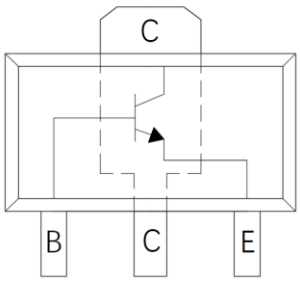
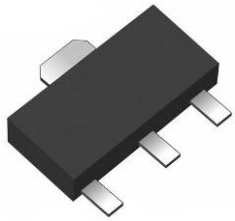
NPN General Purpose Amplifier

SOT-89





Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic insert ion

Application

- Signal amplification
- Switching circuit

Mechanical data

- **Package**: SOT-89
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102

■ **Maximum Ratings** (T_a=25℃ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				5G
Collector-base voltage	V_{CBO}	V	I_C=100uA, I_E=0	100
Collector-emitter voltage	V_{CEO}	V	I_C=1mA, I_B=0	100
Emitter-base voltage	V_{EBO}	V	I_E=100uA, I_C=0	5
Collector current	I_C	A		4.5
Peak Collector current	I_{CM}	A	single pulse,tp≤1ms	9
Base current	I_B	A		0.4
Power dissipation	P_D	mW		500
Junction temperature	T_J	℃		-55 to +150
Storage temperature	T_{STG}	℃		-55 to +150

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	I_C=100uA, I_E=0	100		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	I_C=1mA, I_B=0	100		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	I_E=100uA, I_C=0	5		
Collector-base cut-off current	I_{CBO}	nA	V_{CB}=80V I_E=0			100
Emitter-base cut-off current	I_{EBO}	nA	V_{EB}=5V I_C=0			100
Collector Cutoff Current	I_{CES}	uA	V_{CE}=80V V_{BE}=0			10
DC current gain	h_{FE}		V_{CE}=2V I_C=0.5A	200		
			V_{CE}=2V I_C=1A	150		
			V_{CE}=2V I_C=2A	100		
			V_{CE}=2V I_C=4A	50		
			V_{CE}=2V I_C=5A	40		
Collector-emitter saturation voltage	$V_{CE(sat)}$	mV	I_C=0.5A I_B=50mA			40
			I_C=1A I_B=50mA			75
			I_C=1A I_B=10mA			150
			I_C=2A I_B=40mA			160
			I_C=4A I_B=200mA			225
			I_C=4A I_B=400mA			200
			I_C=4.5A I_B=225mA			245
Collector-emitter saturation resistance	$R_{CE(sat)}$	mΩ	I_C=4A I_B=200mA			56
Base-emitter saturation voltage	$V_{BE(sat)}$	V	I_C=1A I_B=100mA			0.9
			I_C=4A I_B=400mA			1.05
Base-emitter turn-on voltage	V_{BE}	V	V_{CE}=2V I_C=2A			0.85
Transition Frequency	f_T	MHz	VCE=10V,IC=100mA	100		

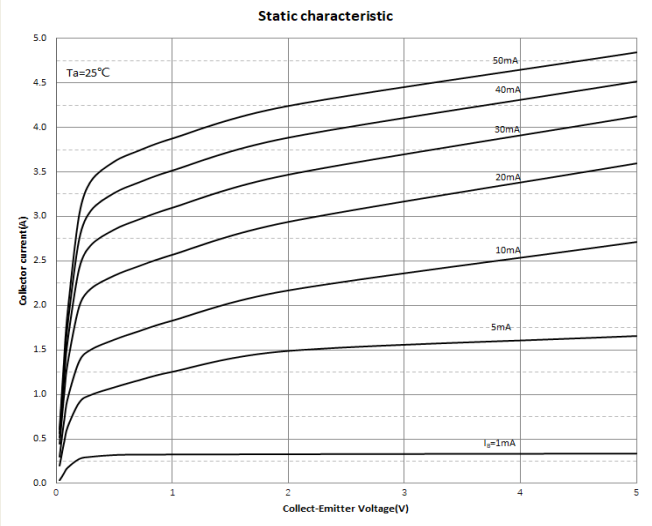
■ Thermal Characteristics

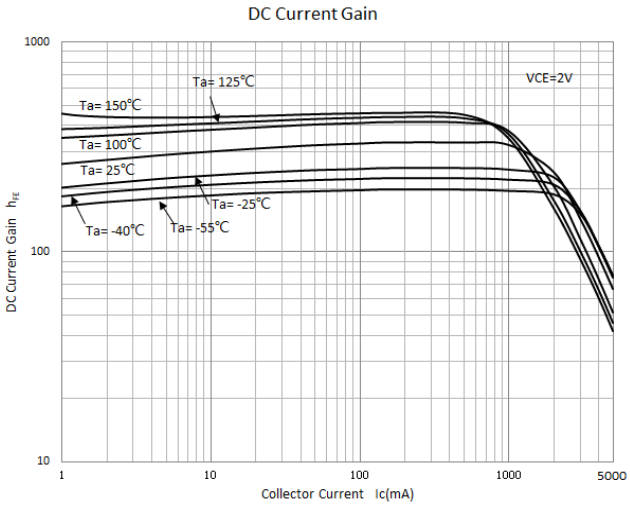
Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	RθJ-A(1)	℃/W	250
Thermal resistance, junction-to-case	RθJ-C(1)	℃/W	50

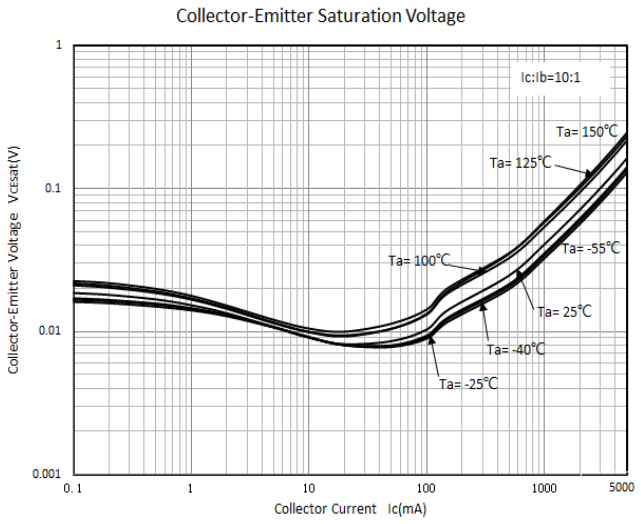
Note: The device is installed and tested on 25.4 * 25.4 * 1.5mm P.C.B.

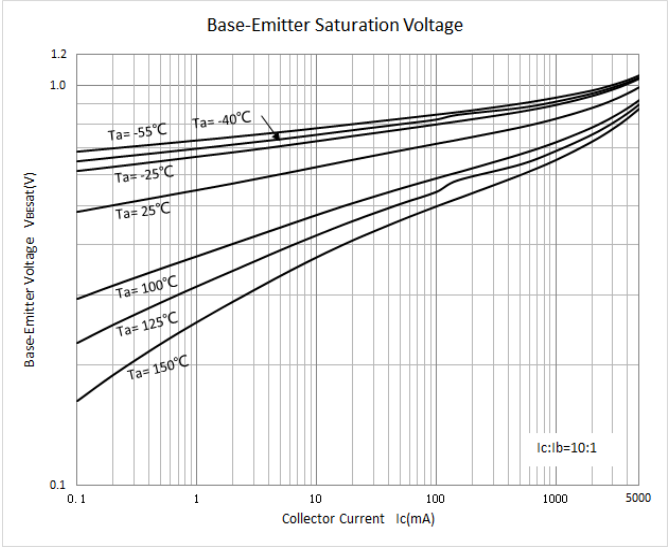
■Ordering Information

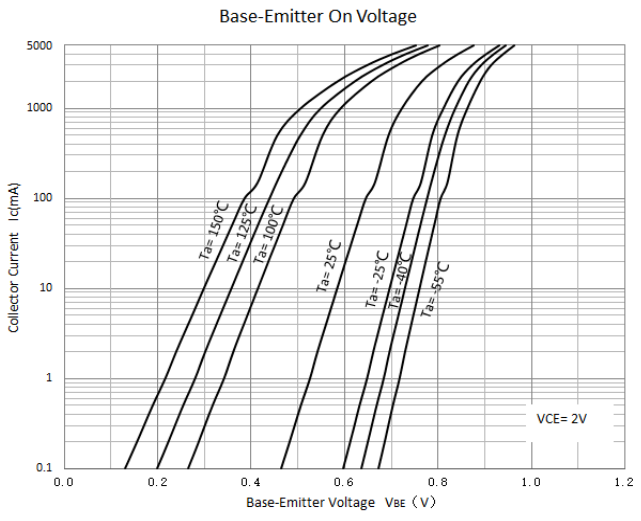
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
PBSS306NX	F2	Approximate 0.055	1000	8000	32000	7” reel

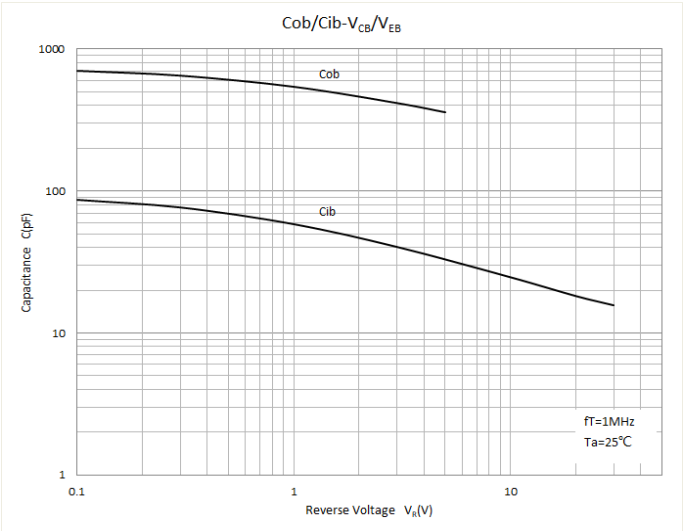

Static characteristic
Ta=25℃
50mA
40mA
30mA
20mA
10mA
5mA
IB=1mA
Collector current(A)
Collect-Emitter Voltage(V)

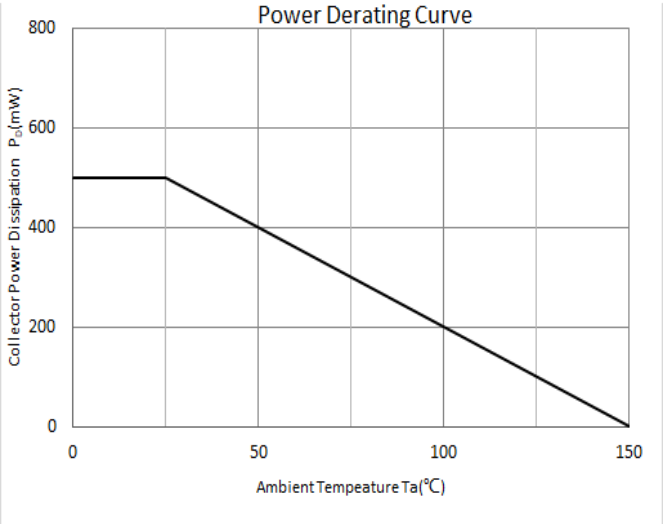

DC Current Gain
VCE=2V
Ta= 125℃
Ta= 150℃
Ta= 100℃
Ta= 25℃
Ta= -25℃
Ta= -40℃
Ta= -55℃
DC Current Gain hFE
Collector Current Ic(mA)

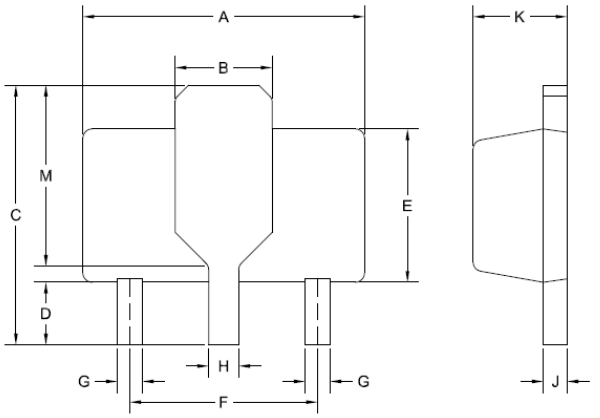

Collector-Emitter Saturation Voltage
Ic:Ib=10:1
Ta= 150℃
Ta= 125℃
Ta= 100℃
Ta= -55℃
Ta= 25℃
Ta= -40℃
Ta= -25℃
Collector-Emitter Voltage Vcesat(V)
Collector Current Ic(mA)


Base-Emitter Saturation Voltage
Ta= -55℃
Ta= -40℃
Ta= -25℃
Ta= 25℃
Ta= 100℃
Ta= 125℃
Ta= 150℃
Ic:Ib=10:1
Base-Emitter Voltage Vbesat(V)
Collector Current Ic(mA)


Base-Emitter On Voltage
Ta= 150℃
Ta= 125℃
Ta= 100℃
Ta= 25℃
Ta= -25℃
Ta= -40℃
Ta= -55℃
VCE= 2V
Collector Current Ic(mA)
Base-Emitter Voltage VBE（V）

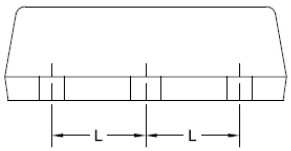

Cob/Cib-VCB/VEB
Cob
Cib
fT=1MHz
Ta=25℃
Capacitance C(pF)
Reverse Voltage VR(V)


Power Derating Curve
800
600
400
200
0
Collector Power Dissipation P_D(mW)
0
50
100
150
Ambient Tempeature Ta(℃)



BOTTOM VIEW

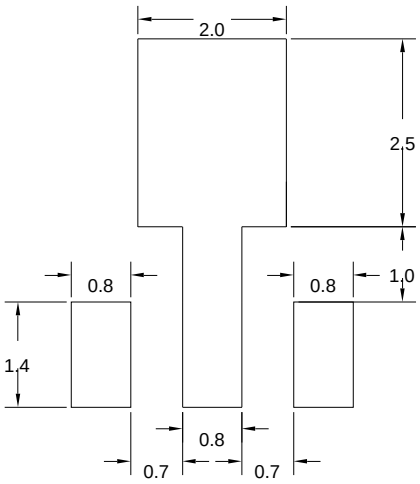
SIDE VIEW



SIDE VIEW

DIMENSIONS				
DIM	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.	

■ Suggested Pad Layout



UNIT:MM

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