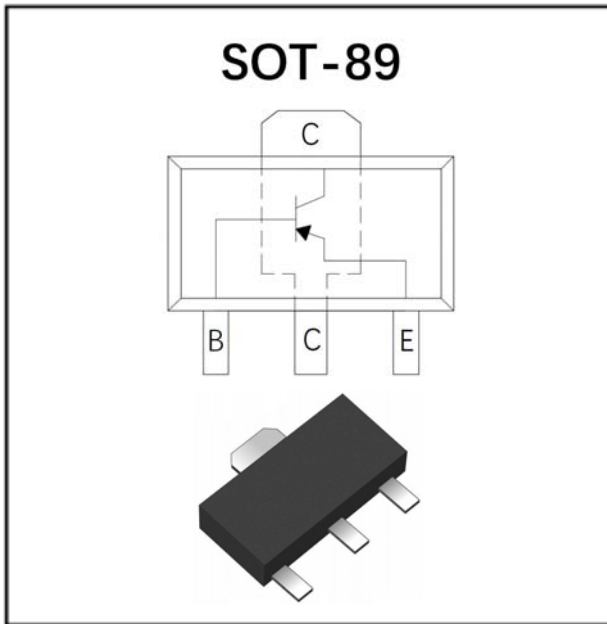


PNP General Purpose Amplifier



Features

- Epoxy meets UL-94 V-0 flammability rating
- Halogen free available upon request by adding suffix "HF"
- Moisture Sensitivity Level 1
- Low collector-emitter saturation voltage

Mechanical Data

- **Package:** SOT-89
- Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** BR4

■ Maximum Ratings (Ta=25°C unless otherwise noted)

Item	Symbol	Unit	Conditions	Value
Minimum Collector-Emitter Voltage	V_{CEO}	V	$I_C = -1mA, I_B = 0$	-80
Minimum Collector-Base Voltage	V_{CBO}	V	$I_C = -100\mu A, I_E = 0$	-90
Minimum Emitter-Base Voltage	V_{EBO}	V	$I_E = -100\mu A, I_C = 0$	-5
Collector Current	I_C	A		-1
Collector Power Dissipation	P_C	mW		500
Thermal Resistance From Junction To Ambient	$R_{\theta JA}$	°C/W		250
Operation Junction Temperature	T_j	°C		-55 to +150
Storage Temperature	T_{stg}	°C		-55 to +150



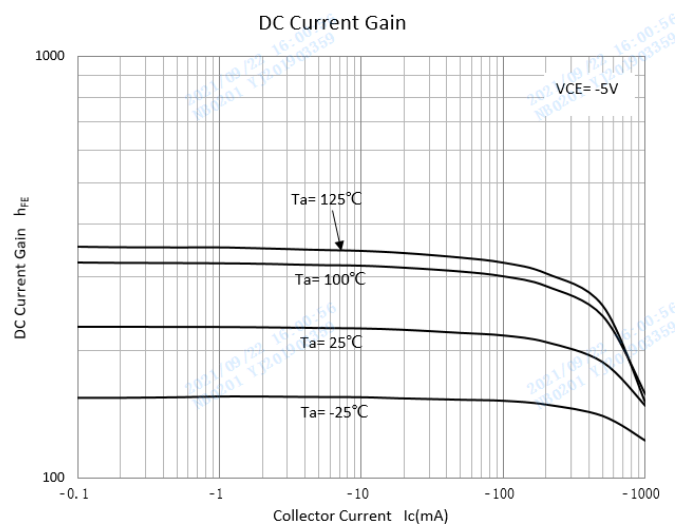
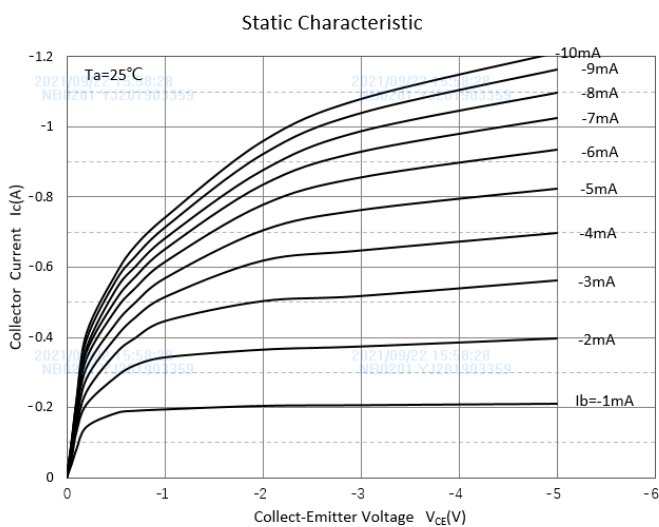
■ Electrical Characteristics (Ta=25°C unless otherwise noted)

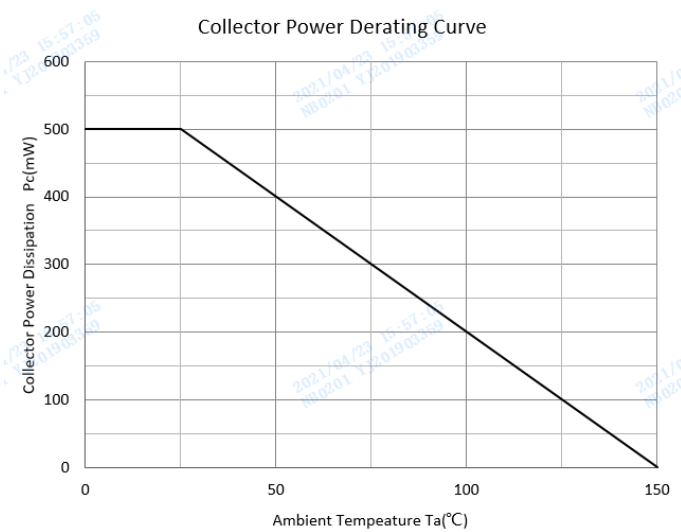
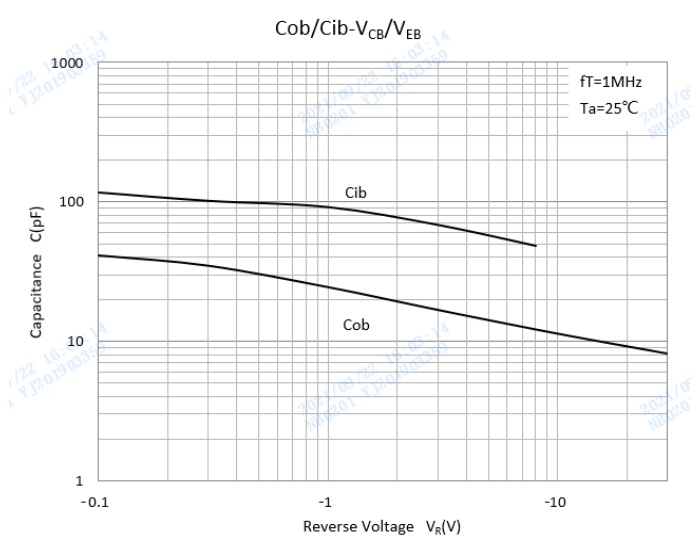
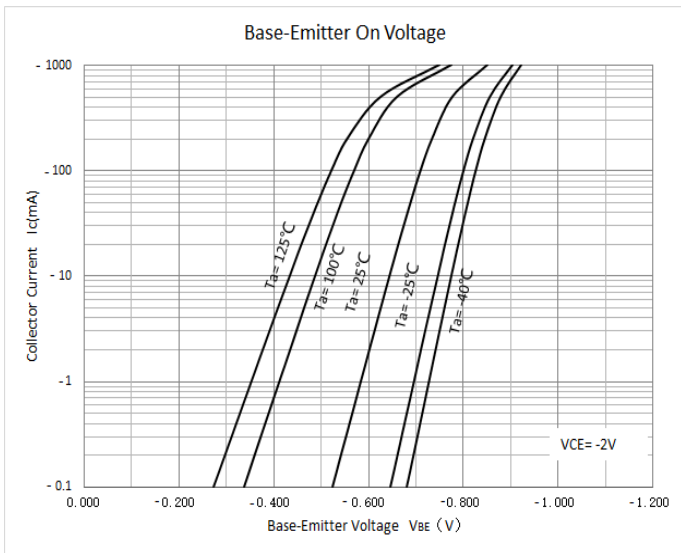
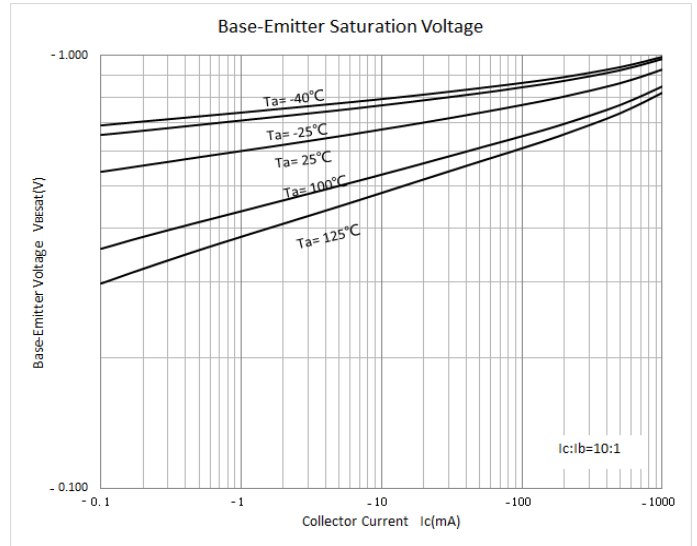
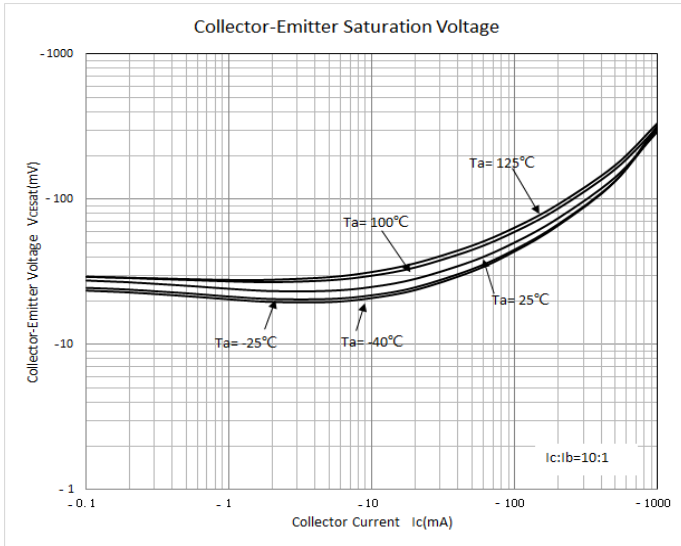
Item	Symbol	Unit	Conditions	Min	TYP	Max
Collector-Emitter Voltage	V_{CEO}	V	$I_C=-1mA, I_B=0$	-80		
Collector-Base Voltage	V_{CBO}	V	$I_C=-100\mu A, I_E=0$	-90		
Emitter-Base Voltage	V_{EBO}	V	$I_E=-100\mu A, I_C=0$	-5		
Collector-Base cut-off current	I_{CBO}	nA	$V_{CB}=-60V$			-100
Emitter-Base cut-off current	I_{EBO}	nA	$V_{EB}=-5V$			-100
DC Current Gain	h_{FE1}		$V_{CE}=-5V, I_C=-0.1mA$	30		
	h_{FE2}		$V_{CE}=-5V, I_C=-100mA$	100		300
	h_{FE3}		$V_{CE}=-5V, I_C=-500mA$	50		
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	$I_C=-150mA, I_B=-15mA$			-0.25
		V	$I_C=-500mA, I_B=-50mA$			-0.5
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	V	$I_C=-150mA, I_B=-15mA$			-1
		V	$I_C=-500mA, I_B=-50mA$			-1.2
Transition Frequency	f_T	MHz	$I_C=-50mA, V_{CE}=-10V, f=30MHz$	100		

■ Ordering Information (Example)

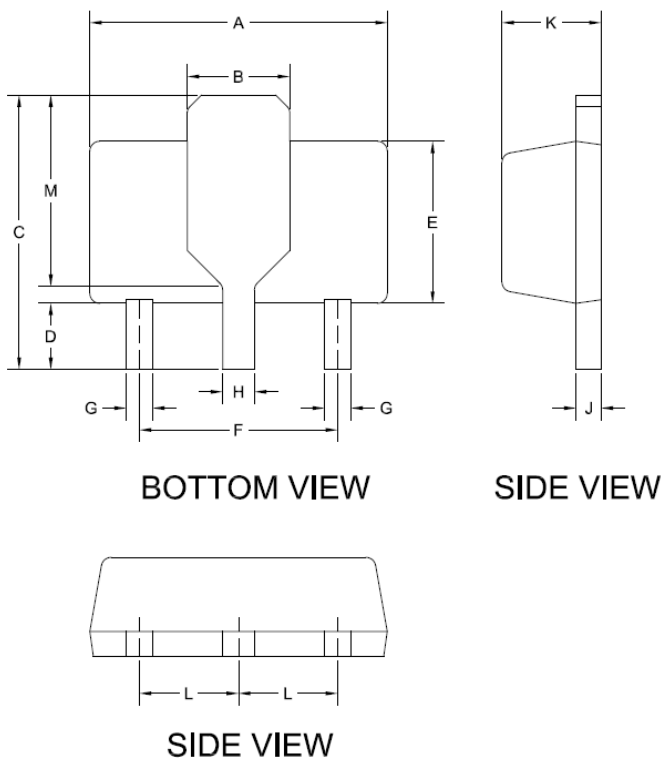
PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
BSR33	F2	Approximate 0.055	1000	8000	32000	7" reel

■ Characteristics (Typical)



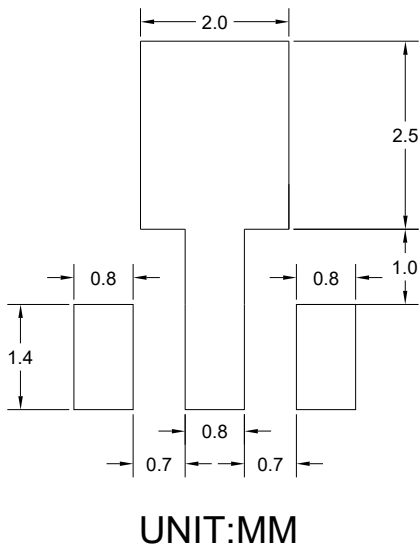


■SOT-89 Package Outline Dimensions



DIM	DIMENSIONS			
	INCHES		MM	
	MIN.	MAX.	MIN.	MAX.
A	0.173	0.181	4.400	4.600
B	0.061 TYP.		1.550 TYP.	
C	0.155	0.167	3.940	4.250
D	0.031	0.047	0.800	1.200
E	0.094	0.102	2.400	2.600
F	0.118 TYP.		3.00 TYP.	
G	0.014	0.019	0.360	0.480
H	0.017	0.022	0.440	0.560
J	0.014	0.017	0.350	0.440
K	0.055	0.063	1.400	1.600
L	0.059 TYP.		1.500 TYP.	
M	0.108 TYP.		2.750 TYP.	

■SOT-89 Suggested Pad Layout





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