

MAXIMUM RATINGS

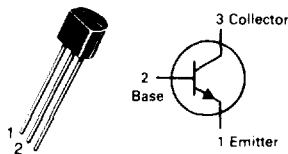
Rating	Symbol	BF 391	BF 392	BF 393	Unit
Collector-Emitter Voltage	V_{CEO}	200	250	300	Vdc
Collector-Base Voltage	V_{CBO}	200	250	300	Vdc
Emitter-Base Voltage	V_{EBO}	6.0			Vdc
Collector Current - Continuous	I_C	500			mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	625			mW
		5.0			mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.5			Watt
		12			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	$^\circ\text{C}/\text{W}$

BF391 thru BF393

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



HIGH VOLTAGE TRANSISTORS

NPN SILICON

Refer to MPSA42 for graphs.

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

Characteristic	Symbol	Min.	Max.	Unit	
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (1) ($I_C = 1.0 \text{ mAdc}, I_B = 0$)	BF 391 BF 392 BF 393	$V_{(BR)CEO}$	200 250 300	— — —	Vdc
Collector-Base Breakdown Voltage ($I_C = 100 \mu\text{Adc}, I_E = 0$)	BF 391 BF 392 BF 393	$V_{(BR)CBO}$	200 250 300	— — —	Vdc
Emitter-Base Breakdown Voltage ($I_E = 100 \mu\text{Adc}, I_C = 0$)	BF 391 BF 392 BF 393	$V_{(BR)EBO}$	6.0 6.0 6.0	— — —	Vdc
Collector Cutoff Current ($V_{CB} = 160 \text{ Vdc}, I_E = 0$) ($V_{CB} = 200 \text{ Vdc}, I_E = 0$) ($V_{CB} = 200 \text{ Vdc}, I_E = 0$)	BF 391 BF 392 BF 393	I_{CBO}	— — —	0.1 0.1 0.1	μAdc
Emitter Cutoff Current ($V_{EB} = 4.0 \text{ Vdc}, I_C = 0$) ($V_{EB} = 6.0 \text{ Vdc}, I_C = 0$) ($V_{EB} = 6.0 \text{ Vdc}, I_C = 0$)	BF 391 BF 392 BF 393	I_{EBO}	— — —	0.1 0.1 0.1	μAdc
ON CHARACTERISTICS					
DC Current Gain ($I_C = 1.0 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$) ($I_C = 10 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$)	All Types All Types	h_{FE}	25 40	— —	—
Collector-Emitter Saturation Voltage ($I_C = 20 \text{ mAdc}, I_B = 2.0 \text{ mAdc}$)		$V_{CE(sat)}$		2.0	Vdc
Base-Emitter Saturation Voltage ($I_C = 20 \text{ mA}, I_B = 2.0 \text{ mA}$)		$V_{BE(sat)}$		2.0	Vdc
SMALL SIGNAL 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 ($V_{CB} = 60 \text{ Vdc}, I_E = 0, f = 1.0 \text{ MHz}$)		C_{re}		2.0	pF

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