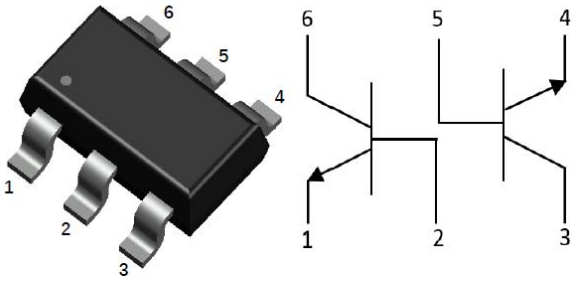
Dual NPN Small Signal Transistor



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				4Ft
Collector-base voltage	V_{CBO}	V	I_C =10uA,I_E=0	80
Collector-emitter voltage	V_{CEO}	V	I_C =10mA,I_B=0	65
Emitter-base voltage	V_{EBO}	V	I_E=10uA,I_C=0	6
Collector current	I_C	mA		100
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=10μA,I_E=0	80		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	I_C =10mA,I_B=0	65		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	I_E=10μA,I_C=0	6		
Collector-base cut-off current	I_{CBO}	nA	V_{CB}=30V,I_B=0			15
Emitter-base cut-off current	I_{EBO}	nA	V_{EB}=5V, I_C=0			100
DC current gain	h_{FE}		V_{CE}=5V,I_C=2mA	200		450
Collector-emitter saturation voltage	$V_{CE(sat)1}$	V	I_C=10mA,I_B=0.5mA			0.25
	$V_{CE(sat)2}$	V	I_C=100mA,I_B=5mA			0.65
Base-emitter saturation voltage	$V_{BE(sat)1}$	V	I_C=10mA,I_B=0.5mA		0.7	
	$V_{BE(sat)2}$	V	I_C=100mA,I_B=5mA		0.9	
Base-emitter voltage	V_{BE}	V	V_{CE}=5V,I_C=2mA	0.58	0.665	0.7
Transition frequency	f_T	MHz	V_{CE}=5V,I_C=10mA,f=100MHz		200	

■ 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）Device mounted on PCB, single-sided copper， with standard footprint

■Characteristics

Fig 1：Static Characteristics

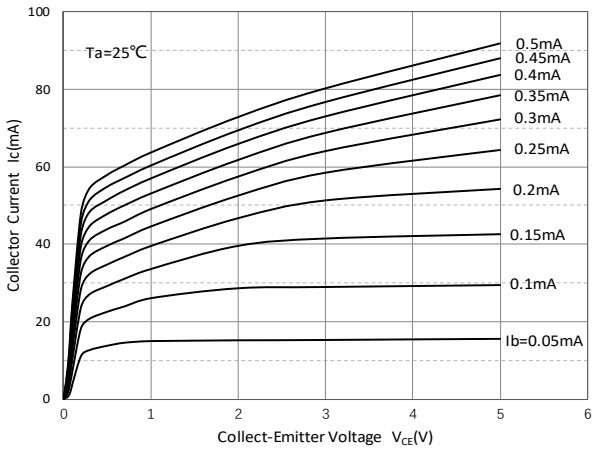


Fig 2：DC Current Gain

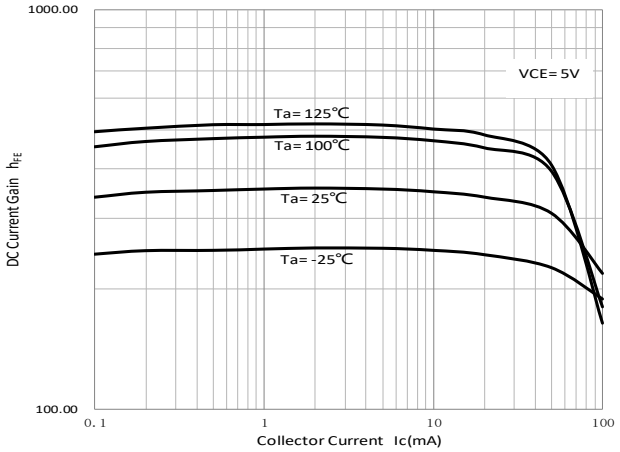


Fig 3：Collector-Emitter Saturation Voltage

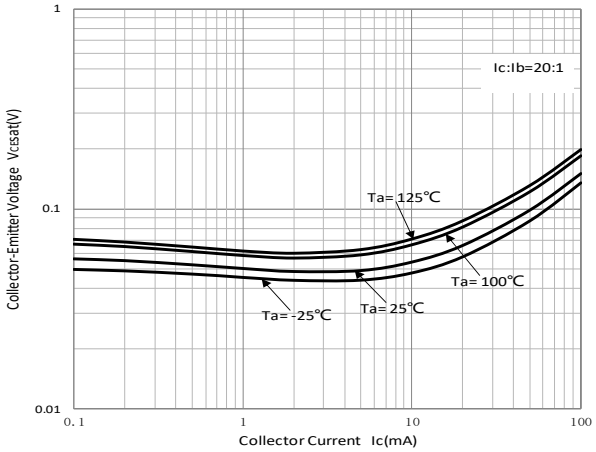


Fig 4：Base-Emitter Saturation Voltage

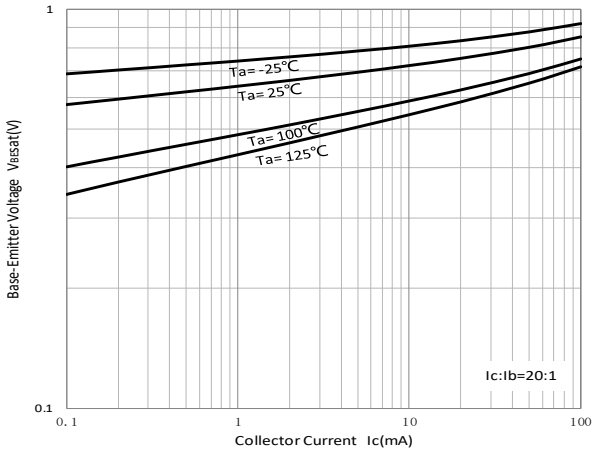


Fig 5：Base-Emitter On Voltage

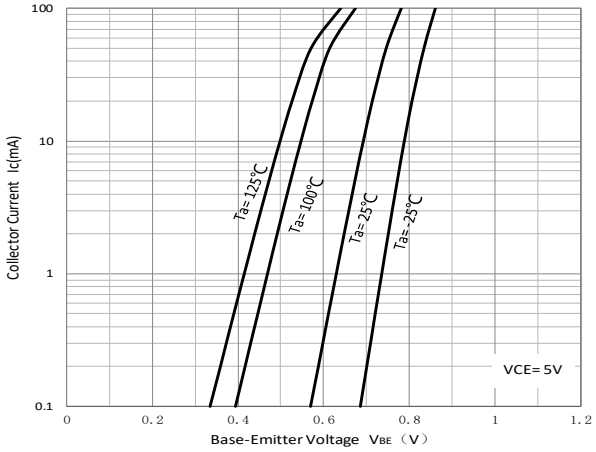
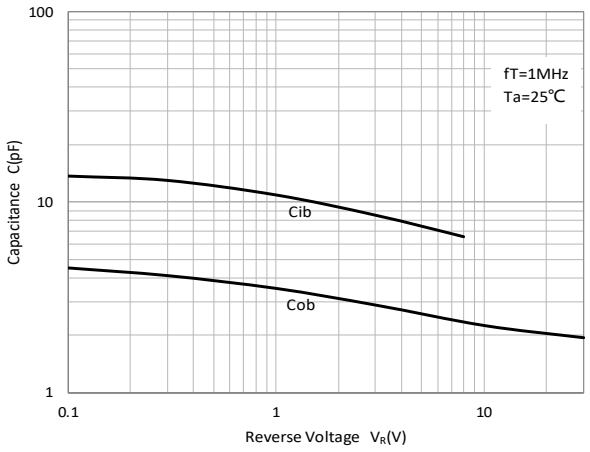
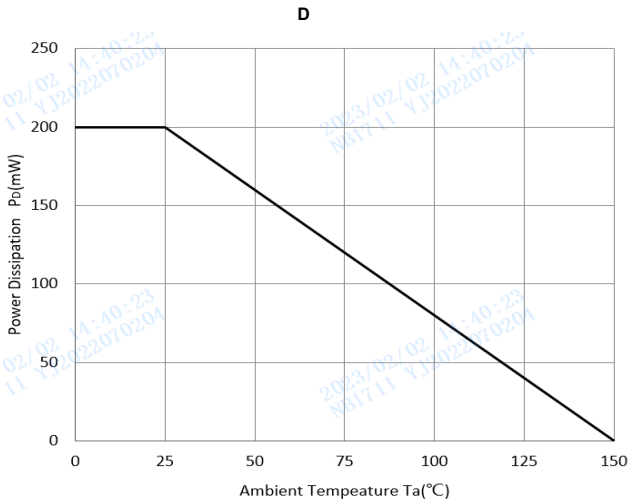


Fig 6：Cob/Cib-V_{CB}/V_{EB}

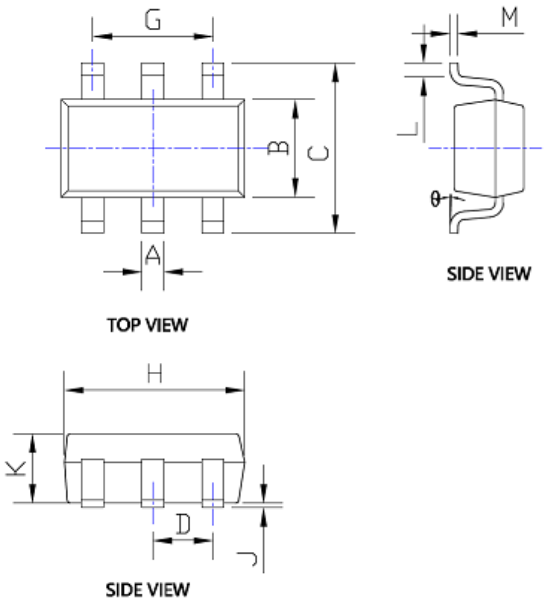



D
250
200
150
100
50
0
Power Dissipation P_D(mW)
0
25
50
75
100
125
150
Ambient Tempeature Ta(℃)

■Ordering Information

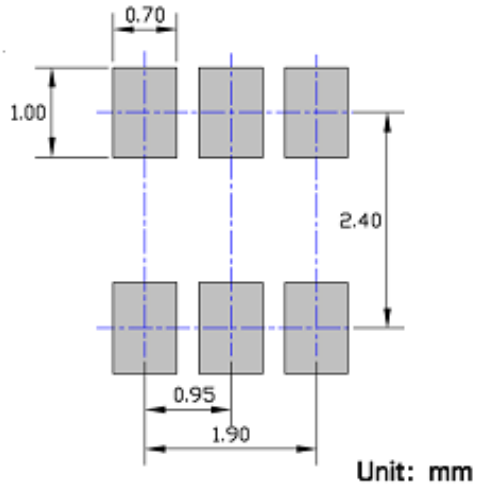
Prefered P/N	Packing Code	Unit weight(mg)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
BC846DS	F2	Approximate 15.6	3000	30000	120000	7” reel

■ 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



Notice

All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise. Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in STARSEA's terms and conditions of sale for such products, STARSEA assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of STARSEA products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.