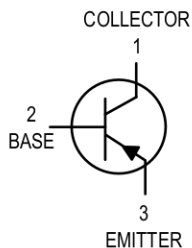


High Voltage Transistors

PNP Silicon

BC450,A



CASE 29-04, STYLE 17
TO-92 (TO-226AA)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	–100	Vdc
Collector–Base Voltage	V_{CBO}	–100	Vdc
Emitter–Base Voltage	V_{EBO}	–5.0	Vdc
Collector Current — Continuous	I_C	–300	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625 5.0	mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5 12	Watt mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	–55 to +150	$^\circ\text{C}$

THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ⁽¹⁾ ($I_C = -1.0 \text{ mAdc}$, $I_E = 0$)	$V_{(BR)CEO}$	–100	—	—	Vdc
Collector–Base Breakdown Voltage ($I_C = -100 \mu\text{A}$, $I_E = 0$)	$V_{(BR)CBO}$	–100	—	—	Vdc
Emitter–Base Breakdown Voltage ($I_E = -10 \mu\text{Adc}$, $I_C = 0$)	$V_{(BR)EBO}$	–5.0	—	—	Vdc
Collector Cutoff Current ($V_{CB} = -80 \text{ Vdc}$, $I_E = 0$)	I_{CBO}	—	—	–100	nAdc

ON CHARACTERISTICS*

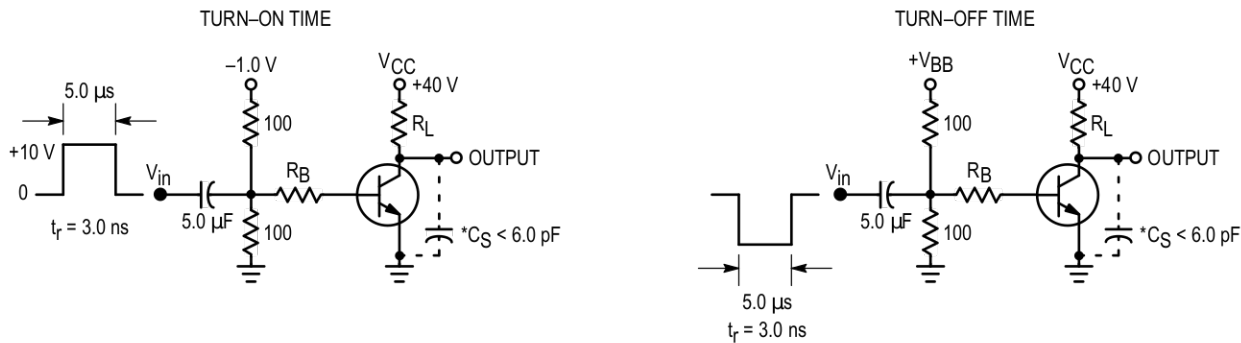
DC Current Gain ($I_C = -2.0 \text{ mA}$, $V_{CE} = -5.0 \text{ V}$)	BC450	h_{FE}	50	—	460	—
	BC450A		120	—	220	
($I_C = -10 \text{ mA}$, $V_{CE} = -5.0 \text{ V}$)	BC450		50	—	—	
	BC450A		100	—	—	
($I_C = -100 \text{ mA}$, $V_{CE} = -5.0 \text{ V}$)	BC450		50	—	—	
	BC450A		60	—	—	

1. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle 2.0%.

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

Characteristic	Symbol	Min	Typ	Max	Unit
ON CHARACTERISTICS⁽¹⁾ (Continued)					
Collector–Emitter Saturation Voltage (I _C = –100 mAdc, I _B = –10 mAdc)	V _{CE(sat)}	—	–0.125	–0.25	Vdc
Base–Emitter Saturation Voltage (I _C = –100 mAdc, I _B = –10 mAdc)	V _{BE(sat)}	—	–0.85	—	Vdc
Base–Emitter On Voltage (I _C = –2.0 mA, V _{CE} = –5.0 V) (I _C = –100 mA, V _{CE} = –5.0 V)*	V _{BE(on)}	–0.55 —	— –0.76	–0.7 –1.2	Vdc
DYNAMIC CHARACTERISTICS					
Current–Gain — Bandwidth Product (I _C = –50 mAdc, V _{CE} = –5.0 Vdc, f = 100 MHz)	f _T	100	200	—	MHz

1. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle 2.0%.



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

Figure 1. Switching Time Test Circuits

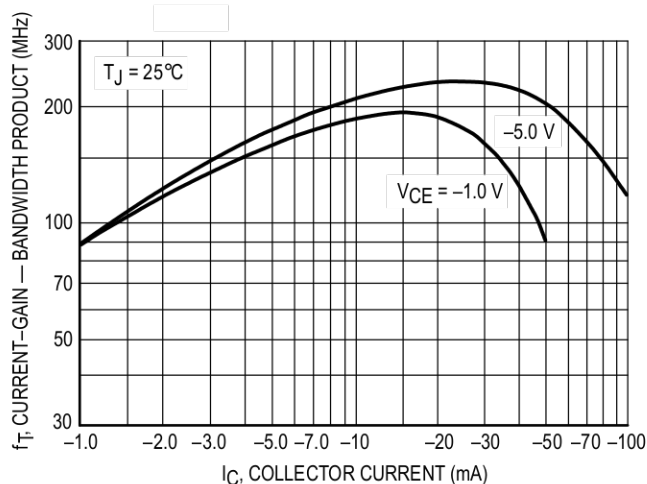


Figure 2. Current-Gain — Bandwidth Product

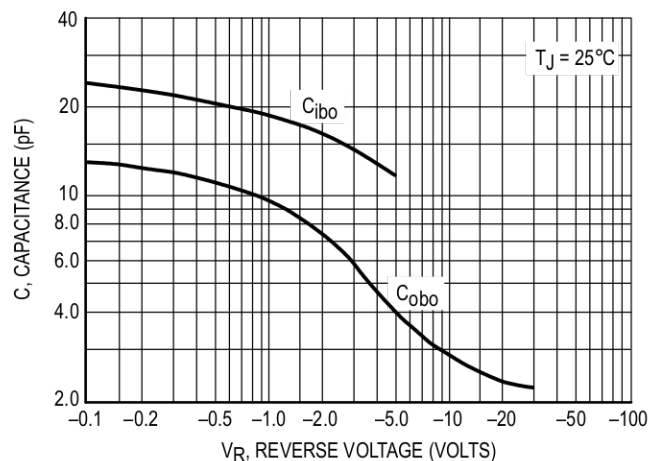


Figure 3. Capacitance

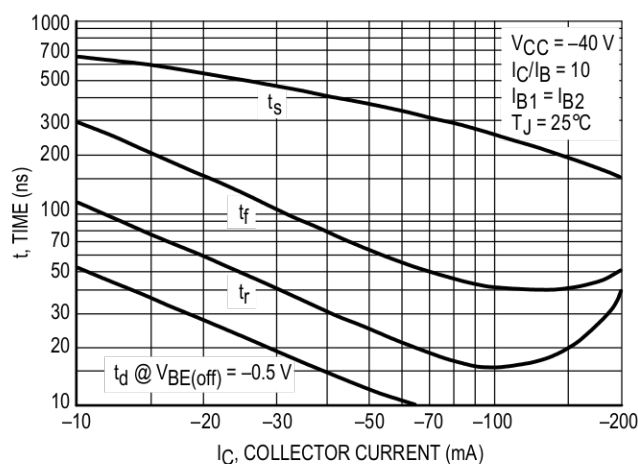


Figure 4. Switching Times

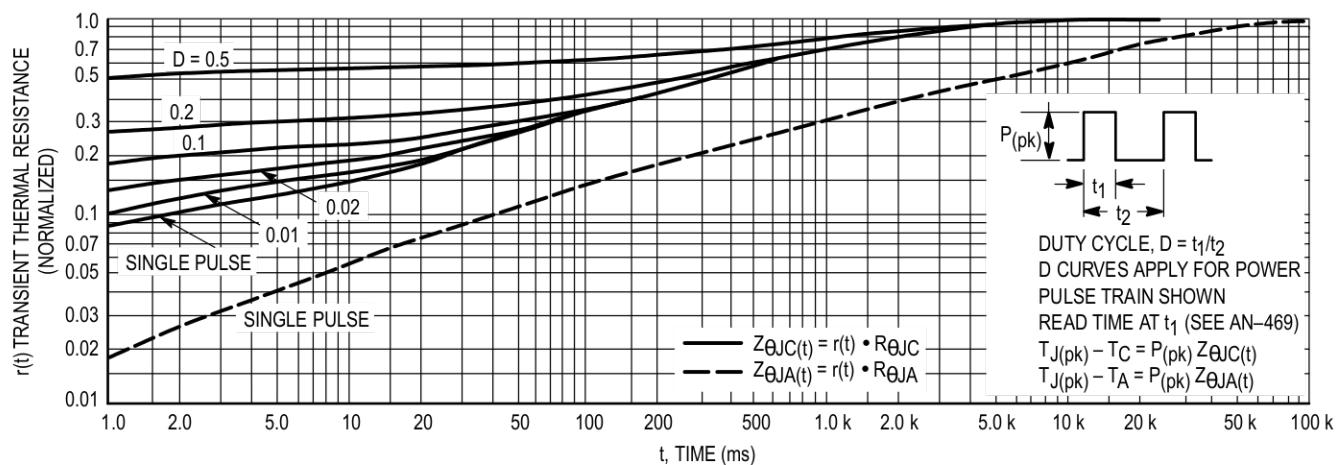


Figure 5. Thermal Response

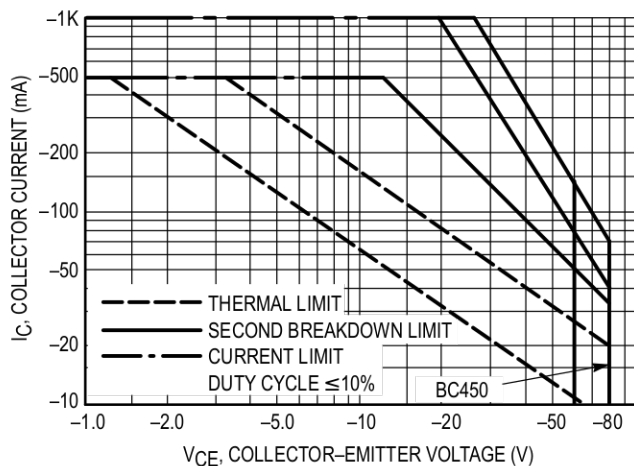


Figure 6. Active Region — Safe Operating Area

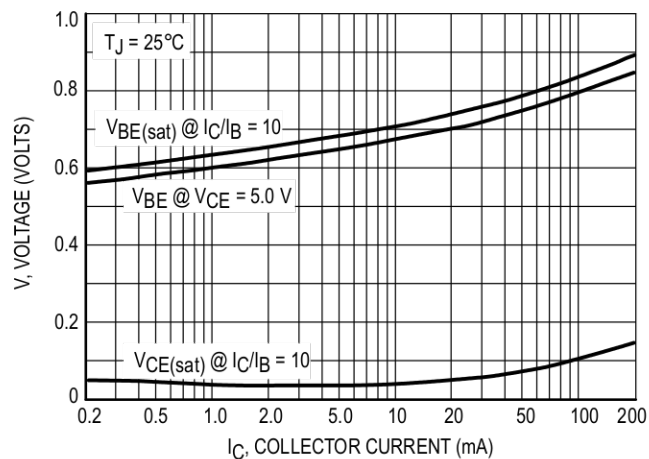


Figure 7. "On" Voltages

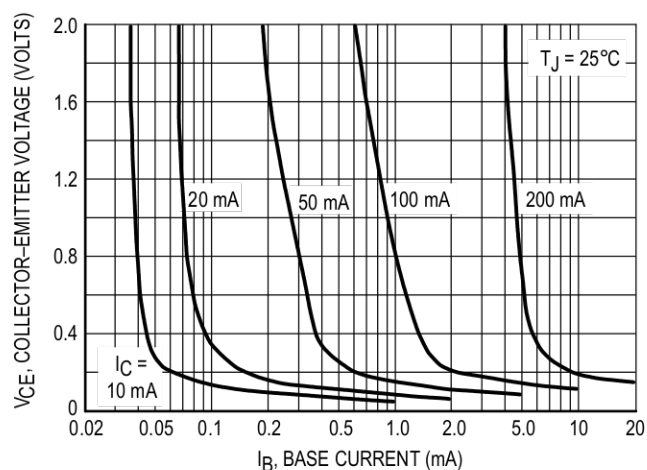


Figure 8. Collector Saturation Region

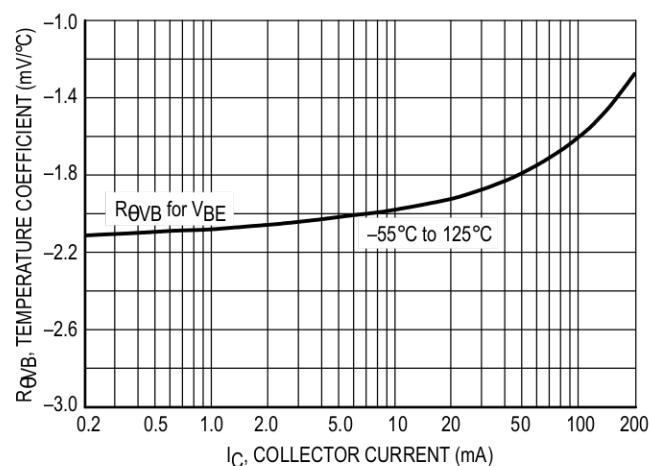


Figure 9. Base-Emitter Temperature Coefficient

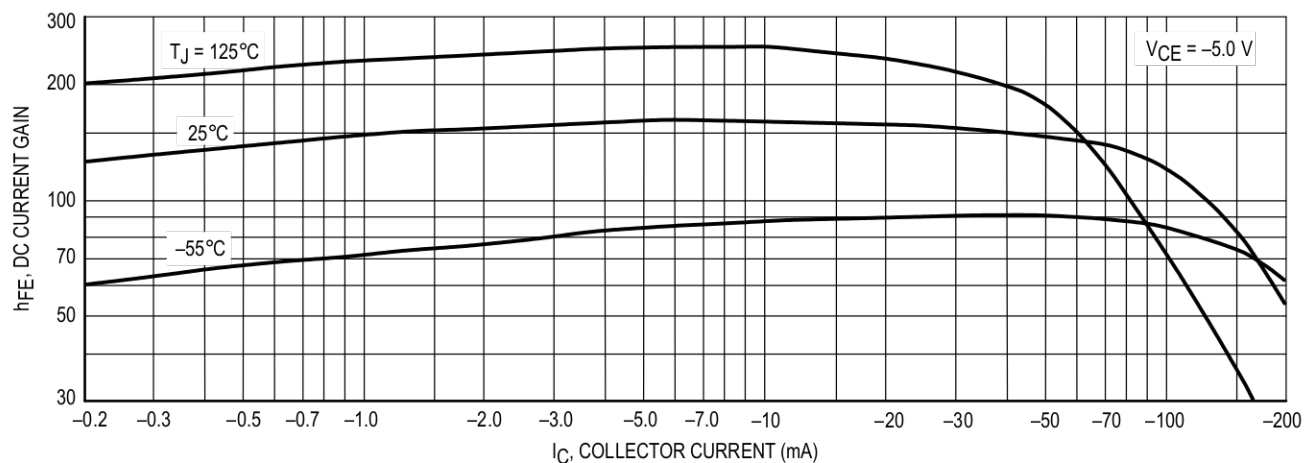


Figure 10. DC Current Gain

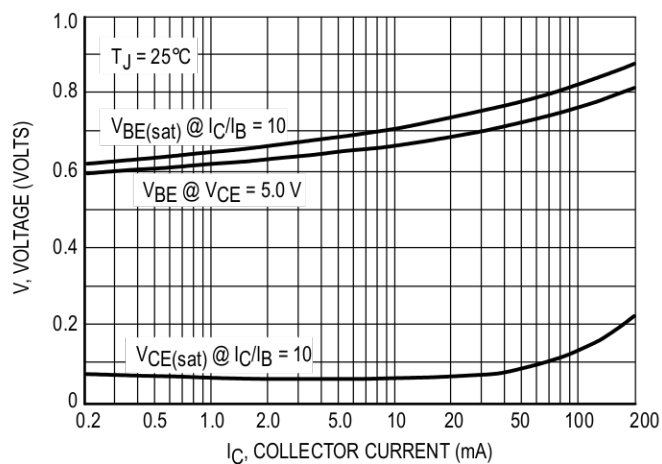


Figure 11. "On" Voltages

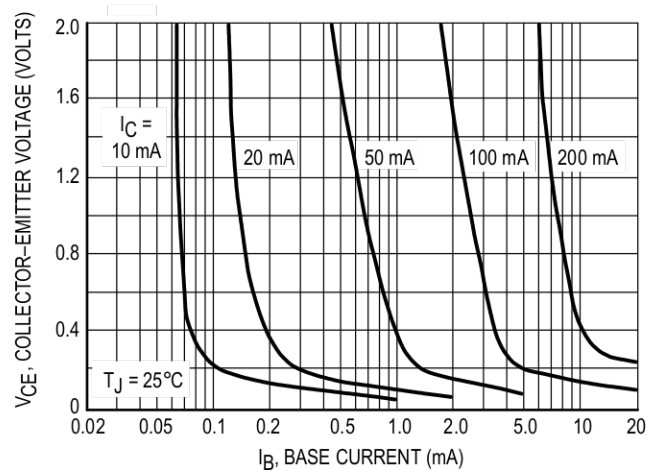


Figure 12. Collector Saturation Region

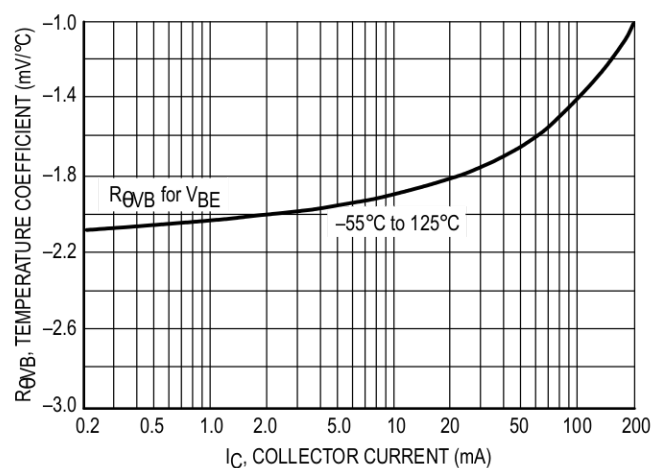
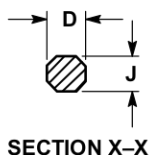
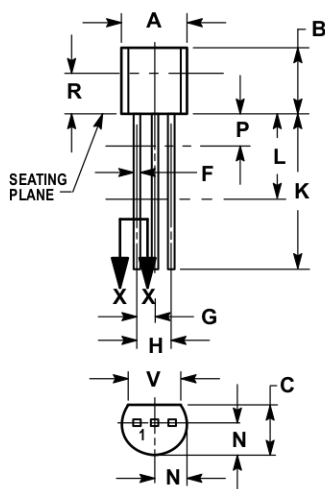


Figure 13. Base-Emitter Temperature Coefficient

PACKAGE DIMENSIONS



**CASE 029-04
(TO-226AA)
ISSUE AD**

NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. CONTOUR OF PACKAGE BEYOND DIMENSION R IS UNCONTROLLED.
4. DIMENSION F APPLIES BETWEEN P AND L. DIMENSION D AND J APPLY BETWEEN L AND K. MINIMUM LEAD DIMENSION IS UNCONTROLLED IN P AND BEYOND DIMENSION K MINIMUM.

DIM	INCHES		MILLIMETERS	
	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	0.022	0.41	0.55
F	0.016	0.019	0.41	0.48
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:

1. COLLECTOR
2. BASE
3. EMITTER

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