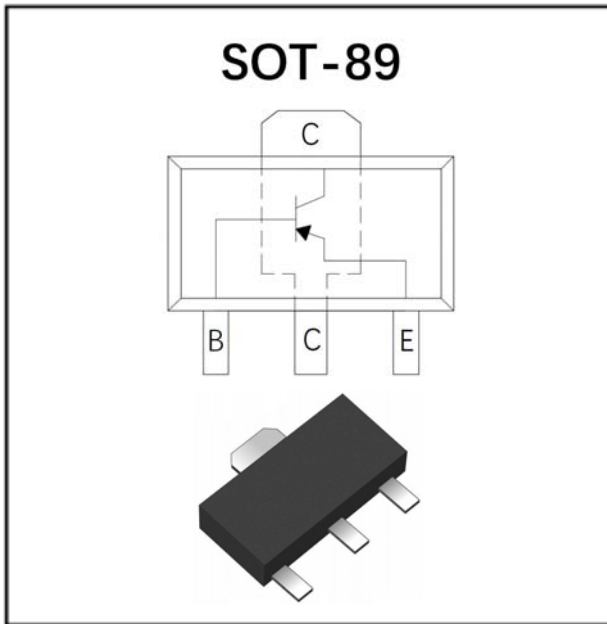


## PNP General Purpose Amplifier



### 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:**A1013

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

Item	Symbol	Unit	Conditions	Value
Minimum Collector-Emitter Voltage	$V_{CEO}$	V	$I_C = -10\text{mA}$ , $I_B = 0$	-160
Minimum Collector-Base Voltage	$V_{CBO}$	V	$I_C = -100\mu\text{A}$ , $I_E = 0$	-160
Minimum Emitter-Base Voltage	$V_{EBO}$	V	$I_E = -100\mu\text{A}$ , $I_C = 0$	-6
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



# 2SA1013

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

Item	Symbol	Unit	Conditions	Min	Max
Collector-Emitter Voltage	$V_{CE0}$	V	$I_C=-10mA, I_B=0$	-160	
Collector-Base Voltage	$V_{CBO}$	V	$I_C=-100\mu A, I_E=0$	-160	
Emitter-Base Voltage	$V_{EBO}$	V	$I_E=-100\mu A, I_C=0$	-6	
Collector-base Cut-off Current	$I_{CBO}$	$\mu A$	$V_{CB}=-150V$		-1
Base-emitter Cut-off Current	$I_{EBO}$	$\mu A$	$V_{EB}=-6V$		-1
DC Current Gain	$h_{FE}$		$I_C=-200mA, V_{CE}=-5V$	60	320
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V	$I_C=-500mA, I_B=-50mA$		-1.5
Base-Emitter Turn-On Voltage	$V_{BE(on)}$	V	$I_C=-0.5mA, V_{CE}=-5V$	-0.45	-0.75
Transition frequency	$f_T$	MHz	$I_C=-200mA, V_{CE}=-5V$	15	
Collector Capacitance	$C_{ob}$	pF	$V_{CB}=-10V, I_E=0, f=1MHz$		35

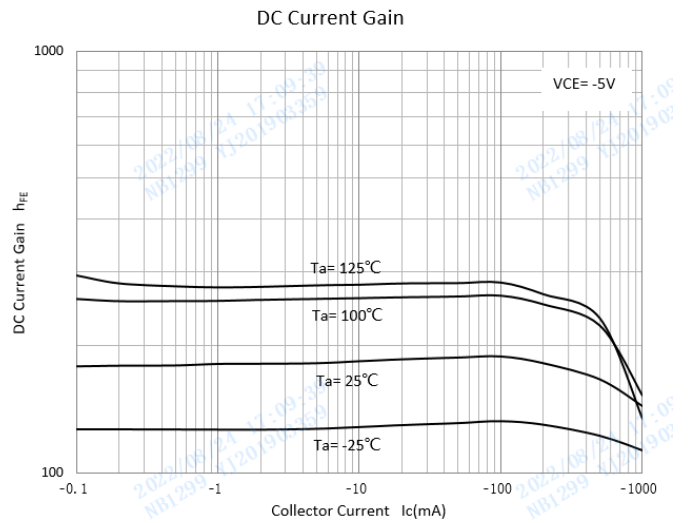
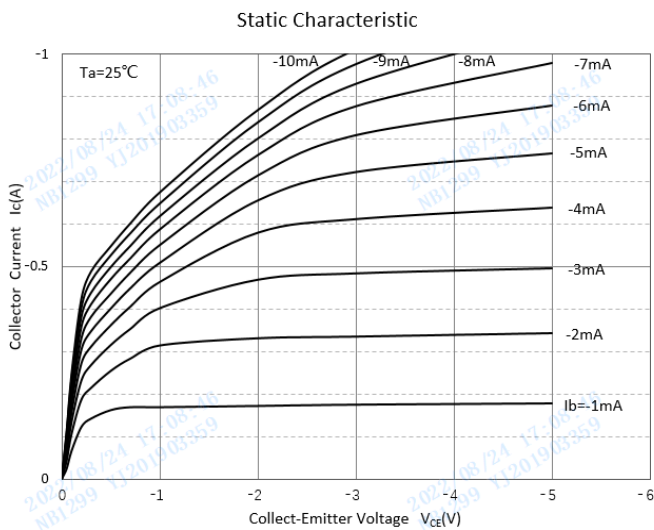
## ■Ordering Information (Example)

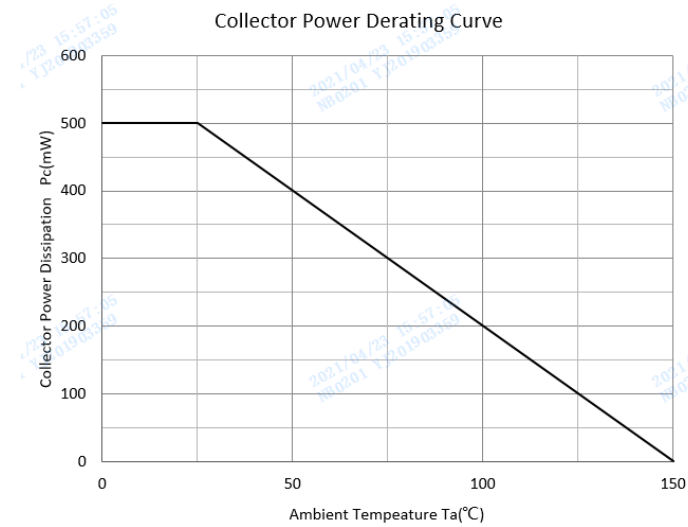
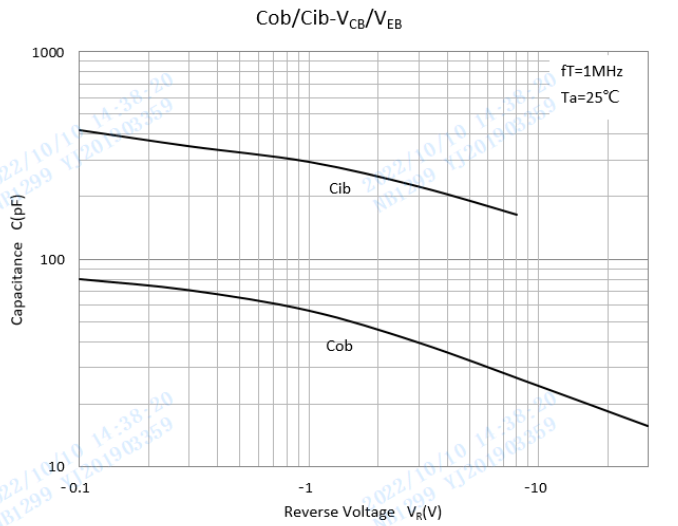
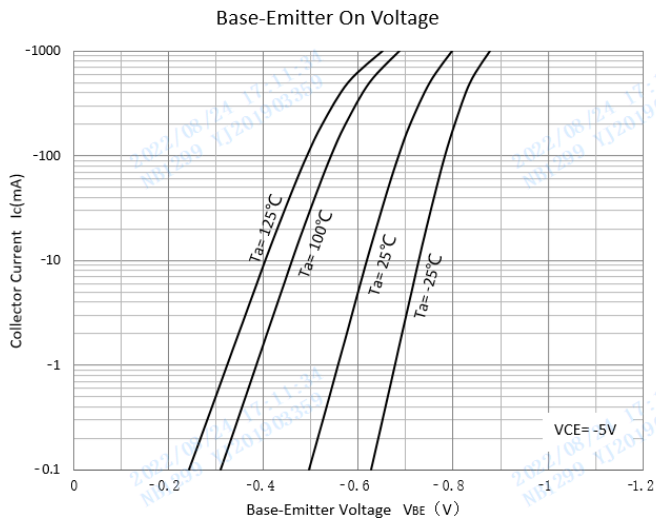
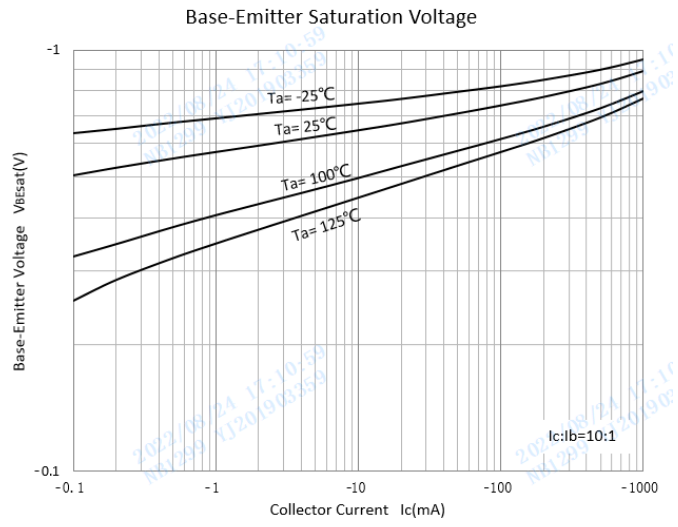
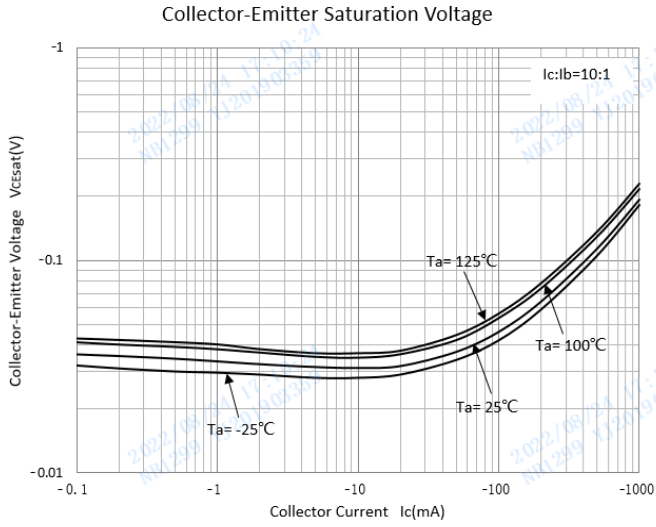
PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
2SA1013	F2	Approximate 0.055	1000	8000	32000	7" reel

## ■CLASSIFICATION OF HFE

Rank	O	P
Range	100-200	160-320

## ■Characteristics (Typical)

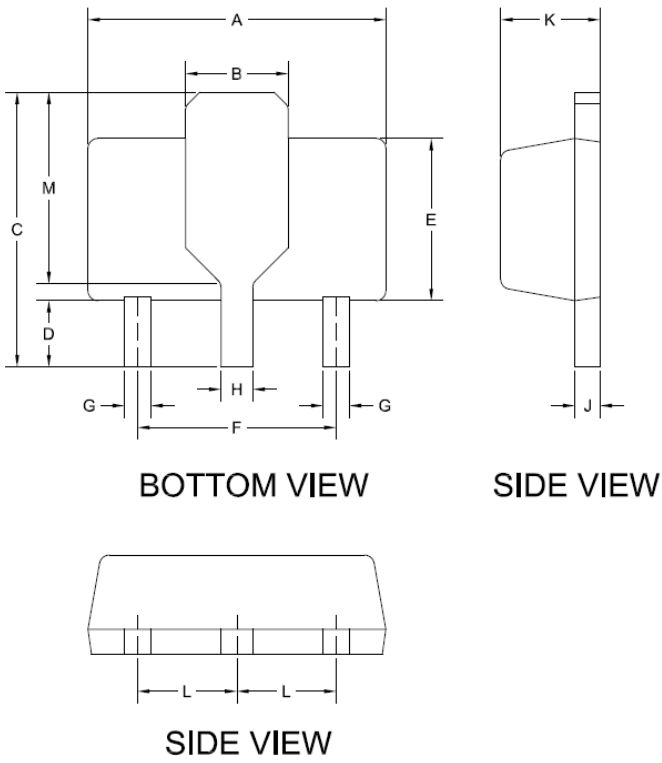






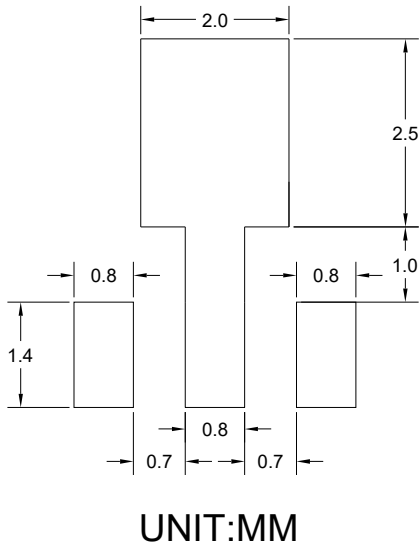
# 2SA1013

## ■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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