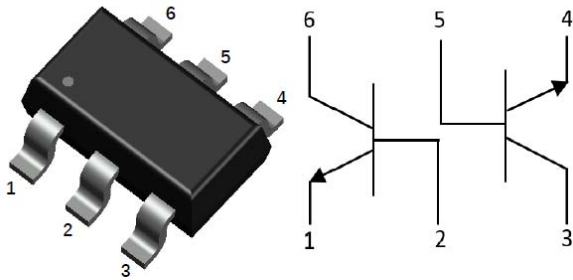


## NPN+NPN Transistor



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°C Unless otherwise specified)

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



# BC817DS

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

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	$I_C=50\mu A, I_E=0$	50		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	$I_C=1mA, I_B=0$	45		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E=50\mu A, I_C=0$	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	$R_{\theta J-A}^{(1)}$	°C/W	417
Thermal resistance, junction-to-case	$R_{\theta J-C}^{(1)}$	°C/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

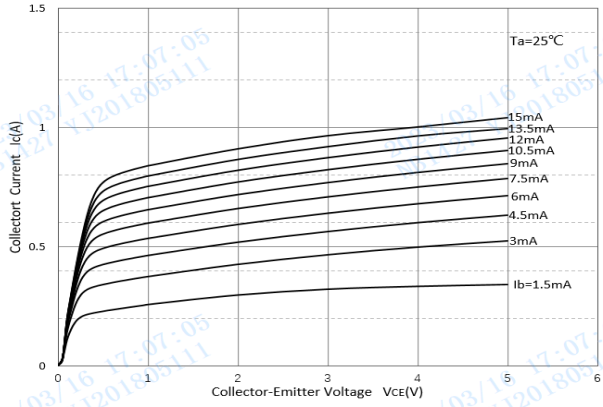


Fig 2: DC Current Gain

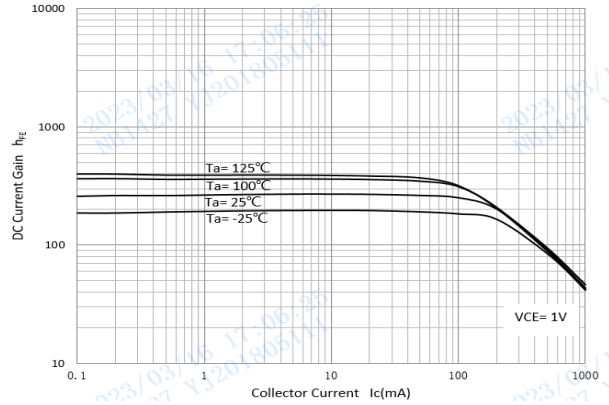


Fig 3: Collector-Emitter Saturation Voltage

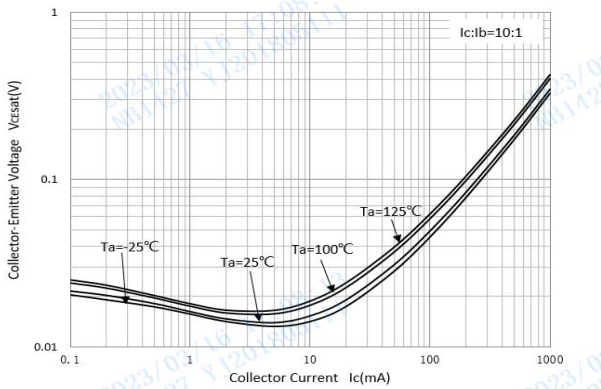


Fig 4: Base-Emitter Saturation Voltage

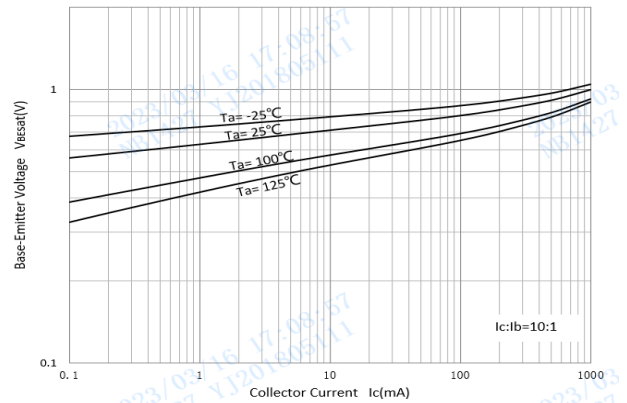


Fig 5: Base-Emitter On Voltage

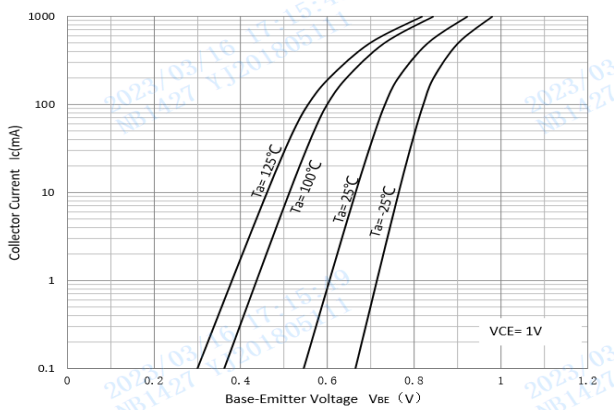


Fig 6: Cob/Cib-V<sub>CB</sub>/V<sub>EB</sub>

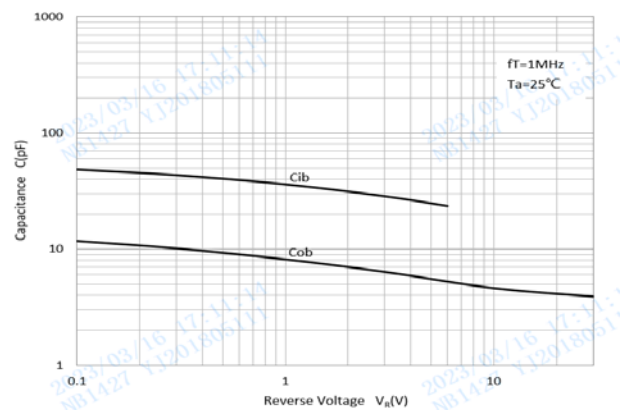
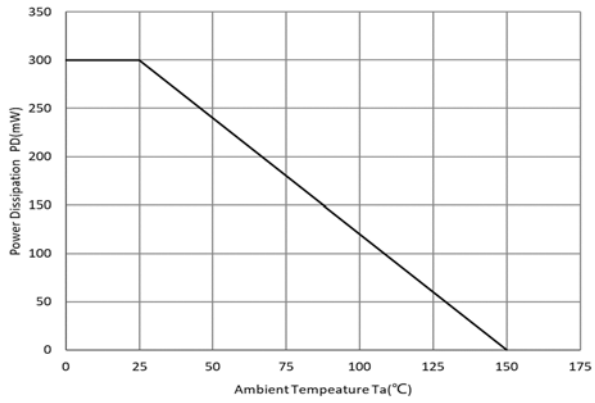




Fig 7: P<sub>D</sub>-T<sub>a</sub> Curve





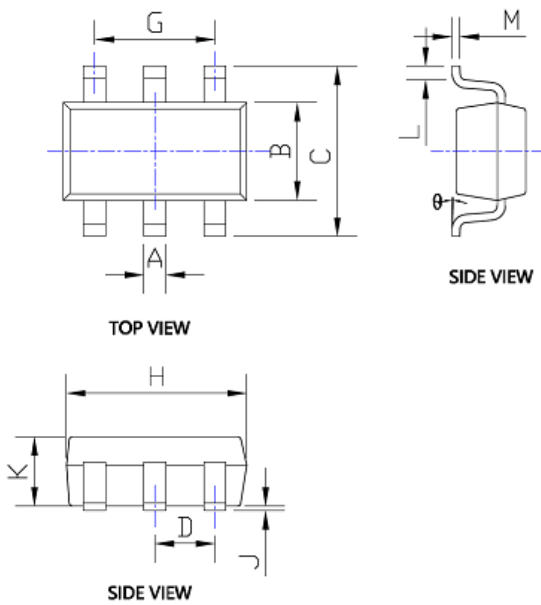
# BC817DS

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## Ordering Information

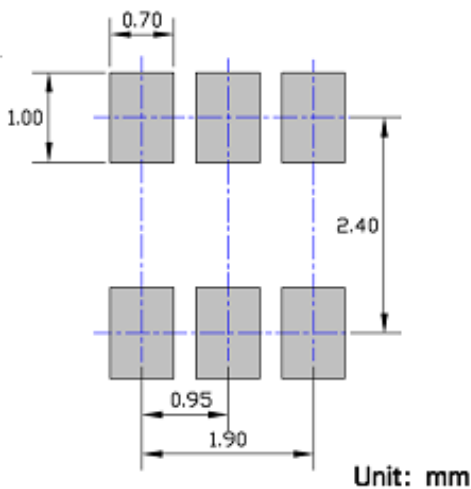
Preferred P/N	Packing Code	Unit weight(mg)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
BC817DS	F2	Approximate 15.6	3000	30000	120000	7" reel

## Outline Dimensions



SYMBOL	DIMENSIONS			
	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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