BFW43

CASE 22-03, STYLE 1
TO-18 (TO-206AA)

BFW44

CASE 79, STYLE 1
TO-39 (TO-205AD)

HIGH VOLTAGE TRANSISTOR

PNP SILICON

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MAXIMUM RATINGS

Rating	Symbol	BFW 43	BFW 44	Unit
Collector-Emitter Voltage	V_{CEO}	150	150	Vdc
Collector-Base Voltage	V_{CBO}	150	150	Vdc
Emitter-Base Voltage	V_{EBO}	6	6	Vdc
Collector Current – Continuous	I_C	0.1		Adc
Total Device Dissipation @T_A = 25°C Derate above 25°C	P_D	0.4 2.66	0.7 4.0	Watt mW/°C
Total Device Dissipation @T_C = 25°C Derate above 25°C	P_D	1.4 8.0	2.5 14.3	Watt mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	−65 to +200		°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max		Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	125	70	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	438	250	°C/W

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (I_C = 2 mA, I_B = 0)	$V_{(BR)CEO}$	150			Vdc
Collector-Base Breakdown Voltage (I_C = 100 μAdc, I_E = 0)	$V_{(BR)CBO}$	150			Vdc
Emitter-Base Breakdown Voltage (I_E = 100 μAdc, I_C = 0)	$V_{(BR)EBO}$	6			Vdc
Collector Cutoff Current (V_{CB} = 100 V, I_E = 0)	I_{CBO}			10	nA
Collector-Emitter Cutoff Current (V_{CB} = 100 V, I_B = 0) T_A = 125°C	I_{CEO}			10	μA
ON CHARACTERISTICS(1)					
DC Current Gain (I_C = 1 mA, V_{CE} = 10 V) (I_C = 10 mA, V_{CE} = 10 V) (I_C = 10 μA, V_{CE} = 10 V, T_A = −55°C)	h_{FE}	40 40	30		
Collector-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1 mAdc)	$V_{CE(sat)}$		0.15	0.5	Vdc
Base-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1 mAdc)	$V_{BE(sat)}$		0.7	0.9	Vdc
DYNAMIC CHARACTERISTICS					
Current Gain Bandwidth Product (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 10 MHz)	f_T	60	110	200	MHz
Output Capacitance (I_E = 0, V_{CB} = 20 Vdc, f = 1 MHz)	C_{obo}	—	3.5	7	pF
Turn On Time (I_{B1} = 10 mA, I_C = 50 mAdc, V_{CC} = 100 Vdc)	t_{on}	—	100	—	ns
Turn Off Time (I_{B2} = 10 mAdc, I_C = 50 mAdc, V_{CC} = 100 Vdc)	t_{off}	—	400	—	ns

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%.

FIGURE 1 – CURRENT-GAIN–BANDWIDTH PRODUCT

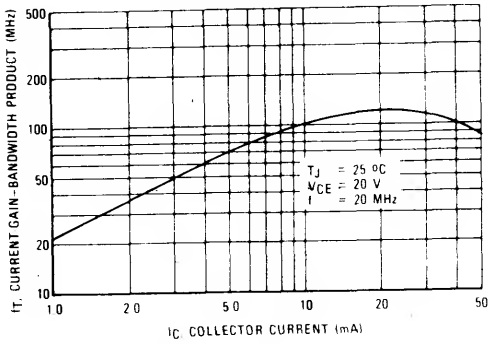


FIGURE 2 – TURN-ON TIME

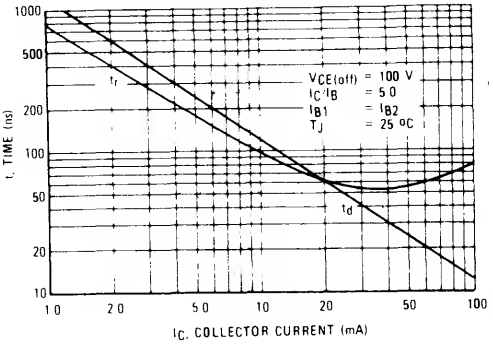


FIGURE 3 – TURN-OFF TIME

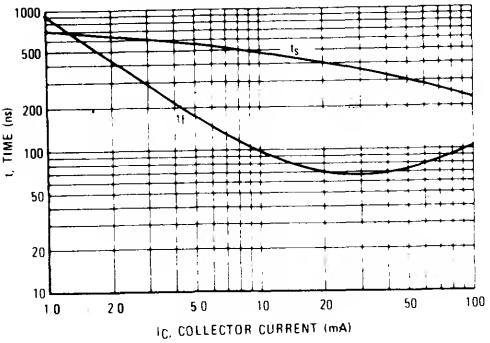
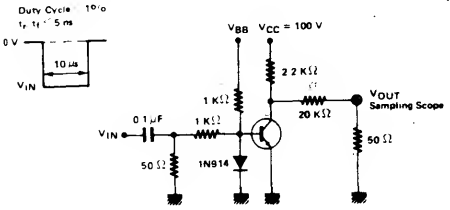


FIGURE 4 – SWITCHING TIME TEST CIRCUIT



	VIN	VBB
TON	-10.6V	
TOFF	-20V	+9.2V