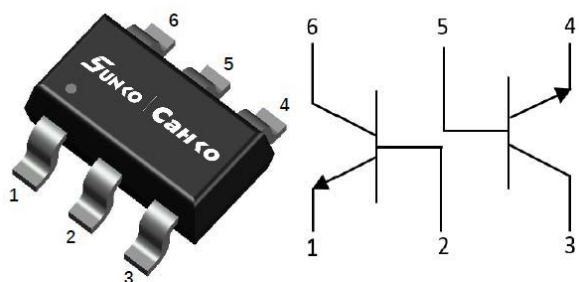


BC846DS

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
- 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				4Ft
Collector-base voltage	V_{CBO}	V	$I_C = 10\mu A, I_E = 0$	80
Collector-emitter voltage	V_{CEO}	V	$I_C = 10mA, I_B = 0$	65
Emitter-base voltage	V_{EBO}	V	$I_E = 10\mu A, I_C = 0$	6
Collector current	I_C	mA		100
Power dissipation	P_D	mW		300
Operation junction temperature	T_j	°C		-55 to +150
Storage temperature	T_{STG}	°C		-55 to +150

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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	$I_C=10\mu A, I_E=0$	80		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	$I_C=10mA, I_B=0$	65		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E=10\mu A, I_C=0$	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	$R_{\theta J-A}^{(1)}$	°C/W	417
Thermal resistance, junction-to-case	$R_{\theta J-C}^{(1)}$	°C/W	334

Note:

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

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■ Characteristics

Fig 1: Static Characteristics

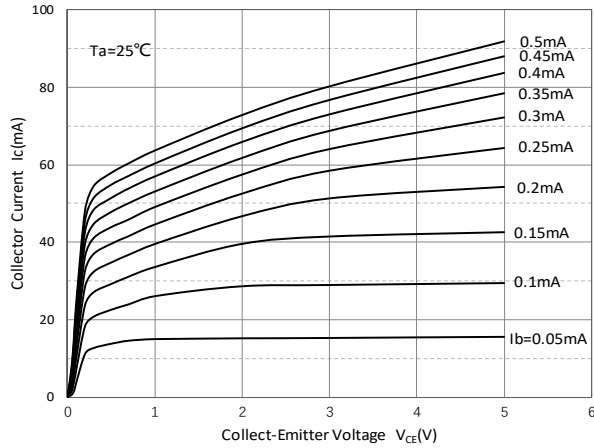


Fig 2: DC Current Gain

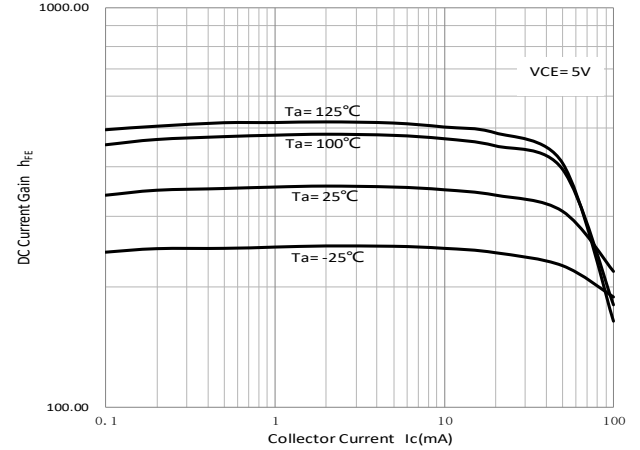


Fig 3: Collector-Emitter Saturation Voltage

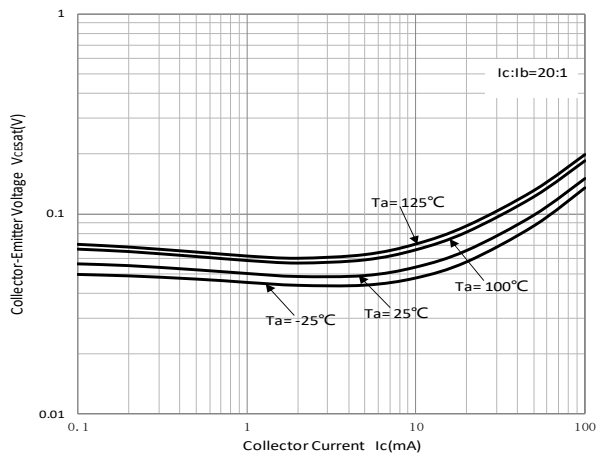


Fig 4: Base-Emitter Saturation Voltage

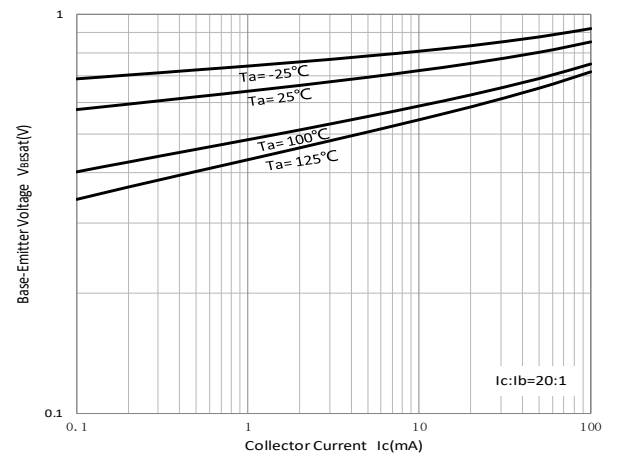


Fig 5: Base-Emitter On Voltage

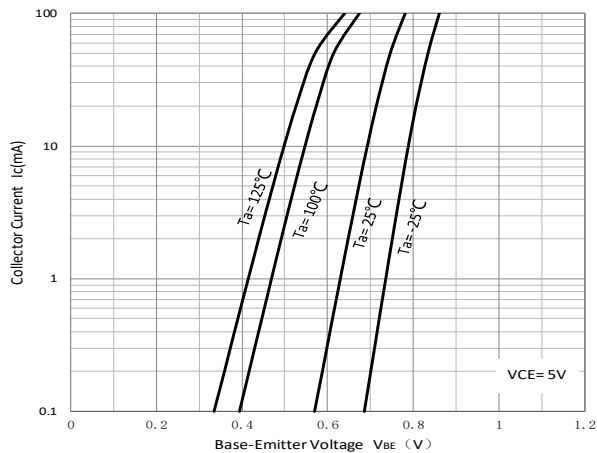
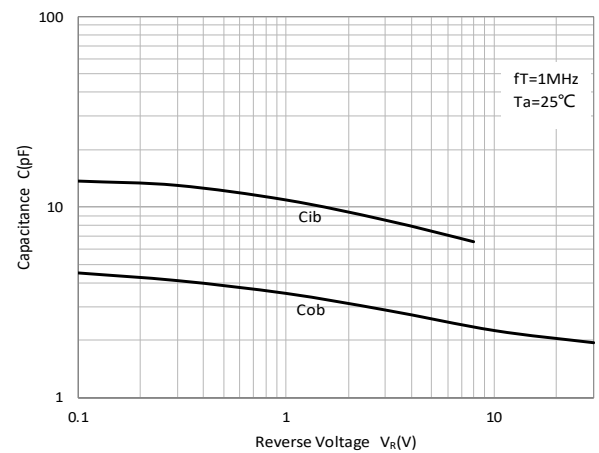
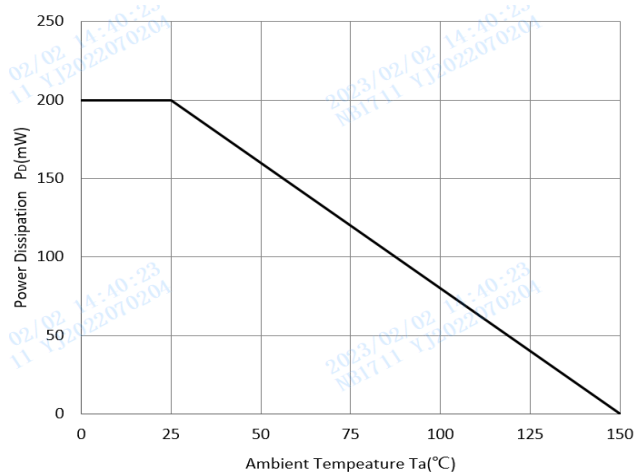


Fig 6: Cob/Cib-V_{CB}/V_{EB}



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Fig 7: P_D - T_a Curve

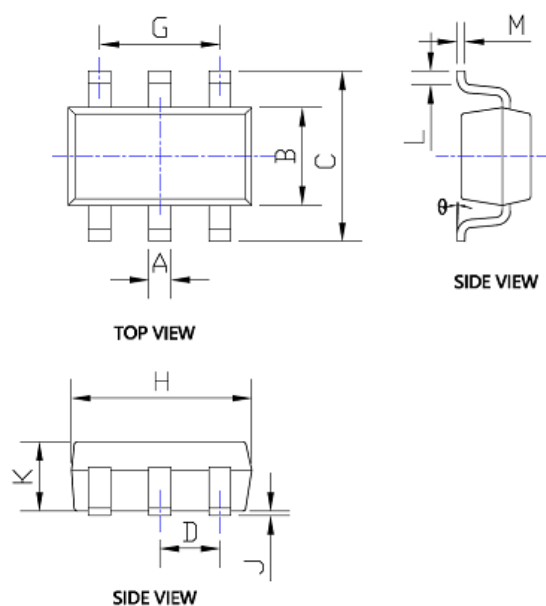


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■ Ordering Information

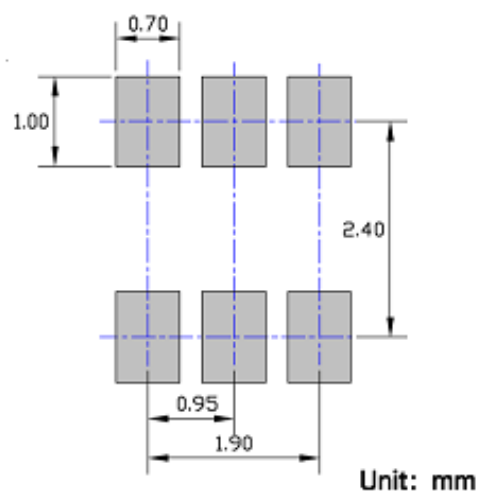
Prefered P/N	Packing Code	Unit weight(mg)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
BC846DS	F2	Approximate 15.6	3000	30000	120000	7" reel

■ Outline Dimensions



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



BC846DS

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