

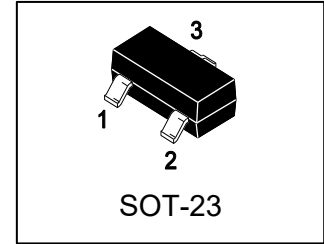
# 2SA812S

## S-2SA812S

General Purpose Transistors PNP Silicon

### 1. FEATURES

- High Voltage:  $V_{CEO} = -50\text{ V}$ .
- Epitaxial planar type.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.

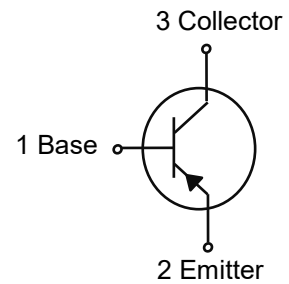


### 2. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
2SA812S	M7	3000/Tape&Reel

### 3. MAXIMUM RATINGS( $T_a = 25^\circ\text{C}$ )

Parameter	Symbol	Limits	Unit
Collector–Emitter Voltage	$V_{CEO}$	-50	V
Collector–Base Voltage	$V_{CBO}$	-60	V
Emitter–Base Voltage	$V_{EBO}$	-6	V
Collector Current — Continuous	IC	-150	mA



### 4. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Total Device Dissipation, FR-5 Board (Note 1) @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	PD	200 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction–to–Ambient(Note 1)	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Junction and Storage temperature	$T_J, T_{stg}$	-55~+150	$^\circ\text{C}$

1. FR-5 = 1.0×0.75×0.062 in.



## 5. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

### OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Collector–Emitter Breakdown Voltage (IC = -1.0 mA, IB = 0)	VBR(CEO)	-50	-	-	V
Collector–Base Breakdown Voltage (IC = -50 $\mu$ A, IE = 0)	VBR(CBO)	-60	-	-	V
Emitter–Base Breakdown Voltage (IE = -50 $\mu$ A, IC = 0)	VBR(EBO)	-6	-	-	V
Collector-Base cut-off current (IE = 0, VCB = -50 V)	ICBO	-	-	-0.1	$\mu$ A
Emitter-Base cut-off current (IC = 0, VEB = -6 V)	IEBO	-	-	-0.1	$\mu$ A
Collector-Emitter cutoff Current (IB=0, VCE = -50V)	ICEO	-	-	-10	$\mu$ A

### ON CHARACTERISTICS

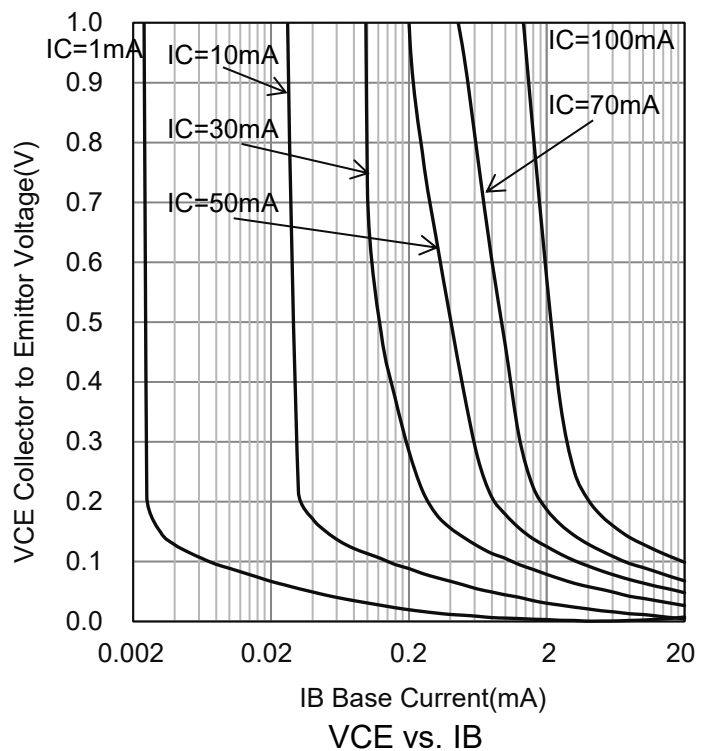
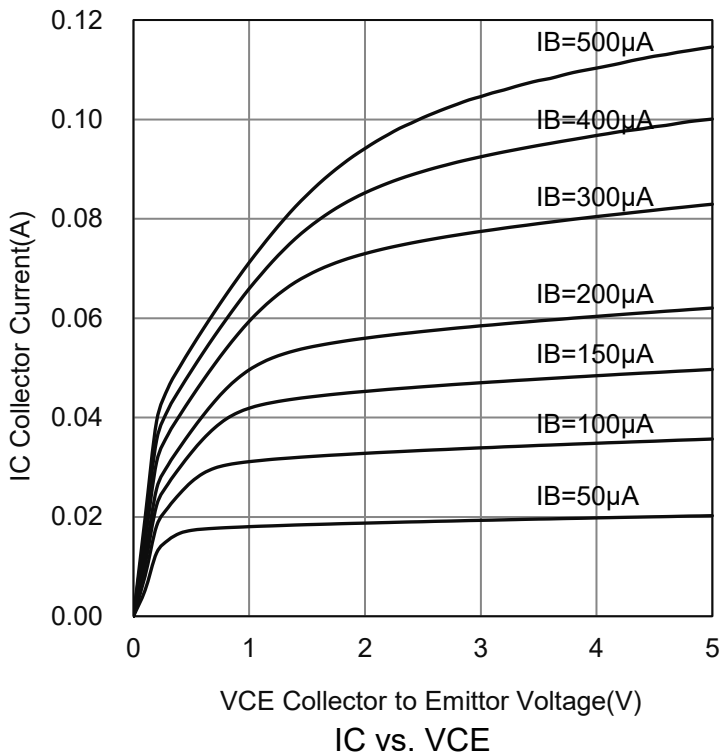
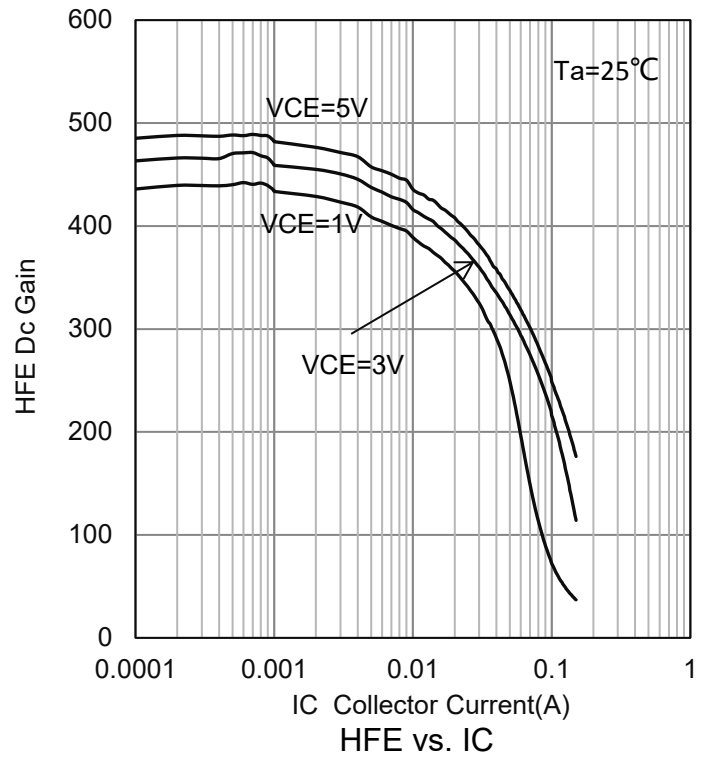
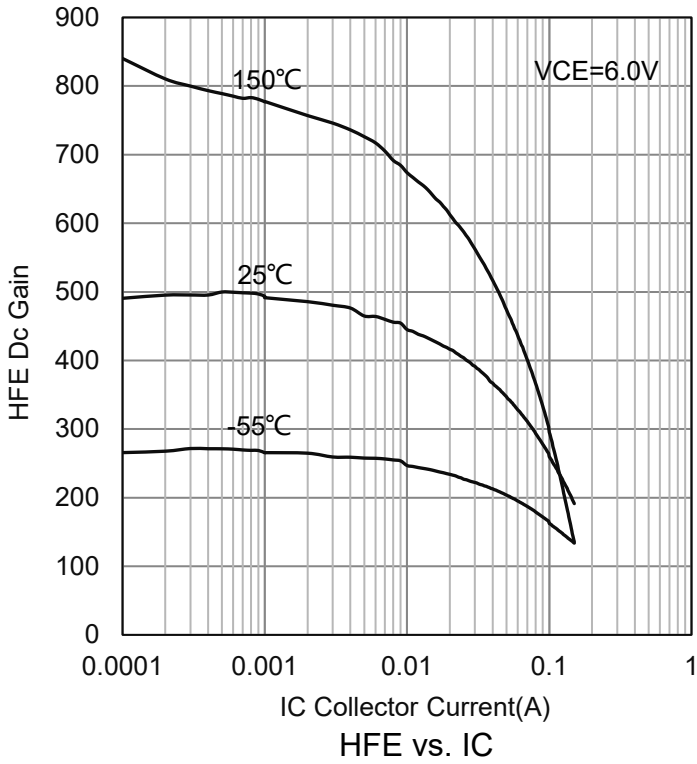
DC Current Gain (IC = - 1mA, VCE = - 6.0V)	HFE	270	-	560	
Collector–Emitter Saturation Voltage (IC = - 100mA, IB = - 10mA)	VCE(sat)	-	-0.18	-0.3	V
Base -Emitter On Voltage (IE = -1.0mA, VCE = - 6.0V)	VBE	-0.58	-0.62	-0.68	V

### SMALL–SIGNAL CHARACTERISTICS

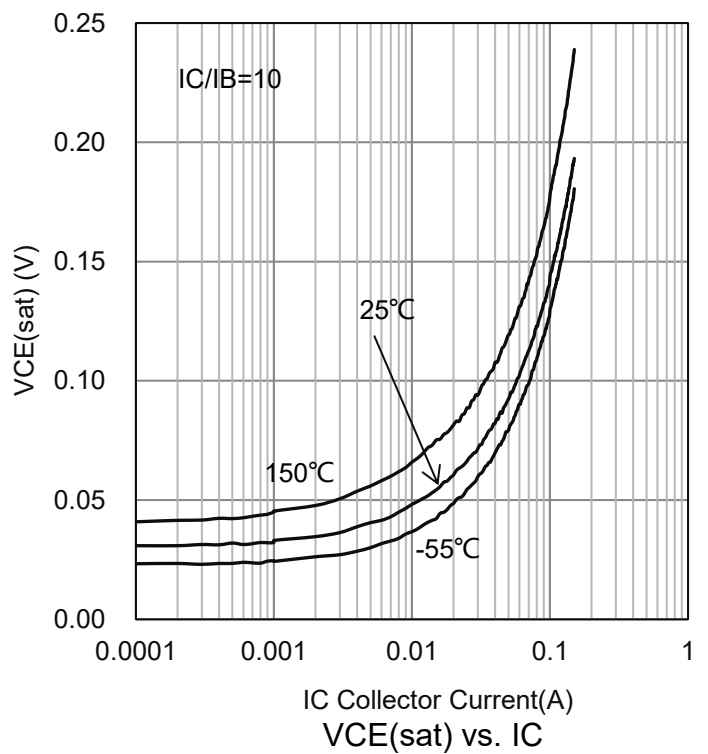
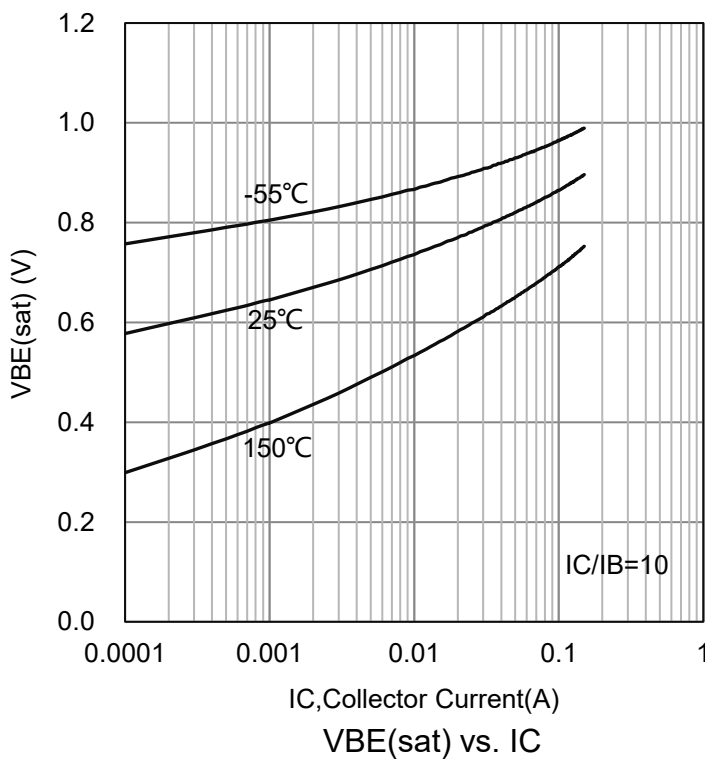
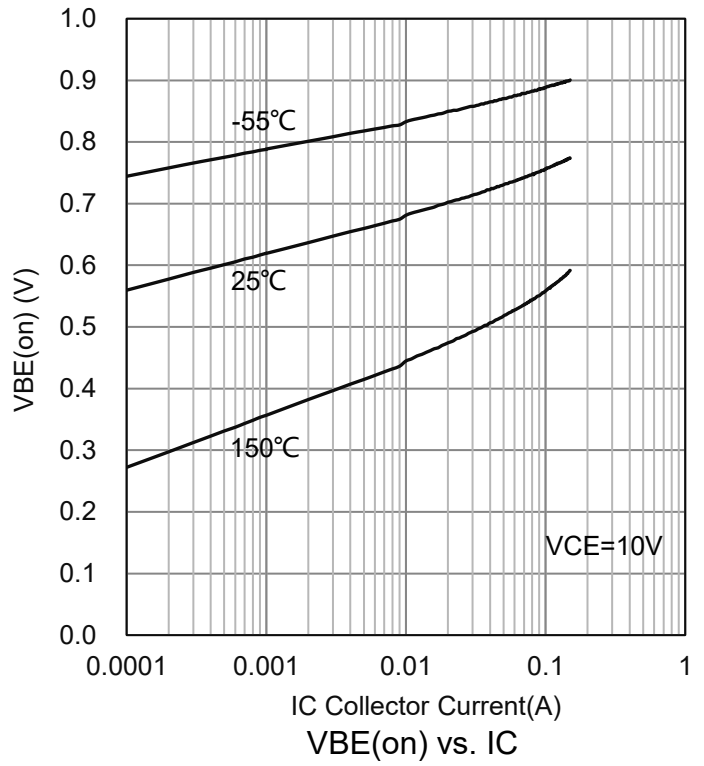
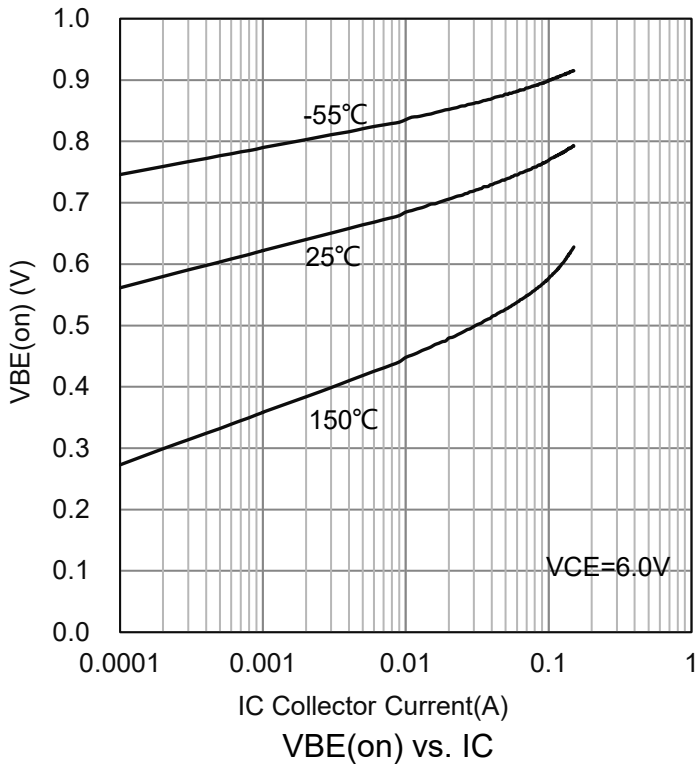
Current–Gain — Bandwidth Product (VCE = - 6.0V, IE = - 10mA)	fT	-	180	-	MHz
Output Capacitance (VCE = - 10V, IE =0, f=1.0MHz)	Cobo	-	4.5	-	pF



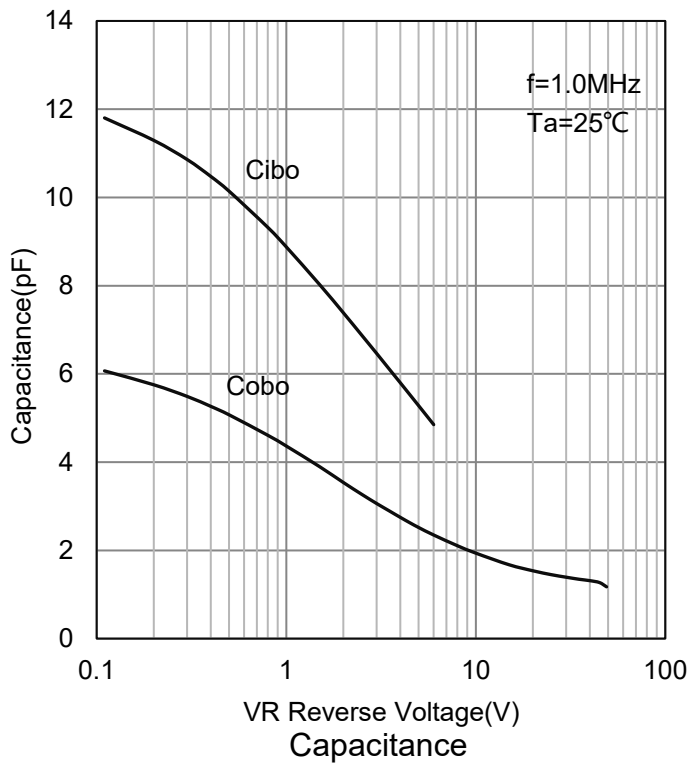
6.ELECTRICAL CHARACTERISTICS CURVES



6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



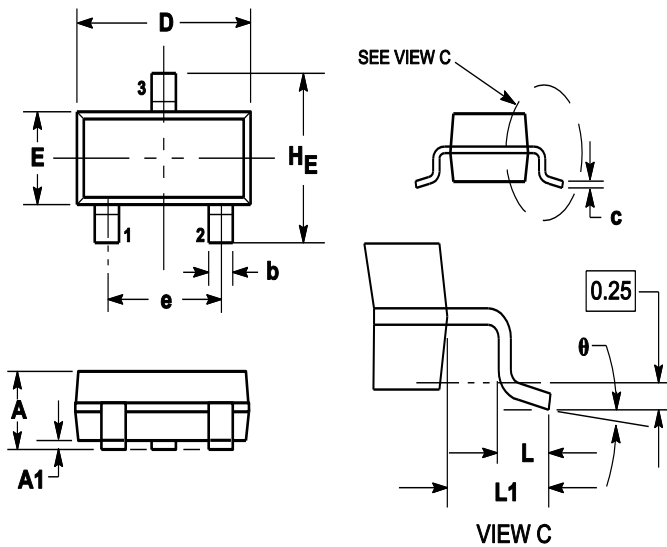
## 6.ELECTRICAL CHARACTERISTICS CURVES(Con.)



7. OUTLINE AND DIMENSIONS

Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.



DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1	1.11	0.035	0.04	0.044
A1	0.01	0.06	0.1	0.001	0.002	0.004
b	0.37	0.44	0.5	0.015	0.018	0.02
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.9	3.04	0.11	0.114	0.12
E	1.20	1.3	1.4	0.047	0.051	0.055
e	1.78	1.9	2.04	0.07	0.075	0.081
L	0.10	0.2	0.3	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
HE	2.10	2.4	2.64	0.083	0.094	0.104
$\theta$	0°	---	10°	0°	---	10°

8. SOLDERING FOOTPRINT

