

**SOT-23 Formed SMD Package**

**CMBT2369**

**SILICON PLANAR EPITAXIAL SWITCHING TRANSISTOR**

*N-P N transistor*

**Marking**

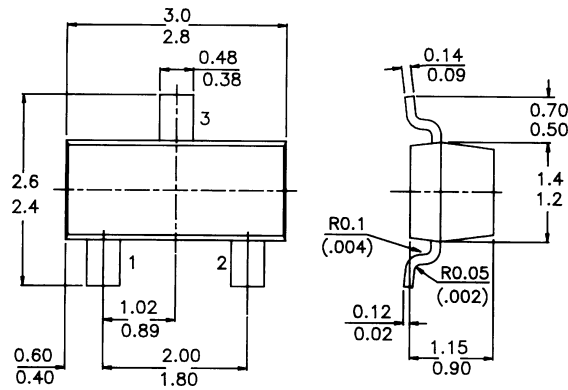
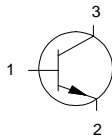
**CMBT2369 = JJ**

**PACKAGE OUTLINE DETAILS**

**ALL DIMENSIONS IN mm**

**Pin configuration**

- 1 = BASE
- 2 = EMITTER
- 3 = COLLECTOR



**ABSOLUTE MAXIMUM RATINGS**

Collector-base voltage (open emitter)	$V_{CB0}$	max.	40 V
Collector-emitter voltage ( $V_{BE} = 0$ )	$V_{CES}$	max.	40 V
Collector-emitter voltage (open base)	$V_{CE0}$	max.	15 V
Collector current (d.c. value)	$I_C$	max.	500 mA
Total power dissipation up to $T_{amb} = 25\text{ }^\circ\text{C}$	$P_{tot}$	max.	250 mW
<b>D.C. current gain</b>			
$I_C = 10\text{ mA}; V_{CE} = 1\text{ V}$	$h_{FE}$		40 to 120
$I_C = 100\text{ mA}; V_{CE} = 2\text{ V}$	$h_{FE}$	>	20
<b>Storage time</b>			
$I_{Con} = I_{Bon} = I_{Boff} = 10\text{ mA}$	$t_s$	<	13 ns

## CMBT2369

### **RATINGS** (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

#### Limiting values

Collector-base voltage (open emitter)	$V_{CB0}$	max.	40 V
Collector-emitter voltage ( $V_{BE} = 0$ )	$V_{CES}$	max.	40 V
Collector-emitter voltage (open base)	$V_{CE0}$	max.	15 V
Emitter-base voltage (open collector)	$V_{EB0}$	max.	4,5 V
Collector current (d.c. value)	$I_C$	max.	500 mA
Total power dissipation up to $T_{amb} = 25^\circ\text{C}$	$P_{tot}$	max.	250 mW
Storage temperature	$T_{stg}$		-55 to $150^\circ\text{C}$
Junction temperature	$T_j$	max.	$150^\circ\text{C}$

### **THERMAL RESISTANCE**

From junction to ambient in free air	$R_{th\ j-a}$	=	500 K/W
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### **CHARACTERISTICS** (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

$T_j = 25^\circ\text{C}$  unless otherwise specified

#### Collector cut-off current

$I_E = 0; V_{CB} = 20\text{ V}$	$I_{CB0}$	<	400 nA
$I_E = 0; V_{CB} = 20\text{V}; T_j = 125^\circ\text{C}$	$I_{CB0}$	<	30 $\mu\text{A}$

#### Saturation voltages

$I_C = 10\text{ mA}; I_B = 1\text{ mA}$	$V_{CEsat}$	<	0,25 V
	$V_{BEsat}$		0,70 to 0,85 V

#### D.C. current gain

$I_C = 10\text{ mA}; V_{CE} = 1\text{ V}$	$h_{FE}$		40 to 120
$I_C = 10\text{ mA}; V_{CE} = 1\text{ V}; T_{amb} = -55^\circ\text{C}$	$h_{FE}$	>	20
$I_C = 100\text{ mA}; V_{CE} = 2\text{ V}$	$h_{FE}$	>	20

#### Output capacitance at $f = 1\text{ MHz}$

$I_E = 0; V_{CB} = 5\text{ V}$	$C_o$	<	4,0 pF
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#### Small-signal current gain

$I_C = 1,0\text{ mA}; V_{CE} = 10\text{V}; f = 100\text{ MHz}; T_{amb} = 25^\circ\text{C}$	$h_{fe}$	>	5,0
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#### Breakdown voltages

$I_C = 10\text{ mA}; I_B = 0$	$V_{(BR)CEO}$	min.	15 V
$I_C = 10\mu\text{A}; I_E = 0$	$V_{(BR)CBO}$	min.	40 V
$I_C = 0; I_E = 10\mu\text{A}$	$V_{(BR)EBO}$	min.	4,5 V
$I_C = 10\mu\text{A}; V_{BE} = 0$	$V_{(BR)CES}$	min.	40 V

#### Switching times at $T_{amb} = 25^\circ\text{C}$

Storage time		typ.	5,0 ns
$I_{Con} = I_{Bon} = -I_{Boff} = 10\text{ mA}$	$t_s$	<	13 ns

#### Turn-on time

$I_C = 10\text{ mA}; I_{Bon} = 3\text{ mA}; V_{CC} = 3\text{ V}$	$t_{on}$	typ.	8,0 ns
	$t_{on}$	<	12 ns

#### Turn-off time

$I_C = 10\text{ mA}; I_{Bon} = 3\text{ mA}; I_{Boff} = 1,5\text{ mA}; V_{CC} = 3\text{ V}$	$t_{off}$	typ.	10 ns
	$t_{off}$	<	18 ns

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