BC488B

High Current Transistors

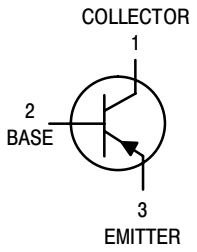
PNP Silicon

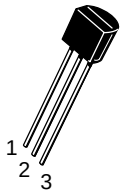
Features

- Pb−Free Package is Available*

ON Semiconductor®

http://onsemi.com





TO−92
CASE 29
STYLE 17

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector - Emitter Voltage	V_{CEO}	−60	Vdc
Collector - Base Voltage	V_{CBO}	−60	Vdc
Emitter-Base Voltage	V_{EBO}	−4.0	Vdc
Collector Current − Continuous	I_C	−1.0	Adc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	 625 5.0	 mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	 1.5 12	 W mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−55 to +150	°C

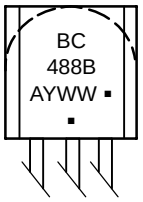
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction−to−Ambient	$R_{\theta JA}$	200	°C/W
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	83.3	°C/W

*For additional information on our Pb−Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

MARKING DIAGRAM



BC488B = Device Code
A = Assembly Location
Y = Year
WW = Work Week
▪ = Pb−Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

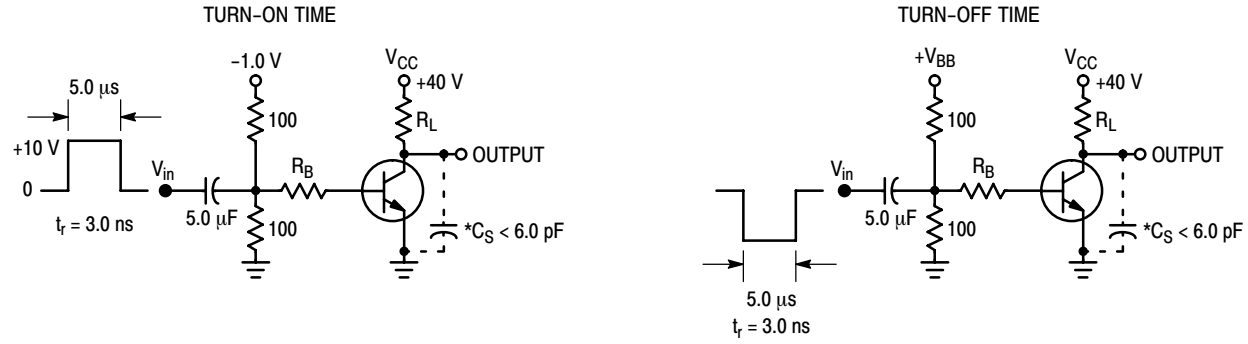
Device	Package	Shipping†
BC488BRL1	TO−92	2000/Tape & Reel
BC488BRL1G	TO−92 (Pb−Free)	2000/Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector−Emitter Breakdown Voltage (Note 1) (I_C = −10 mAdc, I_B = 0)	$V_{(BR)CEO}$	−60	−	−	Vdc
Collector−Base Breakdown Voltage (I_C = −100 μAdc, I_E = 0)	$V_{(BR)CBO}$	−60	−	−	Vdc
Emitter−Base Breakdown Voltage (I_E = −10 μAdc, I_C = 0)	$V_{(BR)EBO}$	−4.0	−	−	Vdc
Collector Cutoff Current (V_{CB} = −40 Vdc, I_E = 0)	I_{CBO}	−	−	−100	nAdc
ON CHARACTERISTICS*					
DC Current Gain (I_C = −10 mAdc, V_{CE} = −2.0 Vdc) (I_C = −100 mAdc, V_{CE} = −2.0 Vdc) (I_C = −1.0 Adc, V_{CE} = −5.0 Vdc)	h_{FE}	 40 160 15	 − 260 −	 − 400 −	−
Collector−Emitter Saturation Voltage (I_C = −500 mAdc, I_B = −50 mAdc) (I_C = −1.0 Adc, I_B = −100 mAdc)	$V_{CE(sat)}$	 − −	 −0.25 −0.5	 −0.5 −	Vdc
Base−Emitter Saturation Voltage (I_C = −500 mAdc, I_B = −50 mAdc) (I_C = −1.0 Adc, I_B = −100 mAdc)	$V_{BE(sat)}$	 − −	 −0.9 −1.0	 −1.2 −	Vdc
DYNAMIC CHARACTERISTICS					
Current−Gain − Bandwidth Product (I_C = −50 mAdc, V_{CE} = −2.0 Vdc, f = 100 MHz)	f_T	−	150	−	MHz
Output Capacitance (V_{CB} = −10 Vdc, I_E = 0, f = 1.0 MHz)	C_{ob}	−	9.0	−	pF
Input Capacitance (V_{EB} = −0.5 Vdc, I_C = 0, f = 1.0 MHz)	C_{ib}	−	110	−	pF

1. Pulse Test: Pulse Width = 300 μs, Duty Cycle 2%.



*Total Shunt Capacitance of Test Jig and Connectors
For PNP Test Circuits, Reverse All Voltage Polarities

Figure 1. Switching Time Test Circuits

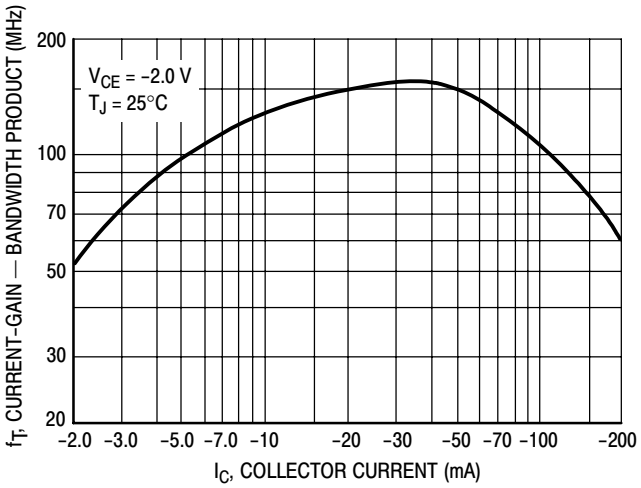


Figure 2. Current−Gain − Bandwidth Product

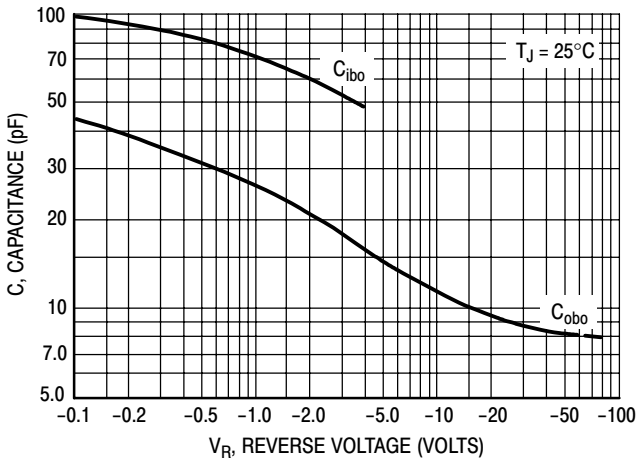


Figure 3. Capacitance

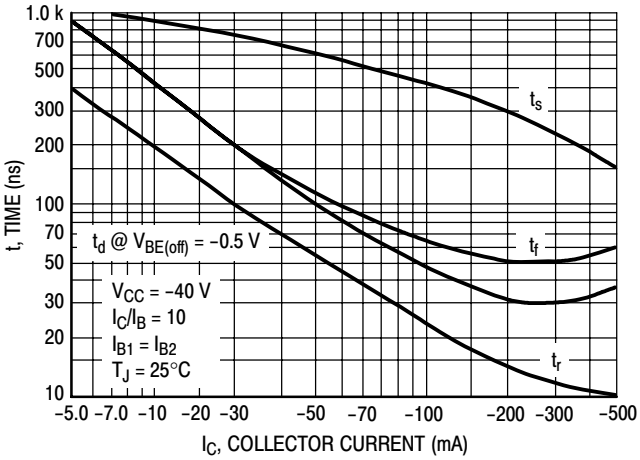


Figure 4. Switching Time

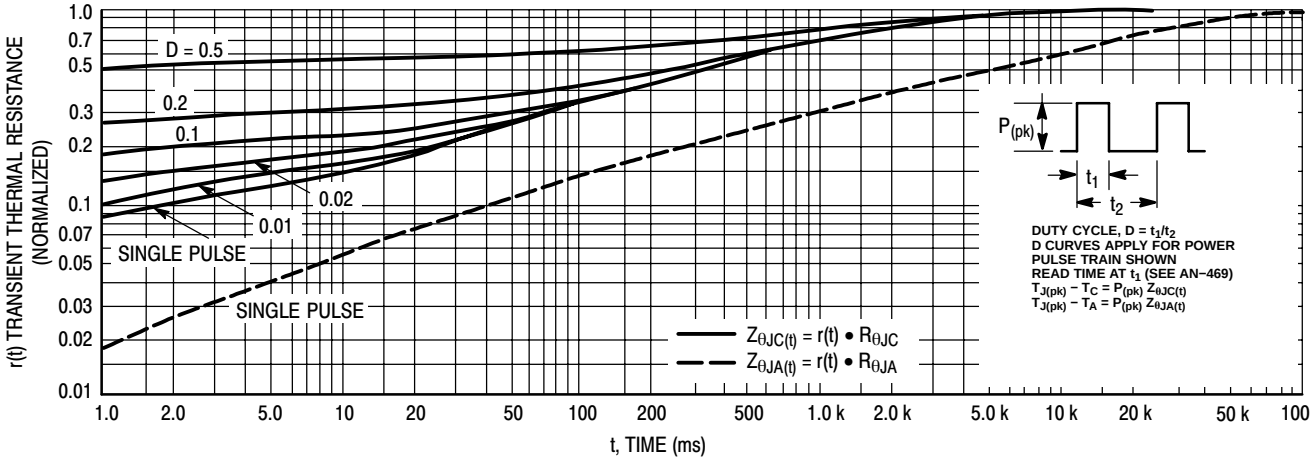


Figure 5. Thermal Response

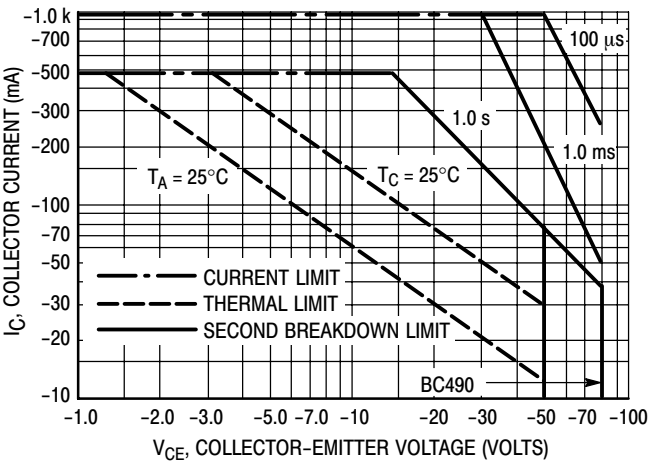


Figure 6. Active Region, Safe Operating Area

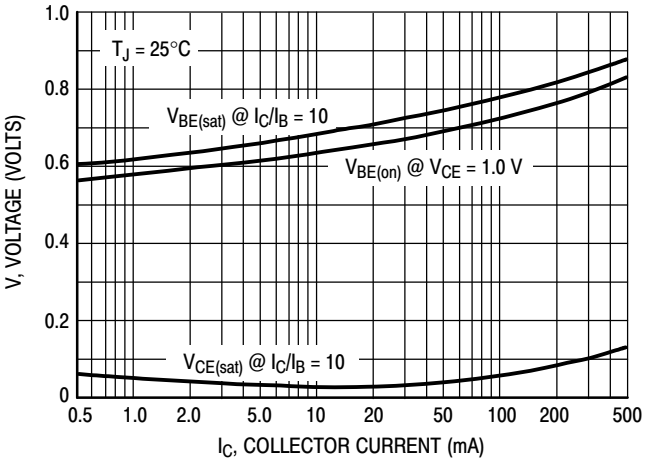


Figure 7. “On” Voltages

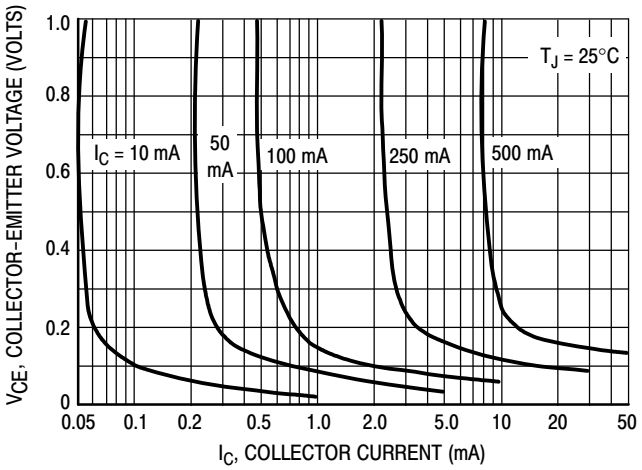


Figure 8. Collector Saturation Region

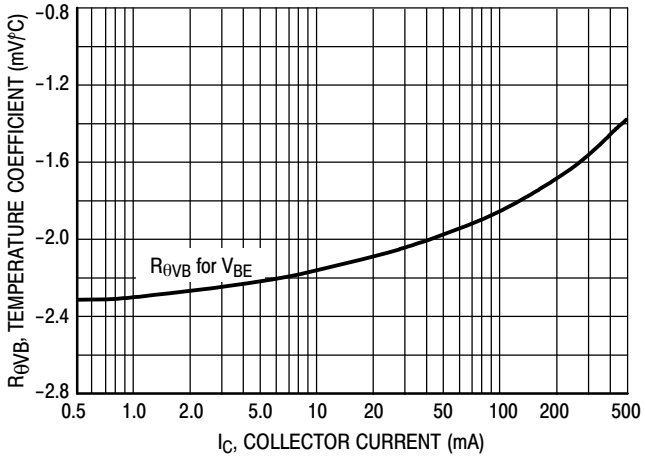


Figure 9. Base−Emitter Temperature Coefficient

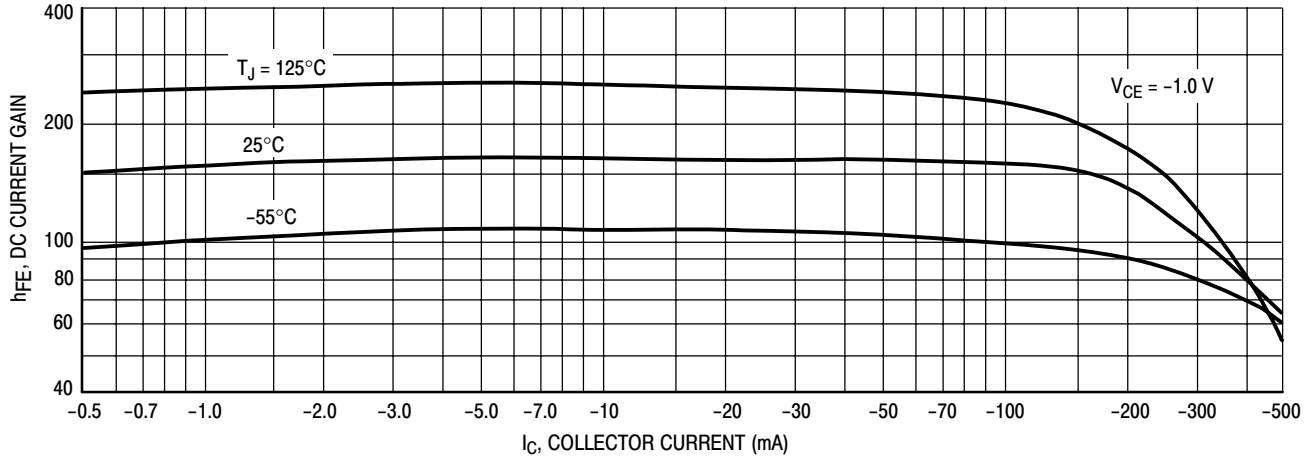


Figure 10. DC Current Gain

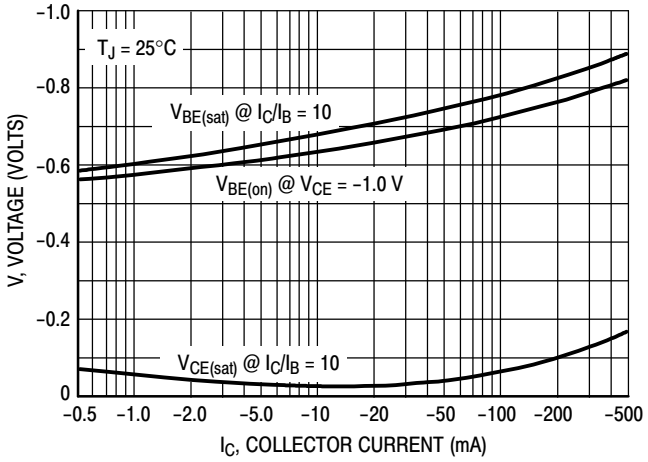


Figure 11. “On” Voltages

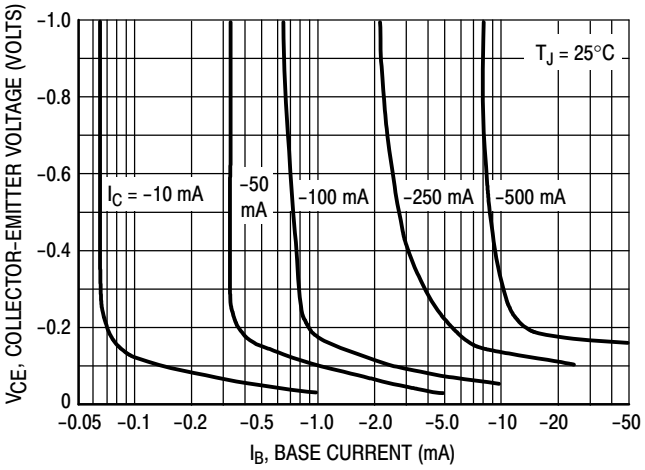


Figure 12. Collector Saturation Region

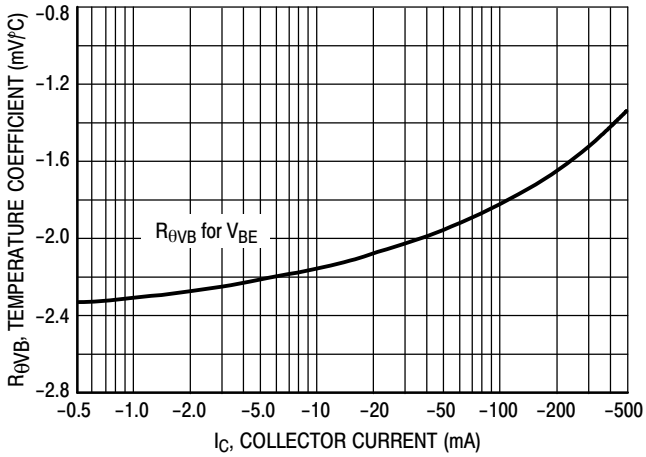
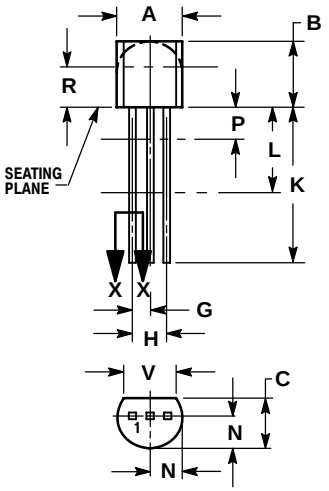
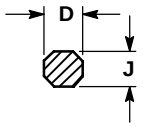


Figure 13. Base−Emitter Temperature Coefficient

PACKAGE DIMENSIONS

TO−92
(TO−226)
CASE 29−11
ISSUE AL





SECTION X−X

NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.175	0.205	4.45	5.20
B	0.170	0.210	4.32	5.33
C	0.125	0.165	3.18	4.19
D	0.016	0.021	0.407	0.533
G	0.045	0.055	1.15	1.39
H	0.095	0.105	2.42	2.66
J	0.015	0.020	0.39	0.50
K	0.500	---	12.70	---
L	0.250	---	6.35	---
N	0.080	0.105	2.04	2.66
P	---	0.100	---	2.54
R	0.115	---	2.93	---
V	0.135	---	3.43	---

STYLE 17:
PIN 1. COLLECTOR
2. BASE
3. EMITTER

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
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