

■ General Description

The AME4041 is a micropower 2-terminal band-gap voltage regulator diode. It operates over a 30µA to 20mA current range. Each circuit is trimmed at wafer sort to provide a ±0.5% initial tolerance. The design of the AME4041 allows for a large range of load capacitances and operating currents. The low start-up current makes these parts ideal for battery applications.

AME, Inc. offers this part in a SOT-23 package.

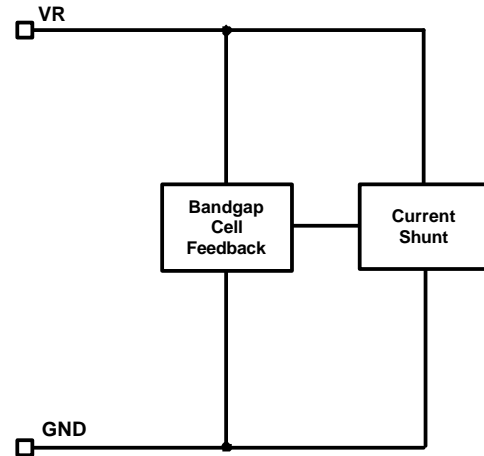
■ Features

- Small Packages: SOT-23
- Tolerates Capacitive Loads
- Fixed Reverse Breakdown Voltage of 1.225V
- Tight Voltage Tolerance ----- ±0.5%
- Wide Operating Current ----- 30µA to 20mA
- Wide Temperature Range ----- -40°C to 85°C
- Low Temperature Coefficient --100ppm/°C (max)
- Excellent Transient Response
- All AME's Lead Free Products Meet RoHS Standards.

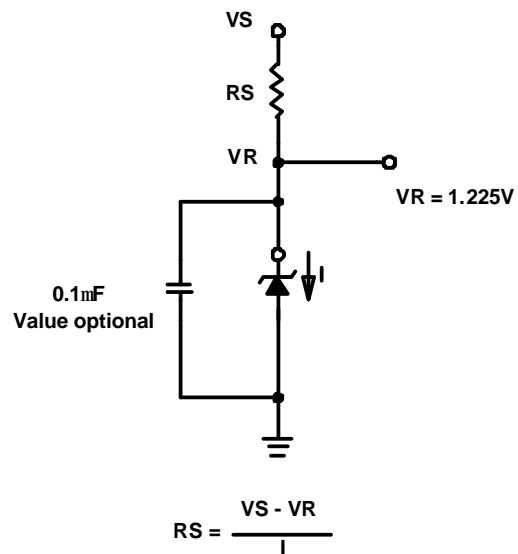
■ Applications

- Portable Electronics
- Power Supplies
- Computer Peripherals
- Data Acquisition Systems
- Battery chargers
- Consumer Electronics

■ Functional Block Diagram



■ Typical Application





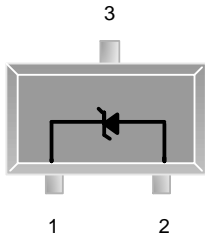
AME, Inc.

AME4041

Shunt Bandgap Voltage Reference

■ **Pin Configuration**

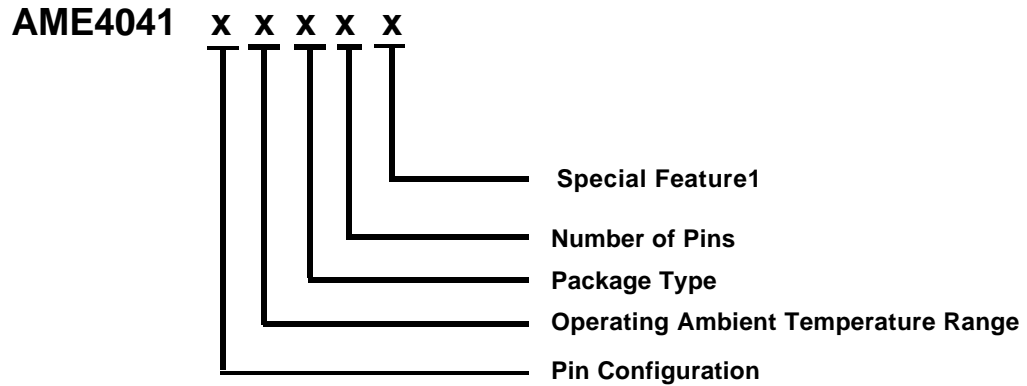
SOT-23
Top View



AME 4041

- 1. +
- 2. -
- 3. NC*

* **Die Attach:**
Non-Conductive Epoxy

■ Ordering Information


Accuracy	Operating Ambient Temperature Range	Package Type	Number of Pins	Special Feature1
A: 0.5% (SOT-23)	E: -40°C to 85°C	E: SOT-2X	T: 3	Z: Lead Free

■ Ordering Information

Part Number	Marking*	Accuracy	Package	Operating Ambient Temperature Range
AME4041AEETZ	ASNww	0.5%	SOT-23	- 40°C to 85°C

Note: ww represents the date code pls see the Date Code Rule on Package Dimension.

* A line on top of the first letter represents lead free plating such as ASNww.

Please consult AME sales office or authorized Rep./Distributor for the availability of voltage accuracy and package type.

■ Absolute Maximum Ratings

Parameter	Maximum	Unit
Supply Current	50	mA

Caution: Stress above the listed absolute maximum rating may cause permanent damage to the device

■ Recommended Operating Conditions

Parameter	Symbol	Rating	Unit
Ambient Temperature Range	T_A	- 40 to 85	°C
Junction Temperature Range	T_J	- 40 to 125	°C
Storage Temperature Range	T_{STG}	- 65 to 150	°C
Supply Current		100 μ A ~ 20mA	

■ Thermal Information

Parameter	Package	Die Attach	Symbol	Maximum	Unit
Thermal Resistance* (Junction to Case)	SOT-23	Non-Conductive Epoxy	θ_{JC}	140	°C / W
Thermal Resistance (Junction to Ambient)	SOT-23	Non-Conductive Epoxy	θ_{JA}	280	°C / W
Internal Power Dissipation	SOT-23	Non-Conductive Epoxy	P_D	400	mW
Maximum Junction Temperature				150	°C
Solder Iron (10 Sec)**				350	°C

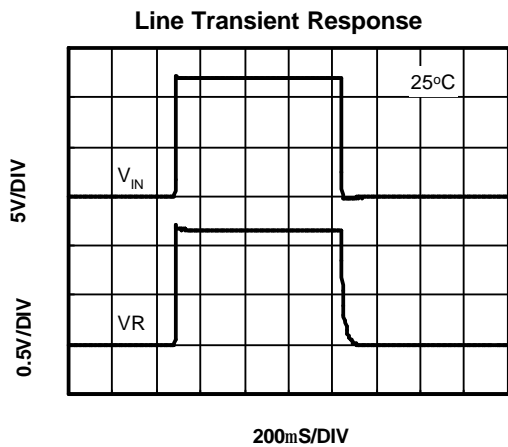
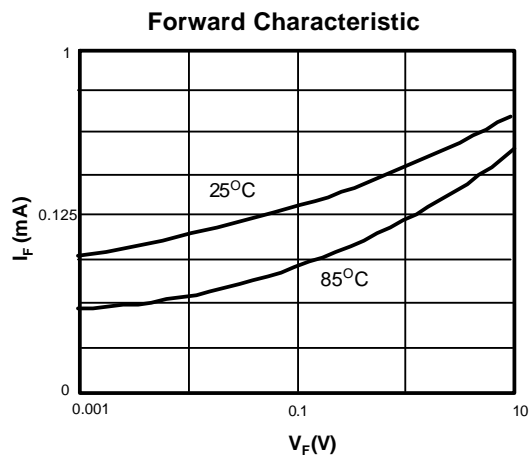
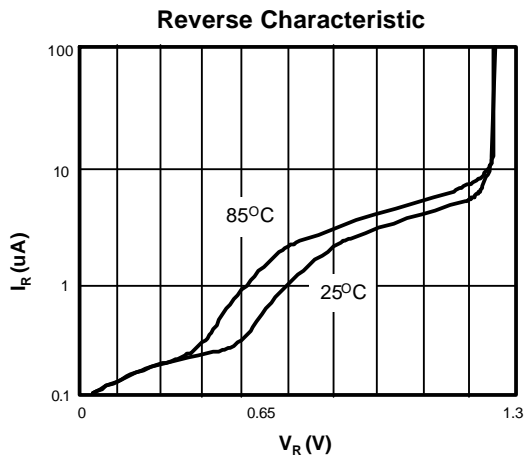
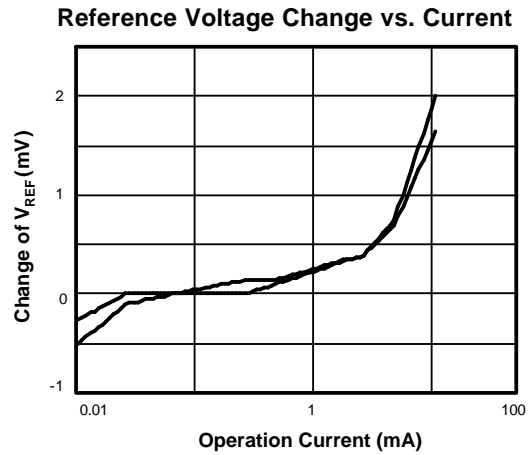
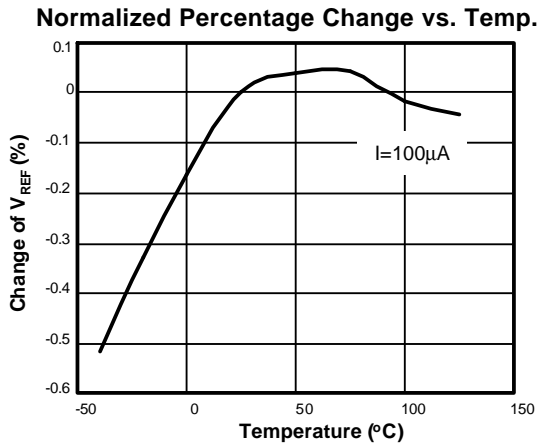
* Measure θ_{JC} on center of molding compound if IC has no tab.

** MIL-STD-202G 210F

■ Electrical Specifications

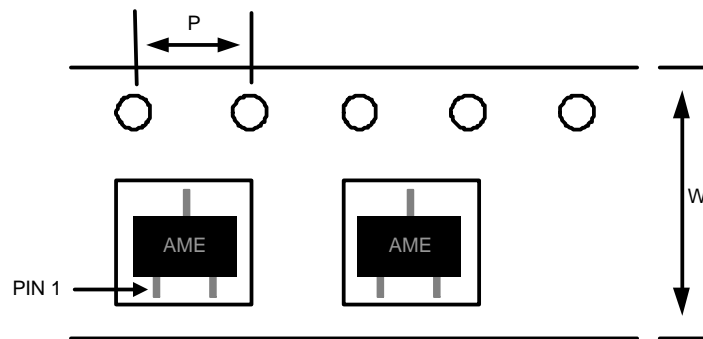
Unless otherwise specified, $T_A = 0\sim 70^\circ\text{C}$, $I_R = 100\mu\text{A}$

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Reference Voltage, $\pm 0.5\%$	V_{REF}	$I_{REF} = 100\mu\text{A}$	1.219	1.225	1.231	V
Reference Voltage Change With Current	$dV_{REF/I}$	$I_{MIN} \leq I \leq 1\text{mA}$		1.5	3	mV
		$1\text{mA} \leq I \leq 20\text{mA}$		5	20	
Reverse Dynamic Impedence	RDI	$I_R = 100\mu\text{A}$, $f=20\text{Hz}$		1.5		Ohm
Wideband Noise (rms)	V_n	$I_R = 100\mu\text{A}$, $10\text{ Hz} < f < 10\text{KHz}$		60		μV
Long term Stability		$I_R = 100\mu\text{A}$, $T_A = 25^\circ\text{C}$, $T = 1000\text{ Hours}$		20		ppm
Reference Voltage Temp. Coeff.	V_{REFTC}	$0^\circ\text{C} < T_A < 70^\circ\text{C}$		100		ppm/ $^\circ\text{C}$
Operation Current	I_{OP}		0.030		20	mA

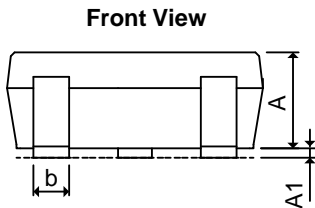
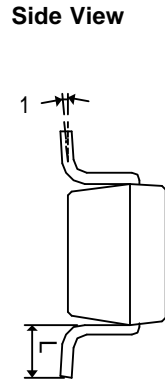
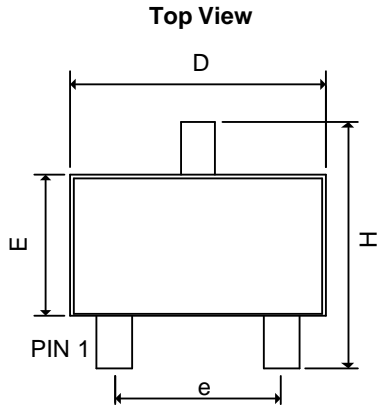
■ Characterization Curve(For reference only)


■ Date Code Rule

Marking			Date Code		Year
A	A	A	W	W	xxx0
A	A	A	W	<u>W</u>	xxx1
A	A	A	<u>W</u>	W	xxx2
A	A	A	<u>W</u>	<u>W</u>	xxx3
A	A	<u>A</u>	W	W	xxx4
A	A	<u>A</u>	W	<u>W</u>	xxx5
A	A	<u>A</u>	<u>W</u>	W	xxx6
A	A	<u>A</u>	<u>W</u>	<u>W</u>	xxx7
A	<u>A</u>	A	W	W	xxx8
A	<u>A</u>	A	W	<u>W</u>	xxx9

■ Tape and Reel Dimension
SOT-23

Carrier Tape, Number of Components Per Reel and Reel Size

Package	Carrier Width (W)	Pitch (P)	Part Per Full Reel	Reel Size
SOT-23	8.0±0.1 mm	4.0±0.1 mm	3000pcs	180±1 mm

■ Package Dimension
SOT-23


SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.00	1.40	0.0394	0.0551
A ₁	0.00	0.15	0.0000	0.0059
b	0.35	0.50	0.0138	0.0197
C	0.09	0.25	0.0035	0.0098
D	2.70	3.10	0.1063	0.1220
E	1.40	1.80	0.0551	0.0709
e	1.90 BSC		0.0748 BSC	
H	2.40	3.00	0.09449	0.11811
L	0.35BSC		0.0138BSC	
q1	0°	10°	0°	10°



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Life Support Policy:

These products of AME, Inc. are not authorized for use as critical components in life-support devices or systems, without the express written approval of the president of AME, Inc.

AME, Inc. reserves the right to make changes in the circuitry and specifications of its devices and advises its customers to obtain the latest version of relevant information.

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