

Features

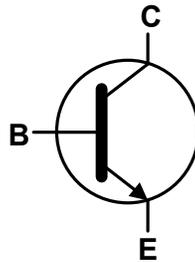
- $BV_{CEO} > 45V$
- $I_C = 800mA$ High Continuous Collector Current
- Low Saturation Voltage $V_{CE(sat)} < 300mV @ 100mA$
- Complementary PNP Type: [BCW68H](#)
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **An automotive-compliant part is available under a separate datasheet ([BCW66HQ](#))**

Mechanical Data

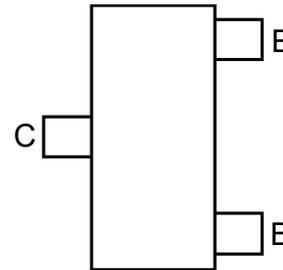
- Package: SOT23
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 Ⓔ3
- Weight 0.008 grams (Approximate)



Top View



Device Symbol



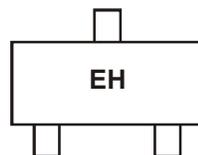
Top View Pinout

Ordering Information (Note 4)

Orderable Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
BCW66HTA	SOT23	EH	7	8	3,000	Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



EH = Product Type Marking Code

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V _{CB0}	75	V
Collector-Emitter Voltage	V _{CEO}	45	V
Emitter-Base Voltage	V _{EBO}	7	V
Continuous Collector Current	I _C	800	mA
Peak Pulse Current	I _{CM}	1000	mA
Base Current	I _B	100	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	(Note 5)	310
		(Note 6)	350
Thermal Resistance, Junction to Ambient	R _{θJA}	(Note 5)	403
		(Note 6)	357
Thermal Resistance, Junction to Leads	R _{θJL}	350	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

- Notes:
- 5. For a device mounted on minimum recommended pad layout 1oz weight copper that is on a single-sided FR4 PCB; device is measured under still air conditions whilst operating in a steady state.
 - 6. Same as Note 5, except the device is mounted on 15mm × 15mm 1oz copper.
 - 7. Thermal resistance from junction to solder-point (at the end of the leads).

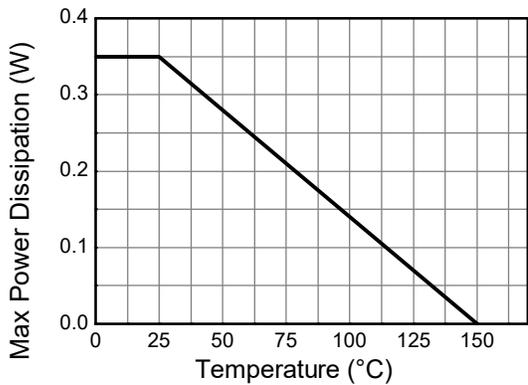


Figure 1. Derating Curve

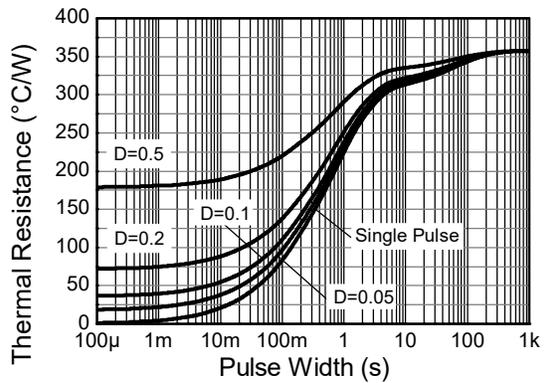


Figure 2. Transient Thermal Impedance

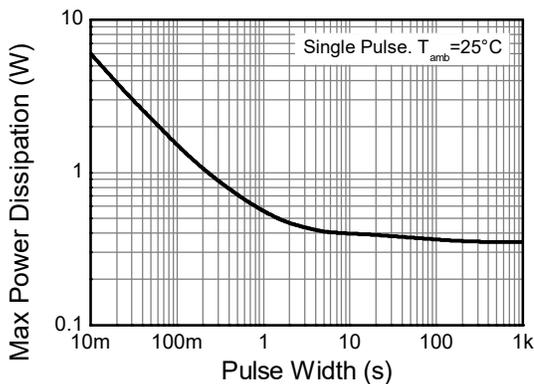


Figure 3. Pulse Power Dissipation

Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

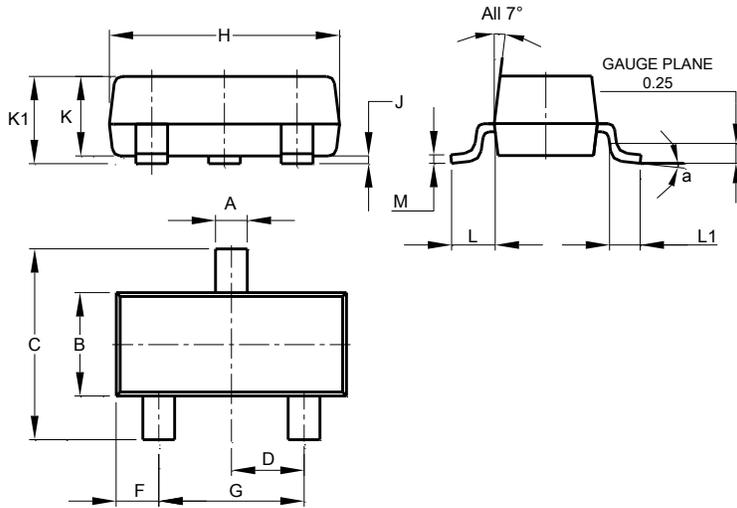
Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV_{CES}	75	—	—	V	$I_C = 10\mu\text{A}$
Collector-Emitter Breakdown Voltage (Base Open) (Note 8)	BV_{CEO}	45	—	—	V	$I_{CEO} = 10\text{mA}$
Emitter-Base Breakdown Voltage	BV_{EBO}	7	—	—	V	$I_{EBO} = 10\mu\text{A}$
Collector-Emitter Cutoff Current	I_{CES}	—	< 1	20	nA	$V_{CES} = 45\text{V}$
		—	—	20	μA	$V_{CES} = 45\text{V}, T_A = +150^\circ\text{C}$
Emitter-Base Cutoff Current	I_{EBO}	—	< 1	20	nA	$V_{EBO} = 5.6\text{V}$
ON CHARACTERISTICS (Note 8)						
Static Forward Current Transfer Ratio	h_{FE}	80 180 250 100	— — 350 —	— — 630 —	—	$I_C = 100\mu\text{A}, V_{CE} = 10\text{V}$ $I_C = 10\text{mA}, V_{CE} = 1\text{V}$ $I_C = 100\text{mA}, V_{CE} = 1\text{V}$ $I_C = 500\text{mA}, V_{CE} = 2\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	—	0.3 0.7	V	$I_C = 100\text{mA}, I_B = 10\text{mA}$ $I_C = 500\text{mA}, I_B = 50\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	—	2	V	$I_C = 500\text{mA}, I_B = 50\text{mA}$
SMALL-SIGNAL CHARACTERISTICS (Note 8)						
Transition Frequency	f_T	100	—	—	MHz	$I_C = 20\text{mA}, V_{CE} = 10\text{V}$ $f = 100\text{MHz}$
Output Capacitance	C_{obo}	—	8	12	pF	$V_{CB} = 10\text{V}, f = 1\text{MHz}$
Input Capacitance	C_{ibo}	—	—	80	pF	$V_{CB} = -0.5\text{V}, f = 1\text{MHz}$
Noise Figure	N	—	2	10	dB	$I_C = 0.2\text{mA}, V_{CE} = 5\text{V}$ $R_G = 1\text{k}\Omega$
Turn-On Time	t_{on}	—	—	100	ns	$I_C = 150\text{mA}$
Turn-Off Time	t_{off}	—	—	400	ns	$I_{B1} = -I_{B2} = 15\text{mA}$ $R_L = 150\Omega$

Note: 8. Measured under pulsed conditions. Pulse width $\leq 300\mu\text{s}$. Duty cycle $\leq 2\%$.

Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT23

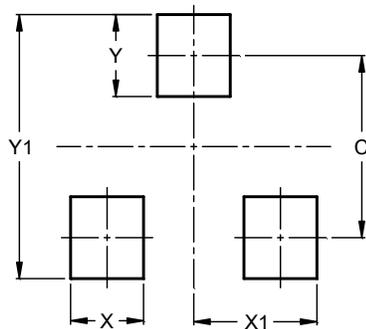


SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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