

CMLT5078E NPN/PNP  
 CMLT5087E PNP/PNP  
 CMLT5088E NPN/NPN

**ENHANCED SPECIFICATION  
 SURFACE MOUNT  
 SILICON DUAL TRANSISTORS**



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PICOmini™



SOT-563 CASE

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR CMLT5078E, CMLT5087E, and CMLT5088E, are Silicon transistors in a PICOmini™ surface mount package with enhanced specifications designed for applications requiring high gain and low noise.

**MARKING CODE & CONFIGURATION:**

CMLT5078E: DUAL, COMPLEMENTARY: L78  
 CMLT5087E: DUAL, PNP: L87  
 CMLT5088E: DUAL, NPN: L88

**MAXIMUM RATINGS:** (T<sub>A</sub>=25°C)

	SYMBOL		UNITS
◆ Collector-Base Voltage	V <sub>CB0</sub>	50	V
◆ Collector-Emitter Voltage	V <sub>CEO</sub>	50	V
◆ Emitter-Base Voltage	V <sub>EBO</sub>	5.0	V
Continuous Collector Current	I <sub>C</sub>	100	mA
Power Dissipation	P <sub>D</sub>	350	mW
Operating and Storage Junction Temperature	T <sub>J</sub> , T <sub>stg</sub>	-65 to +150	°C
Thermal Resistance	θ <sub>JA</sub>	357	°C/W

**ELECTRICAL CHARACTERISTICS PER TRANSISTOR:** (T<sub>A</sub>=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	TYP			MAX	UNITS
		MIN	NPN	PNP		
I <sub>CBO</sub>	V <sub>CB</sub> =20V				50	nA
I <sub>EBO</sub>	V <sub>EB</sub> =3.0V				50	nA
◆ BV <sub>CB0</sub>	I <sub>C</sub> =100μA	50	135	150		V
◆ BV <sub>CEO</sub>	I <sub>C</sub> =1.0mA	50	65	105		V
◆ BV <sub>EBO</sub>	I <sub>E</sub> =100μA	5.0	8.7	7.5		V
◆ V <sub>CE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA		45	50	100	mV
◆◆ V <sub>CE(SAT)</sub>	I <sub>C</sub> =100mA, I <sub>B</sub> =10mA		110	225	400	mV
V <sub>BE(SAT)</sub>	I <sub>C</sub> =10mA, I <sub>B</sub> =1.0mA		700	700	800	mV
◆ h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =0.1mA	300	430	390	900	
h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =1.0mA	300	435	380		
◆ h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =10mA	300	430	350		
◆◆ h <sub>FE</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =100mA	50	125	75		
◆ f <sub>T</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =500μA, f=20MHz	100				MHz
C <sub>ob</sub>	V <sub>CB</sub> =5.0V, I <sub>E</sub> =0, f=1.0MHz				4.0	pF
C <sub>ib</sub>	V <sub>BE</sub> =0.5V, I <sub>C</sub> =0, f=1.0MHz				15	pF
h <sub>fe</sub>	V <sub>CE</sub> =5.0V, I <sub>C</sub> =1.0mA, f=1.0kHz	350			1400	
NF	V <sub>CE</sub> =5.0V, I <sub>C</sub> =100μA, R <sub>S</sub> =10kΩ, f=10Hz to 15.7kHz				3.0	dB

◆ Enhanced specification.

◆◆ Additional Enhanced specification.

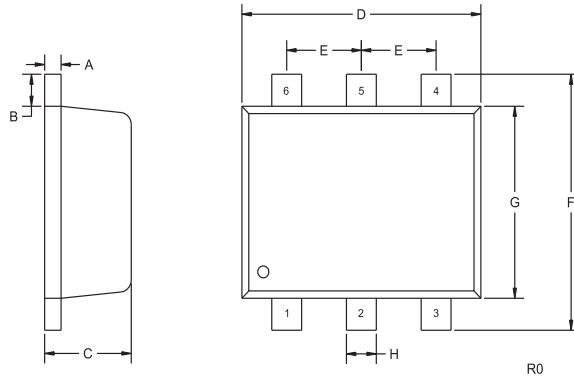
R3 (20-January 2010)

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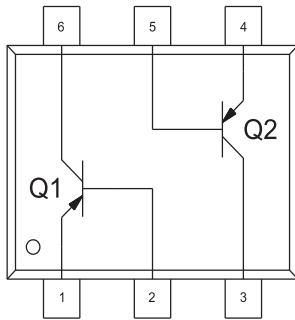
**SOT-563 CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
A	0.004	0.007	0.10	0.18
B	0.008		0.20	
C	0.022	0.024	0.56	0.60
D	0.059	0.067	1.50	1.70
E	0.020		0.50	
F	0.061	0.067	1.55	1.70
G	0.047		1.20	
H	0.006	0.012	0.15	0.30

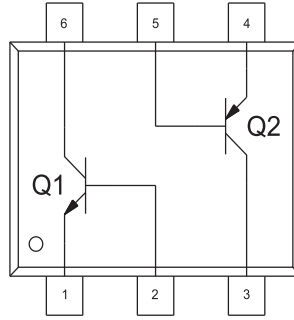
SOT-563 (REV: R0)

**PIN CONFIGURATIONS**



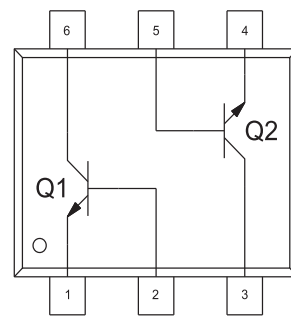
**CMLT5087E**

**MARKING CODE: L87**



**CMLT5078E**

**MARKING CODE: L78**



**CMLT5088E**

**MARKING CODE: L88**

**LEAD CODE:**

- 1) Emitter Q1
- 2) Base Q1
- 3) Collector Q2
- 4) Emitter Q2
- 5) Base Q2
- 6) Collector Q1

R3 (20-January 2010)