

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**

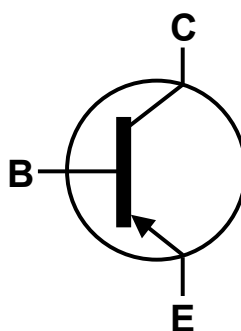
Mechanical Data

- 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)

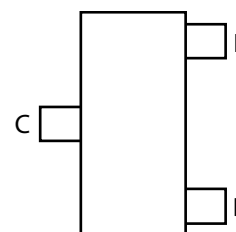
SOT23



Top View



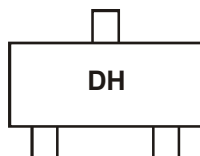
Device Symbol


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

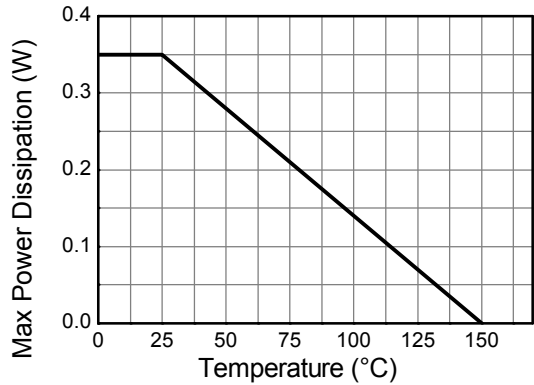
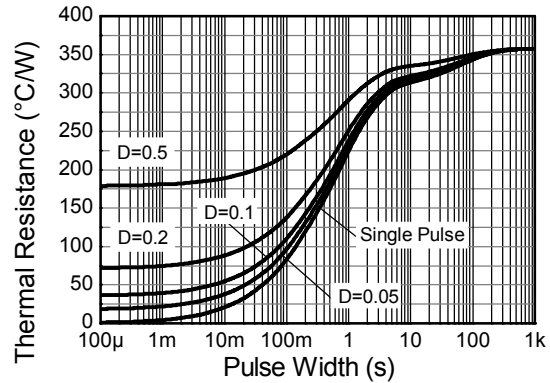
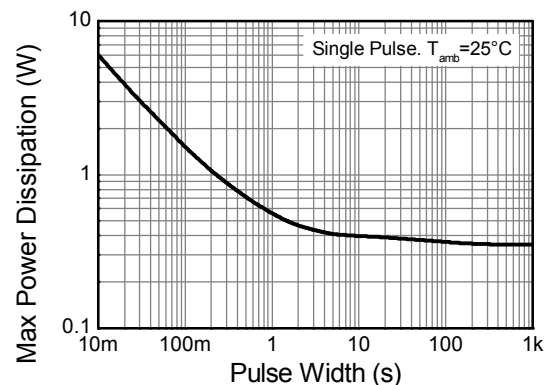
Maximum Ratings (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

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	310	mW
(Note 5)		350	
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	403	$^\circ\text{C/W}$
(Note 6)		357	
Thermal Resistance, Junction to Leads	$R_{\theta JL}$	350	$^\circ\text{C/W}$
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

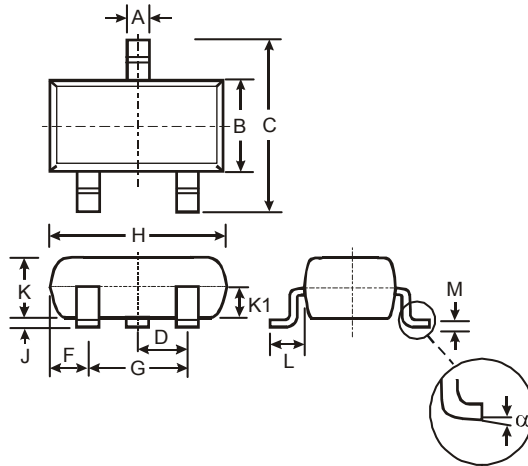
Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

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	nA	V _{CES} = -45V
		—	—	-10	μA	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
Turn-Off Time	t _{off}	—	—	400	ns	I _{B1} = -I _{B2} = -15mA R _L = 150Ω

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

Package Outline Dimensions

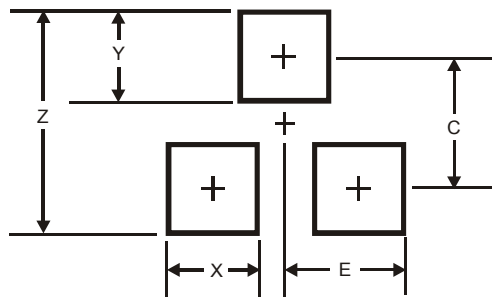
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



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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