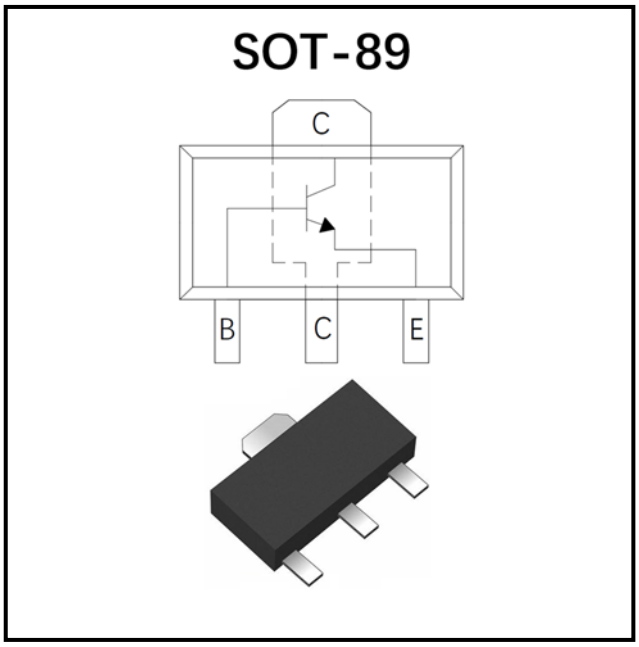
NPN General Purpose Amplifier



Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for auto matic insertion

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				1B
Collector-base voltage	V_{CBO}	V	I_C=100uA, I_E=0	40
Collector-emitter voltage	V_{CEO}	V	I_C=1mA, I_B=0	40
Emitter-base voltage	V_{EBO}	V	I_E=100uA, I_C=0	6
Collector current	I_C	A		4
Peak Collector Current	I_{CM}	A	single pulse ,t_P=1ms	10
Power dissipation	P_D	mW		550
Junction temperature	T_J	℃		-55 to +150
Storage temperature	T_{STG}	℃		-55 to +150

■ Electrical Characteristics (Ta=25℃ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	I_C=100uA, I_E=0	40		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	I_C=1mA, I_B=0	40		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	I_E=100uA, I_C=0	6		
Collector-base cut-off current	I_{CBO}	nA	V_{CB}=30V, I_E=0A			100
Emitter-base cut-off current	I_{EBO}	nA	V_{EB}=5V, I_B=0A			100
Collector Cutoff Current	I_{CES}	nA	V_{CE}=30V, I_C=0A			100
DC current gain	h_{FE}		V_{CE}=2V I_C=0.5A	300		
			V_{CE}=2V I_C=1A	300		
			V_{CE}=2V I_C=2A	250		
			V_{CE}=2V I_C=5A	100		
Collector-emitter saturation voltage	$V_{CE(sat)}$	mV	I_C=0.5A I_B=5mA			90
			I_C=1A I_B=10mA			120
			I_C=2A I_B=200mA			150
			I_C=4A I_B=200mA			290
			I_C=5A I_B=500mA			355
Collector-emitter saturation resistance	$R_{CE(sat)}$	mΩ	I_C=5A I_B=500mA			71
Base-emitter saturation voltage	$V_{BE(sat)}$	V	I_C=4A I_B=200mA			1.1
			I_C=5A I_B=500mA			1.2
Base-emitter turn-on voltage	$V_{BE(ON)}$	V	V_{CE}=2V I_C=2A			1.1

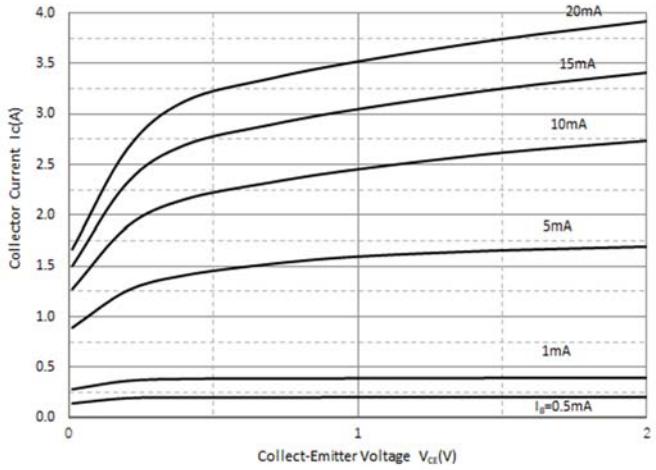
■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	$R_{\theta J\text{-}A}$(1)	℃/W	227
Thermal resistance, junction-to-case	$R_{\theta J\text{-}C}$(1)	℃/W	38

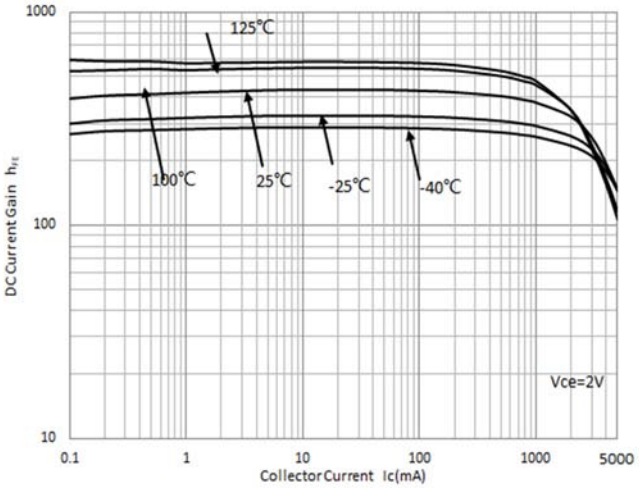
Note: (1) The device is installed and tested on 25.4 * 25.4 * 1.5mm P.C.B.

■Characteristics(Typical)

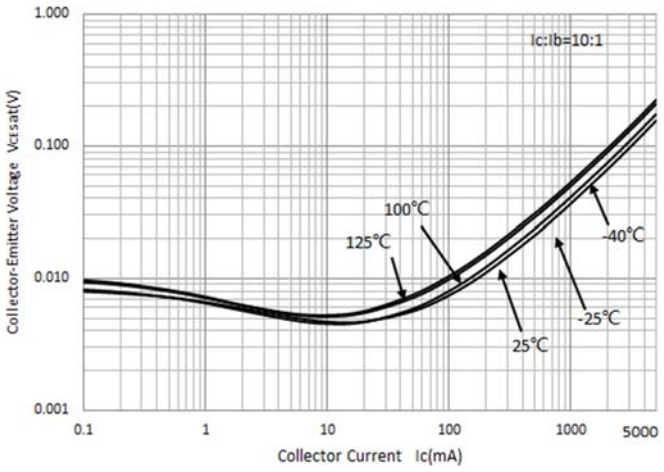
Static Characteristics



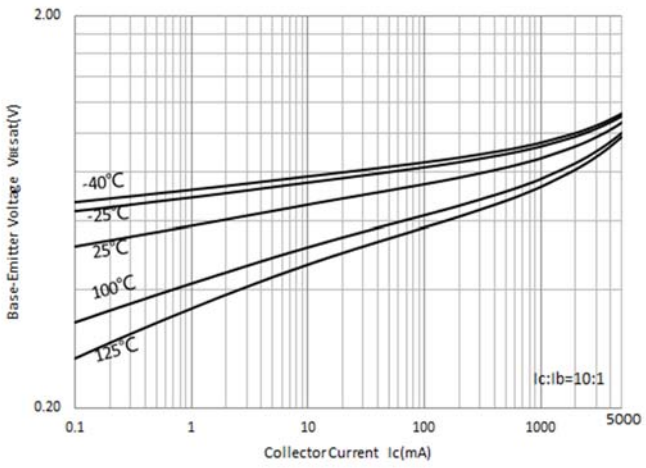
DC current gain



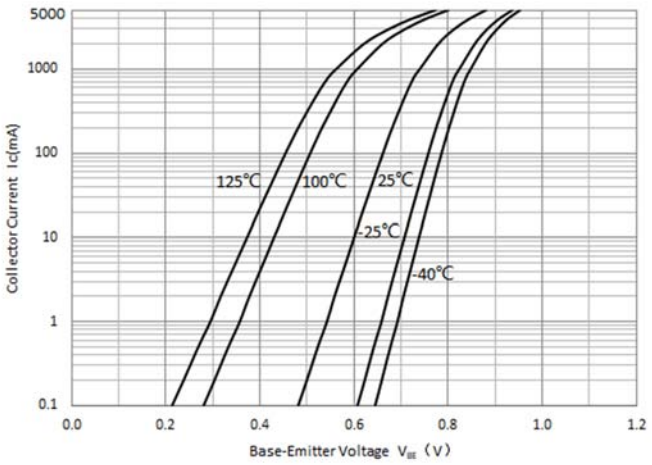
Collector-Emitter Saturation Voltage



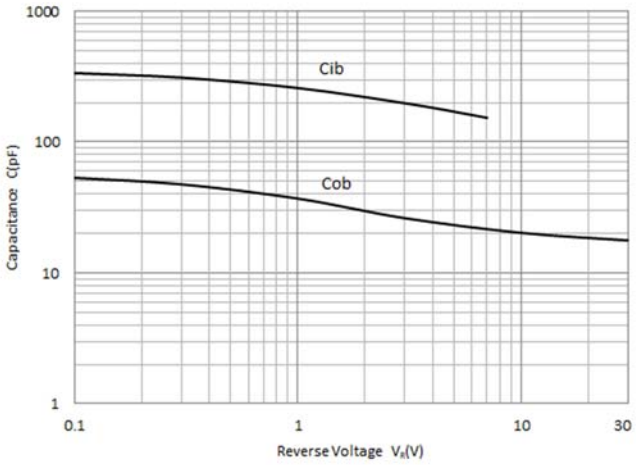
Base-Emitter Saturation Voltage



Base-Emitter On Voltage



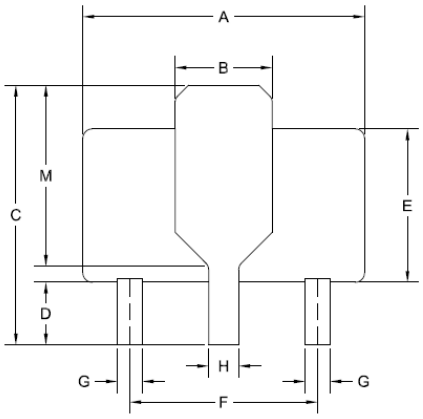
Cob/Cib-VCB/VEB



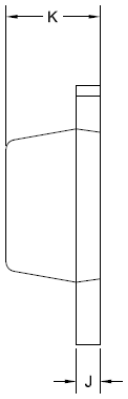
■Ordering Information

Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
PBSS4540X	F2	Approximate 0.055	1000	8000	32000	7” reel

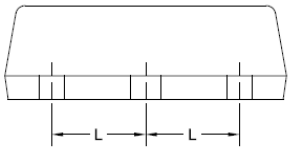
■ Outline Dimensions



BOTTOM VIEW



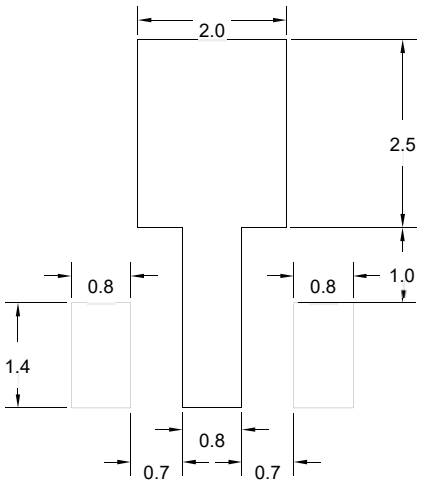
SIDE VIEW



SIDE VIEW

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.	

■ Suggested Pad Layout



UNIT:MM

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