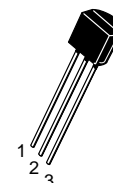
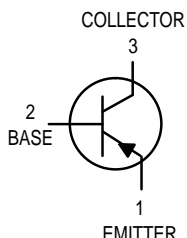


High Voltage Transistor

PNP Silicon

BF493S



CASE 29-04, STYLE 1
TO-92 (TO-226AA)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	–350	Vdc
Collector–Base Voltage	V_{CBO}	–350	Vdc
Emitter–Base Voltage	V_{EBO}	–6.0	Vdc
Collector Current — Continuous	I_C	–500	mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625 5.0	Watts mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5 12	Watts 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	Max	Unit
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OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage (1) ($I_C = -1.0$ mAdc, $I_B = 0$)	$V_{(BR)CEO}$	–350	—	Vdc
Collector–Base Breakdown Voltage ($I_C = -100$ μAdc , $I_E = 0$)	$V_{(BR)CBO}$	–350	—	Vdc
Emitter–Base Breakdown Voltage ($I_E = -100$ μAdc , $I_C = 0$)	$V_{(BR)EBO}$	–6.0	—	Vdc
Collector Cutoff Current ($V_{CE} = -250$ Vdc)	I_{CES}	—	–10	nAdc
Emitter Cutoff Current ($V_{EB} = -6.0$ Vdc, $I_C = 0$)	I_{EBO}	—	0.1	μAdc
Collector Cutoff Current ($V_{CB} = -250$ Vdc, $I_E = 0$, $T_A = 25^\circ\text{C}$) ($V_{CB} = -250$ Vdc, $I_E = 0$, $T_A = 100^\circ\text{C}$)	I_{CBO}	— —	–0.005 –1.0	μAdc

1. Pulse Test: Pulse Width ≤ 300 μs ; Duty Cycle $\leq 2.0\%$.

BF493S**ELECTRICAL CHARACTERISTICS** ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Max	Unit
----------------	--------	-----	-----	------

ON CHARACTERISTICS

DC Current Gain ($I_C = -1.0 \text{ mAdc}$, $V_{CE} = -10 \text{ Vdc}$) ($I_C = -10 \text{ mAdc}$, $V_{CE} = -10 \text{ Vdc}$)	h_{FE}	25 40	— —	—
Collector–Emitter Saturation Voltage ($I_C = -20 \text{ mAdc}$, $I_B = -2.0 \text{ mAdc}$)	$V_{CE(\text{sat})}$	—	-2.0	Vdc
Base–Emitter On Voltage ($I_C = -20 \text{ mA}$, $I_B = -2.0 \text{ mA}$)	$V_{BE(\text{sat})}$	—	-2.0	Vdc

DYNAMIC CHARACTERISTICS

Current–Gain — Bandwidth Product ($I_C = -10 \text{ mAdc}$, $V_{CE} = -20 \text{ Vdc}$, $f = 20 \text{ MHz}$)	f_T	50	—	MHz
Common–Emitter Feedback Capacitance ($V_{CB} = -100 \text{ Vdc}$, $I_E = 0$, $f = 1.0 \text{ MHz}$)	C_{re}	—	1.6	pF

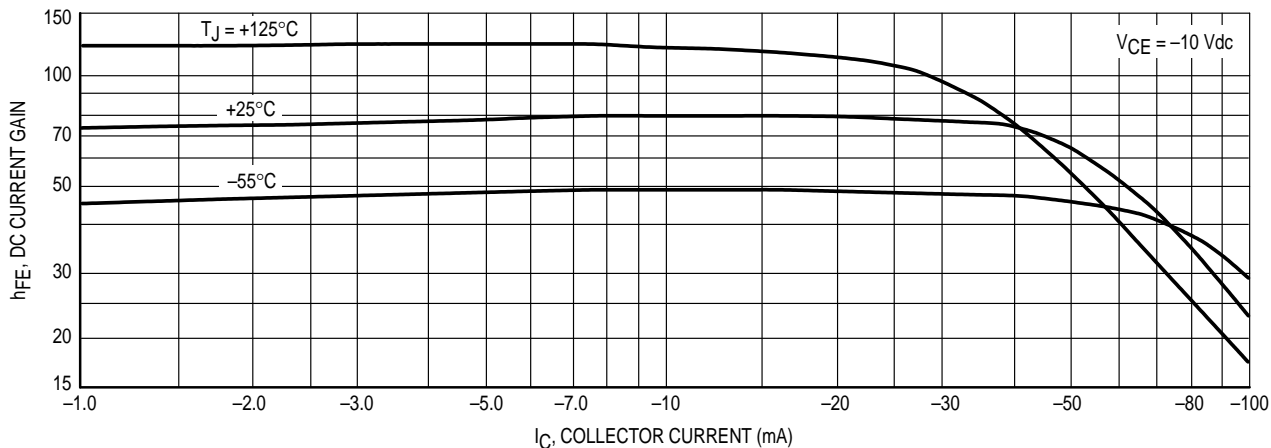


Figure 1. DC Current Gain

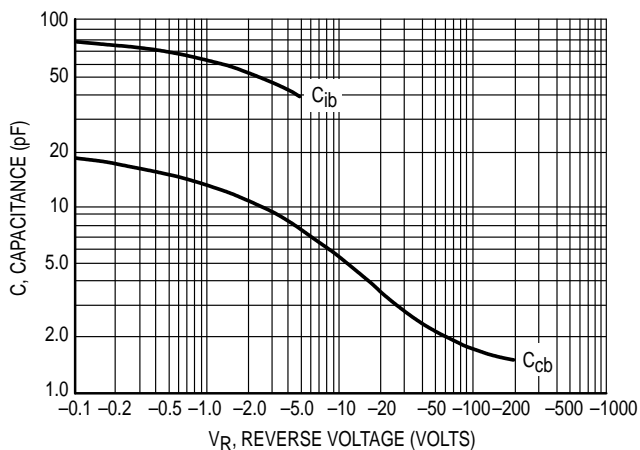


Figure 2. Capacitances

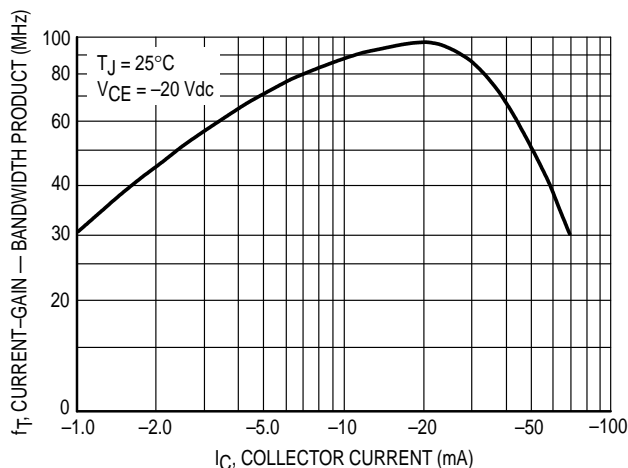


Figure 3. Current-Gain — Bandwidth Product

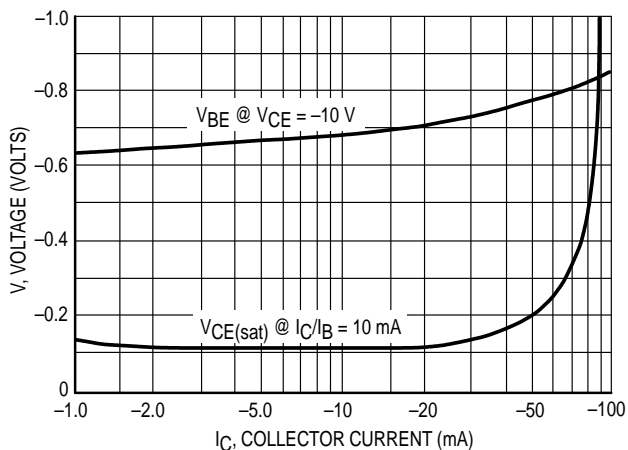


Figure 4. "On" Voltages

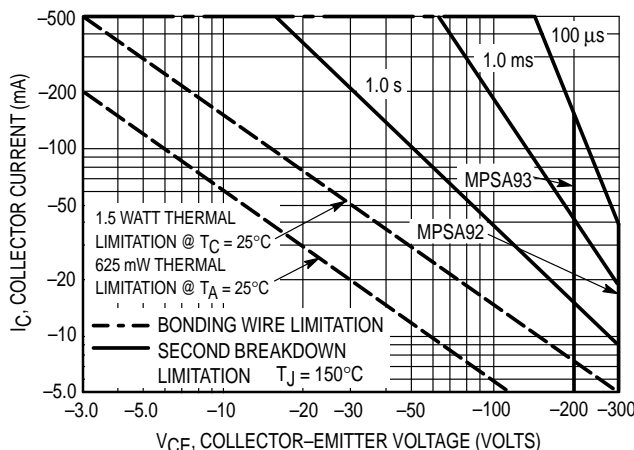
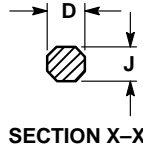
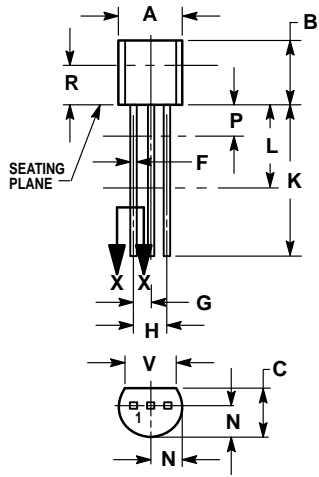


Figure 5. Active Region — Safe Operating Area

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

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