

### NPN Silicon

- We declare that the material of product compliance with RoHS requirements.  
**Pb-Free package is available**  
 RoHS product for packing code suffix "G"  
 Halogen free product for packing code suffix "H"

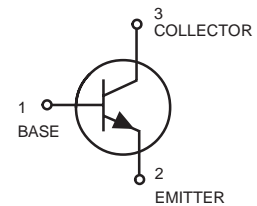


### DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
BCW66GLT1	EG	3000/Tape&Reel

### MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	$V_{CE0}$	45	Vdc
Collector-Base Voltage	$V_{CBO}$	75	Vdc
Emitter-Base Voltage	$V_{EBO}$	7.0	Vdc
Collector Current — Continuous	$I_C$	800	mAdc



### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, (1) $T_A = 25^\circ\text{C}$	$P_D$	225	mW
Derate above $25^\circ\text{C}$		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, (2) $T_A = 25^\circ\text{C}$	$P_D$	300	mW
Derate above $25^\circ\text{C}$		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	$^\circ\text{C}$

### 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 ( $I_C = 10\text{mAdc}, I_B = 0$ )	$V_{(BR)CEO}$	45	—	—	Vdc
Collector-Emitter Breakdown Voltage ( $I_C = 10\ \mu\text{Adc}, V_{EB} = 0$ )	$V_{(BR)CES}$	75	—	—	Vdc
Emitter-Base Breakdown Voltage ( $I_E = 10\ \mu\text{Adc}, I_C = 0$ )	$V_{(BR)EBO}$	5.0	—	—	Vdc
Collector Cutoff Current ( $V_{CE} = 45\ \text{Vdc}, I_E = 0$ )	$I_{CES}$	—	—	20	nAdc
( $V_{CE} = 45\ \text{Vdc}, I_E = 0$ ) ( $T_A = 150^\circ\text{C}$ )		—	—	20	$\mu\text{Adc}$
Emitter Cutoff Current ( $V_{EB} = 4.0\ \text{Vdc}, I_C = 0$ )	$I_{EBO}$	—	—	20	nAdc
( $V_{EB} = 7.0\ \text{Vdc}, I_C = 0$ ) (3)		—	—	100	nAdc

1. FR-5 = 1.0 x 0.75 x 0.062 in.
2. Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.
3. Added  $I_{EBO}$  test to guarantee quality for oxide defects



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

Characteristic	Symbol	Min	Typ	Max	Unit
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**ON CHARACTERISTICS**

DC Current Gain	$h_{FE}$				—
( $I_C = 100 \mu\text{Adc}$ , $V_{CE} = 10 \text{Vdc}$ )		50	—	—	
( $I_C = 10 \text{mAdc}$ , $V_{CE} = 1.0 \text{Vdc}$ )		110	—	—	
( $I_C = 100 \text{mAdc}$ , $V_{CE} = 1.0 \text{Vdc}$ )		160	—	400	
( $I_C = 300 \text{mAdc}$ , $V_{CE} = 2.0 \text{Vdc}$ )		60	—	—	

**SMALL-SIGNAL CHARACTERISTICS**

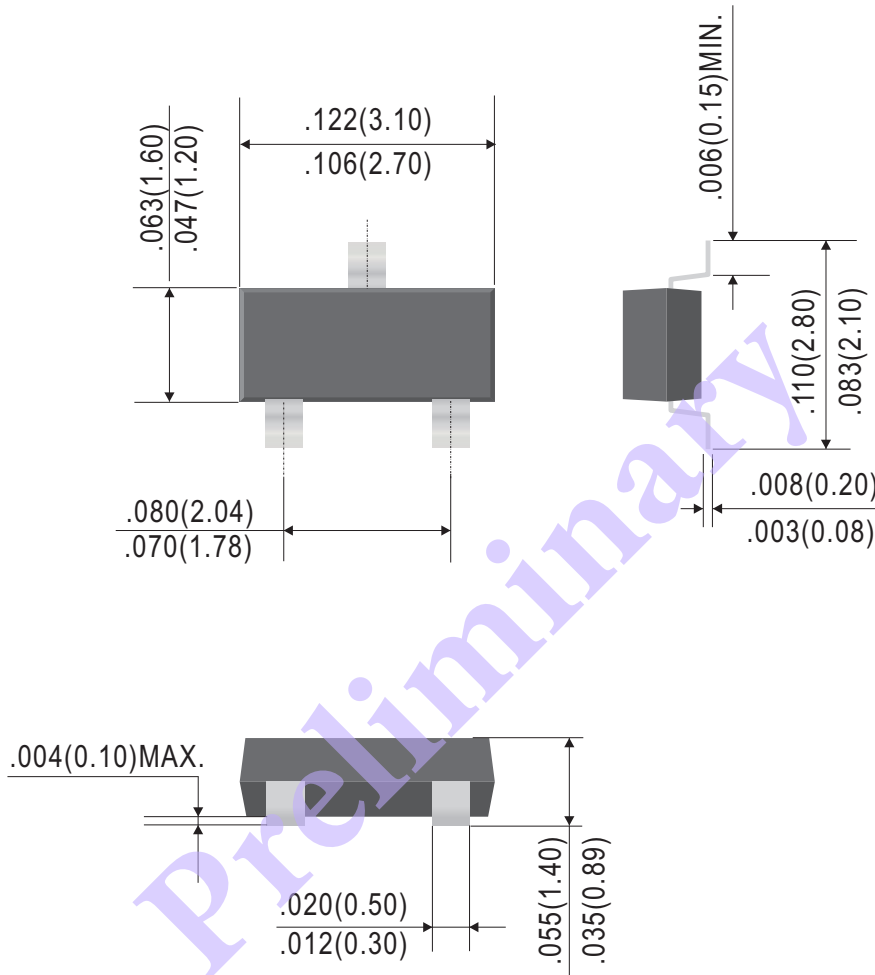
Current-Gain — Bandwidth Product ( $I_C = 20\text{mAdc}$ , $V_{CE} = 10 \text{Vdc}$ , $f = 100 \text{MHz}$ )	$f_T$	100	—	—	MHz
Output Capacitance ( $V_{CB} = 10 \text{Vdc}$ , $I_E = 0$ , $f = 1.0 \text{MHz}$ )	$C_{obo}$	—	—	12	pF
Input Capacitance ( $V_{EB} = 0.5 \text{Vdc}$ , $I_C = 0$ , $f = 1.0 \text{MHz}$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

**SWITCHING CHARACTERISTICS**

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

Preliminary

**SOT-23**



Dimensions in inches and (millimeters)

