BFX48

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

SWITCHING TRANSISTOR

PNP SILICON

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Refer to 2N869A for graphs.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	30	Vdc
Collector-Base Voltage	V_{CBO}	30	Vdc
Emitter-Base Voltage	V_{EBO}	5	Vdc
Collector Current – Continuous	I_C	0.1	Amp
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	0.36 2.06	Watt mW/°C
Total Device Dissipation @ T_C = 25°C T_C = 100°C Derate above 25°C	P_D	1.2 0.686 6.86	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	$R_{\theta JC}$	146	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	486	°C/W

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (I_C = 10 mA)(1)	$V_{(BR)CEO}$	30		V
Collector-Base Breakdown Voltage (I_C = 10 μA)	$V_{(BR)CBO}$	30		V
Emitter-Base Breakdown Voltage (I_E = 10 μA)	$V_{(BR)EBO}$	5		V
Collector Cutoff Current (V_{CE} = 20 V) (V_{CE} = 20 V, T_A = 125°C)	I_{CES}		15 15	nA μA
ON CHARACTERISTICS				
DC Current Gain (I_C = 10 μA, V_{CE} = 1 V) (I_C = 100 μA, V_{CE} = 1 V) (I_C = 10 mA, V_{CE} = 1 V) (I_C = 50 mA, V_{CE} = 1 V) (I_C = 10 mA, V_{CE} = 1 V, T_A = −55°C)	h_{FE}	40 70 90 20 30		
Collector-Emitter Saturation Voltage (I_C = 1 mA, I_B = 0.1 mA) (I_C = 10 mA, I_B = 1 mA) (I_C = 50 mA, I_B = 5 mA)(1)	$V_{CE(sat)}$		0.13 0.14 0.3	V
Emitter-Base Saturation Voltage (I_C = 1 mA, I_B = 0.1 mA) (I_C = 10 mA, I_B = 1 mA) (I_C = 50 mA, I_B = 5 mA)(1)	$V_{BE(sat)}$		0.75 0.9 1.1	V
SMALL SIGNAL CHARACTERISTICS				
Current Gain — Bandwidth Product (I_C = 10 mA, V_{CE} = 20 V, f = 100 MHz)	f_T	400		MHz
Output Capacitance (V_{CB} = 10 V)	C_{ob}		3.5	pF
Input Capacitance (V_{EB} = 0.5 V)	C_{ib}		5.5	pF
Noise Figure (I_C = 1 mA, V_{CE} = 20 V, f = 100 MHz)	NF		6	dB
Turn On Time (I_C = 50 mA, I_{B1} = 5 mA)	t_{on}		50	ns
Turn Off Time (I_C = 50 mA, I_{B1} = I_{B2} = 5 mA)	t_{off}		160	ns
Collector-Base Time Constant (I_C = 10 mA, V_{CE} = 20 V, f = 80 MHz)	$r_{b'C_C}$		40	ps

(1) Pulsed: Pulse Duration = 300 μs, Duty Cycle = 1%.