BCW68H

45V PNP MEDIUM POWER TRANSISTOR IN SOT23

Features

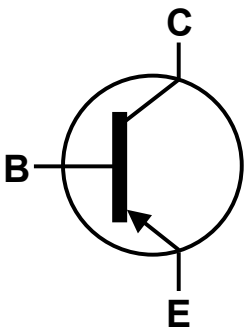
- BV_{CEO} > -45V
- I_C = -800mA high Continuous Collector Current
- Low Saturation Voltage $V_{CE(sat)}$ < -300mV @ 100mA
- Complementary NPN Type: BCW66H
- **Totally Lead-Free & Fully RoHS compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards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

Mechanical Data

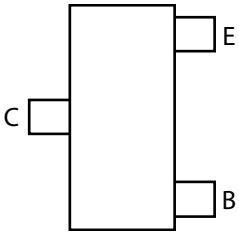
- Case: SOT23
- Case Material: molded plastic, "Green" molding compound
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish – Matte Tin Plated Leads, Solderable per MIL-STD-202, Method 208 e3
- Weight 0.008 grams (approximate)

SOT23

Top View



Device Symbol



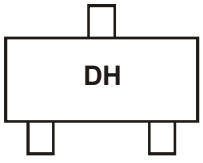
Top View
Pin Configuration

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

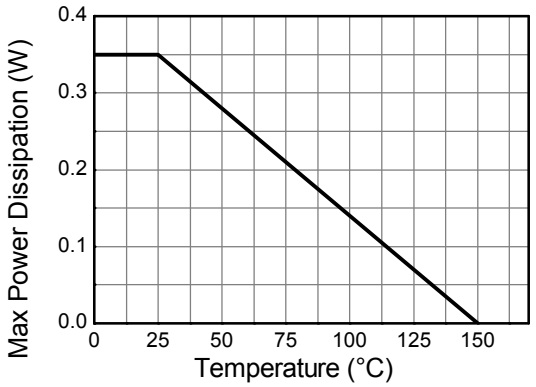
Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

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

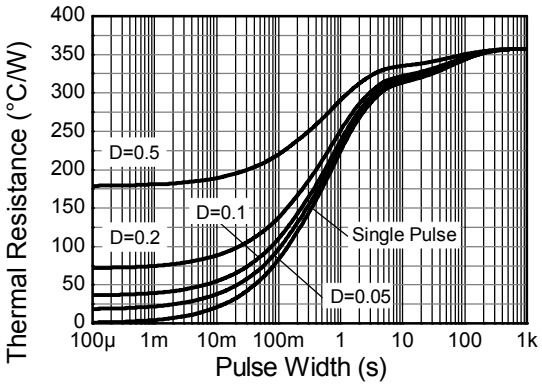
Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 5)	P_D	310	mW
	(Note 6)		350	
Thermal Resistance, Junction to Ambient	(Note 5)	$R_{\theta JA}$	403	°C/W
	(Note 6)		357	
Thermal Resistance, Junction to Leads	(Note 7)	$R_{\theta JL}$	350	°C/W
Operating and Storage Temperature Range		T_J,T_{STG}	-55 to +150	°C

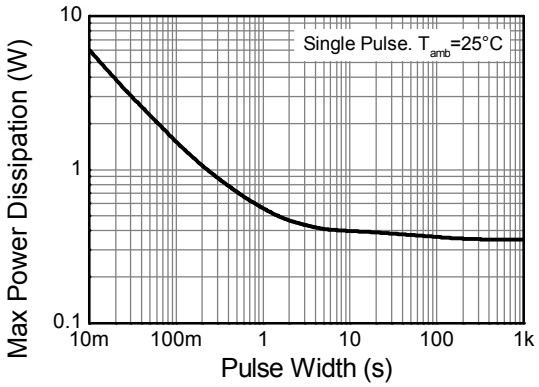
Notes:
5. For the device mounted on minimum recommended pad layout FR4 PCB with high coverage of single sided 1oz copper in still air condition; the device is measured when operating in a steady-state condition.
6. Same as note (5), except the device is mounted on 15mm x 15mm FR4 PCB.
7. Thermal resistance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



Derating Curve



Transient Thermal Impedance



Pulse Power Dissipation

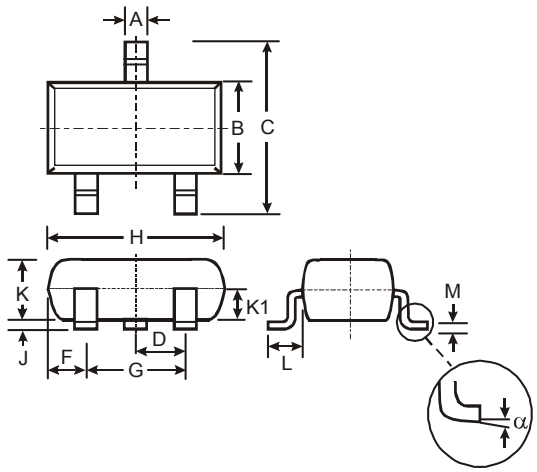
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Collector-Base Breakdown Voltage	BV_{CES}	-60	—	—	V	I_C = -10μA
Collector-Emitter Breakdown Voltage (base open) (Note 8)	BV_{CEO}	-45	—	—	V	I_{CEO} = -10mA
Emitter-Base Breakdown Voltage	BV_{EBO}	-7	—	—	V	I_{EBO} = -10μA
Collector-emitter cut-off current	I_{CES}	— —	<1 —	-20 -10	nA μA	V_{CES} = -45V V_{CES} = -45V, T_A = +150°C
Emitter-base Cut-off Current	I_{EBO}	—	<1	-20	nA	V_{EBO} = -5.6V
ON CHARACTERISTICS (Note 8)						
Static Forward Current Transfer Ratio	h_{FE}	250 100	350 —	630 —	—	I_C = -100mA, V_{CE} = -1V I_C = -500mA, V_{CE} = -2V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	— —	— -700	-300 —	mV	I_C = -100mA, I_B = -10mA I_C = -500mA, I_B = -50mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	—	—	-2	V	I_C = -500mA, I_B = -50mA
SMALL SIGNAL CHARACTERISTICS (Note 8)						
Transition Frequency	f_T	100	—	—	MHz	I_C = -20mA, V_{CE} = -10V, f = 100MHz
Output Capacitance	C_{obo}	—	12	18	pF	V_{CB} = -10V, f = 1MHz
Input Capacitance	C_{ibo}	—	—	80	pF	V_{CB} = -0.5V, f = 1MHz
Noise Figure	N	—	2	10	dB	I_C = -0.2mA. V_{CE} = -5V, R_G = 1KΩ, f = 1KHz, Δf = 200Hz
Turn-On Time	t_{on}	—	—	100	ns	I_C = -150mA. I_{B1} = -I_{B2} = -15mA R_L = 150Ω
Turn-Off Time	t_{off}	—	—	400	ns	

Notes: 8. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

Package Outline Dimensions

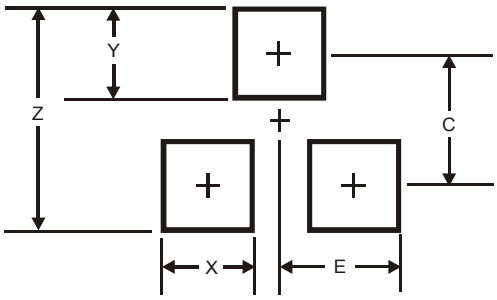
Please see AP02002 at http://www.diodes.com/datasheets/ap02002.pdf for latest version.



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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