BC490, BC490A, BC490B

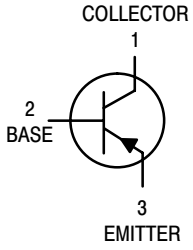
High Current Transistors

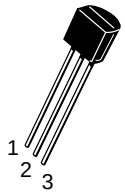
PNP Silicon

- Device Marking: 490
  490A
  490B

ON Semiconductor™

http://onsemi.com





CASE 29
TO–92
STYLE 17

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	–80	Vdc
Collector-Base Voltage	V_{CBO}	–80	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	 Watts mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–55 to +150	°C

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

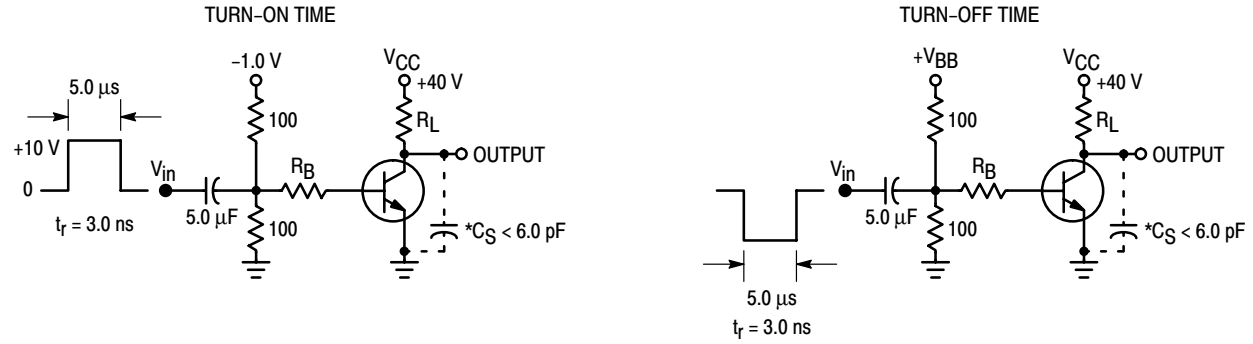
ORDERING INFORMATION

Device	Package	Shipping
BC490	TO–92	5000 Units/Box
BC490A	TO–92	5000 Units/Box
BC490AZL1	TO–92	2000/Ammo Pack
BC490BZL1	TO–92	2000/Ammo Pack

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

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector–Emitter Breakdown Voltage(1) (I_C = –10 mAdc, I_B = 0)		$V_{(BR)CEO}$	–80	—	—	Vdc
Collector–Base Breakdown Voltage (I_C = –100 μAdc, I_E = 0)		$V_{(BR)CBO}$	–80	—	—	Vdc
Emitter–Base Breakdown Voltage (I_E = –10 μAdc, I_C = 0)		$V_{(BR)EBO}$	–4.0	—	—	Vdc
Collector Cutoff Current (V_{CB} = –60 Vdc, I_E = 0)		I_{CBO}	—	—	–100	nAdc
ON CHARACTERISTICS*						
DC Current Gain		h_{FE}				—
(I_C = –10 mAdc, V_{CE} = –2.0 Vdc)			40	—	—	
(I_C = –100 mAdc, V_{CE} = –2.0 Vdc)	BC490		60	—	400	
	BC490A		100	140	250	
	BC490B		160	—	400	
(I_C = –1.0 Adc, V_{CE} = –5.0 Vdc)			15	—	—	
Collector–Emitter Saturation Voltage		$V_{CE(sat)}$				Vdc
(I_C = –500 mAdc, I_B = –50 mAdc)			—	–0.25	–0.5	
(I_C = –1.0 Adc, I_B = –100 mAdc)			—	–0.5	—	
Base–Emitter Saturation Voltage		$V_{BE(sat)}$				Vdc
(I_C = –500 mAdc, I_B = –50 mAdc)			—	–0.9	–1.2	
(I_C = –1.0 Adc, I_B = –100 mAdc)			—	–1.0	—	
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

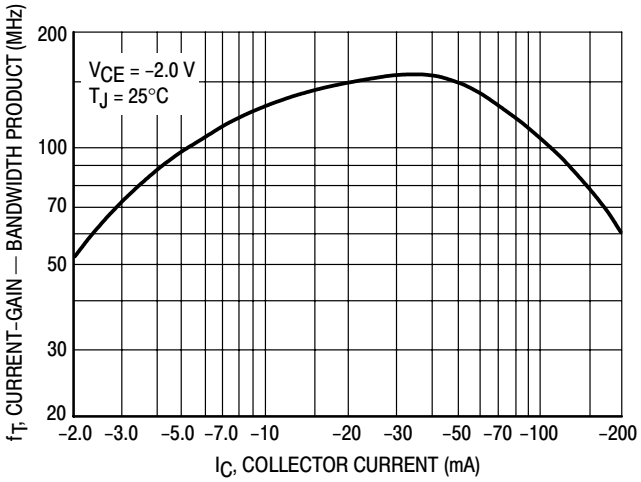


Figure 2. Current–Gain — Bandwidth Product

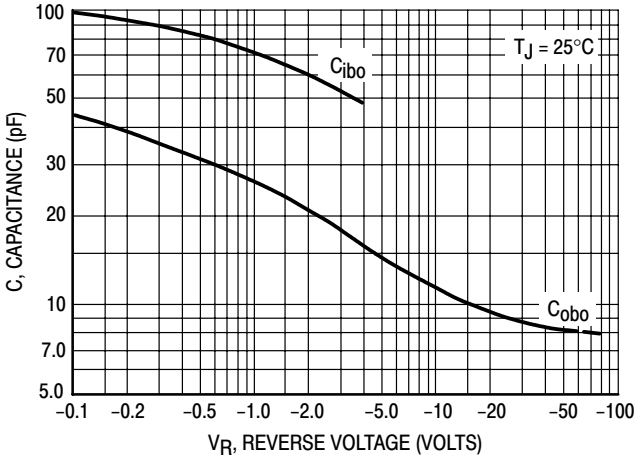


Figure 3. Capacitance

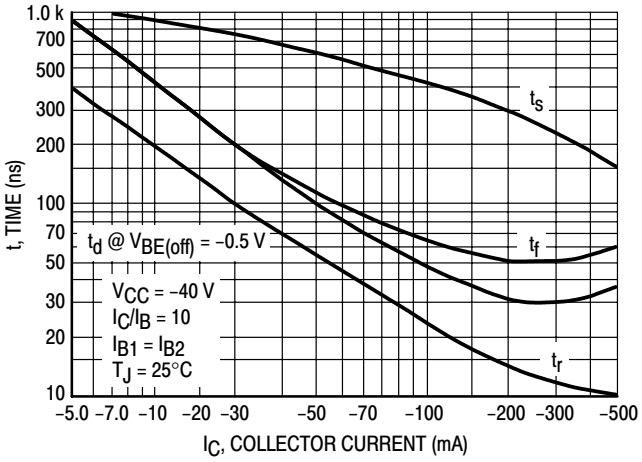


Figure 4. Switching Time

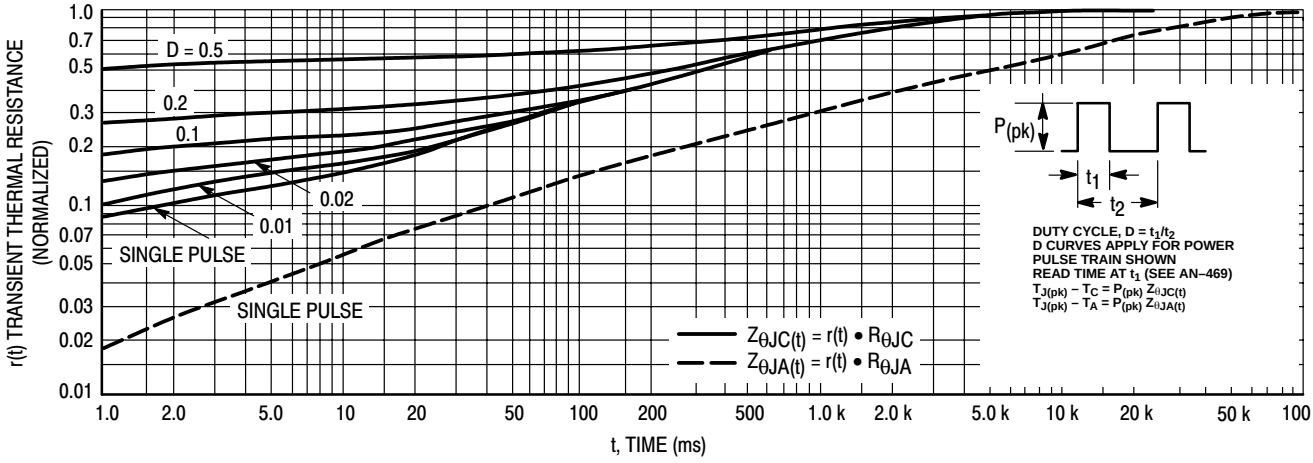


Figure 5. Thermal Response

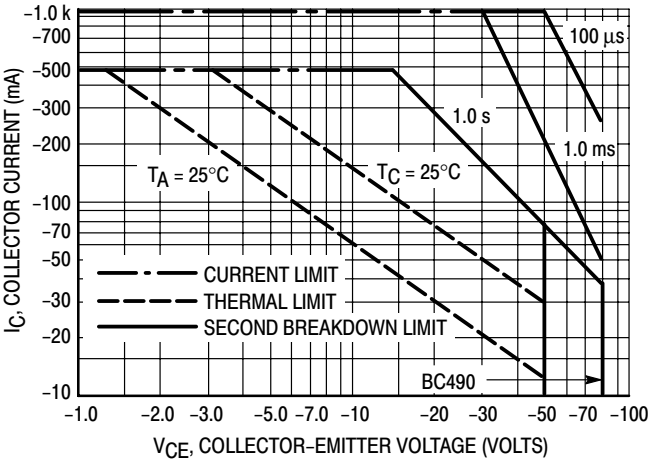


Figure 6. Active Region, Safe Operating Area

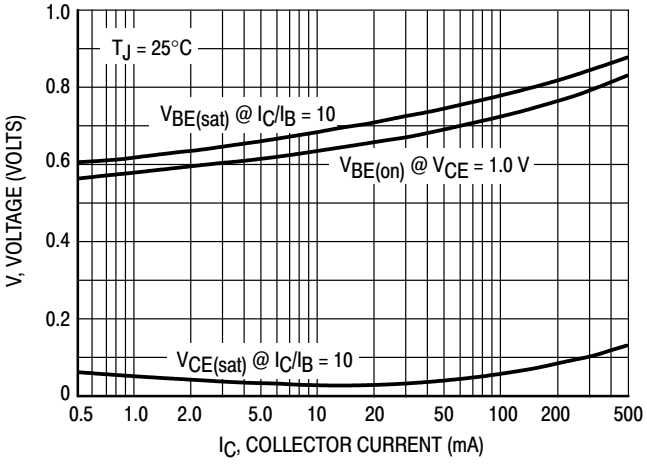


Figure 7. “On” Voltages

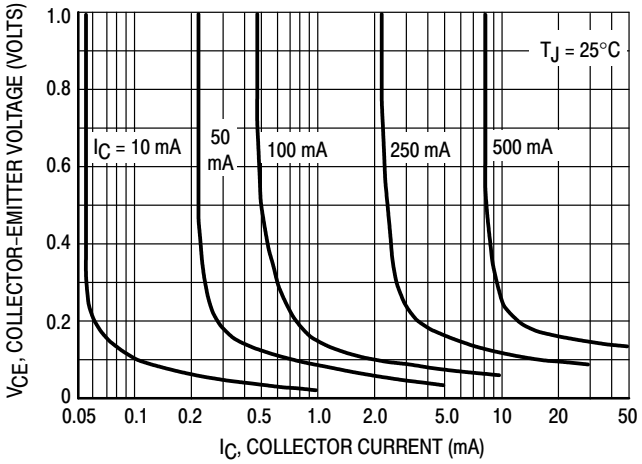


Figure 8. Collector Saturation Region

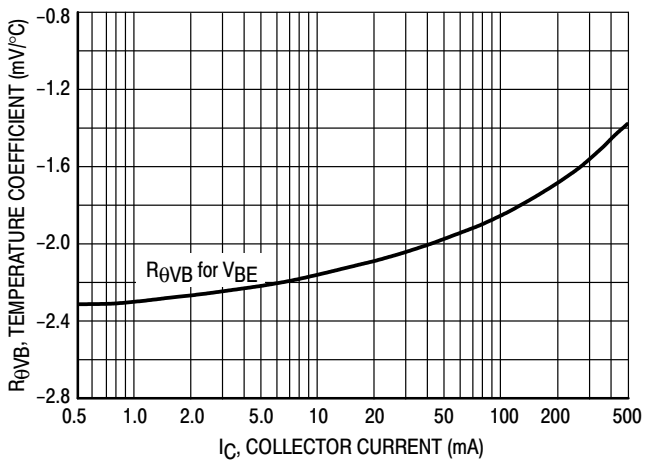


Figure 9. Base−Emitter Temperature Coefficient

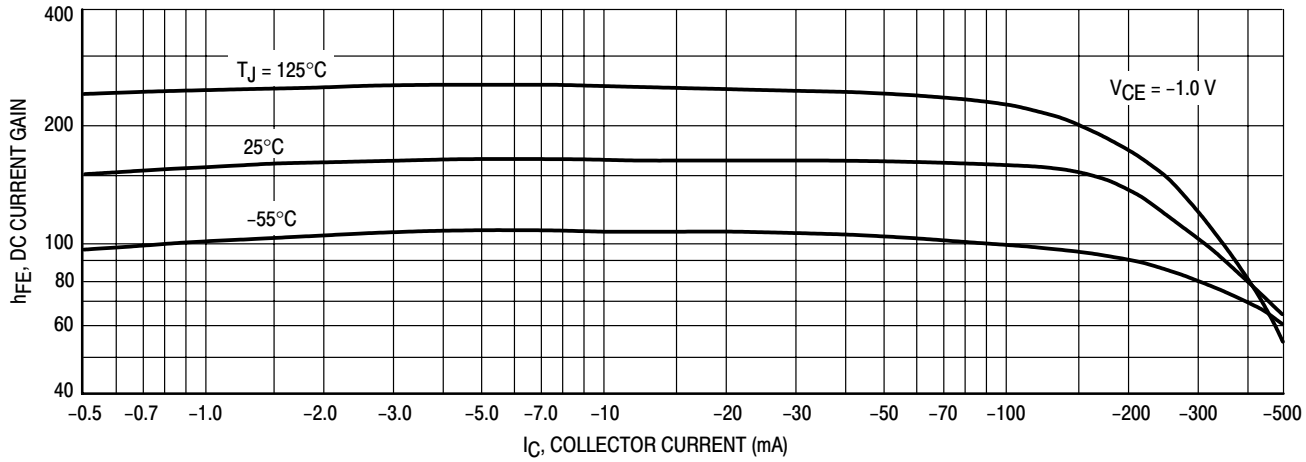


Figure 10. DC Current Gain

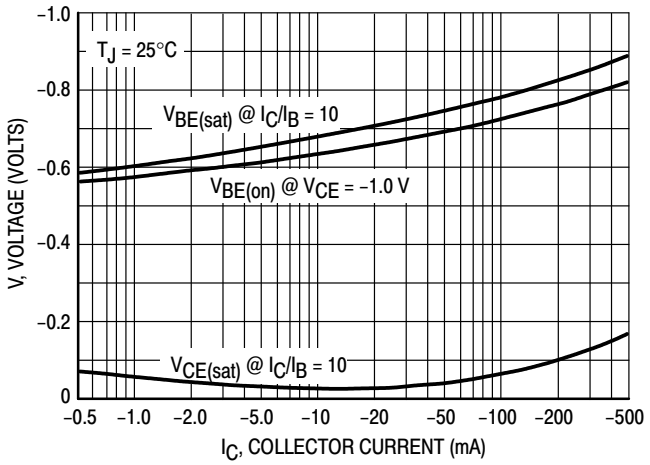


Figure 11. “On” Voltages

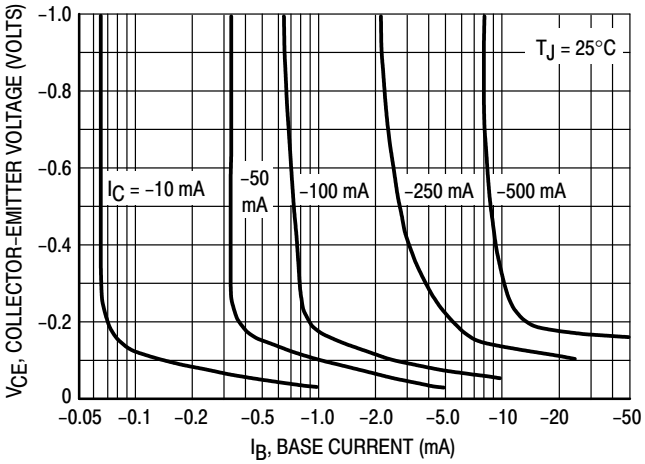


Figure 12. Collector Saturation Region

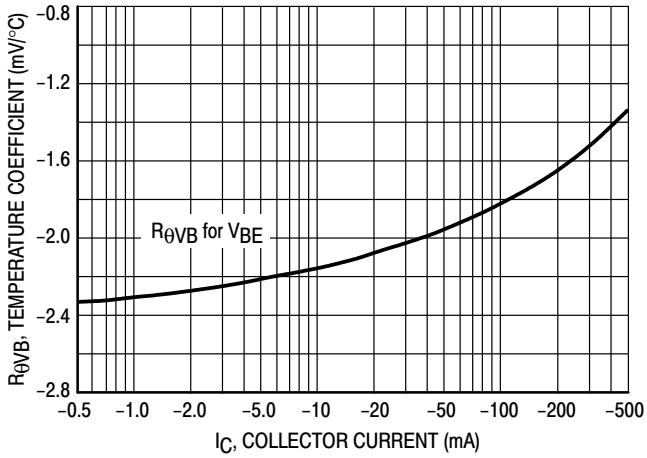
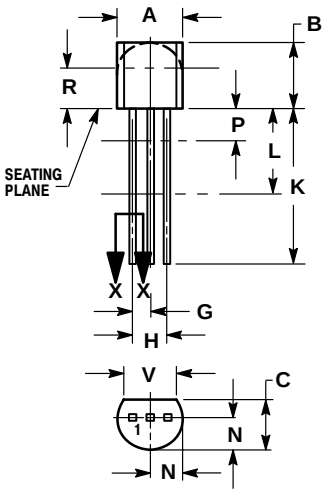
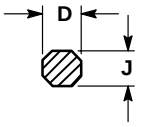


Figure 13. Base–Emitter Temperature Coefficient

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

Notes

PUBLICATION ORDERING INFORMATION

Literature Fulfillment:
Literature Distribution Center for ON Semiconductor
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BC490/D