EMC1002

1°C Dual SMBus Sensor with Resistance Error Correction

PRODUCT FEATURES

Data Brief

General Description

The EMC1002 is an SMBus temperature sensor that monitors up to two temperature zones and can generate two system interrupts. With ±1°C measurement accuracy, the EMC1002 provides a low-cost solution for critical temperature monitoring applications. Extended features include automatic resistance error correction and programmable ideality factor configuration eliminating both major sources of temperature measurement error.[1] The 11-bit sigma delta temperature-to-digital converter provides superb linearity, excellent noise immunity and repeatable temperature readings.

The EMC1002 generates two separate interrupts with programmable thermal trip points. The THERM output operates as a thermostat with programmable threshold and hysteresis. The ALERT output can be configured as a maskable SMBus alert with programmable window comparator limits, or a second THERM output.

The EMC1002 is pin compatible with the ADT7461, ADM1032, LM99, and the MAX6649.

1.Patents pending.

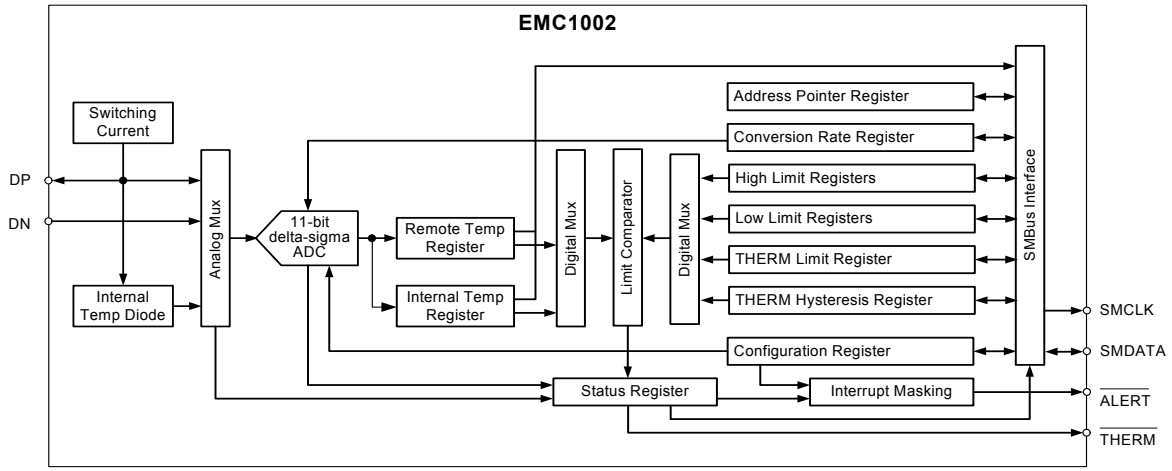
Features

- Resistance Error Correction
- Ideality Factor Configuration
- Select 1 of 4 SMBus addresses with external resistor
- Remote Thermal Zones
  - ±1°C Accuracy (40°C to 80°C)
  - 0.125°C resolution
- Internal Thermal Zone
  - ±3°C Accuracy (0°C to 85°C)
- Maskable Interrupt using ALERT
- One-shot Command during standby
- Programmable temperature conversion rate
- Extended temperature (-64°C to 191°C) available
- Over-limit filtering with consecutive counter
- Small 8-lead SOIC or MSOP package; lead-free also available

Applications

- Desktop and Notebook Computers
- Smart batteries
- Industrial/Automotive
- Other Electronic Systems

Simplified Block Diagram



ORDER NUMBER(S):

EMC1002-1-ACM-TR FOR 8 PIN, SOIC PACKAGE (Fixed Address, Tape and Reel)
EMC1002-2-ACM-TR FOR 8 PIN, SOIC PACKAGE (Variable Address, Tape and Reel)
EMC1002-1-ACZT-TR FOR 8 PIN, SOIC GREEN, LEAD-FREE PACKAGE (Fixed Address, Tape and Reel)
EMC1002-2-ACZT-TR FOR 8 PIN, SOIC GREEN, LEAD-FREE PACKAGE (Variable Address, Tape and Reel)
EMC1002-1-ACZB-TR FOR 8 PIN, MSOP PACKAGE (Fixed Address, Tape and Reel)
EMC1002-2-ACZB-TR FOR 8 PIN, MSOP PACKAGE (Variable Address, Tape and Reel)
EMC1002-1-ACZL-TR FOR 8 PIN, MSOP GREEN, LEAD-FREE PACKAGE (Fixed Address, Tape and Reel)
EMC1002-2-ACZL-TR FOR 8 PIN, MSOP GREEN, LEAD-FREE PACKAGE (Variable Address, Tape and Reel)
Reel size is 4,000 pieces.
Evaluation Board available upon request. (EVB-EMC1002)

80 Arkay Drive
Hauppauge, NY 11788
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PRODUCT PREVIEW

Package Outlines

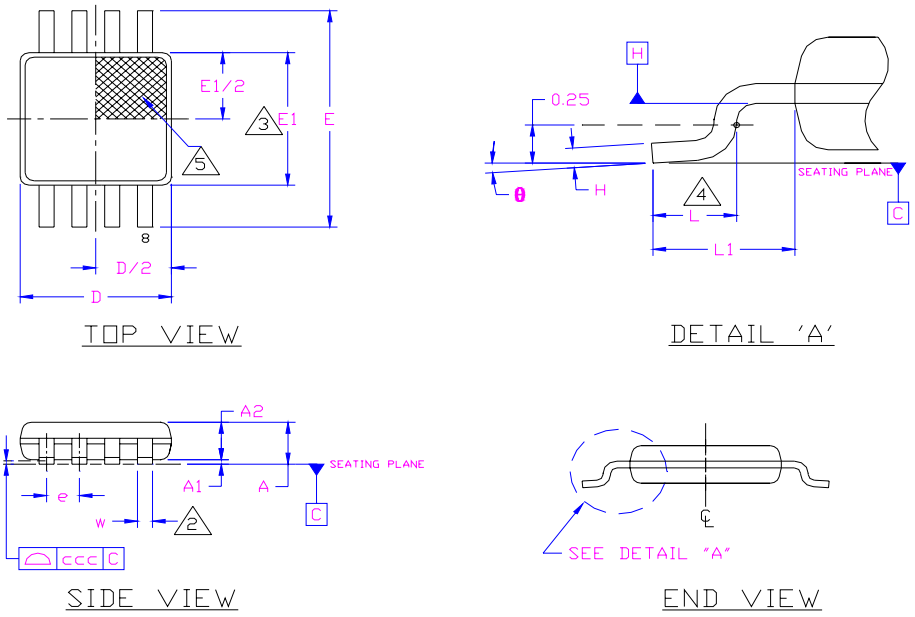

Figure 1 8-Pin MSOP and 8-Pin MSOP (Lead-Free) Package Outline - 3x3mm Body 0.65mm Pitch

Table 1 8-Pin MSOP and 8-Pin MSOP (Lead-Free) Package Parameters

	MIN	NOMINAL	MAX	REMARKS
A	0.80	~	1.10	Overall Package Height
A1	0.05	~	0.15	Standoff
A2	0.75	0.85	0.95	Body Thickness
D	2.80	3.00	3.20	X Body Size
E	4.65	4.90	5.15	Y Span
E1	2.80	~	3.20	Y body Size
H	0.08	~	0.23	Lead Foot Thickness
L	0.40	~	0.80	Lead Foot Length
L1	0.95 REF			Lead Length
e	0.65 BSC			Lead Pitch
θ	0^o	~	8^o	Lead Foot Angle
W	0.22	~	0.38	Lead Width
ccc	~	~	0.10	Coplanarity

Notes:

1. Controlling Unit: millimeters.
2. Tolerance on the true position of the leads is ± 0.065 mm maximum.
3. Package body dimensions D and E1 do not include mold protrusion or flash. Dimensions D and E1 to be determined at datum plane H. Maximum mold protrusion or flash is 0.15mm (0.006 inches) per end, and 0.15mm (0.006 inches) per side.
4. Dimension for foot length L measured at the gauge plane 0.25 mm above the seating plane.
5. Details of pin 1 identifier are optional but must be located within the zone indicated.

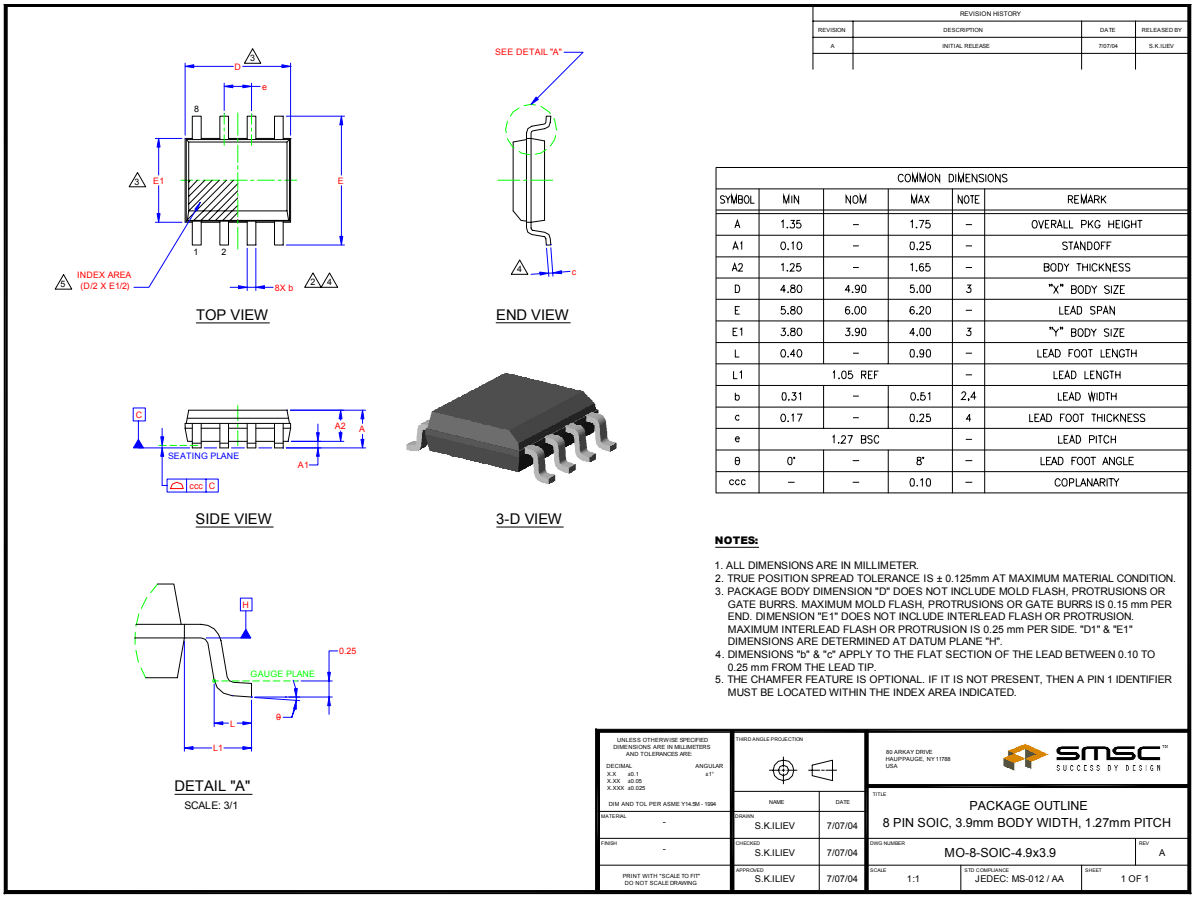

Figure 2 8-Pin SOIC and 8-Pin SOIC (Lead-Free) Package Outline and Parameters - 3.9mm Body 1.27 mm Pitch