

■ General Description

The AME41-1.2 is a micropower 2-terminal band-gap voltage regulator diode. It operates over a 15µA to 20mA current range. Each circuit is trimmed at wafer sort to provide a ±0.20% and ±0.50% initial tolerance. The design of the AME41-1.2 allows for a large range of load capacitances and operating currents. The low start-up current makes these part ideal for battery applications.

Analog Microelectronics offers this part in a TO-92 and SO-8 packages as well as the space saving SOT-23.

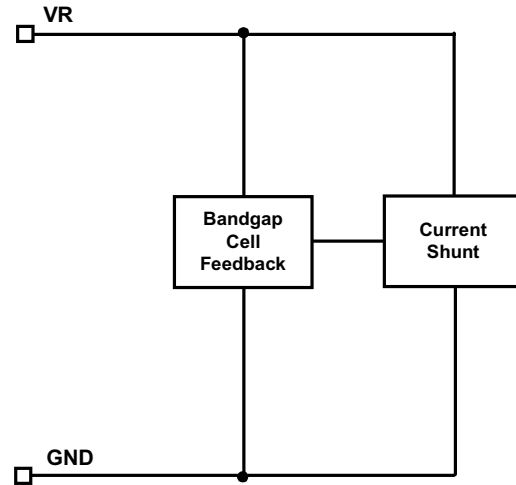
■ Features

- Small packages: SOT-23, TO-92, SO-8
- Tolerates capacitive loads
- Fixed reverse breakdown voltage of 1.25V
- Tight voltage tolerance ----- ±0.20%, ±0.5%
- Wide operating current ----- 15µA to 20mA
- Wide temperature range ----- -40°C to +85°C
- Low temperature coefficient --100ppm/°C_(max)
- Excellent transient response

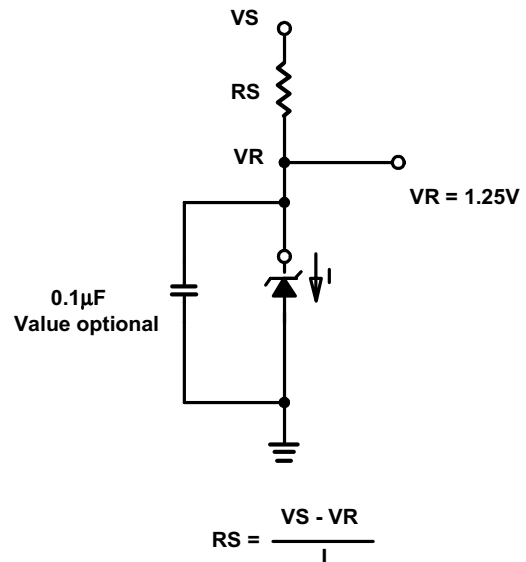
■ Applications

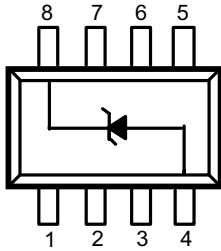
- Portable electronics
- Power supplies
- Computer peripherals
- Data acquisition systems
- Battery chargers
- Consumer electronics

■ Functional Block Diagram

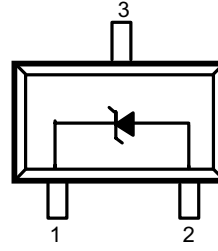


■ Typical Application

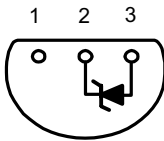


■ Pin Configuration
**SO-8
Top View**

AME 41-1.2

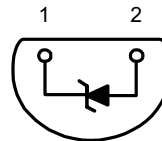
1. NC
2. NC
3. NC
4. -
5. NC
6. NC
7. NC
8. +

**SOT-23
Top View**

AME41-1.2

1. NC*
2. +
3. -

**TO-92-3
Bottom View**

AME 41-1.2

1. NC*
2. +
3. -

**TO-92-2
Bottom View**

AME41-1.2

1. +
2. -

* The NC pin must float or be connected to - (negative)



■ Ordering Information

Part Number	Marking	Accuracy	Package	Operating Temp. Range
AME41DEET	ACWww	0.2%	SOT-23	-40°C to +85°C
AME41DEHA	41 DEHA yyww	0.2%	SO-8	-40°C to +85°C
AME41AEET	ACAww	0.5%	SOT-23	-40°C to +85°C
AME41AEAS	AME 41 AEAS yyww	0.5%	TO-92-2	-40°C to +85°C
AME41AEAT	AME 41 AEAT yyww	0.5%	TO-92-3	-40°C to +85°C
AME41AEHA	41 AEHA yyww	0.5%	SO-8	-40°C to +85°C

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



■ 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	Rating	Unit
Supply Current	100 μ A ~ 20mA	
Ambient Temperature Range	-40 to +85	$^{\circ}$ C
Junction Temperature	-40 to +125	$^{\circ}$ C

■ Thermal Information

Parameter		Maximum	Unit
Thermal Resistance	SOT-23	325	$^{\circ}$ C / W
	TO-92	180	
	SO-8	124	
Maximum Junction Temperature		150	$^{\circ}$ C
Maximum Lead Temperature (10 Sec)		300	$^{\circ}$ C



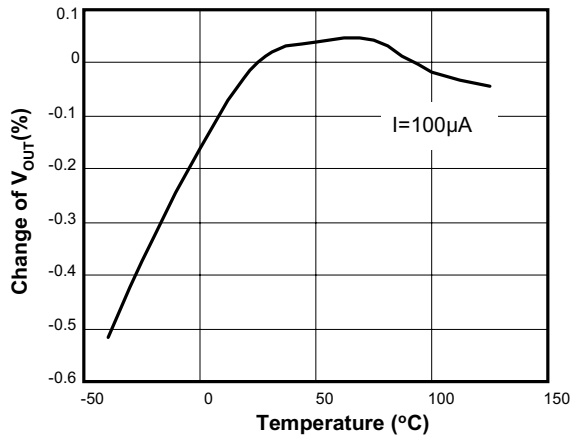
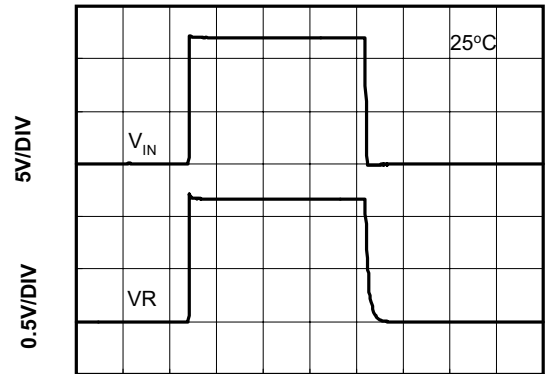
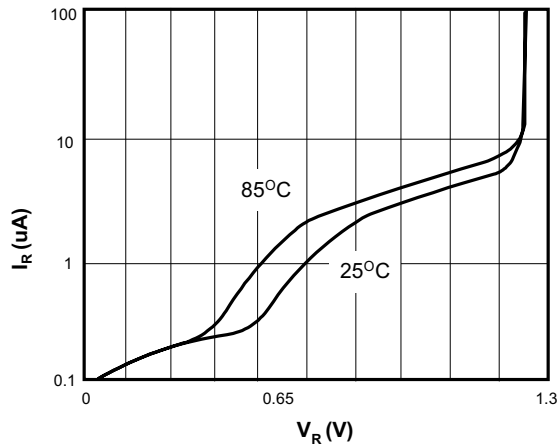
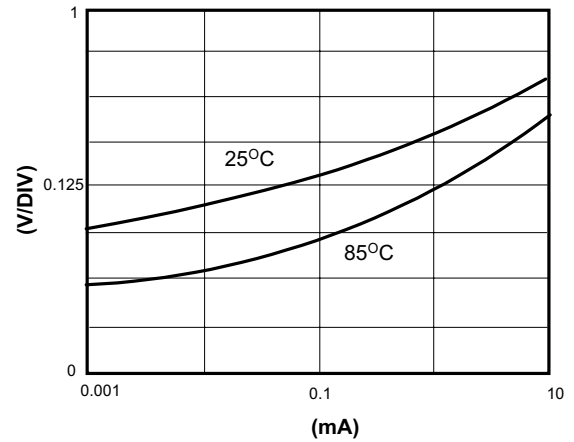
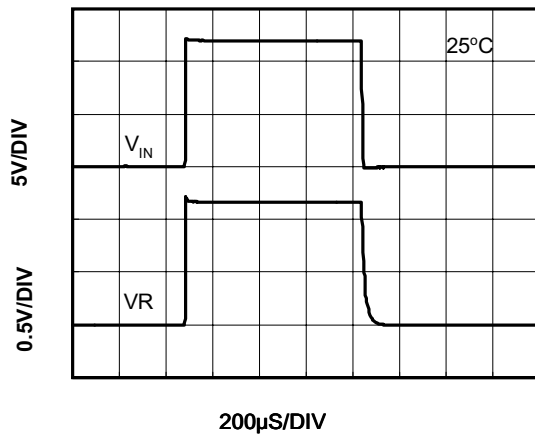
AME41-1.2

Micropower Voltage Reference Diode

■ Electrical Specifications

Unless otherwise specified, TA = 25°C, I=100µA

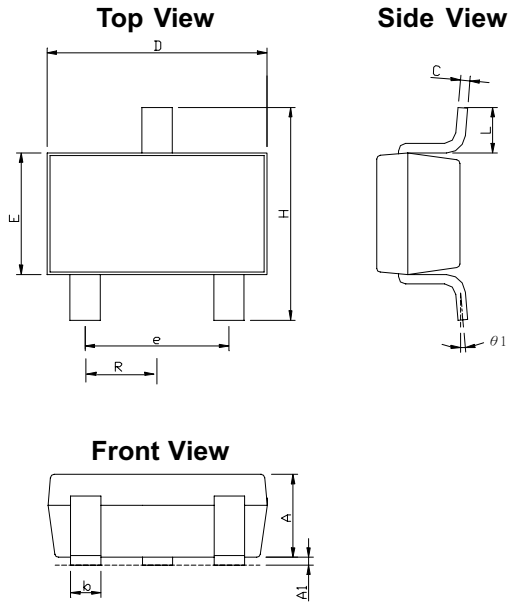
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Reference Voltage, ±0.2%	V _{REF}	T _A = 25°C, I _{REF} = 100µA	1.247	1.250	1.253	V
Reference Voltage, ±0.5%			1.244	1.250	1.256	V
Minimum Current	I _{MIN}				15	µA
Reference Voltage Change With Current	dV _{REF/I}	I _{MIN} ≤ I ≤ 1mA		1.5	3	mV
		1mA ≤ I ≤ 20mA		4	8	
Reference Voltage Temp. Coeff.	V _{REFTC}	0°C < T _A < 70°C			100	ppm/°C

Normalized Percentage Change VS Temp.

Output Voltage Change VS Current

Reverse Characteristic

Forward Characteristic

Line Transient Response




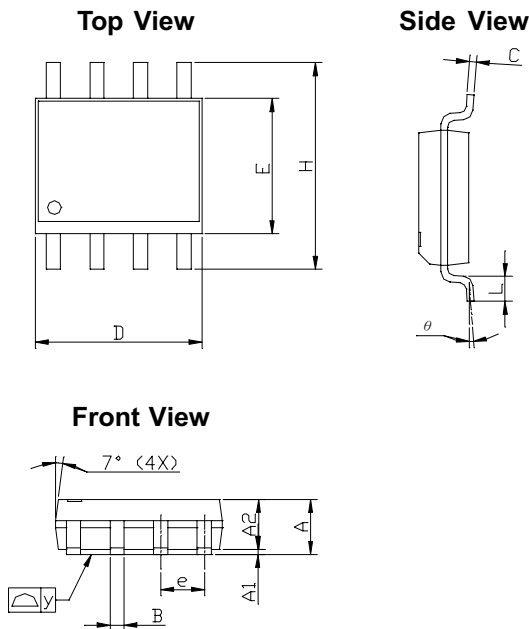
■ Package Dimension

SOT-23

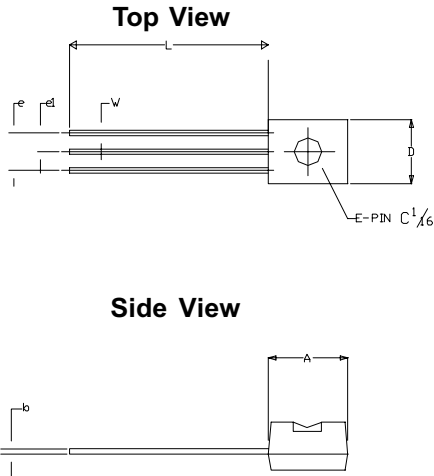


SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.00	1.40	0.0394	0.0551
A ₁	0.00	0.15	0.0000	0.0059
A ₂	0.70	1.25	0.0276	0.0492
b	0.35	0.50	0.0138	0.0197
C	0.09	0.25	0.0035	0.0098
D	2.70	3.10	0.1063	0.1220
E	1.40	1.80	0.0551	0.0709
e	1.90 BSC		0.0748 BSC	
H	2.60	3.00	0.1024	0.1181
L	0.35	0.55	0.0138	0.0197
θ ₁	0°	9°	0°	9°
R	0.95(TYP)		0.0374(TYP)	

SO-8

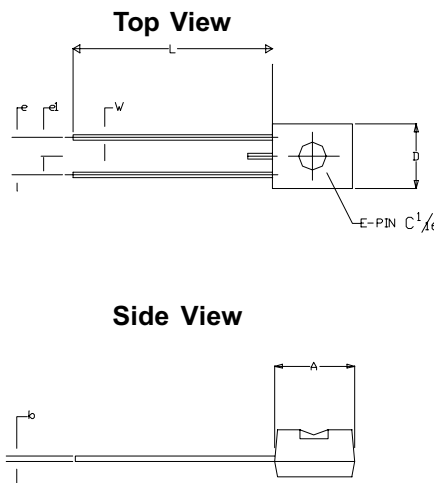


SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.35	1.75	0.053	0.069
A ₁	0.10	0.25	0.004	0.010
A ₂	1.45 REF		0.057 REF	
B	0.33	0.51	0.013	0.020
C	0.19	0.25	0.007	0.010
D	4.80	5.00	0.189	0.1970
E	3.80	4.00	0.150	0.157
e	1.27 BSC		0.050 BSC	
H	5.80	6.20	0.228	0.244
L	0.40	1.27	0.016	0.050
y	-	0.10	-	0.004
θ ₁	0°	8°	0°	8°

■ Package Dimension
TO-92-3 (bulk pack)


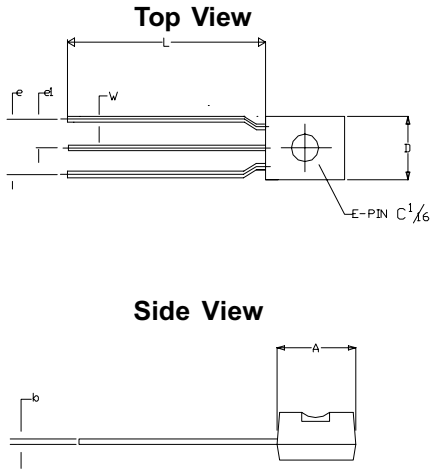
SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.32	4.95	0.1701	0.1949
b	0.36	0.51	0.0142	0.0201
E	3.30	3.94	0.1299	0.1551
e	2.41	2.67	0.0949	0.1051
e1	1.14	1.40	0.0449	0.0551
L	12.70	15.49	0.5000	0.6098
R	2.16	2.41	0.0850	0.0949
W	0.41	0.56	0.0161	0.0220
D	4.45	4.95	0.1752	0.1949

- Notes:
1. Package outline exclusive of any mold flashes dimension.
 2. Package outline exclusive of burr dimension.
 3. Lead pitch=2.54mm is bulk pack.
 4. Lead pitch=5.08mm is tape pack.

TO-92-2 (bulk pack)


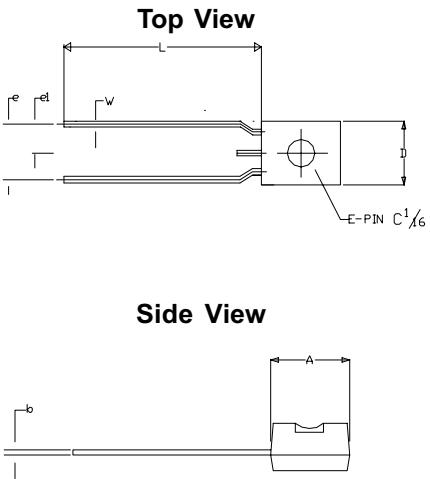
SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.32	4.95	0.1701	0.1949
b	0.36	0.51	0.0142	0.0201
E	3.30	3.94	0.1299	0.1551
e	2.41	2.67	0.0949	0.1051
e1	1.14	1.40	0.0449	0.0551
L	12.70	15.49	0.5000	0.6098
R	2.16	2.41	0.0850	0.0949
W	0.41	0.56	0.0161	0.0220
D	4.45	4.95	0.1752	0.1949

- Notes:
1. Package outline exclusive of any mold flashes dimension.
 2. Package outline exclusive of burr dimension.
 3. Lead pitch=2.54mm is bulk pack.
 4. Lead pitch=5.08mm is tape pack.

■ Package Dimension
TO-92-3 (tape pack)


SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.32	4.95	0.1701	0.1949
b	0.36	0.51	0.0142	0.0201
E	3.30	3.94	0.1299	0.1551
e	4.98	5.08	0.1961	0.2000
e1	2.49	2.54	0.0980	0.1000
L	12.70	15.49	0.5000	0.6098
R	2.16	2.41	0.0850	0.0949
W	0.41	0.56	0.0161	0.0220
D	4.45	4.95	0.1752	0.1949

- Notes:
1. Package outline exclusive of any mold flashes.
 2. Package outline exclusive of burr dimension.
 3. Lead pitch=2.54mm is bulk pack.
 4. Lead pitch=5.08mm is tape pack.

TO-92-2 (tape pack)


SYMBOLS	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.32	4.95	0.1701	0.1949
b	0.36	0.51	0.0142	0.0201
E	3.30	3.94	0.1299	0.1551
e	4.98	5.08	0.1961	0.2000
e1	2.49	2.54	0.0980	0.1000
L	12.70	15.49	0.5000	0.6098
R	2.16	2.41	0.0850	0.0949
W	0.41	0.56	0.0161	0.0220
D	4.45	4.95	0.1752	0.1949

- Notes:
1. Package outline exclusive of any mold flashes.
 2. Package outline exclusive of burr dimension.
 3. Lead pitch=2.54mm is bulk pack.
 4. Lead pitch=5.08mm is tape pack.



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