BSX39

CASE 318-02/03, STYLE 6
SOT-23 (TO-236AA/AB)

SWITCHING TRANSISTOR

NPN SILICON

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	14	Vdc
Collector Current — Continuous	I_C	200	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
*Total Device Dissipation, T_A = 25°C Derate above 25°C	P_D	350 2.8	mW mW/°C
Storage Temperature	T_{stg}	150	°C
*Thermal Resistance Junction to Ambient	$R_{\theta JA}$	357	°C/W

*Package mounted on 99.5% alumina 10 x 8 x 0.6 mm.

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (I_C = 2.0 mA)	$V_{(BR)CEO}$	14	—	Vdc
Collector Cutoff Current (V_{CB} = 12 V)	I_{CBO}	—	100	nA
Collector Cutoff Current (V_{CE} = 12 V) (V_{CE} = 12 V, T_J = 125°C)	I_{CES}	— —	100 5.0	nA μA
ON CHARACTERISTICS				
DC Current Gain (I_C = 1.0 mA, V_{CE} = 1.0 V) (I_C = 10 mA, V_{CE} = 1.0 V) (I_C = 50 mA, V_{CE} = 1.0 V)	h_{FE}	 25 40 25	 — 200 —	—
Collector-Emitter Saturation Voltage (I_C = 10 mA, I_B = 1.0 mA) (I_C = 50 mA, I_B = 5.0 mA)	$V_{CE(sat)}$	 — —	 250 400	mV
Base-Emitter Saturation Voltage (I_C = 10 mA, I_B = 1.0 mA) (I_C = 50 mA, I_B = 5.0 mA)	$V_{BE(sat)}$	 700 —	 850 1.2	mV V
SWITCHING CHARACTERISTICS				
Turn-On Time (I_C = 10 mA, I_B = 3.0 mA)	t_{on}	—	12	ns
Turn-Off Time (I_C = 10 mA, I_{B1} = I_{B2} = 3.0 mA)	t_{off}	—	18	ns