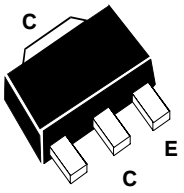
SOT89 PNP SILICON PLANAR MEDIUM POWER TRANSISTORS

ISSUE 3 – FEBRUARY 1996

BSR31
BSR33

COMPLEMENTARY TYPE – BSR31 – BSR41
BSR33 – BSR43

PARTMARKING DETAILS – BSR31 – BR2
BSR33 – BR4



SOT89

ABSOLUTE MAXIMUM RATINGS.

PARAMETER	SYMBOL	BSR31	BSR33	UNIT
Collector-Base Voltage	V_{CBO}	-70	-90	V
Collector-Emitter Voltage	V_{CEO}	-60	-80	V
Emitter-Base Voltage	V_{EBO}	-5		V
Peak Pulse Current	I_{CM}	-2		A
Continuous Collector Current	I_C	-1		A
Power Dissipation at T_{amb}=25°C	P_{TOT}	1		W
Operating and Storage Temperature Range	T_j:T_{stg}	-65 to +150		°C

ELECTRICAL CHARACTERISTICS (at T_{amb} = 25°C unless otherwise stated).

PARAMETER	SYMBOL	MIN.	MAX.	UNIT	CONDITIONS.
Collector-Base Breakdown Voltage BSR31 BSR33	$V_{(BR)CBO}$	-70 -90		V V	I_C=-100μA I_C=-100μA
Collector-Emitter Breakdown Voltage BSR31 BSR33	$V_{(BR)CEO}$	-60 -80		V	I_C=-10mA I_C=-10mA
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5		V	I_E=-10mA
Collector Cut-Off Current	I_{CBO}		-100 -50	nA μA	V_{CB}=-60V V_{CB}=-60V, T_{amb}=125°C
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		-0.25 -0.5	V V	I_C =-150mA, I_B=-15mA* I_C =-500mA, I_B=-50mA*
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		-1.0 -1.2	V V	I_C=-150mA, I_B=-15mA* I_C =-500mA, I_B=-50mA*
Static Forward Current Transfer Ratio	h_{FE}	30 100 50	300		I_C =-100μA, V_{CE}=-5V* I_C =-100mA, V_{CE} =-5V* I_C =-500mA, V_{CE} =-5V*
Collector Capacitance	C_c		20	pF	V_{CB} =-10V, f =1MHz
Emitter Capacitance	C_e		120	pF	V_{EB} =-0.5V, f =1MHz
Transition Frequency	f_T	100		MHz	I_C=-50mA, V_{CE}=-10V f =35MHz
Turn-On Time	T_{on}		500	ns	V_{CC} =-20V, I_C =-100mA I_{B1} =-I_{B2} =-5mA
Turn-Off Time	T_{off}		650	ns	

*Measured under pulsed conditions. Pulse width=300μs. Duty cycle ≤2%
Spice parameter data is available upon request for this device