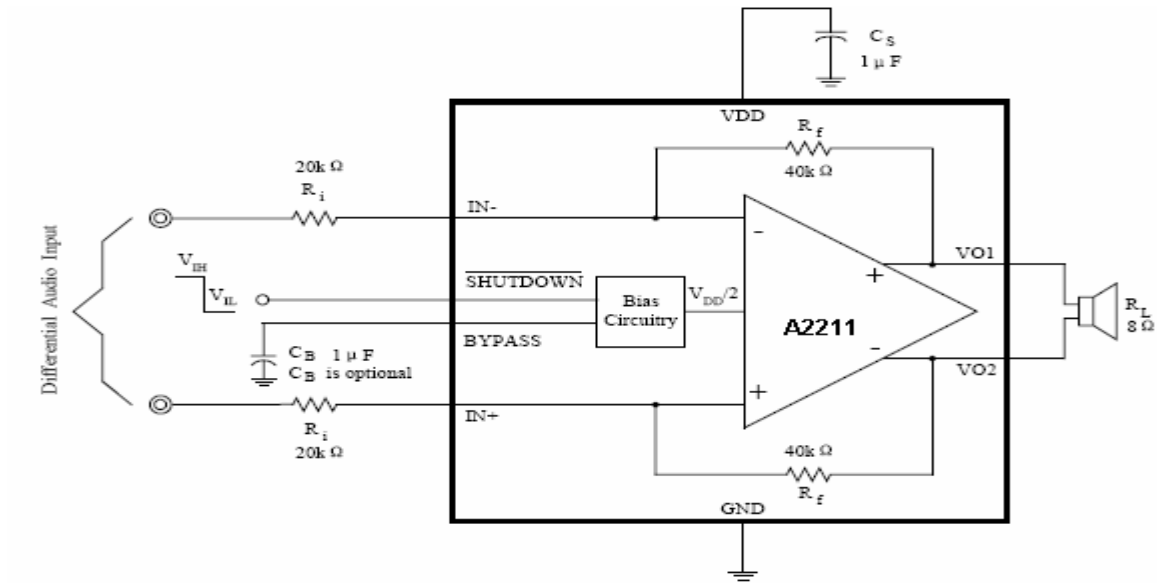
Note4: 10 Ω Terminated Input

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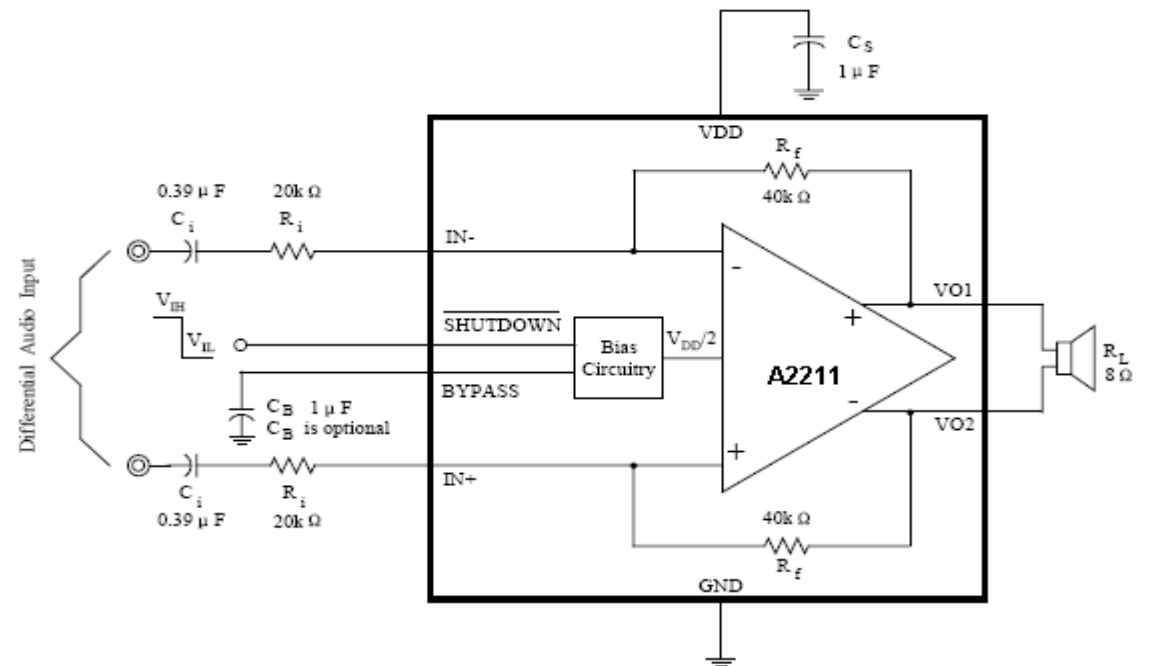
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Typical Application

1. Typical Differential Input Application



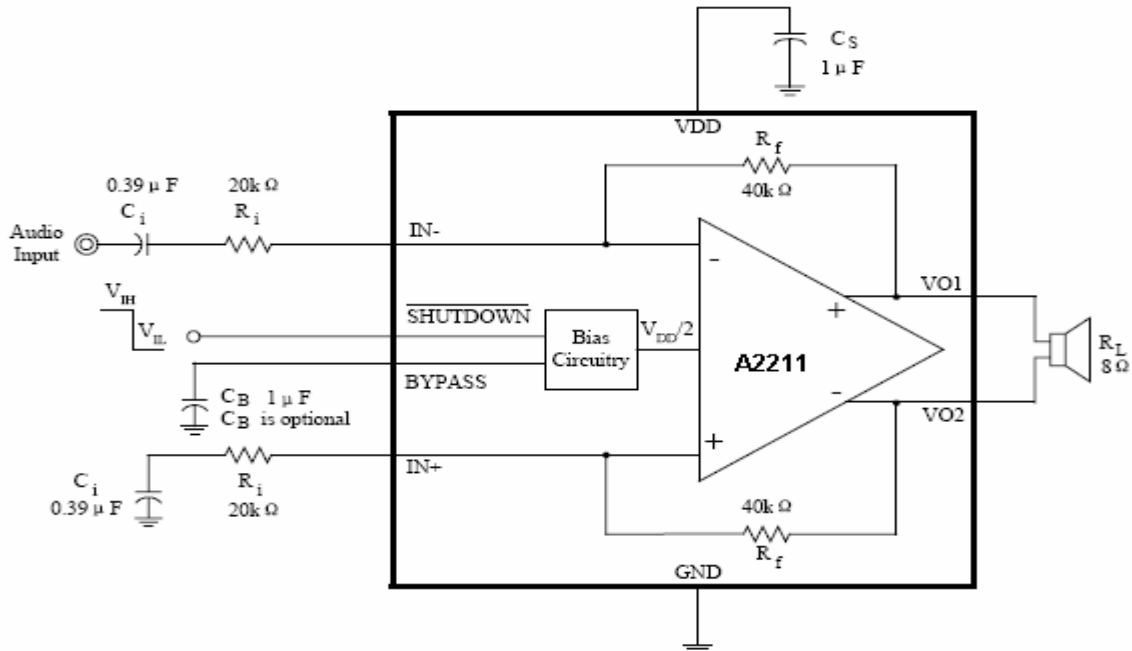
2. Differential Input application with Input Capacitors



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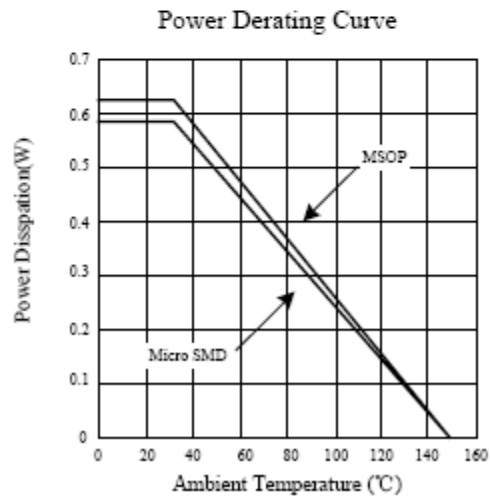
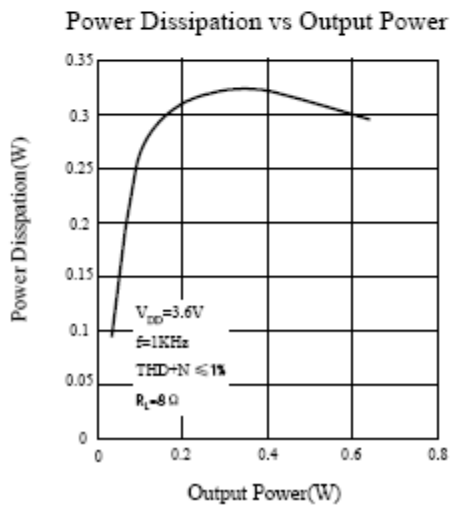
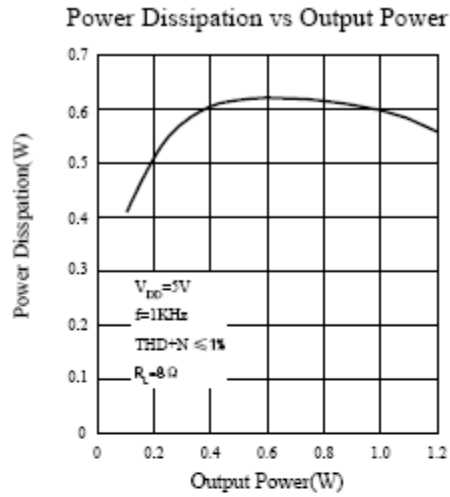
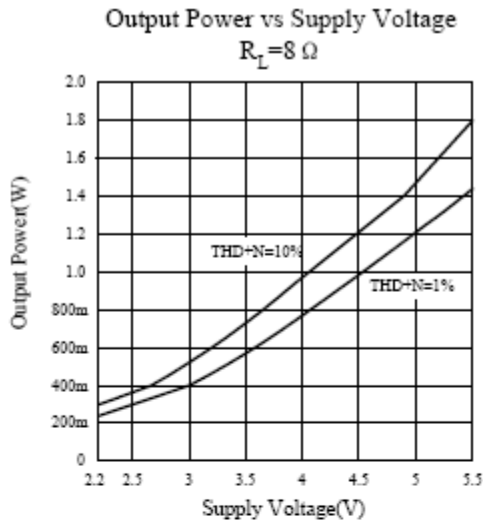
3. Single-Ended Input Application



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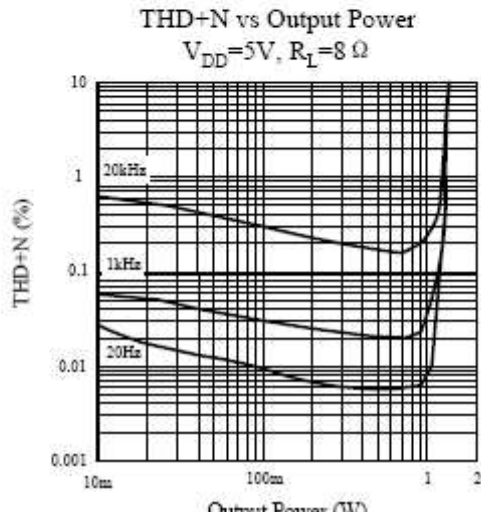
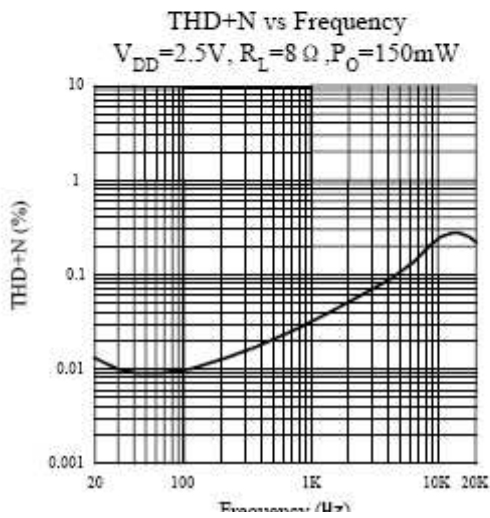
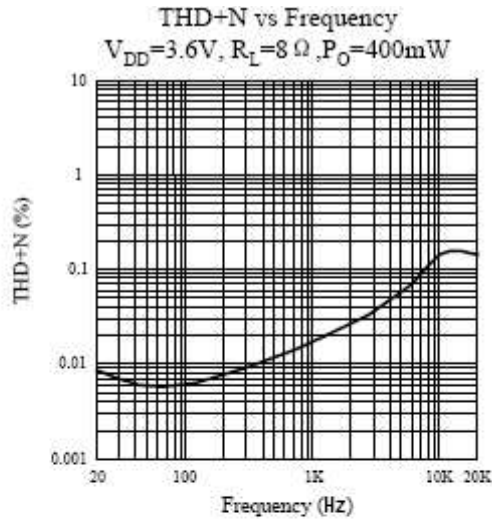
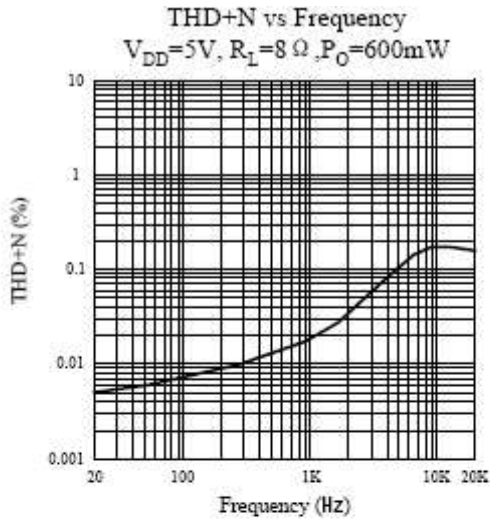
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Typical Performance Characteristics



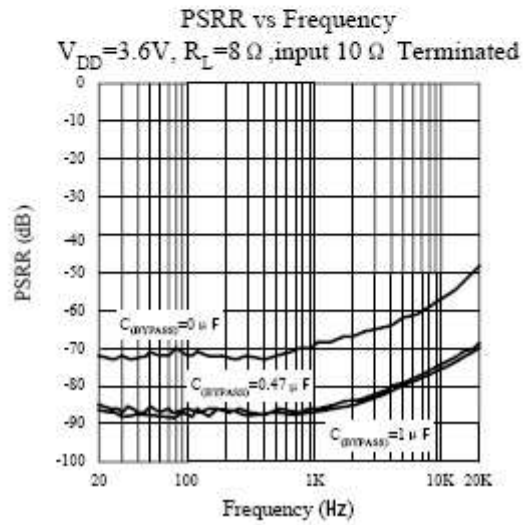
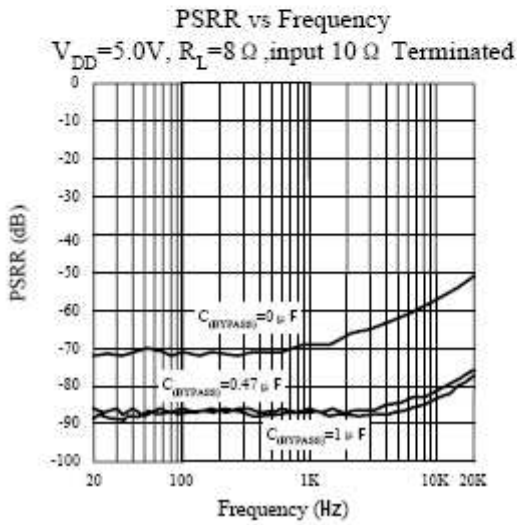
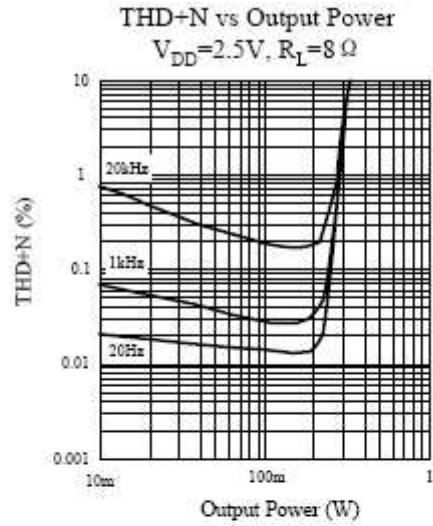
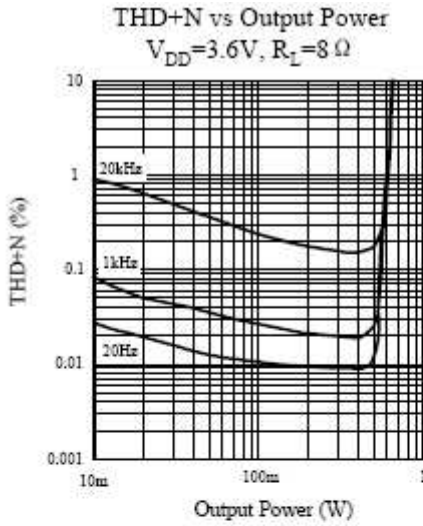
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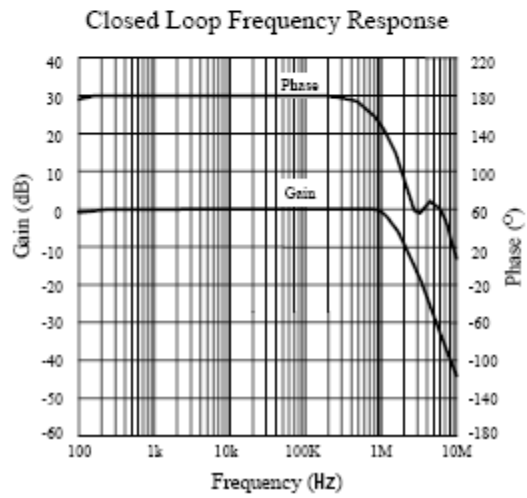
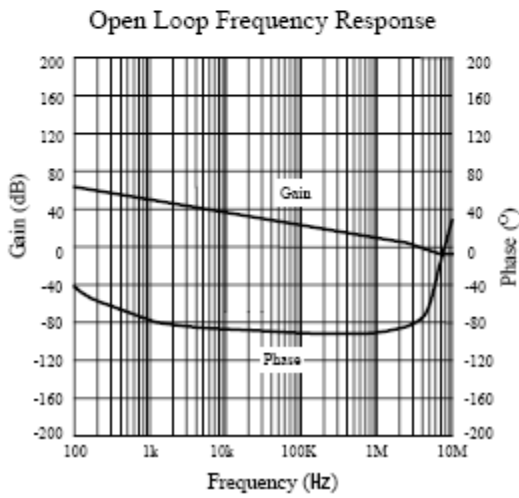
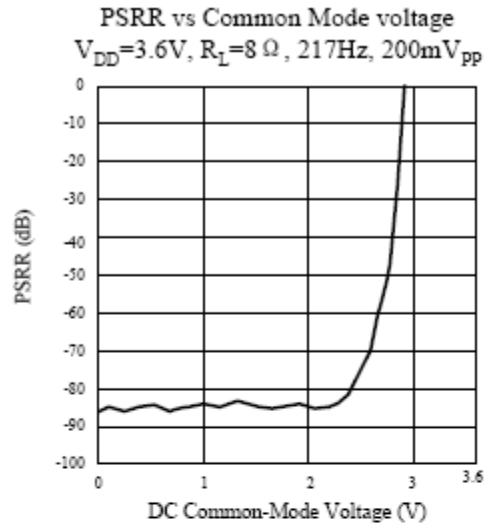
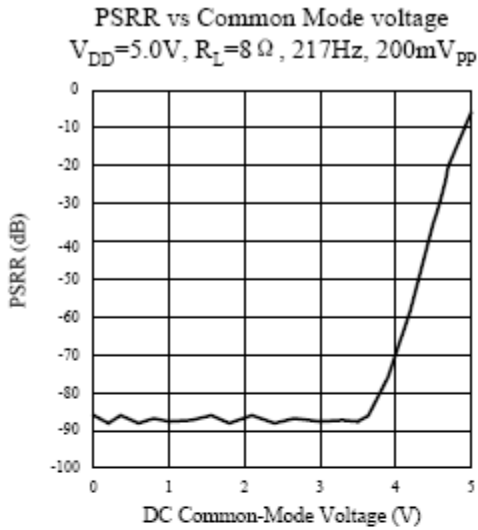
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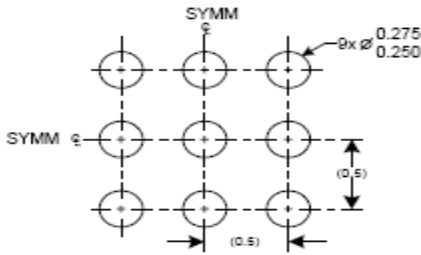


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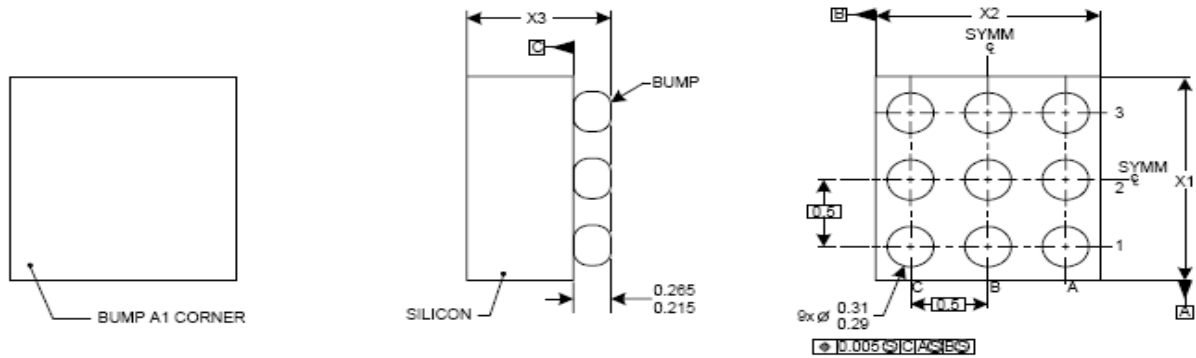
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Package Information

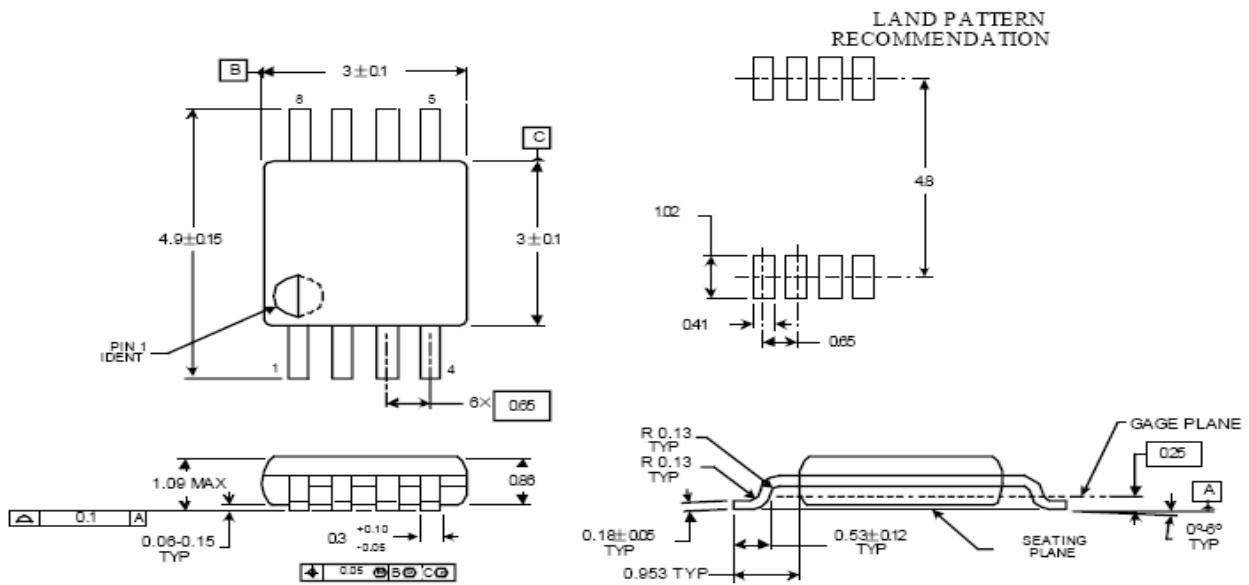
Dimension in 9 Bump Micro SMD (Unit: mm)



LAND PATTERN RECOMMENDATION



Dimension in MSOP8 Package



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