

# P H A D P

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## R H HM A3229

### Description

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™



ON Semiconductor

[www.onsemi.com](http://www.onsemi.com)

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SIP25  
HYBRID  
CASE 127DZ

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PAD CONNECTION

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### Features

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MARKING DIAGRAM



# RHYTHM SA3229

## SPECIFICATIONS

**Table 1. ABSOLUTE MAXIMUM RATINGS**

Parameter	Value	Units
Operating Temperature Range	0 to +40	°C
Storage Temperature Range	-20 to +70	°C
Absolute Maximum Power Dissipation	25	mW
Maximum Operating Supply Voltage	1.65	VDC
Absolute Maximum Supply Voltage	1.8	VDC

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

**WARNING:** Electrostatic Sensitive Device – Do not open packages or handle except at a static-free workstation.

**WARNING:** Moisture Sensitive Device – RoHS Compliant; Level 3 MSL. Do not open packages except under controlled conditions.

**Table 2. ELECTRICAL CHARACTERISTICS** (Supply Voltage  $V_B = 1.25$  V; Temperature = 25°C)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Hybrid Current	$I_{AMP}$	All functions, 32 kHz sampling rate	–	640	–	$\mu$ A
		All functions, 16 kHz sampling rate	–	535	–	
Minimum Operating Supply Voltage	$V_{BOFF}$	Ramp down, audio path	0.93	0.95	0.97	V
		Ramp down, control logic	0.77	0.80	0.83	
Supply Voltage Turn On Threshold	$V_{BON}$	Ramp up	1.06	1.10	1.16	V
Low Frequency System Limit	–	–	–	125	–	Hz
High Frequency System Limit	–	–	–	16	–	kHz
Total Harmonic Distortion	THD	$V_{IN} = -40$ dBV	–	–	1	%
THD at Maximum Input	THD					

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**Table 2. ELECTRICAL CHARACTERISTICS** (Supply Voltage  $V_B = 1.25\text{ V}$ ; Temperature =  $25^\circ\text{C}$ ) (continued)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
<b>OUTPUT</b>						
D/A Dynamic Range	-	100 Hz – 8 kHz	-	88		

# RHYTHM SA3229

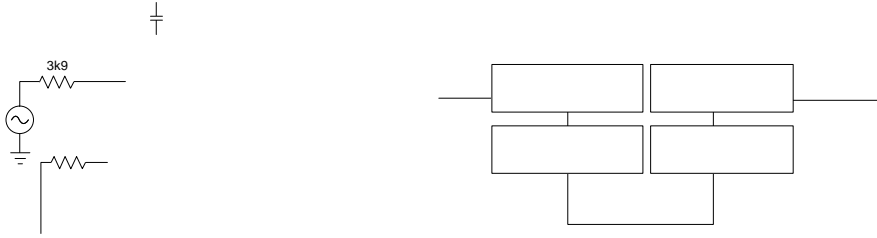
**Table 3. I<sup>2</sup>C TIMING**

Parameter	Symbol	Standard Mode		Fast Mode		Units
		Min	Max	Min	Max	
Clock Frequency	f <sub>PC_CLK</sub>	0	100	0	400	kHz
Hold time (repeated) START condition. After this period, the first clock pulse is generated.	t <sub>HD;STA</sub>	4.0	–	0.6	–	μsec
LOW Period of the PC_CLK Clock	t <sub>LOW</sub>	4.7	–	–	–	μsec
HIGH Period of the PC_CLK Clock	t <sub>HIGH</sub>	4.0	–	–	–	μsec
Set-up time for a repeated START condition	t <sub>SU;STA</sub>	4.7	–	–	–	μsec

Data Hold Time:  
for CBUS Compatible Masters  
for I

# RHYTHM SA3229

## TYPICAL APPLICATIONS



Note: All resistors in ohms and all capacitors in farads, unless otherwise stated.

**Figure 2. Test Circuit**

# RHYTHM SA3229

# RHYTHM SA3229

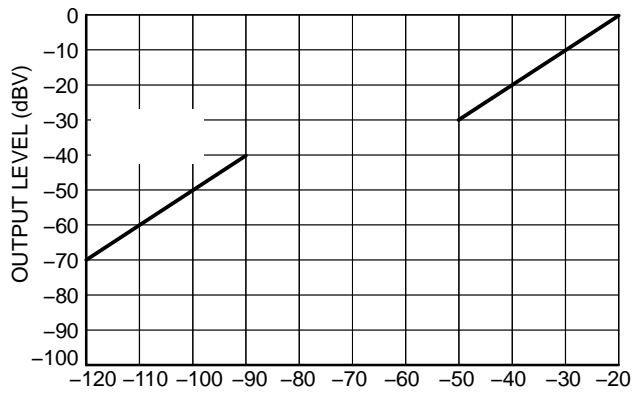


Figure 4. Independent Channel I/O Curve Flexibility



# RHYTHM SA3229

Ω

Trimmers

–

Ω

Ω

–

Digital Volume Control

# RHYTHM SA3229

*higher*

*lower*

**Tinnitus Treatment Noise**

**AGC-O**

$\infty$

**Graphic Equalizer**

**Biquadratic Filters**

$$H(z) = \frac{b0 + b1 \times z^{-1} + b2 \times z^{-2}}{1 + a1 \times z^{-1} + a2 \times z^{-2}}$$

$a0$                       -

**EVOKE Acoustic Indicators**

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- 
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$round(x \times 2^{14})$

**Power Management**

Power On Reset Delay

# RHYTHM SA3229

## Input Connection and Layout Considerations

### ORDERING INFORMATION

Device	Package	Shipping†
SA3229-E1	25 Pad Hybrid Case 127DZ	25 Units / Bubble Pack
SA3229-E1-T	25 Pad Hybrid Case 127DZ	250 Units / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

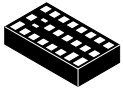
### Hybrid Jig Ordering Information

# RHYTHM SA3229

## PAD LOCATIONS

Table 8. PAD POSITION AND DIMENSIONS

Pad No	Pin Name	mil				mm			
		X	Y	Xdim	Ydim	X	Y	Xdim	Ydim
1									



SCALE 2:1

SIP25, 5.72x3.18  
CASE 127DZ  
ISSUE A

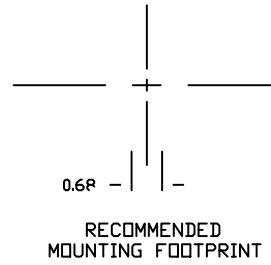
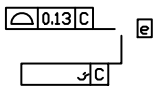
DATE 06 DEC 2019

NOTES:

1. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 1994.
2. CONTROLLING DIMENSION: MILLIMETERS
3. COPLANARITY AP CROWNS OF THE PADS.

2X

2X



RECOMMENDED  
MOUNTING FOOTPRINT

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