

SOT-23 Formed SMD Package

CMBT 6520

HIGH-VOLTAGE TRANSISTOR

P-N-P transistor

Marking

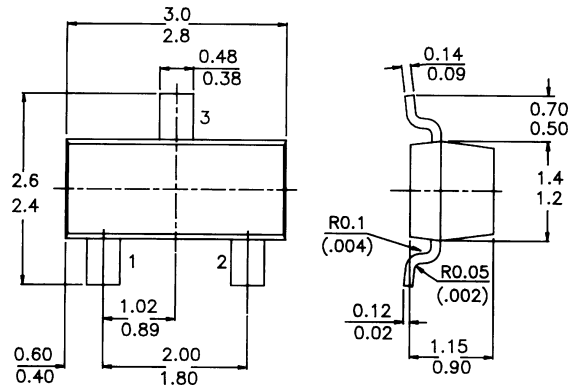
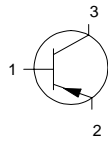
CMBT6520 = 2Z

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.	350 V
Collector-emitter voltage (open base)	$-V_{CE0}$	max.	350 V
Emitter-base voltage (open collector)	$-V_{EB0}$	max.	5 V
Collector current (d.c.)	$-I_C$	max.	500 mA
Total power dissipation at $T_{amb} = 25^\circ C$	P_{tot}	max	225 mW
D.C. current gain $-I_C = 10 \text{ mA}; -V_{CE} = 10 \text{ V}$	h_{FE}	min.	30

RATINGS (at $T_A = 25^\circ C$ unless otherwise specified)

<i>Limiting values</i>			
Collector-base voltage (open emitter)	$-V_{CB0}$	max.	350 V
Collector-emitter voltage (open base)	$-V_{CE0}$	max.	350 V
Emitter-base voltage (open collector)	$-V_{EB0}$	max.	5 V
Collector current (d.c.)	$-I_C$	max.	500 mA
Total power dissipation at $T_{amb} = 25^\circ C$	P_{tot}	max	225 mW
Storage temperature	T_{stg}		-55 to +150 °C
Junction temperature	T_j	max.	150 °C

CMBT 6520

THERMAL CHARACTERISTICS

$$T_j = P (R_{th\ j-t} + R_{th\ s-a}) + T_{amb}$$

Thermal resistance

from junction to ambient $R_{th\ j-a}$ 556 °C/mW

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

Collector-emitter breakdown voltage

$-I_C = 1\text{ mA}$ $-V_{(BR)CEO}$ min. 350 V

Collector-base breakdown voltage

$-I_C = 100\ \mu\text{A}$ $-V_{(BR)CBO}$ min. 350 V

Emitter-base breakdown voltage

$-I_E = 10\ \mu\text{A}$ $-V_{(BR)EBO}$ min. 5 V

Collector cut-off current

$-V_{CB} = 250\text{ V}$ $-I_{CBO}$ max. 50 nA

Emitter cut-off current

$-V_{EB} = 4\text{ V}$ $-I_{EBO}$ max. 50 nA

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

$-V_{CB} = 20\text{ V}$ C_c max. 6 pF

Input capacitance at $f = 1\text{ MHz}$

$-V_{EB} = 0.5\text{ V}$ C_e max. 100 pF

Saturation voltages

$-I_C = 10\text{ mA}; -I_B = 1\text{ mA}$ $-V_{CEsat}$ max. 0.3 V

$-V_{BEsat}$ max. 0.75 V

$-I_C = 20\text{ mA}; -I_B = 2\text{ mA}$ $-V_{CEsat}$ max. 0.35 V

$-V_{BEsat}$ max. 0.85 V

$-I_C = 30\text{ mA}; -I_B = 3\text{ mA}$ $-V_{CEsat}$ max. 0.5 V

$-V_{BEsat}$ max. 0.9 V

$-I_C = 50\text{ mA}; -I_B = 5\text{ mA}$ $-V_{CEsat}$ max. 1.0 V

D.C. current gain

$-I_C = 1\text{ mA}; -V_{CE} = 10\text{ V}$ h_{FE} min. 20

$-I_C = 10\text{ mA}; -V_{CE} = 10\text{ V}$ h_{FE} min. 30

$-I_C = 30\text{ mA}; -V_{CE} = 10\text{ V}$ h_{FE} min. 30

max. 200

$-I_C = 50\text{ mA}; -V_{CE} = 10\text{ V}$ h_{FE} min. 20

max. 200

$-I_C = 100\text{ mA}; -V_{CE} = 10\text{ V}$ h_{FE} min. 15

Base emitter voltage

$I_C = 100\text{ mA}; V_{CE} = 10\text{ V}$ $V_{BE(on)}$ max. 2 V

Transition frequency

$-V_{CE} = 20\text{ V}; -I_C = 10\text{ mA}; f = 20\text{ MHz}$ f_T min. 20 MHz

max. 200 MHz

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