EMC2101

SMBus Fan Control with 1°C Accurate Temperature Monitoring

PRODUCT FEATURES

Data Brief

General Description

The EMC2101 is an SMBus 2.0 compliant, integrated fan control solution complete with two temperature monitors, one external and one internal. Each temperature channel has programmable high limits that can assert an interrupt.

The fan drive is selectable as a Pulse Width Modulator (PWM) or Linear (DAC) output. The fan control output, whether the PWM or DAC drive circuit, uses an eight position look-up table to allow the user to program the fan speed profile based on temperature. The DAC output ranges from 0V to V_{DD} with up to 6 bit resolution while the PWM output has a range of 0% to 100% with up to 64 steps.

The EMC2101 has an option to automatically upload the contents of an attached SMBus compatible EEPROM for auto-programming upon power up.

Advanced thermal sensing enables reduced validation and characterization time as well as accurately operating with smaller-geometry processors. Resistance Error Correction (REC) automatically corrects the offset errors of board trace and device resistance, up to 100Ω. Automatic Beta Compensation allows the user the flexibility to design applications that include processor substrate transistors.

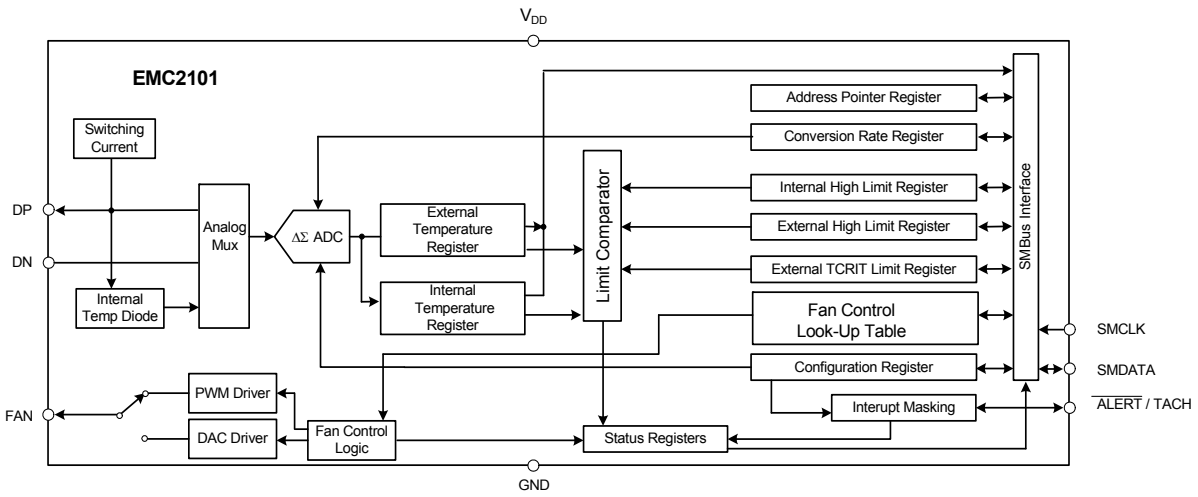
Features

- Automatic Beta Compensation
- Resistance Error Correction
- Self-programming with available SMBus compatible EEPROM
- Selectable PWM or DAC fan driver output
- Temperature Monitors
  - — External channel ±1°C accuracy
  - — Internal channel ±2°C accuracy
- 3.3 Volt Operation (5 Volt Tolerant Input Buffers)
- SMBus 2.0 Compliant Interface, supports TIMEOUT
- 8-Pin MSOP Lead-free RoHS Compliant Packages
- 8-Pin SOIC Lead-free RoHS Compliant Package

Applications

- Graphics Processors
- Embedded Application Fan Drive
- PWM Controller + Temp Sensor

Block Diagram



ORDER NUMBERS:

EMC2101-ACZL-TR FOR 8-PIN, MSOP LEAD-FREE ROHS COMPLIANT PACKAGE

EMC2101-R-ACZL-TR FOR 8-PIN, MSOP LEAD-FREE ROHS COMPLIANT PACKAGE

EMC2101-ACZT-TR FOR 8-PIN, SOIC LEAD-FREE ROHS COMPLIANT PACKAGE

REEL SIZE IS 4,000 PIECES

80 ARKAY DRIVE, HAUPPAUGE, NY 11788 (631) 435-6000, FAX (631) 273-3123

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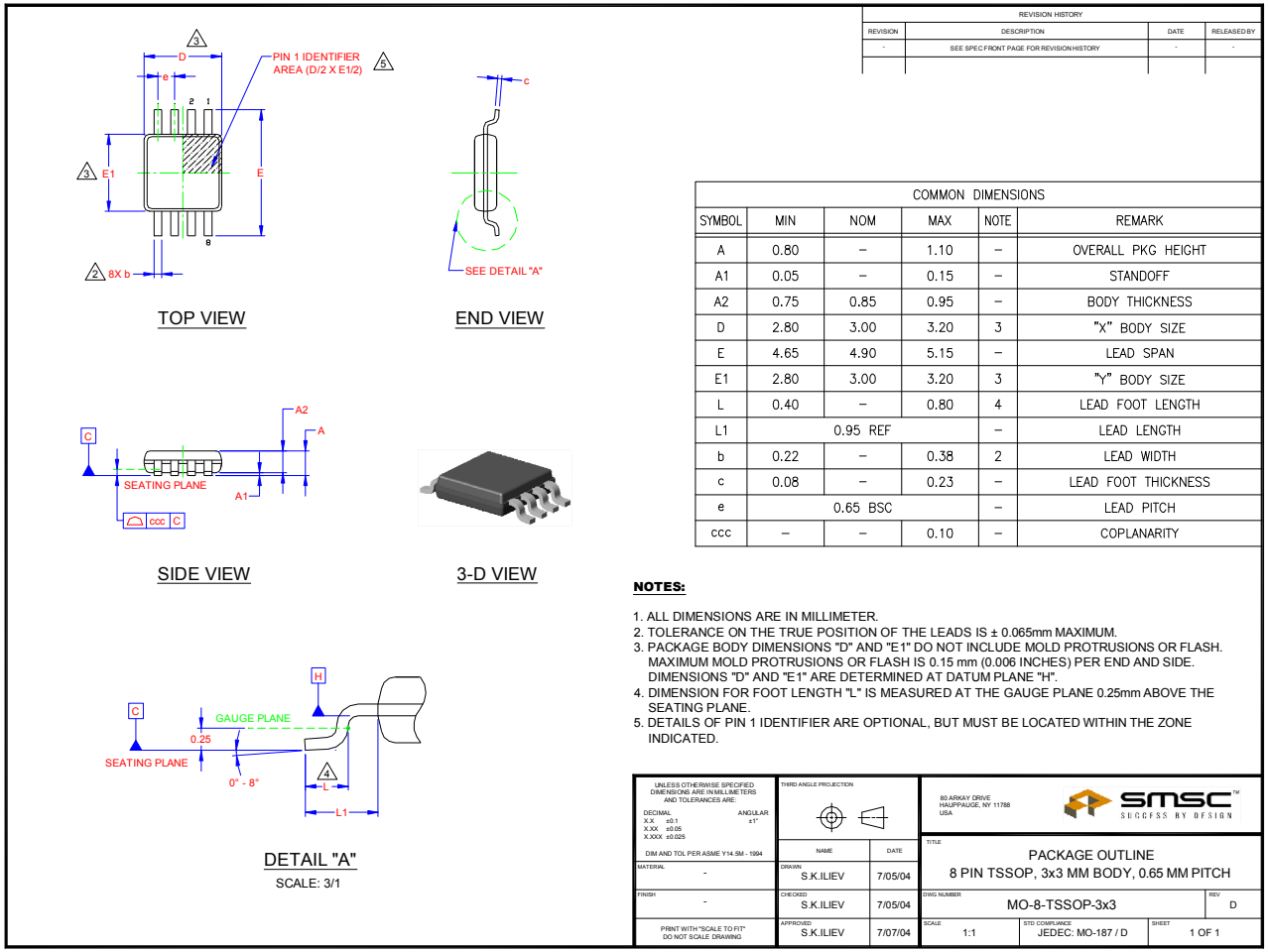
Package Outlines



REVISION HISTORY			
REVISION	DESCRIPTION	DATE	RELEASED BY
-	SEE SPEC FRONT PAGE FOR REVISION HISTORY	-	-

COMMON DIMENSIONS					
SYMBOL	MIN	NOM	MAX	NOTE	REMARK
A	0.80	–	1.10	–	OVERALL PKG HEIGHT
A1	0.05	–	0.15	–	STANDOFF
A2	0.75	0.85	0.95	–	BODY THICKNESS
D	2.80	3.00	3.20	3	"X" BODY SIZE
E	4.65	4.90	5.15	–	LEAD SPAN
E1	2.80	3.00	3.20	3	"Y" BODY SIZE
L	0.40	–	0.80	4	LEAD FOOT LENGTH
L1		0.95 REF		–	LEAD LENGTH
b	0.22	–	0.38	2	LEAD WIDTH
c	0.08	–	0.23	–	LEAD FOOT THICKNESS
e		0.65 BSC		–	LEAD PITCH
ccc	–	–	0.10	–	COPLANARITY

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER.
2. TOLERANCE ON THE TRUE POSITION OF THE LEADS IS ± 0.065mm MAXIMUM.
3. PACKAGE BODY DIMENSIONS "D" AND "E1" DO NOT INCLUDE MOLD PROTRUSIONS OR FLASH. MAXIMUM MOLD PROTRUSIONS OR FLASH IS 0.15 mm (0.006 INCHES) PER END AND SIDE. DIMENSIONS "D" AND "E1" ARE DETERMINED AT DATUM PLANE "H".
4. DIMENSION FOR FOOT LENGTH "L" IS MEASURED AT THE GAUGE PLANE 0.25mm ABOVE THE SEATING PLANE.
5. DETAILS OF PIN 1 IDENTIFIER ARE OPTIONAL, BUT MUST BE LOCATED WITHIN THE ZONE INDICATED.

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS AND TOLERANCES ARE:
DECIMAL X.X ±0.1, X.XX ±0.05, X.XXX ±0.025 — ANGULAR ±1°
DIM AND TOL PER ASME Y14.5M - 1994
THIRD ANGLE PROJECTION

	NAME	DATE
DRAWN	S.K.ILIEV	7/05/04
CHECKED	S.K.ILIEV	7/05/04
APPROVED	S.K.ILIEV	7/07/04

MATERIAL: -
FINISH: -
PRINT WITH "SCALE TO FIT" DO NOT SCALE DRAWING

80 ARKAY DRIVE
HAUPPAUGE, NY 11788
USA

TITLE: PACKAGE OUTLINE
8 PIN TSSOP, 3x3 MM BODY, 0.65 MM PITCH

DWG NUMBER: MO-8-TSSOP-3x3 — REV: D
SCALE: 1:1 — STD COMPLIANCE: JEDEC: MO-187 / D — SHEET: 1 OF 1

Figure 1 8-PIN MSOP / TSSOP Package

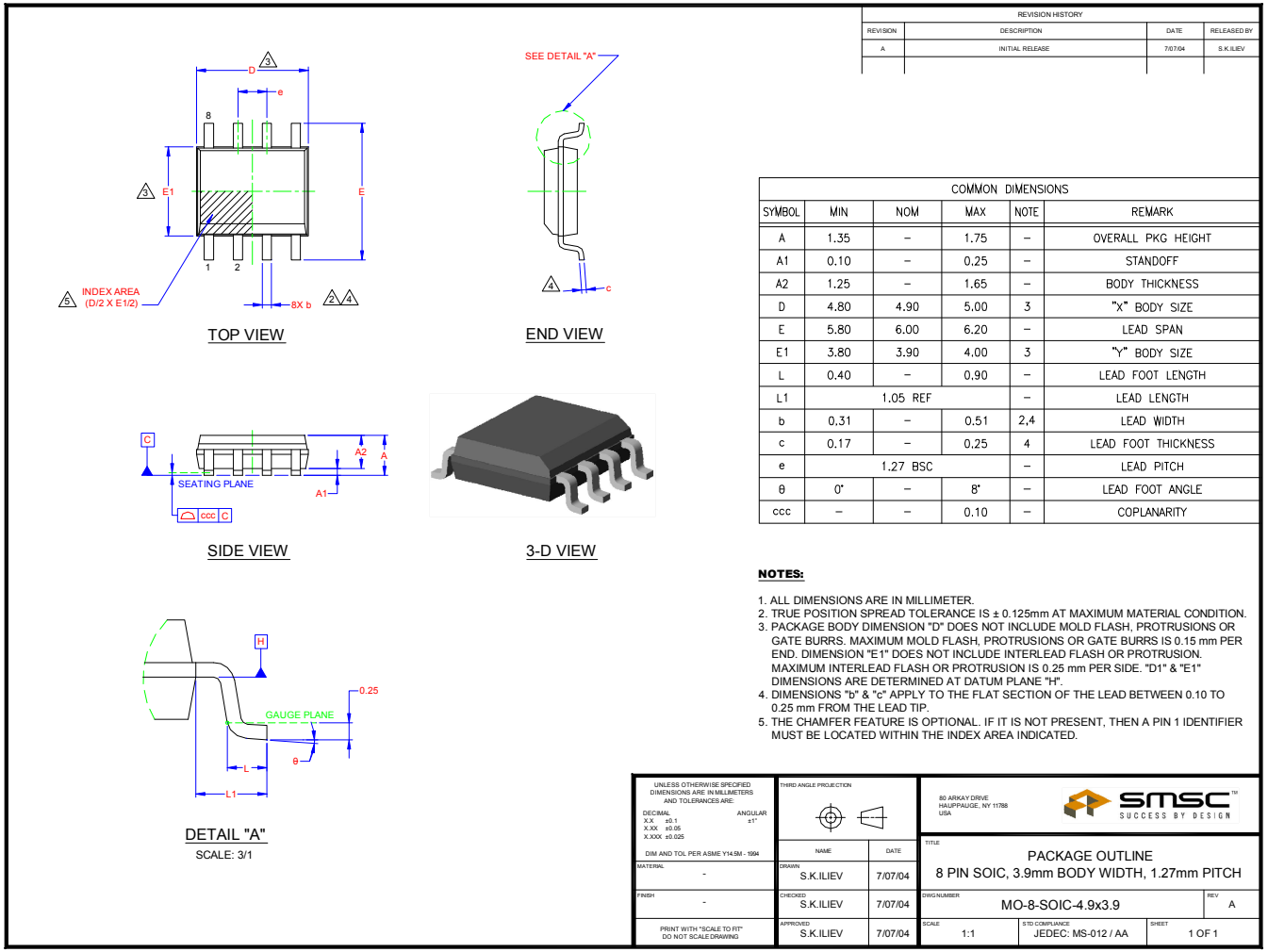


Figure 2 8-PIN SOIC Package