

GENERAL PURPOSE TRANSISTOR

N-P-N transistor

Marking

BCW65A = EA

BCW65B = EB

BCW65C = EC

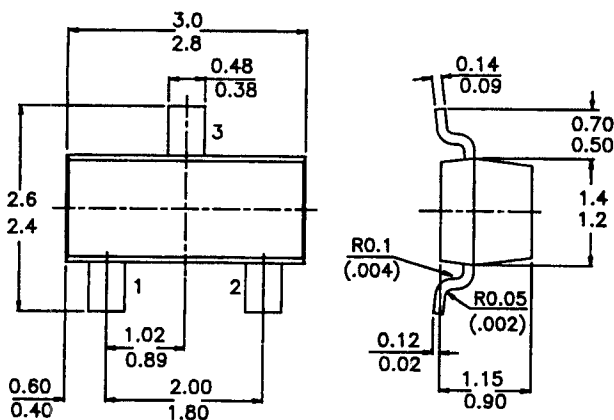
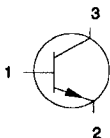
PACKAGE OUTLINE DETAILS ALL DIMENSIONS IN mm

Pin configuration

1 = BASE

2 = EMITTER

3 = COLLECTOR



ABSOLUTE MAXIMUM RATINGS

Collector-base voltage (open emitter)

$-V_{CBO}$ max. 60 60 60 V

Collector-emitter voltage (open base)

$-V_{CEO}$ max. 32 32 32 V

Emitter-base voltage (open collector)

$-V_{EBO}$ max. 5 5 5 V

Collector current (d.c.)

$-I_C$ max. 800 800 800 mA

Total power dissipation at $T_{amb} = 25^\circ\text{C}$

P_{tot} max. 225 225 225 mW

D.C. current gain

$-I_C = 100 \mu\text{A}; -V_{CE} = 10 \text{ V}$

h_{FE} min. 35 50 80

$I_C = 10 \text{ mA}; V_{CE} = 1 \text{ V}$

min. 75 110 180
max. 220

$I_C = 100 \text{ mA}; V_{CE} = 1 \text{ V}$

min. 100 160 250
max. 250 400 630

$I_C = 500 \text{ mA}; V_{CE} = 2 \text{ V}$

min. 35 60 100

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

Limiting values

Collector-base voltage (open emitter)	$-V_{CBO}$	max.	60	60	60	V
Collector-emitter voltage (open base)	$-V_{CEO}$	max.	32	32	32	V
Emitter-base voltage (open collector)	$-V_{EBO}$	max.	5	5	5	V
Collector current (d.c.)	$-I_C$	max.	800	800	800	mA
Total power dissipation at $T_{amb} = 25^\circ\text{C}$	P_{tot}	max	225	225	225	mW
Storage temperature	T_{stg}		-55 to +150			$^\circ\text{C}$

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	556	556	$^\circ\text{C/mW}$
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CHARACTERISTICS (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

Collector-emitter breakdown voltage

$-I_C = 10\text{ mA}; I_B = 0$	$-V_{(BR)CEO\ min.}$	32	32	32	V
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Collector-base breakdown voltage

$-I_C = 10\text{ }\mu\text{A}; V_{EB} = 0$	$-V_{(BR)CES\ min.}$	60	60	60	V
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Emitter-base breakdown voltage

$-I_E = 10\text{ }\mu\text{A}; I_C = 0$	$-V_{(BR)EBO\ min.}$	5	5	5	V
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Collector cut-off current

$-V_{CE} = 32\text{ V}; I_E = 0$	$-I_{CES}$	max.	20	20	20	nA
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Emitter cut-off current

$V_{EB} = 4\text{ V}; I_C = 0$	I_{EBO}	max.	20	20	20	nA
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Output capacitance at $f = 1\text{ MHz}$

$I_E = 0; -V_{CB} = 10\text{ V}$	C_c	max.	12	12	12	pF
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Input capacitance at $f = 100\text{ kHz}$

$I_C = 0; -V_{EB} = 0.5\text{ V}$	C_e	max.	80	80	80	pF
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Saturation voltages

$-I_C = 500\text{ mA}; -I_B = 50\text{ mA}$	$-V_{CEsat}$	max.	0.7	0.7	0.7	V
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$-I_C = 100\text{ mA}; -I_B = 10\text{ mA}$	$-V_{CEsat}$	typ.	0.3	0.3	0.3	V
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$-I_C = 500\text{ mA}; -I_B = 50\text{ mA}$	$-V_{BEsat}$	max.	2	2	2	V
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Noise figure at $R_S = 1\text{ k}\Omega$

$-I_C = 0.2\text{ mA}; -V_{CE} = 5\text{ V}$	NF	max.	10	10	10	dB
$f = 1\text{ KHz}, BW = 200\text{ Hz}$						

Current Gain-Band width Product

$I_C = 20\text{ mA}, V_{CE} = 10\text{ V}, f = 100\text{ MHz}$	f_T	min	100	100	100	MHz
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