

SOT-23 Formed SMD Package

CMBT2369

SILICON PLANAR EPITAXIAL SWITCHING TRANSISTOR

N-P N transistor

Marking

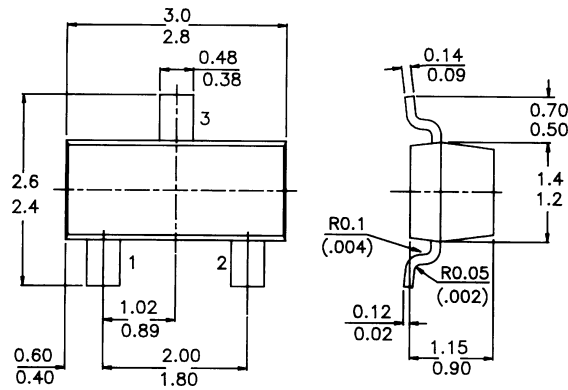
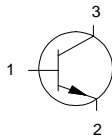
CMBT2369 = JJ

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
D.C. current gain			
$I_C = 10\text{ mA}; V_{CE} = 1\text{ V}$	h_{FE}		40 to 120
$I_C = 100\text{ mA}; V_{CE} = 2\text{ V}$	h_{FE}	>	20
Storage time			
$I_{Con} = I_{Bon} = I_{Boff} = 10\text{ mA}$	t_s	<	13 ns

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°C
Junction temperature	T_j	max.	150°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 μA

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