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BF844
BF845

CASE 29-02, STYLE 1
TO-92 (TO-226AA)

HIGH VOLTAGE TRANSISTORS

NPN SILICON

Refer to MPSA44 for graphs.

MAXIMUM RATINGS

Rating	Symbol	BF 844	BF 845	Unit
Collector-Emitter Voltage	V_{CEO}	400	350	Vdc
Collector-Base Voltage	V_{CBO}	450	400	Vdc
Emitter-Base Voltage	V_{EBO}	6.0		Vdc
Collector Current – Continuous	I_C	300		mAdc
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		Watt 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 Case	$R_{\theta JC}$	83.3	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JC}$	200	°C/W

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage(1) (I_C = 1.0 mAdc, I_B = 0)	 BF844 BF845	$V_{(BR)CEO}$	 400 350	 — —	Vdc
Collector-Emitter Breakdown Voltage (I_C = 100 μAdc, V_{BE} = 0)	 BF844 BF845	$V_{(BR)CES}$	 450 400	 — —	Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	 BF844 BF845	$V_{(BR)CBO}$	 450 400	 — —	Vdc
Emitter-Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)	Both Types	$V_{(BR)EBO}$	6.0	—	Vdc
Collector Cutoff Current (V_{CB} = 400 Vdc, I_E = 0) (V_{CB} = 320 Vdc, I_E = 0)	 BF844 BF845	I_{CBO}	 — —	 0.1 0.1	μAdc
Collector Cutoff Current (V_{CE} = 400 Vdc, V_{BE} = 0) (V_{CE} = 320 Vdc, V_{BE} = 0)	 BF844 BF845	I_{CES}	 — —	 500 500	nAdc
Emitter Cutoff Current (V_{BE} = 4.0 Vdc, I_C = 0)	Both Types	I_{EBO}	—	0.1	μAdc
ON CHARACTERISTICS					
DC Current Gain (1) (I_C = 1.0 mAdc, V_{CE} = 10 Vdc) (I_C = 10 mAdc, V_{CE} = 10 Vdc) (I_C = 50 mAdc, V_{CE} = 10 Vdc) (I_C = 100 mAdc, V_{CE} = 10 Vdc)	 Both Types Both Types Both Types Both Types	h_{FE}	 40 50 45 20	 — 200 — —	—
Collector-Emitter Saturation Voltage (1) (I_C = 1.0 mAdc, I_B = 0.1 mAdc) (I_C = 10 mAdc, I_B = 1.0 mAdc) (I_C = 50 mAdc, I_B = 5.0 mAdc)	 Both Types Both Types Both Types	$V_{CE(sat)}$	 — — —	 0.4 0.5 0.75	Vdc
Base-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1.0 mAdc)		$V_{BE(sat)}$	—	0.75	Vdc

(1) Pulse Test: Pulse Width ≤ 300 μS — Duty Cycle ≤ 2.0%.

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

Characteristic		Symbol	Min	Max	Unit
DYNAMIC CHARACTERISTICS					
High Frequency Current Gain (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 10 MHz)	Both Types	$\|h_{fe}\|$	2.0	—	
Collector-Base Capacitance (V_{CB} = 20 Vdc, I_E = 0, f = 1.0 MHz)	Both Types	C_{ob}	—	6.0	pF
Emitter-Base Capacitance (V_{EB} = 0.5 Vdc, I_C = 0, f = 1.0 MHz)	Both Types	C_{ib}	—	110	pF
Turn-On Time (V_{CC} = 150 Vdc, $V_{BE(off)}$ = 4.0 V, I_C = 30 mAdc, I_{B1} = 3.0 mAdc)	Both Types	t_{on}	—	0.6	µs
Turn-Off Time (V_{CC} = 150 Vdc, I_C = 30 mAdc, I_{B1} = I_{B2} = 3.0 mAdc)	Both Types	t_{off}	—	10	µs

FIGURE 1 — DC CURRENT GAIN

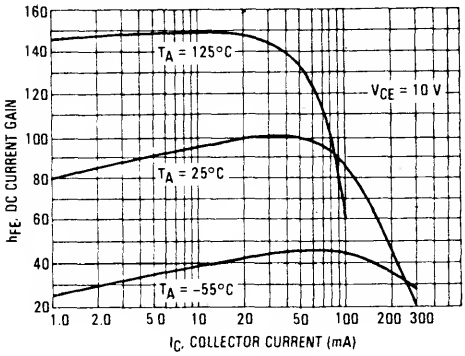

FIGURE 2 — COLLECTOR SATURATION REGION