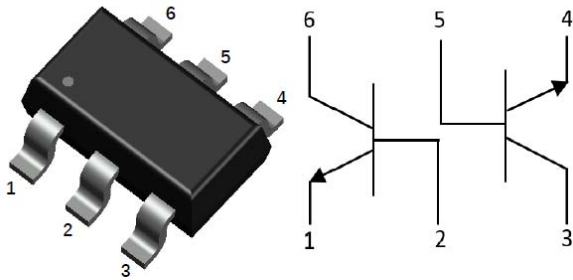


Dual NPN Small Signal Transistor



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°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				4Ft
Collector-base voltage	V_{CB0}	V	$I_C = 10\mu A, I_E = 0$	80
Collector-emitter voltage	V_{CE0}	V	$I_C = 10mA, I_B = 0$	65
Emitter-base voltage	V_{EB0}	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



■ 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



■ Characteristics

Fig 1: Static Characteristics

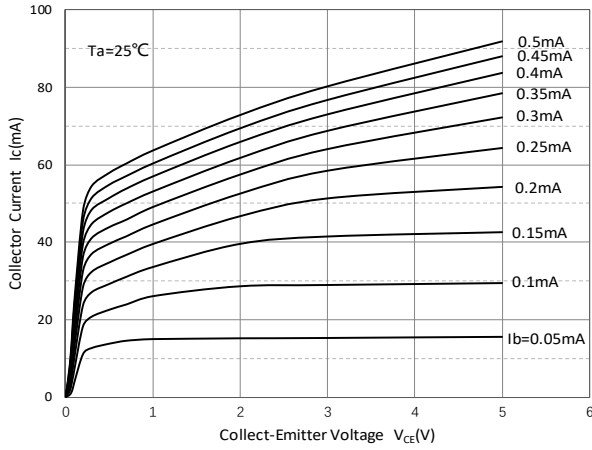


Fig 2: DC Current Gain

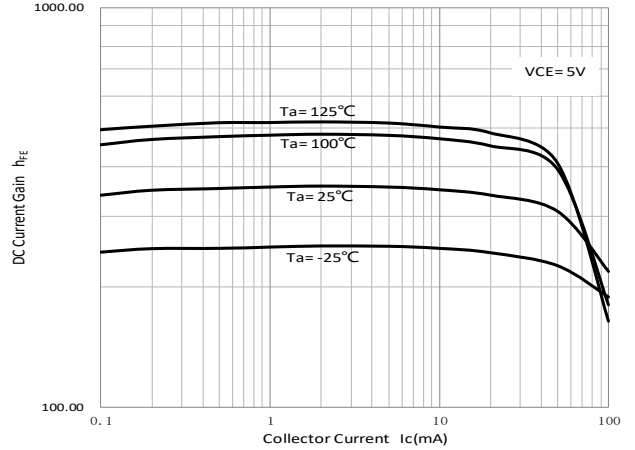


Fig 3: Collector-Emitter Saturation Voltage

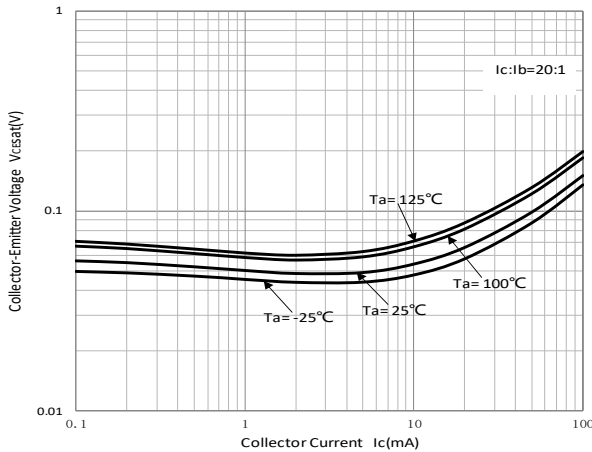


Fig 4: Base-Emitter Saturation Voltage

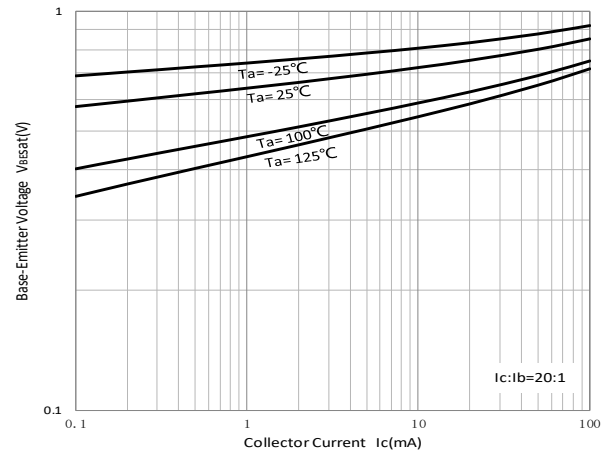


Fig 5: Base-Emitter On Voltage

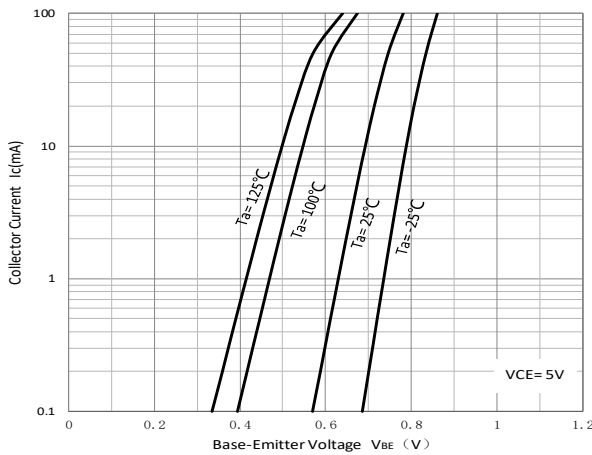


Fig 6: Cob/Cib-V_{CB}/V_{EB}

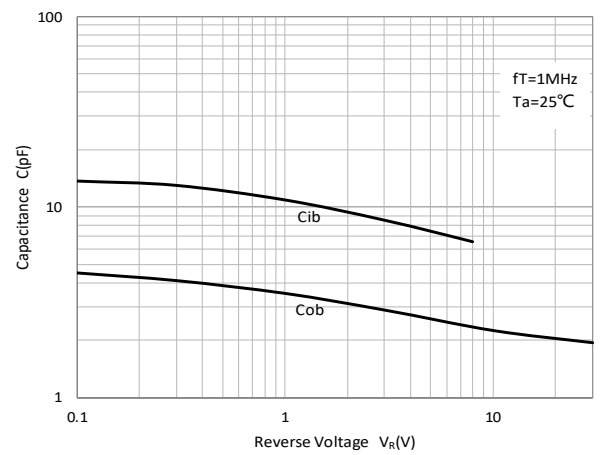
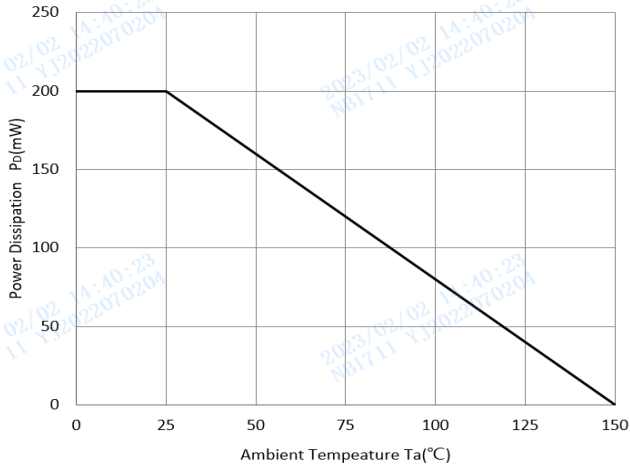




Fig 7: P_D-T_a Curve

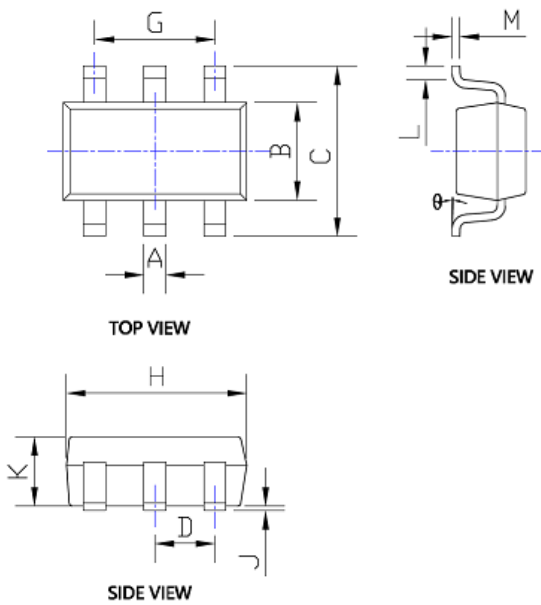




Ordering Information

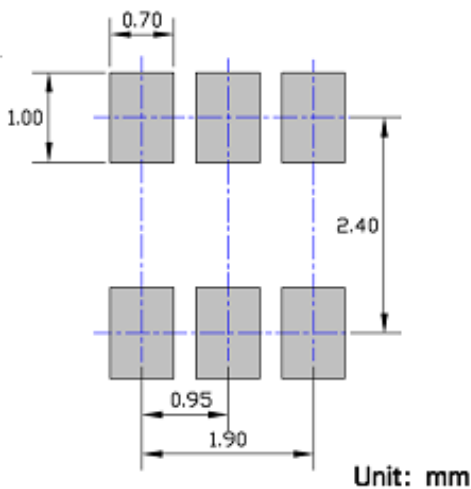
Preferred P/N	Packing Code	Unit weight(mg)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
BC846DS	F2	Approximate 15.6	3000	30000	120000	7" reel

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





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