

45V PNP MEDIUM POWER TRANSISTOR IN SOT23

Features

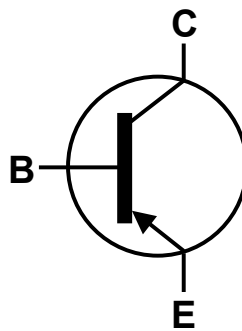
- $BV_{CEO} > -45V$
- $I_C = -800mA$ high Continuous Collector Current
- Low Saturation Voltage $V_{CE(sat)} < -300mV @ 100mA$
- Complementary NPN Type: BCW66H
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

Mechanical Data

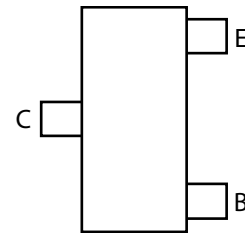
- Case: SOT23
- Case Material: molded plastic, "Green" molding compound
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 [Ⓔ]
- Weight 0.008 grams (approximate)



Top View



Device Symbol



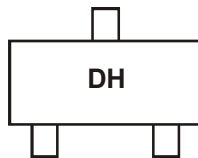
Top View
Pin Configuration

Ordering Information (Note 4)

Part Number	Marking	Reel size (inches)	Tape width (mm)	Quantity per reel
BCW68HTA	DH	7	8	3,000

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
 2. See <http://www.diodes.com> 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 <http://www.diodes.com>.

Marking Information



DH = Product Type Marking Code

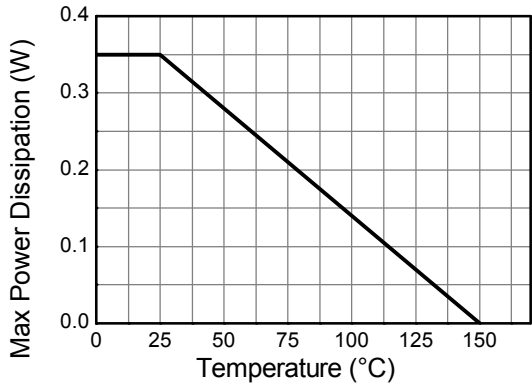
Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Collector-Base Voltage	V_{CES}	-60	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

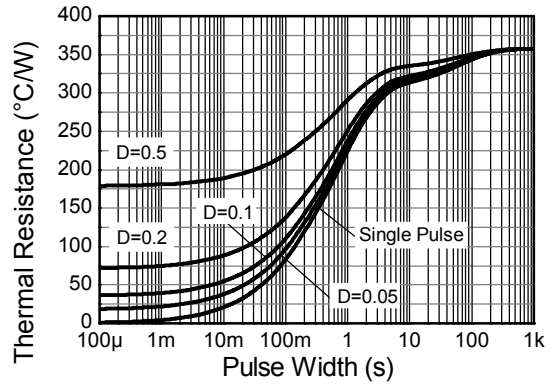
Thermal Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation	P_D	(Note 5)	310
		(Note 6)	350
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	(Note 5)	403
		(Note 6)	357
Thermal Resistance, Junction to Leads	$R_{\theta JL}$	350	$^\circ\text{C}/\text{W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

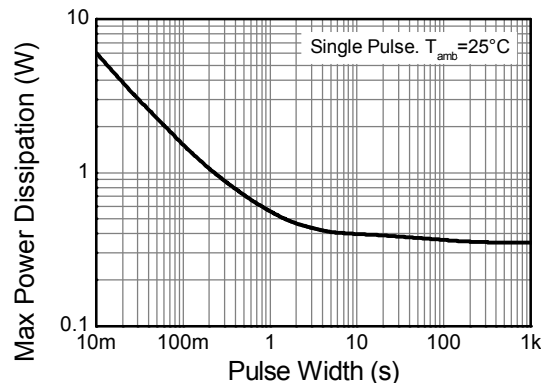
- Notes:
- For the device mounted on minimum recommended pad layout FR4 PCB with high coverage of single sided 1oz copper in still air condition; the device is measured when operating in a steady-state condition.
 - Same as note (5), except the device is mounted on 15mm x 15mm FR4 PCB.
 - Thermal resistance from junction to solder-point (at the end of the leads).



Derating Curve



Transient Thermal Impedance



Pulse Power Dissipation

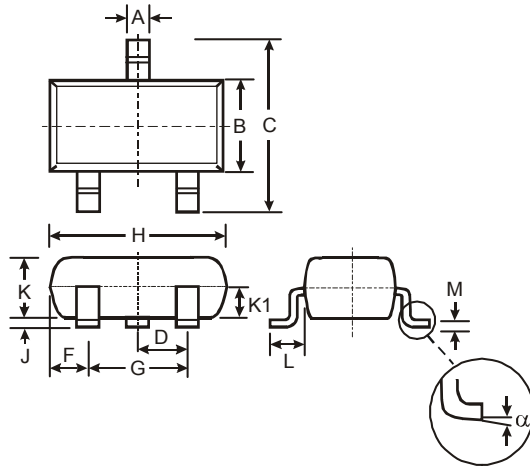
Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV_{CES}	-60	—	—	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 cut-off current	I_{CES}	—	<1	-20	nA	$V_{CES} = -45\text{V}$
Emitter-base Cut-off Current	I_{EBO}	—	<1	-20	nA	$V_{CES} = -45\text{V}, T_A = +150^\circ\text{C}$
ON CHARACTERISTICS (Note 8)						
Static Forward Current Transfer Ratio	h_{FE}	250 100	350 —	630 —	—	$I_C = -100\text{mA}, V_{CE} = -1\text{V}$ $I_C = -500\text{mA}, V_{CE} = -2\text{V}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	—	— -700	-300 —	mV	$I_C = -100\text{mA}, I_B = -10\text{mA}$ $I_C = -500\text{mA}, I_B = -50\text{mA}$
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}	—	12	18	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	$I_C = -0.2\text{mA}, V_{CE} = -5\text{V}, R_G = 1\text{K}\Omega, f = 1\text{KHz}, \Delta f = 200\text{Hz}$
Turn-On Time	t_{on}	—	—	100	ns	$I_C = -150\text{mA}$
Turn-Off Time	t_{off}	—	—	400	ns	$I_{B1} = -I_{B2} = -15\text{mA}$ $R_L = 150\Omega$

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

Package Outline Dimensions

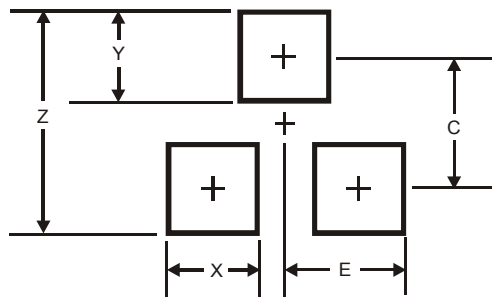
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



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	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout

Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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