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# BCW66GLT1

## General Purpose Transistor NPN Silicon

### Features

- Pb-Free Package is Available

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	$V_{CEO}$	45	Vdc
Collector–Base Voltage	$V_{CBO}$	75	Vdc
Emitter–Base Voltage	$V_{EBO}$	5.0	Vdc
Collector Current – Continuous	$I_C$	800	mAdc

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

### THERMAL CHARACTERISTICS

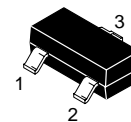
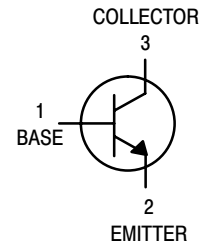
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR–5 Board (Note 1), $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	225	mW
		1.8	mW/ $^\circ\text{C}$
Thermal Resistance, Junction–to–Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	300	mW
		2.4	mW/ $^\circ\text{C}$
Thermal Resistance, Junction–to–Ambient	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature	$T_J, T_{stg}$	–55 to +150	$^\circ\text{C}$

- FR–5 =  $1.0 \times 0.75 \times 0.062$  in.
- Alumina =  $0.4 \times 0.3 \times 0.024$  in 99.5% alumina.



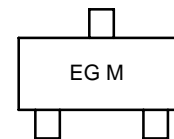
ON Semiconductor®

<http://onsemi.com>



SOT–23  
CASE 318  
STYLE 6

### MARKING DIAGRAM



EG = Specific Device Code  
M = Date Code

### ORDERING INFORMATION

Device	Package	Shipping†
BCW66GLT1	SOT–23	3000 / Tape & Reel
BCW66GLT1G	SOT–23 (Pb–Free)	3000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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## ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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### OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ( $I_C = 10\text{ mA}$ , $I_B = 0$ )	$V_{(BR)CEO}$	45	–	–	Vdc
Collector–Emitter Breakdown Voltage ( $I_C = 10\ \mu\text{A}$ , $V_{EB} = 0$ )	$V_{(BR)CES}$	75	–	–	Vdc
Emitter–Base Breakdown Voltage ( $I_E = 10\ \mu\text{A}$ , $I_C = 0$ )	$V_{(BR)EBO}$	5.0	–	–	Vdc
Collector Cutoff Current ( $V_{CE} = 45\text{ Vdc}$ , $I_E = 0$ ) ( $V_{CE} = 45\text{ Vdc}$ , $I_E = 0$ , $T_A = 150^\circ\text{C}$ )	$I_{CES}$	–	–	20	nA $\mu\text{A}$
Emitter Cutoff Current ( $V_{EB} = 4.0\text{ Vdc}$ , $I_C = 0$ )	$I_{EBO}$	–	–	20	nA

### ON CHARACTERISTICS

DC Current Gain ( $I_C = 100\ \mu\text{A}$ , $V_{CE} = 10\text{ Vdc}$ ) ( $I_C = 10\text{ mA}$ , $V_{CE} = 1.0\text{ Vdc}$ ) ( $I_C = 100\text{ mA}$ , $V_{CE} = 1.0\text{ Vdc}$ ) ( $I_C = 500\text{ mA}$ , $V_{CE} = 2.0\text{ Vdc}$ )	$h_{FE}$	50 110 160 60	– – – –	– – 400 –	–
Collector–Emitter Saturation Voltage ( $I_C = 500\text{ mA}$ , $I_B = 50\text{ mA}$ ) ( $I_C = 100\text{ mA}$ , $I_B = 10\text{ mA}$ )	$V_{CE(sat)}$	– –	0.7 0.3	– –	Vdc
Base–Emitter Saturation Voltage ( $I_C = 500\text{ mA}$ , $I_B = 50\text{ mA}$ )	$V_{BE(sat)}$	–	–	2.0	Vdc

### SMALL-SIGNAL CHARACTERISTICS

Current–Gain — Bandwidth Product ( $I_C = 20\text{ mA}$ , $V_{CE} = 10\text{ Vdc}$ , $f = 100\text{ MHz}$ )	$f_T$	100	–	–	MHz
Output Capacitance ( $V_{CB} = 10\text{ Vdc}$ , $I_E = 0$ , $f = 1.0\text{ MHz}$ )	$C_{obo}$	–	–	12	pF
Input Capacitance ( $V_{EB} = 0.5\text{ Vdc}$ , $I_C = 0$ , $f = 1.0\text{ MHz}$ )	$C_{ibo}$	–	–	80	pF
Noise Figure ( $V_{CE} = 5.0\text{ Vdc}$ , $I_C = 0.2\text{ mA}$ , $R_S = 1.0\text{ k}\Omega$ , $f = 1.0\text{ kHz}$ , $BW = 200\text{ Hz}$ )	NF	–	–	10	dB

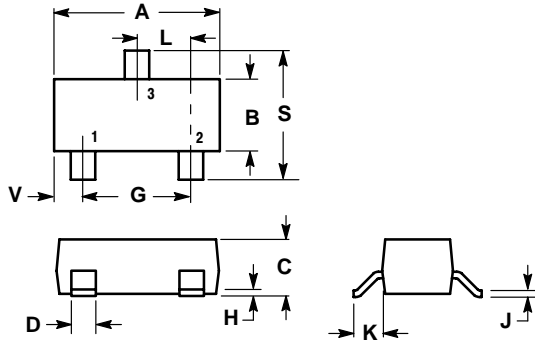
### SWITCHING CHARACTERISTICS

Turn–On Time ( $I_{B1} = I_{B2} = 15\text{ mA}$ )	$t_{on}$	–	–	100	ns
Turn–Off Time ( $I_C = 150\text{ mA}$ , $R_L = 150\ \Omega$ )	$t_{off}$	–	–	400	ns

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## PACKAGE DIMENSIONS

SOT-23 (TO-236)  
CASE 318-08  
ISSUE AK

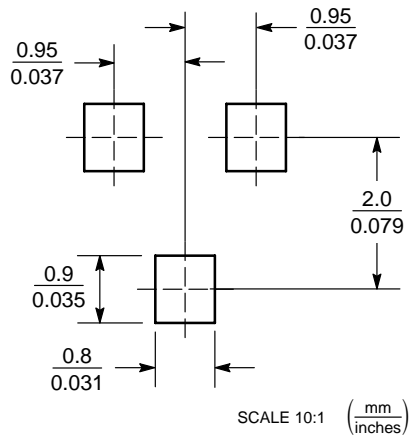


**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318-03 AND -07 OBSOLETE, NEW STANDARD 318-08.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60

### SOLDERING FOOTPRINT\*




**STYLE 6:**

- PIN 1. BASE
- EMITTER
- COLLECTOR

\*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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