BSX29

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

SWITCHING TRANSISTOR

PNP SILICON

Refer to 2N869A for graphs.

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	12	Vdc
Collector-Base Voltage	V_{CBO}	12	Vdc
Emitter-Base Voltage	V_{EBO}	5	Vdc
Collector Current – Continuous	I_C	200	Amp
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D 2.06	.36	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)	$V_{(BR)CEO}$	12		V
Collector-Emitter Breakdown Voltage (I_C = 10 μA)	$V_{(BR)CES}$	12		V
Collector-Base Breakdown Voltage (I_C = 10 μA)	$V_{(BR)CBO}$	12		V
Emitter-Base Breakdown Voltage (I_E = 100 μA)	$V_{(BR)EBO}$	4		V
Collector Cutoff Current (V_{CE} = 6 V, V_{BE} = 0) (V_{CE} = 6 V, V_{BE} = 0, T_A = 85°C)	I_{CES}		80 5	nA μA
ON CHARACTERISTICS				
Collector-Emitter Saturation Voltage (I_C = 10 mA, I_B = 1 mA) (I_C = 30 mA, I_B = 3 mA) (I_C = 100 mA, I_B = 10 mA)	$V_{CE(sat)}$		0.15 0.2 0.5	V
Emitter-Base Saturation Voltage (I_C = 10 mA, I_B = 1 mA) (I_C = 30 mA, I_B = 3 mA) (I_C = 100 mA, I_B = 10 mA)	$V_{BE(sat)}$	0.78 0.85	0.98 1.2 1.7	V
DC Current Gain (I_C = 10 mA, V_{CE} = 0.3 V)(1) (I_C = 30 mA, V_{CE} = 0.5 V)(1) (I_C = 100 mA, V_{CE} = 1 V)(1)	h_{FE}	25 30 20	 120 	
Collector-Emitter Saturation Voltage (I_C = 30 mA, I_B = 3 mA, T_A = 85°C)	$V_{CE(sat)}$		0.4	V
SMALL SIGNAL CHARACTERISTICS				
Small Signal Current Gain (I_C = 30 mA, V_{CE} = 10 V, f = 100 MHz)	h_{fe}	4		
Output Capacitance (V_{CB} = 5 V)	C_{ob}		6	pF
Input Capacitance (V_{EB} = 0.5 V)	C_{ib}		6	pF
Turn On Time (I_C = 30 mA, I_{B1} = 1.5 mA)	t_{on}		60	ns
Turn Off Time (I_C = 30 mA, I_{B1} = I_{B2} = 1.5 mA)	t_{off}		90	ns

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