

## 1°C Triple SMBus Sensor with Resistance Error Correction

### PRODUCT FEATURES

Data Brief

#### General Description

The EMC1033 is an SMBus temperature sensor that monitors up to three temperature zones and can generate two system interrupts. With  $\pm 1^\circ\text{C}$  measurement accuracy, the EMC1033 provides a low-cost solution for critical temperature monitoring applications. Features include automatic resistance error correction and programmable ideality factor configuration eliminating both major sources of temperature measurement error.<sup>1</sup>

The EMC1033 generates two separate interrupts with programmable thermal trip points. The  $\overline{\text{THERM}}$  output operates as a thermostat with programmable threshold and hysteresis. The  $\overline{\text{ALERT}}$  output can be configured as a maskable SMBus alert with programmable window comparator limits, or as a second  $\overline{\text{THERM}}$  output. Both interrupts are maintained in an 8-pin package while a third temperature zone is added with the anti-parallel diode technique. This allows the EMC1033 to be pin compatible with the ADT7461, ADM1032, LM99, and the MAX6649 with the advantage of a third temperature zone.

<sup>1</sup>Patents pending.

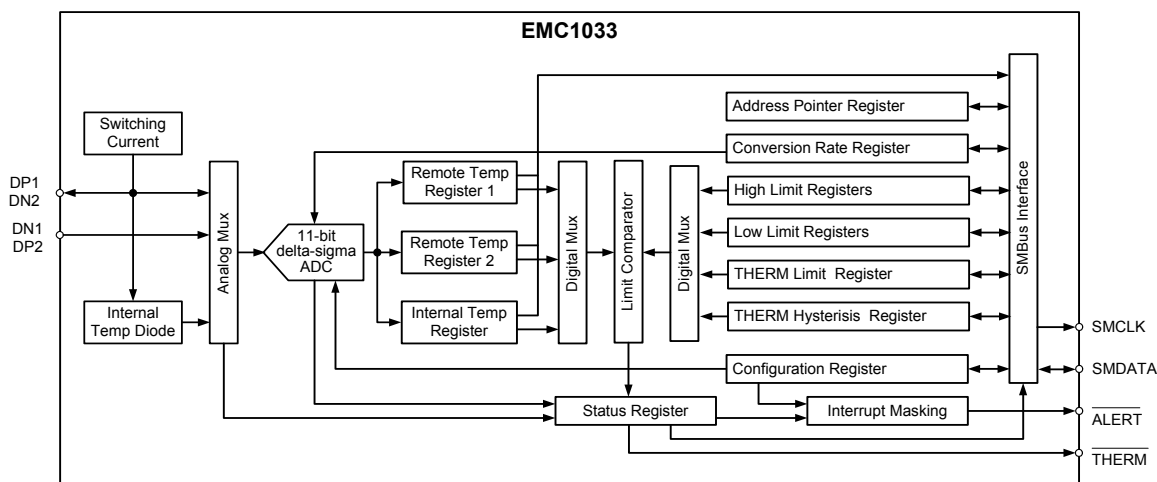
#### Features

- Resistance Error Correction
- Ideality Factor Configuration
- Select 1 of 4 SMBus addresses with external resistor
- Remote Thermal Zones
  - $\pm 1.0^\circ\text{C}$  Accuracy ( $40^\circ\text{C}$  to  $80^\circ\text{C}$ )
  - $0.125^\circ\text{C}$  resolution
- Internal Thermal Zone
  - $\pm 3.0^\circ\text{C}$  Accuracy ( $0^\circ\text{C}$  to  $85^\circ\text{C}$ )
- Maskable Interrupt using  $\overline{\text{ALERT}}$
- One-shot Command during standby
- Programmable temperature conversion rate
- Extended temperature ( $-64^\circ\text{C}$  to  $191^\circ\text{C}$ ) available
- Over-limit filtering with consecutive counter
- Small 8-lead SOIC or TSSOP package

#### Applications

- Desktop and Notebook Computers
- Thermostats
- Smart batteries
- Industrial/Automotive

### Simplified Block Diagram



**ORDER NUMBER(S):****EMC1033-ACM-TR FOR 8 PIN, SOIC PACKAGE (TAPE AND REEL)****EMC1033-ACZB-TR FOR 8 PIN, TSSOP PACKAGE (TAPE AND REEL)****Reel size is 4,000 pieces.****Evaluation Board available upon request. (EVB-EMC1033)**

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## Package Outlines

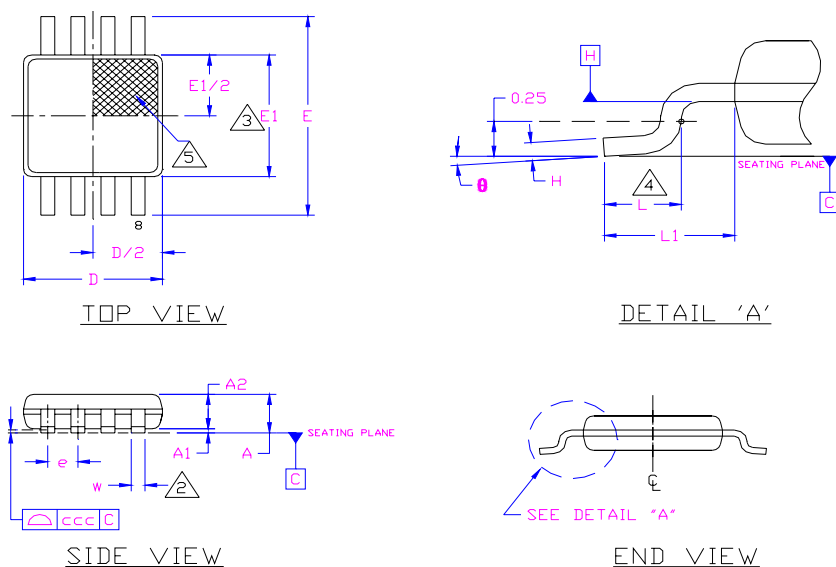


Figure 1 8-Pin TSSOP Package Outline - 3x3mm Body 0.65mm Pitch

Table 1 8-Pin TSSOP 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
$\theta$	0°	~	8°	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  $\pm 0.065$  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.

