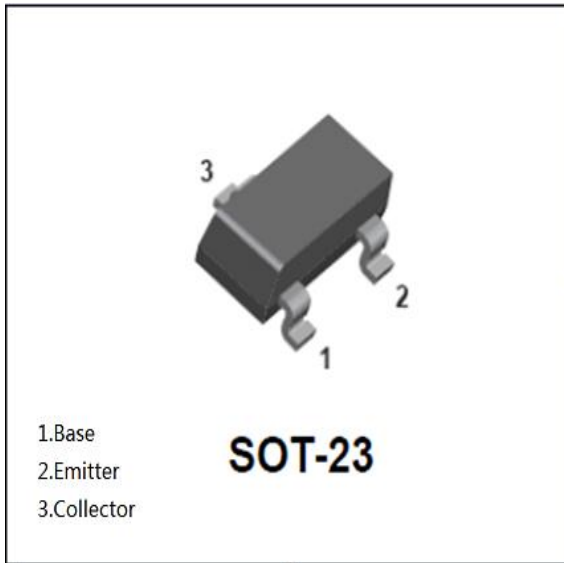


## PNP Transistor



### Features

- Epoxy meets UL-94 V-0 flammability rating
- Moisture Sensivity Level 1
- Halogen free available upon request by adding suffix "HF"
- Surface mount package ideally Suited for Automatic Insertion
- PNP

### Mechanical Data

- **Package:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:**

2SA812-M4	M4
2SA812-M5	M5
2SA812-M6	M6
2SA812-M7	M7

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

Item	Symbol	Unit	Conditions	Value
Collector-Base Voltage	$V_{CBO}$	V	$I_C = -100\mu A, I_E = 0$	-60
Collector-Emitter Voltage	$V_{CEO}$	V	$I_C = -1mA, I_B = 0$	-50
Emitter-Base Voltage	$V_{EBO}$	V	$I_E = -100\mu A, I_C = 0$	-5
Collector Current	$I_C$	A		-0.1
Collector Power Dissipation	$P_C$	mW		200
Junction Temperature	$T_j$	°C		150
Storage Temperature	$T_{stg}$	°C		-55 to +150

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

Item	Symbol	Unit	Conditions	Min	Type	Max
Collector-base breakdown voltage	$V_{CBO}$	V	$I_C = -100\mu A, I_E = 0$	-60		
Collector-emitter breakdown voltage	$V_{CEO}$	V	$I_C = -1mA, I_B = 0$	-50		
Emitter-base breakdown voltage	$V_{EBO}$	V	$I_E = -100\mu A, I_C = 0$	-5		
Collector-base cut-off current	$I_{CBO}$	$\mu A$	$V_{CB} = -60V, I_E = 0$			-0.1
Emitter-base cut-off current	$I_{EBO}$	$\mu A$	$V_{EB} = -5V, I_C = 0$			-0.1
DC current gain	$h_{FE}$		$V_{CE} = -6V, I_C = -1mA$	90		600
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C = -100mA, I_B = -10mA$			-0.3
Base-emitter voltage	$V_{BE}$	V	$V_{CE} = -6V, I_C = -1mA$			-0.68
Transition frequency	$f_T$	MHz	$V_{CE} = -6V, I_C = -10mA$		180	
Collector-base output capacitance	$C_{ob}$	pF	$V_{CB} = -10V, I_E = 0, f = 1MHz$		4.5	



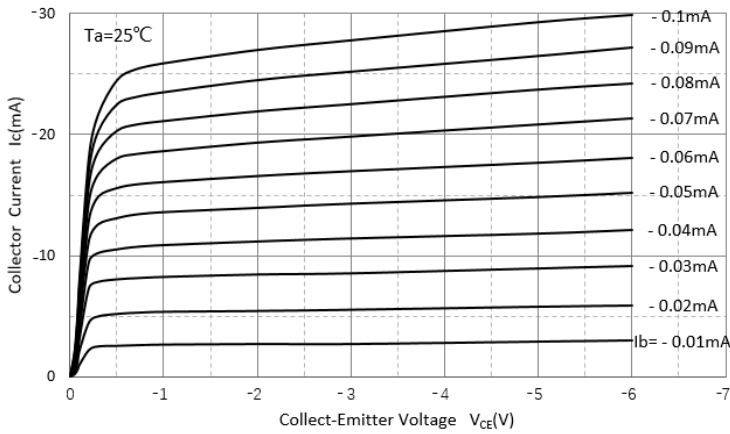
■ CLASSIFICATION OF HFE

Rank	M4	M5	M6	M7
Range	90-180	135-270	200-400	300-600

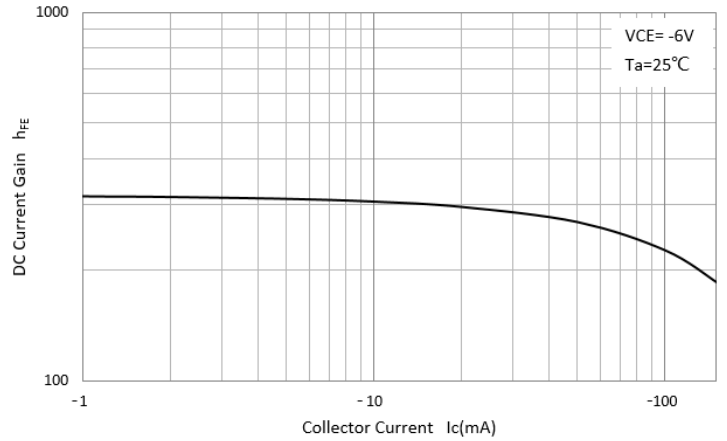
PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
2SA812	F2	Approximate 0.008	3000	30000	120000	7" reel

■ Characteristics(Typical)

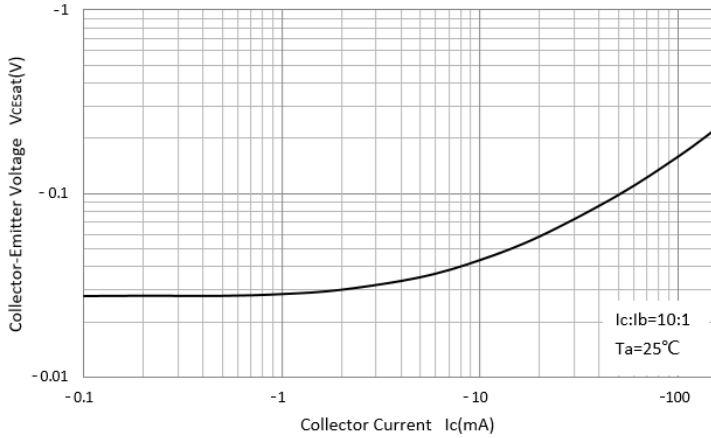
Static Characteristic



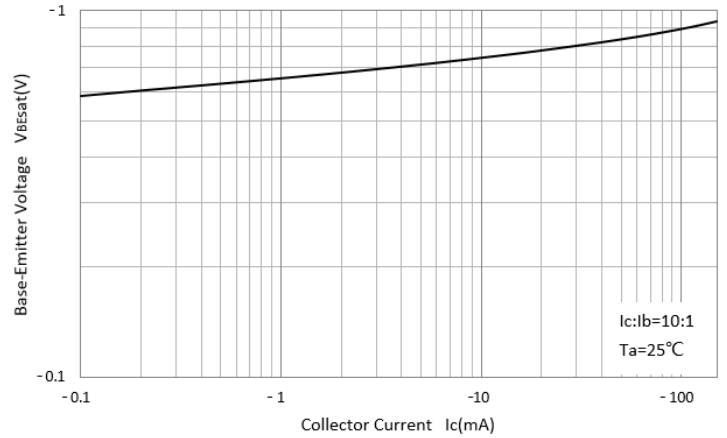
DC Current Gain



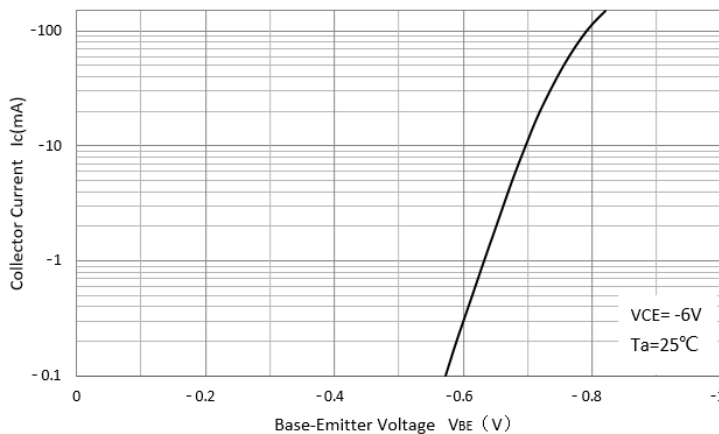
Collector-Emmitter Saturation Voltage



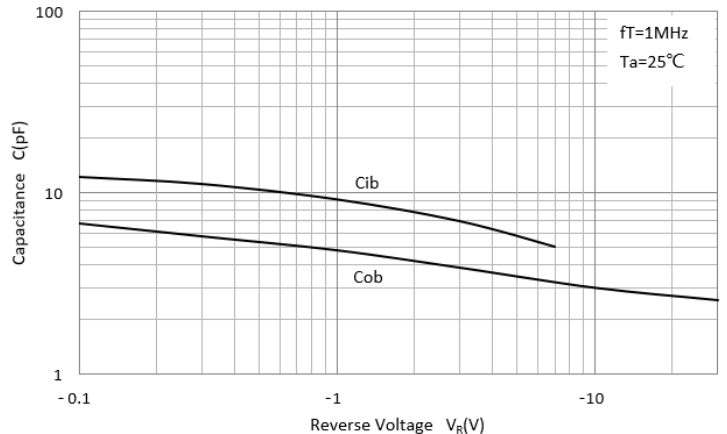
Base-Emmitter Saturation Voltage



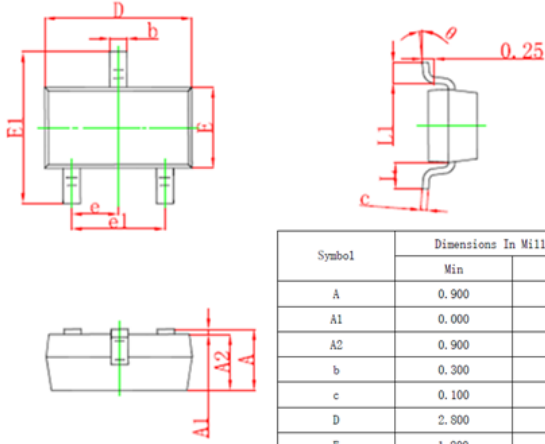
Base-Emmitter On Voltage



Cob/Cib-V<sub>CB</sub>/V<sub>EB</sub>

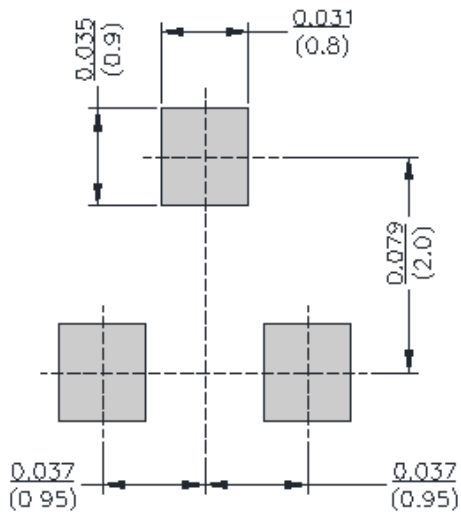


## ■SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.150	0.035	0.045
A1	0.000	0.100	0.000	0.004
A2	0.900	1.050	0.035	0.041
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.800	3.000	0.110	0.118
E	1.200	1.400	0.047	0.055
E1	2.250	2.550	0.089	0.100
e	0.950TYP		0.037TYP	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.500	0.012	0.020
ø	0°	8°	0°	8°

## ■SOT-23 Soldering Footprint





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