

BC856A/B , BC857A/B/C , BC858A/B/C



PNP TRANSISTOR

VOLTAGE: -30~-80 Volts

CURRENT: -0.1 Amperes

Package: SOT-23

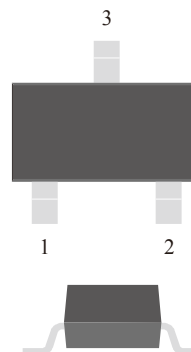
FEATURES

- PNP General-Purpose Small Signal Transistor.
- Small Temperature Drift And Low Cost.
- Extremely Low Saturation Voltage Drop
- The Summary Capacitor Is Suitable For High-Frequency Applications.

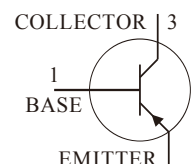
MECHANICAL DATA

- **Package:** Molding Compound Meets UL 94V-0 Flammability Rating.
The Material Of Product Compliance With RoHS Requirements.
- **Mounting Position:** Any.
- **Pin and polarity:**As Shown In The Figure On The Right.

Diagram:



Polarity:



Maximum Ratings (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions	Symbol	BC 856	BC 857	BC 858	Unit
Collector-Base Voltage		V_{CBO}	-80	-50	-30	V
Collector-Emitter Voltage		V_{CEO}	-65	-45	-30	V
Emitter-Base Voltage		V_{EBO}	-5			V
Collector Current	Continuous	I_C	-0.1			A

Thermal Characteristics (Ta=25°C Unless otherwise specified)

Parameter	Test Conditions	Symbol	BC 856	BC 857	BC 858	Unit
Total Device Power Dissipation		P_D	200			mW
Derating Factor	above 25°C	D_F	1.6			mW/°C
Operating Junction Temperature Range		T_J	-55	to	150	°C
Storage Temperature Range		T_{STD}	-55	to	150	
Thermal Resistance From Junction To Ambient With Steady-State	Device Mounted On 1 in2 FR-4 Board With 2oz.Copper	$R_{\theta JA}$	625			°C/W

BC856A/B , BC857A/B/C , BC858A/B/C

PNP TRANSISTOR
ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Characteristic	Test Condition		Symbol	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	IC= -10 uAdc, IE= 0	BC856	V _{(BR)CBO}	-80	-	-	V
		BC857		-50	-	-	
		BC858		-30	-	-	
Collector-Emitter Breakdown Voltage	IC= -10 mAdc, IB= 0	BC856	V _{(BR)CEO}	-65	-	-	V
		BC857		-45	-	-	
		BC858		-30	-	-	
Emitter-Base Breakdown Voltage	IE= -1 uAdc, IC= 0		V _{(BR)EBO}	-5	-	-	V
Collector Cut-off Current	VCB= -70 Vdc, IE= 0	BC856	I _{CBO}	-	-	-100	nA
	VCB= -45 Vdc, IE= 0	BC857					
	VCB= -25 Vdc, IE= 0	BC858					
Emitter Cut-off Current	VEB= -5 Vdc, IC= 0		I _{EBO}	-	-	-100	nA

ON CHARACTERISTICS

DC Current Gain	BC856A,BC857A,BC858A	VCE= -5 V, IC= -2 mA	H _{FE}	125	-	250	-
	BC856B,BC857B,BC858B	VCE= -5 V, IC= -2 mA		220	-	475	
	BC857C,BC858C	VCE= -5 V, IC= -2 mA		420	-	800	
Collector-Emitter Saturation Voltage	IC= -100 mA, IB= -5 mA		V _{CE(Sat)}	-	-	-0.5	V
Base-Emitter Saturation Voltage	IC= -100 mA, IB= -5 mA		V _{BE(Sat)}	-	-	-1.1	V
Transition Frequency, f= 100MHz	VCE= -5 V, IC= -10 mA		f _T	100	-	-	MHZ
Output Capacitance f= 1MHz	VCE= -5 V		C _{cb}	-	-	4.5	PF

BC856A/B , BC857A/B/C , BC858A/B/C

PNP TRANSISTOR



Typical Characteristics Curves

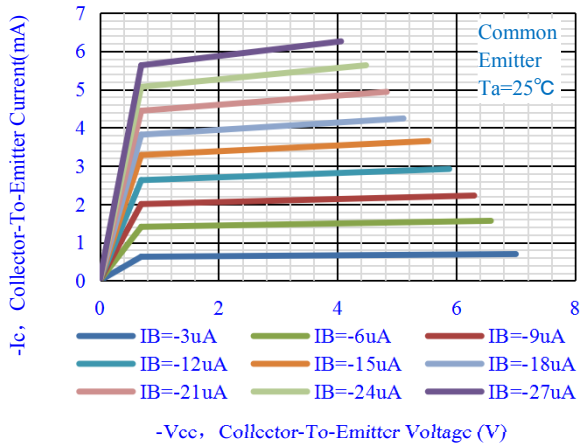


Fig.1-Static Characteristics

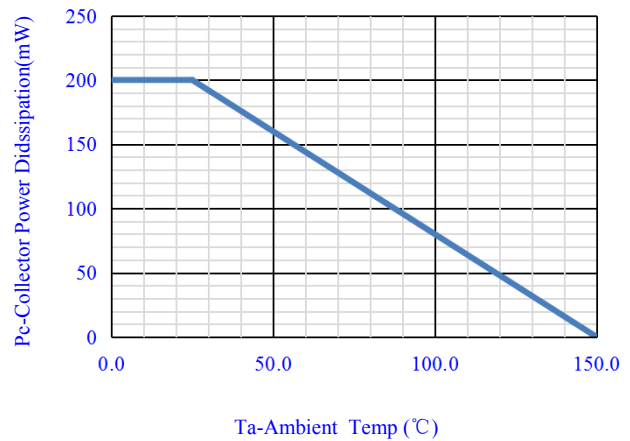


Fig.2-Collector Power Dissipation Vs. Ta

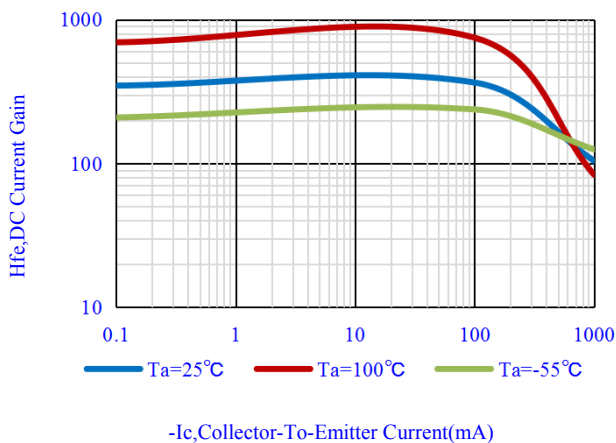


Fig.3-Dc Current Gain Vs. Collector Current

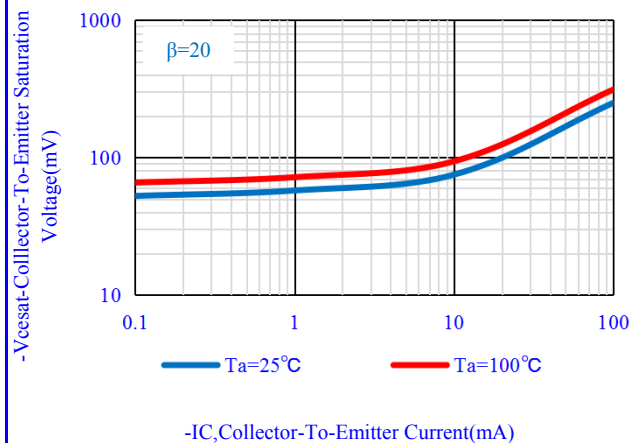


Fig.4-Base-To-Emitter Saturation Voltage Vs. Collector Current

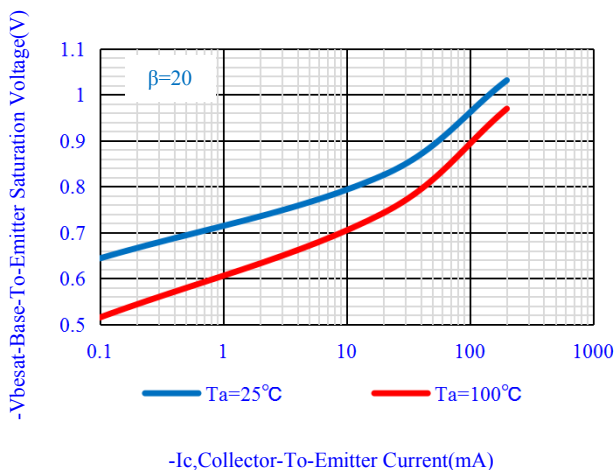


Fig.5-Base-To-Emitter Saturation Voltage Vs. Collector Current

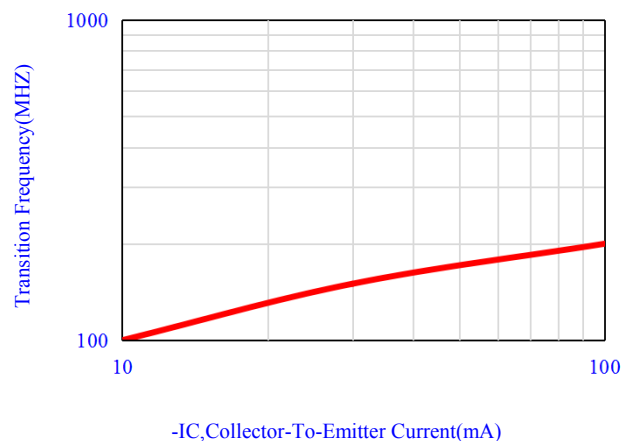


Fig.6-Collector Current Vs. Transition Frequency

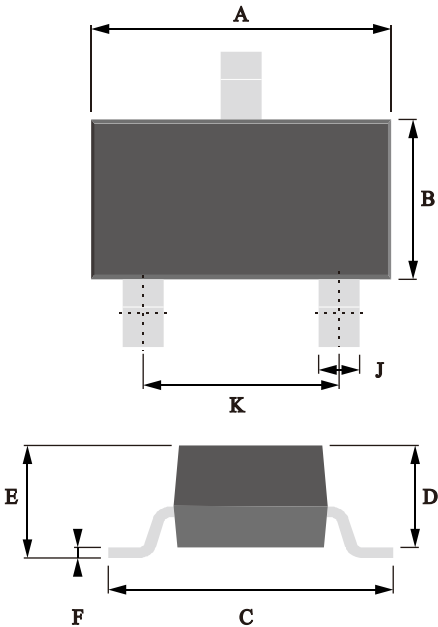
BC856A/B , BC857A/B/C , BC858A/B/C



PNP TRANSISTOR

OUTLINE DRAWINGS

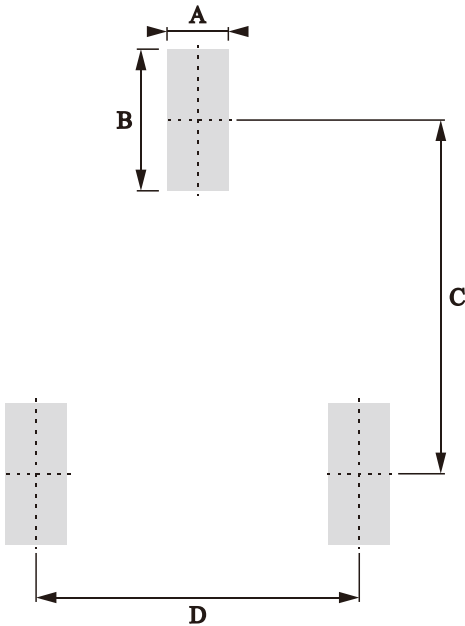
SOT-23



OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.80	-	3.20	0.1102	-	0.1260
B	1.15	-	1.45	0.0453	-	0.0571
C	2.25	-	2.65	0.0886	-	0.1043
D	0.85	-	1.15	0.0335	-	0.0453
E	0.90	-	1.20	0.0354	-	0.0472
F	0.08	-	0.18	0.0031	-	0.0071
J	0.30	-	0.50	0.0118	-	0.0197
K	1.70	-	2.10	0.0669	-	0.0827

RECOMMEDND LAYOUT DRAWINGS

SOT-23



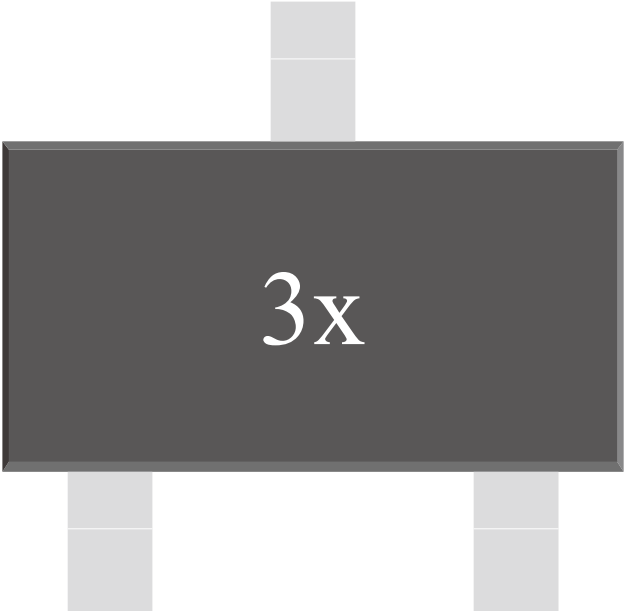
OUTLINE DIMENSIONS						
Dim.	Milimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	-	0.60	-	-	0.0000	-
B	-	0.80	-	-	0.0315	-
C	-	2.00	-	-	0.0787	-
D	-	1.90	-	-	0.0748	-

BC856A/B , BC857A/B/C , BC858A/B/C

PNP TRANSISTOR



MARKING INFORMATION



MARKING INSTRUCTIONS

3x=Make,x=A,B,E,F,G,J,K,L

Make

BC856A=3A	BC856B=3B	
BC857A=3E	BC857B=3F	BC857C=3G
BC858A=3J	BC858B=3K	BC858C=3L

PACKING INFORMATION

Package Type	Package Code	Product Weight Approx(g/Pcs)	Package Method	Quantity (Pcs/Min. Pack.)	Quantity (Pcs/Inner Box)	Quantity (Pcs/Carton)
SOT-23	P1	0.008	7" Reel	3000	45000	180000

BC856A/B , BC857A/B/C , BC858A/B/C

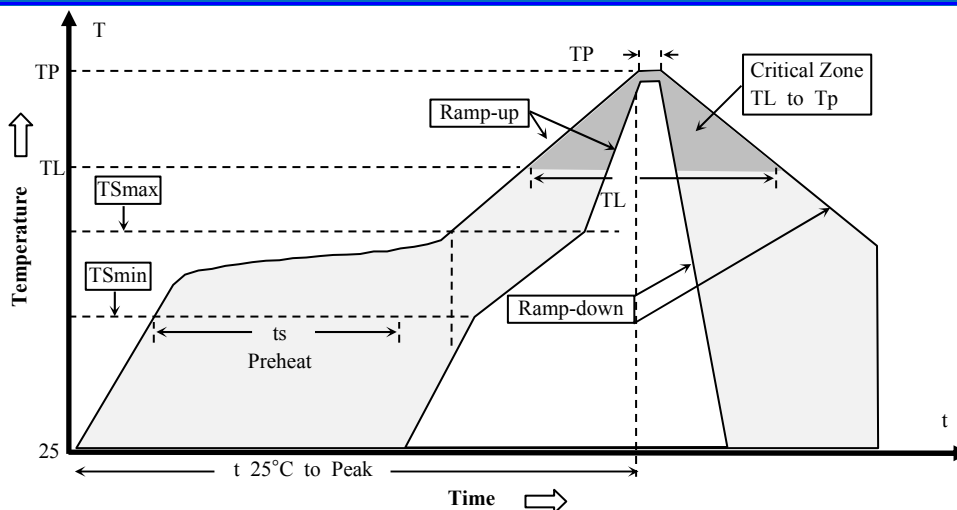


PNP TRANSISTOR

Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat -Temperature Min(TS min) -Temperature Max(TS max) -Time(ts min to ts max)	100°C 150°C 60-120 seconds	150°C 200°C 60-180 seconds
Time maintained above: -Temperature (TL) - Time (tL)	183°C 60-150 seconds	217°C 60-150 seconds
Peak Temperature(TP)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

BC856A/B , BC857A/B/C , BC858A/B/C



PNP TRANSISTOR

Disclaimer

- Reproducing and modifying information of the document is prohibited without permission from Niuhan Electronics Technology Co., LTD
- Niuhan Electronics Technology Co., LTD. reserves the rights to make changes of the content herein the document anytime without notification.
- Niuhan Electronics Technology Co., LTD. disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- Niuhan Electronics Technology Co., LTD. does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the herein document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. Niuhan Electronics Technology Co., LTD. makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.
- The products shown herein are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Niuhan Electronics Technology Co., LTD. for any damages resulting from such improper use or sale.
- When the appearance of the product and chip size does not change, in order to product the customer. quality, change the internal structure and the production process Niuhan can not notify