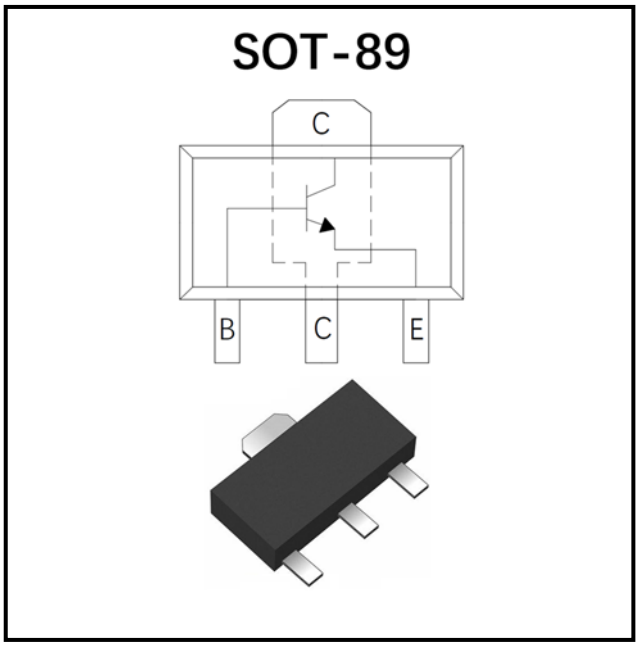
NPN General Purpose Amplifier



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				S47
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	5
Collector current	I_C	A		2
Power dissipation	P_D	mW		500
Junction temperature	T_J	℃		-55 to +150
Storage temperature	T_{STG}	℃		-55 to +150

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

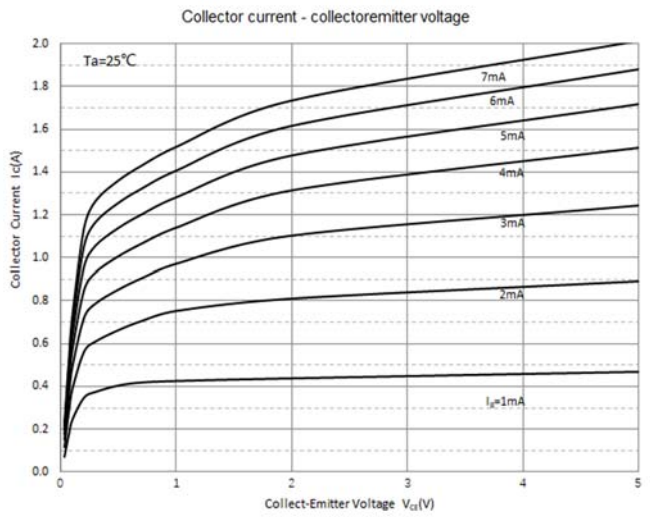
Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	I_C=100uA, I_E=0	40		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	I_C=1mA, I_B=0	40		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	I_E=100uA, I_C=0	5		
Collector-base cut-off current	I_{CBO}	nA	V_{CB}=40V, 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}=5V I_C=1mA	300		
			V_{CE}=5V I_C=0.5A	300		900
			V_{CE}=5V I_C=1A	200		
			V_{CE}=5V I_C=2A	75		
Collector-emitter saturation voltage	$V_{CE(sat)}$	mV	I_C=0.1A I_B=1mA			80
			I_C=0.5A I_B=50mA			140
			I_C=1A I_B=100mA			260
			I_C=2A I_B=200mA			510
Collector-emitter saturation resistance	$R_{CE(sat)}$	mΩ	I_C=1A I_B=100mA			260
Base-emitter saturation voltage	$V_{BE(sat)}$	V	I_C=1A I_B=100mA			1.2
Base-emitter turn-on voltage	$V_{BE(ON)}$	V	V_{CE}=5V I_C=1A			1.1

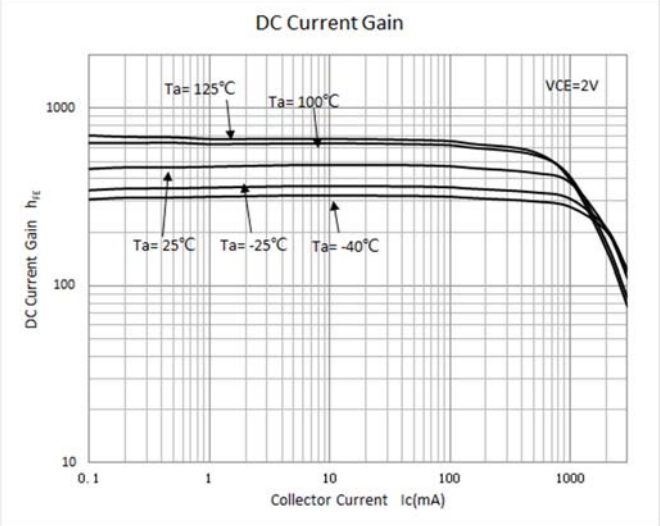
■ Thermal Characteristics

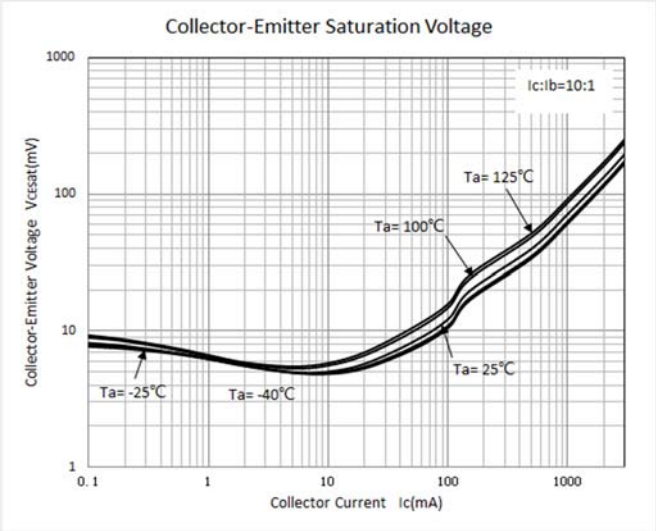
Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	$R_{\theta J-A}$(1)	℃/W	250
Thermal resistance, junction-to-case	$R_{\theta J-C}$(1)	℃/W	50

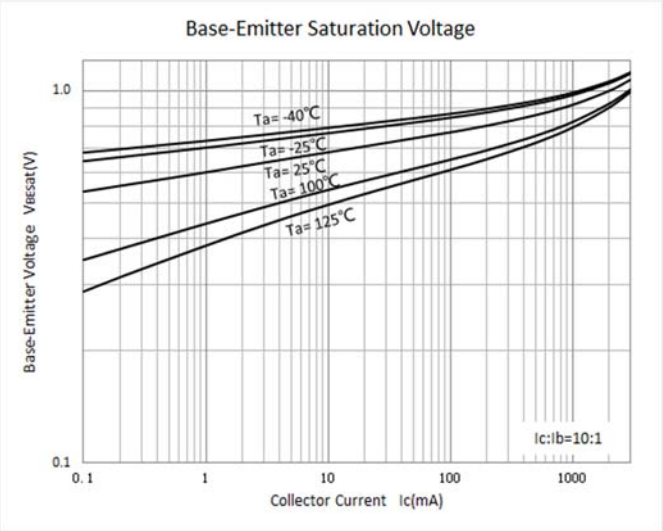
Note: (1) The device is installed and tested on 25.4 * 25.4 * 1.5mm P.C.B.

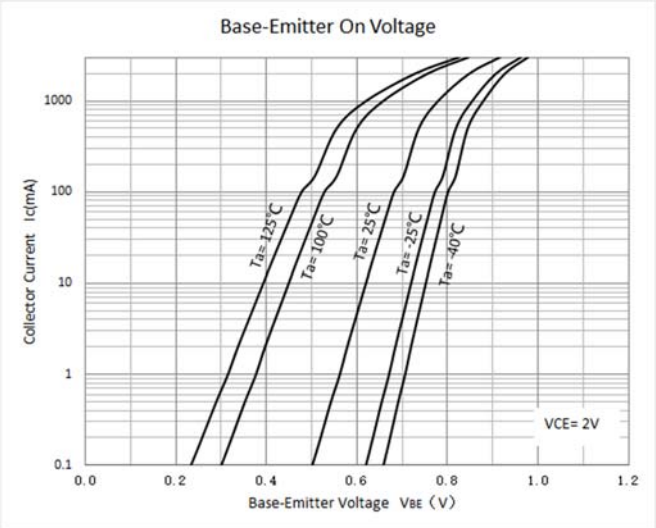
■Characteristics(Typical)

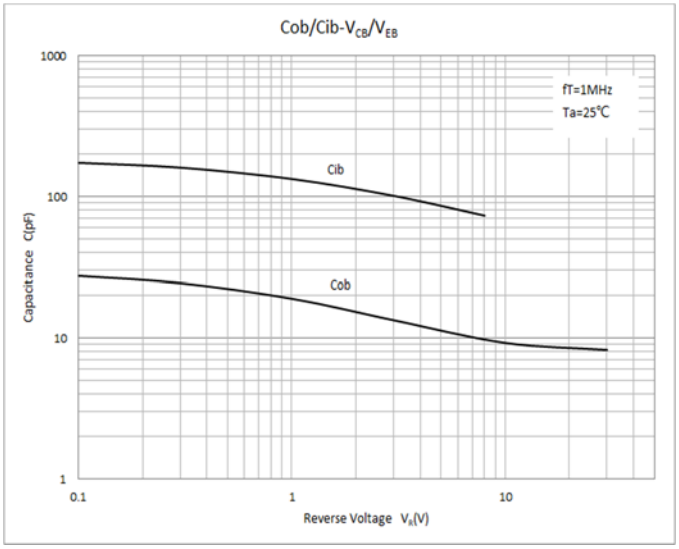


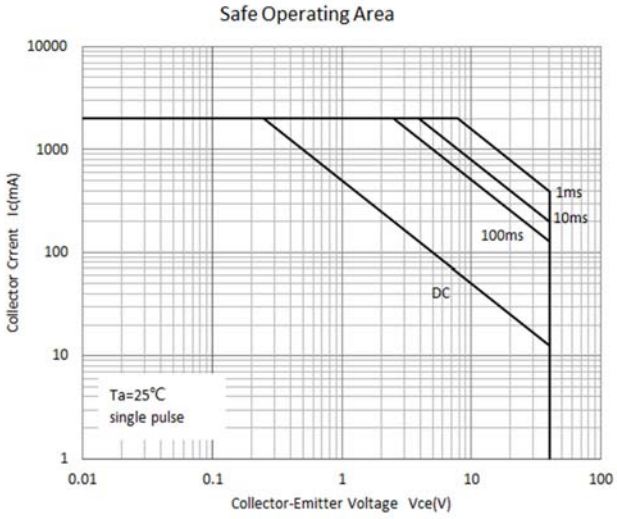


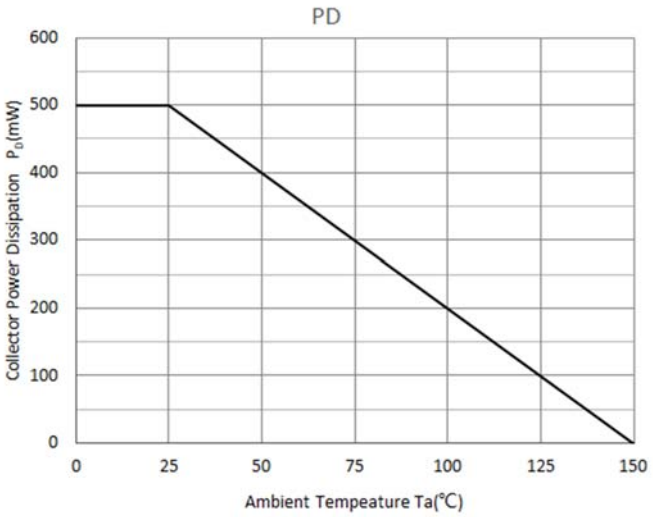








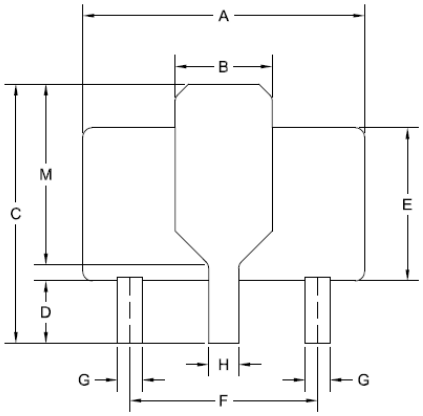

Safe Operating Area
10000
1000
100
10
1
Collector Crrent Ic(mA)
0.01
0.1
1
10
100
Collector-Emitter Voltage Vce(V)
1ms
10ms
100ms
DC
Ta=25℃
single pulse


PD
600
500
400
300
200
100
0
Collector Power Dissipation P_D(mW)
0
25
50
75
100
125
150
Ambient Tempeature Ta(℃)

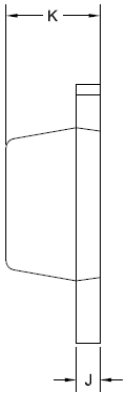
■Ordering Information

Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
PBSS4240XB	F2	Approximate 0.055	1000	8000	32000	7” reel

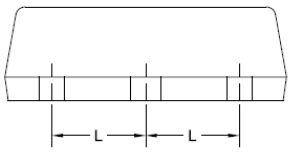
■ Outline Dimensions



BOTTOM VIEW



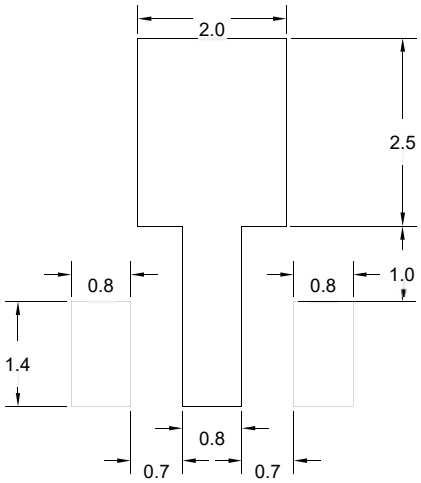
SIDE VIEW



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

Notice

All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise. Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in STARSEA's terms and conditions of sale for such products, STARSEA assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of STARSEA products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.