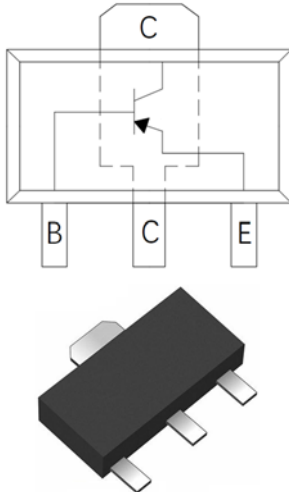


PNP General Purpose Amplifier

SOT-89



Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic 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 ($T_a=25^\circ\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				NY
Collector-base voltage	V_{CBO}	V	$I_C=-100\mu\text{A}$, $I_E=0$	-50
Collector-emitter voltage	V_{CEO}	V	$I_C=-10\text{mA}$, $I_B=0$	-50
Emitter-base voltage	V_{EBO}	V	$I_E=-100\mu\text{A}$, $I_C=0$	-5
Collector current	I_C	A		-2
Power dissipation	P_D	mW		500
Junction temperature	T_J	$^\circ\text{C}$		-55 to +150
Storage temperature	T_{STG}	$^\circ\text{C}$		-55 to +150



2SA1213-Y

RoHS
COMPLIANT

■ Electrical Characteristics (T_a=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	V _{(BR)CBO}	V	I _C =-100μA, I _E =0	-50		
Collector-emitter breakdown voltage	V _{(BR)CEO}	V	I _C =-10mA, I _B =0	-50		
Emitter-base breakdown voltage	V _{(BR)EBO}	V	I _E =-100μA, I _C =0	-5		
Collector-base cut-off current	I _{CBO}	μA	V _{CB} =-50V			-0.1
Emitter-base cut-off current	I _{EBO}	μA	V _{EB} =-5V			-0.1
DC current gain	h _{FE1}		I _C =-0.5A V _{CE} =-2V	120		240
	h _{FE2}		I _C =-2A V _{CE} =-2V	20		
Collector-emitter saturation voltage	V _{CE(sat)}	V	I _C =-1A I _B =-50mA			-0.5
Base-emitter saturation voltage	V _{BE(sat)}	V	I _C =-1A I _B =-50mA			-1.2
Transition frequency	f _T	MHz	V _{CE} =-5V, I _C =-50mA	50		
Collector-base output capacitance	C _{ob}	pF	V _{CB} =-10V, I _E =0, f=1MHz		20	

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R _{θJ-A} ⁽¹⁾	°C/W	250
Thermal resistance, junction-to-case	R _{θJ-C} ⁽¹⁾	°C/W	200

Note:

(1) Device mounted on PCB, single-sided copper, with standard footprint

■ Characteristics

Fig 1: Static Characteristics

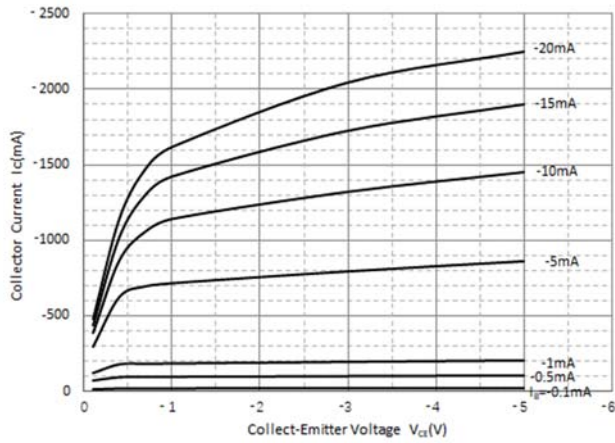


Fig 2: DC Current Gain

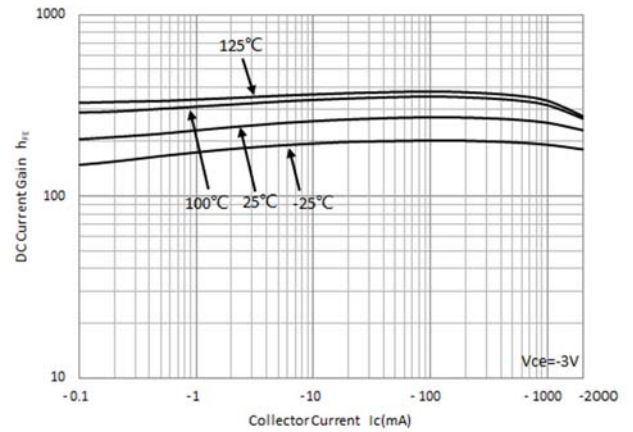


Fig 3: Collector-Emmitter Saturation Voltage

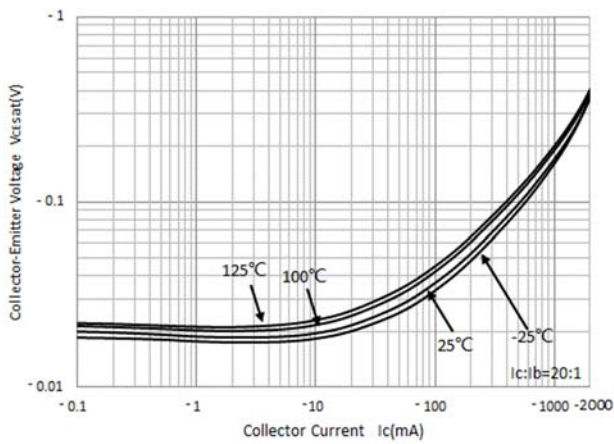


Fig 4: Base-Emmitter Saturation Voltage

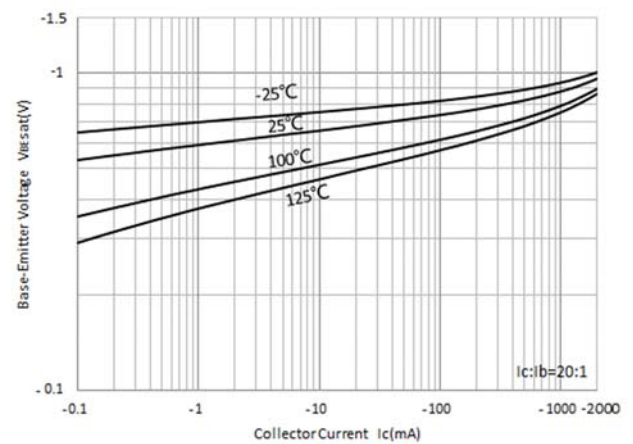


Fig 5: Base-Emmitter On Voltage

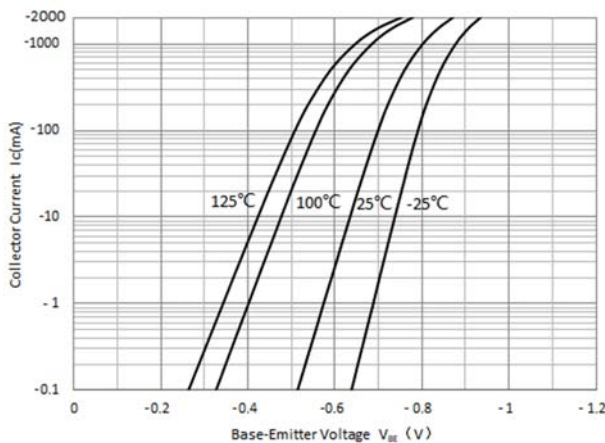


Fig 6: Cob/Cib-V_{CB}/V_{EB}

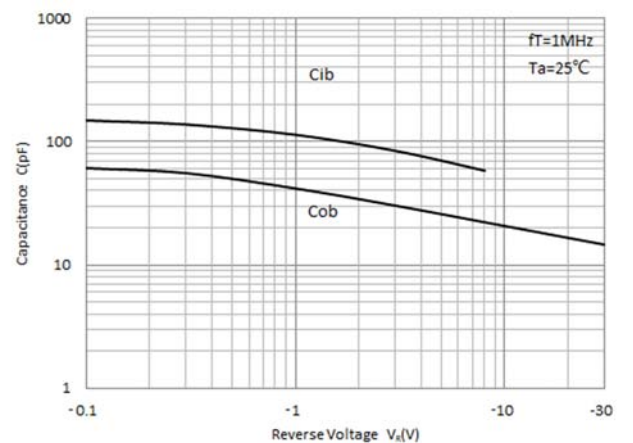
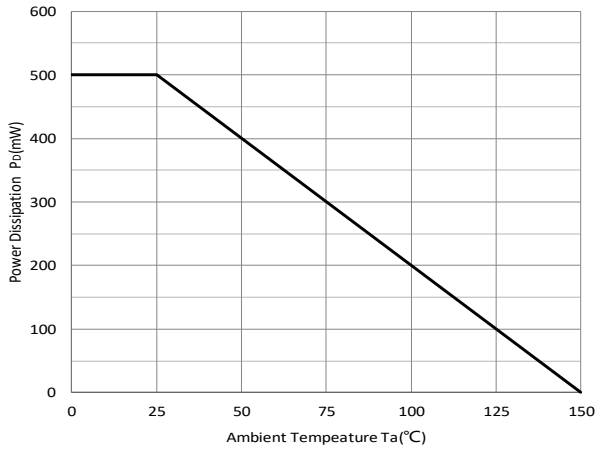




Fig 7: P_D-T_a Curve





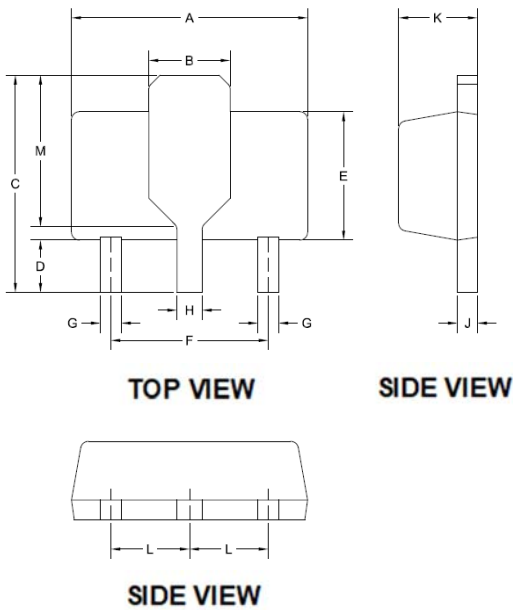
2SA1213-Y

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■ Ordering Information

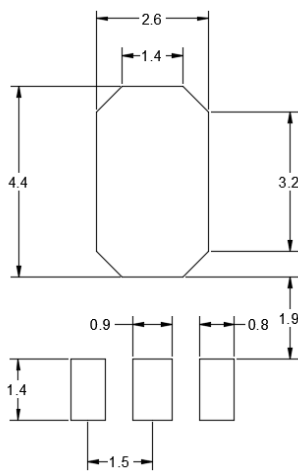
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
2SA1213	F2	Approximate 0.055	1000	8000	32000	7" reel

■ 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.	

■ Suggested Pad Layout



UNIT : mm



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