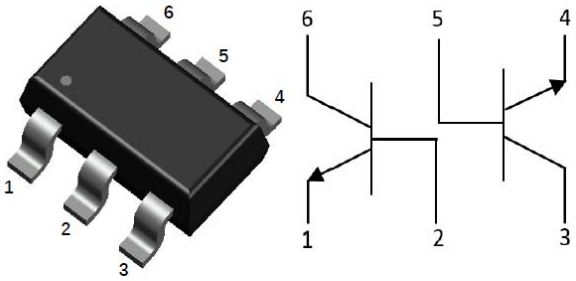
NPN+NPN Transistor



1: Emitter 4: Emitter
2: Base 5: Base
3: Collector 6: Collector

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-23-6L
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102

■ **Maximum Ratings** (Ta=25℃ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				N3
Collector-base voltage	V_{CBO}	V	I_C=50uA, I_E=0	50
Collector-emitter voltage	V_{CEO}	V	I_C=1mA, I_B=0	45
Emitter-base voltage	V_{EBO}	V	I_E=50uA, I_C=0	5
Collector current	I_C	mA		500
Power dissipation	P_D	mW		300
Operation junction temperature	T_j	℃		-55 to +150
Storage temperature	T_{STG}	℃		-55 to +150

■ Electrical Characteristics (Ta=25℃ unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	I_C=50uA, I_E=0	50		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	I_C=1mA, I_B=0	45		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	I_E=50uA, I_C=0	5		
Collector-base cut-off current	I_{CBO}	nA	V_{CB}=20V, I_E=0			100
Emitter-base cut-off current	I_{EBO}	nA	V_{EB}=5V, I_C=0			100
DC current gain	h_{FE1}		I_C=100mA, V_{CE}=1V	160		400
	h_{FE2}		I_C=500mA, V_{CE}=1V	40		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	I_C=500mA, I_B=50mA			0.7
Base-emitter voltage	V_{BE}	V	I_C=500mA, V_{CE}=1V			1.2
Transition frequency	f_T	MHz	I_C=10mA,V_{CE}=5.0V, f=30MHz	100		

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	RθJ-A(1)	℃/W	417
Thermal resistance, junction-to-case	RθJ-C(1)	℃/W	334

Note:

（1）Thermal resistance from junction to ambient and from junction to case mounted on P.C.B. with 25.4*25.4mm copper pad areas

■Characteristics

Fig 1：Static Characteristics

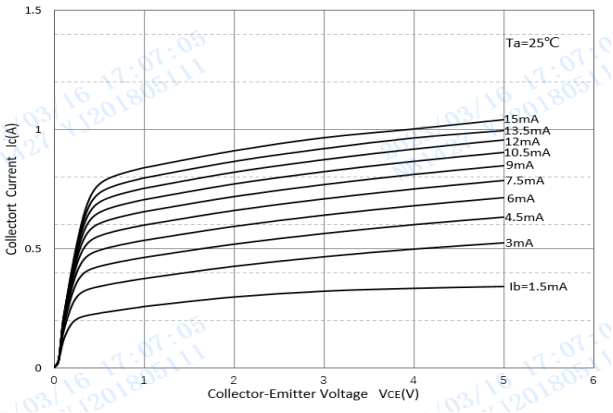


Fig 2：DC Current Gain

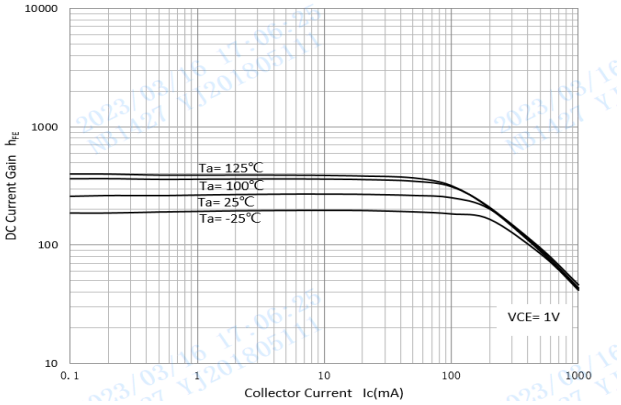


Fig 3：Collector-Emitter Saturation Voltage

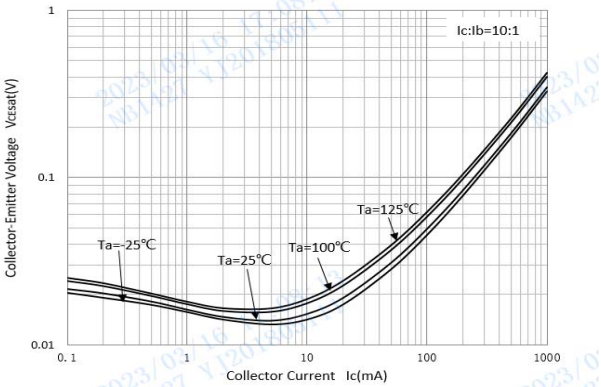


Fig 4：Base-Emitter Saturation Voltage

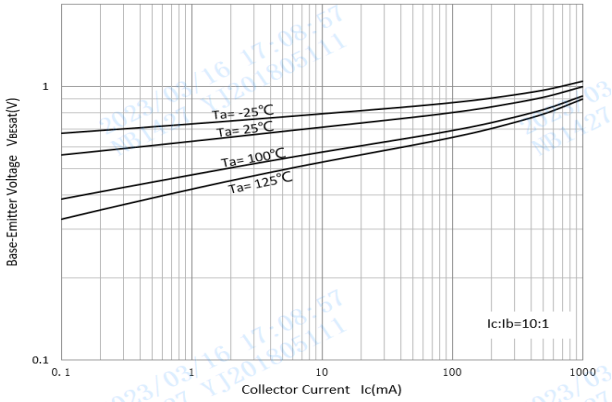


Fig 5：Base-Emitter On Voltage

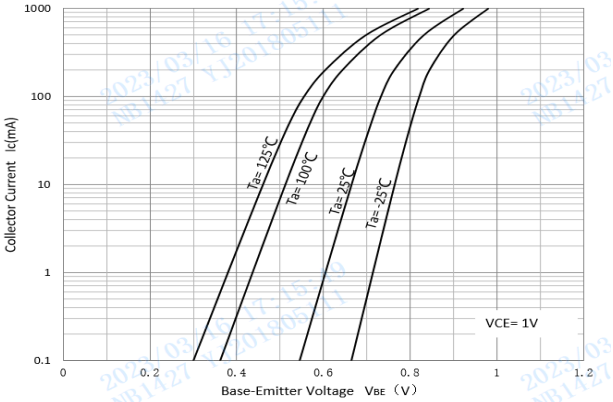
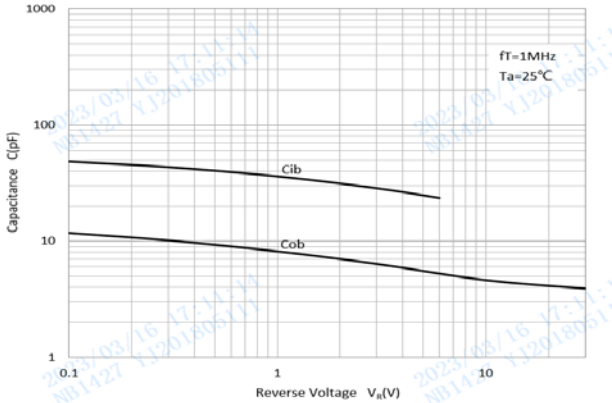
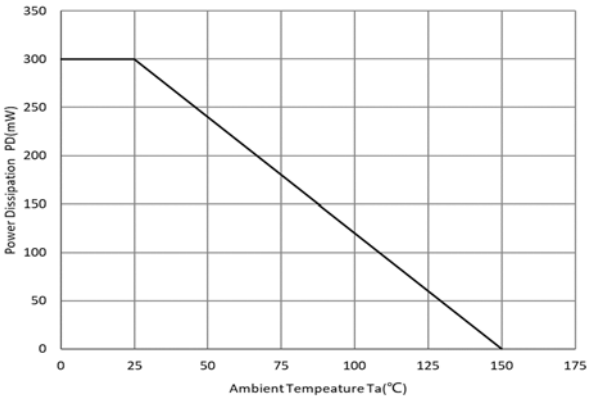


Fig 6：Cob/Cib-V_{CB}/V_{EB}



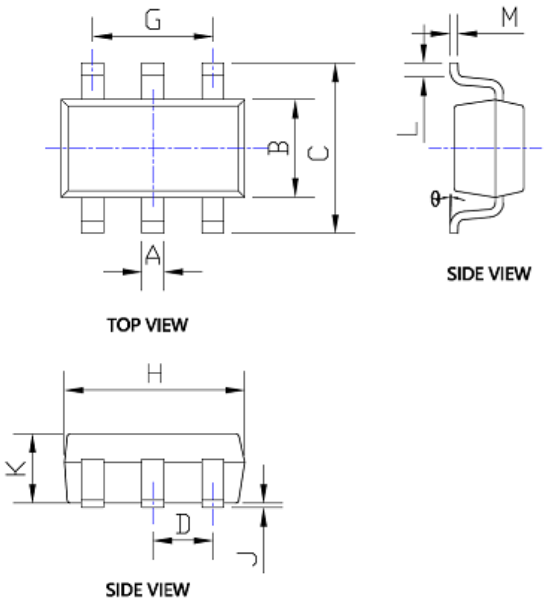
D


350
300
250
200
150
100
50
0
Power Dissipation PD(mW)
0
25
50
75
100
125
150
175
Ambient Tempeature Ta(℃)

■Ordering Information

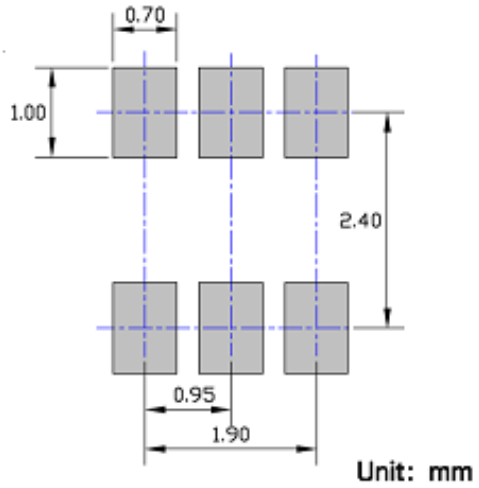
Prefered P/N	Packing Code	Unit weight(mg)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
BC817DS	F2	Approximate 15.6	3000	30000	120000	7” reel

■ Outline Dimensions



DIMENSIONS				
SYMBOL	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.012	0.020	0.300	0.500
B	0.059	0.067	1.500	1.700
C	0.104	0.116	2.650	2.950
D	0.037BSC		0.950BSC	
G	0.075BSC		1.900BSC	
H	0.111	0.119	2.820	3.020
J	0.000	0.004	0.000	0.100
K	0.041	0.045	1.050	1.150
L	0.012	0.024	0.300	0.600
M	0.004	0.008	0.100	0.200
θ	0°	8°	0°	8°

■ Suggested Pad Layout



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