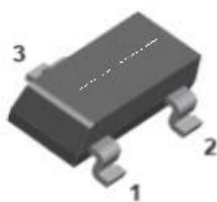
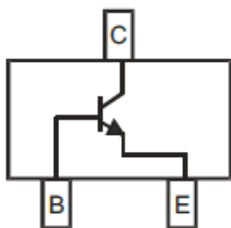


NPN Small Signal Transistor



SOT-23

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

■ Maximum Ratings ($T_a=25^{\circ}\text{C}$ Unless otherwise specified)

Item	Symbol	Unit	Conditions	Value
Device marking code				1C
Collector-base voltage	V_{CBO}	V	$I_C = 10\mu\text{A}$, $I_E = 0$	80
Collector-emitter voltage	V_{CEO}	V	$I_C = 10\text{mA}$, $I_B = 0$	65
Emitter-base voltage	V_{EBO}	V	$I_E = 10\mu\text{A}$, $I_C = 0$	6
Collector current	I_C	A		0.1
Power dissipation	P_D	mW		200
Junction temperature	T_J	$^{\circ}\text{C}$		-55 to +150
Storage temperature	T_{STG}	$^{\circ}\text{C}$		-55 to +150

BC846C

■ Electrical Characteristics (T_a=25°C 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}	uA	V _{CB} =70 V			0.1
Emitter-base cut-off current	I _{EBO}	uA	V _{EB} =5V			0.1
DC current gain	h _{FE}		V _{CE} = 5V, I _C = 2mA	420		800
Collector-emitter saturation voltage	V _{CE(sat)}	V	I _C =100mA, I _B =5mA			0.5
Base-emitter saturation voltage	V _{BE(sat)}	V	I _C =100mA, I _B =5mA			1.1
Transition frequency	f _T	MHz	V _{CE} =5V, I _C = 10mA f=100MHz	100		
Collector-base output capacitance	Cob	pF	V _{CB} =10V, f=1MHz			4.5

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R _{θJ-A} ⁽¹⁾	°C/W	625
Thermal resistance, junction-to-case	R _{θJ-C} ⁽¹⁾	°C/W	500

Note:

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

■ Characteristics

Fig 1: Static Characteristics

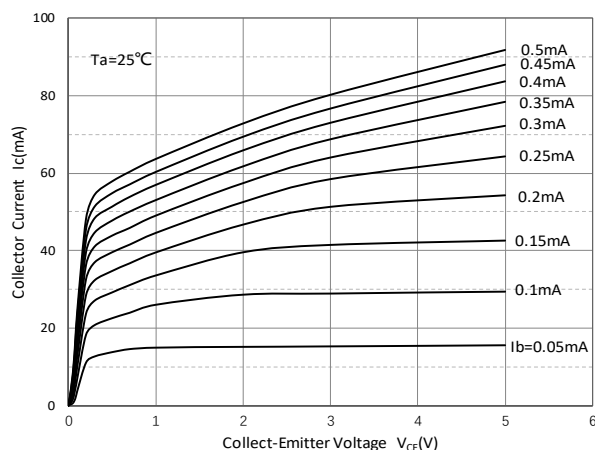


Fig 2: DC Current Gain

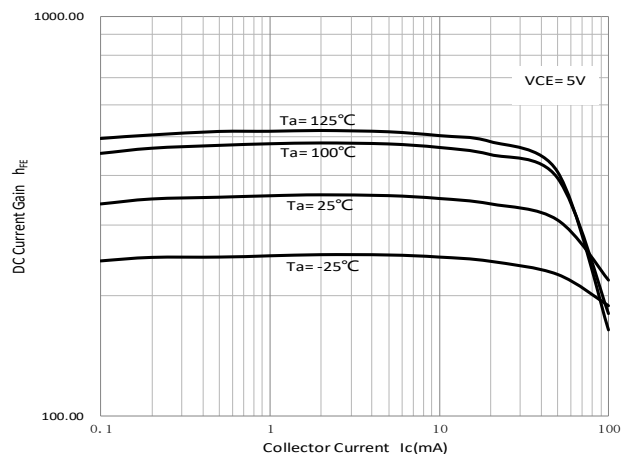


Fig 3: Collector-Emitter Saturation Voltage

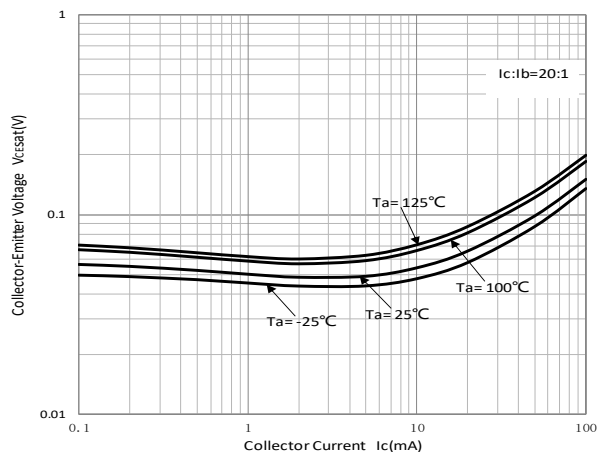


Fig 4: Base-Emitter Saturation Voltage

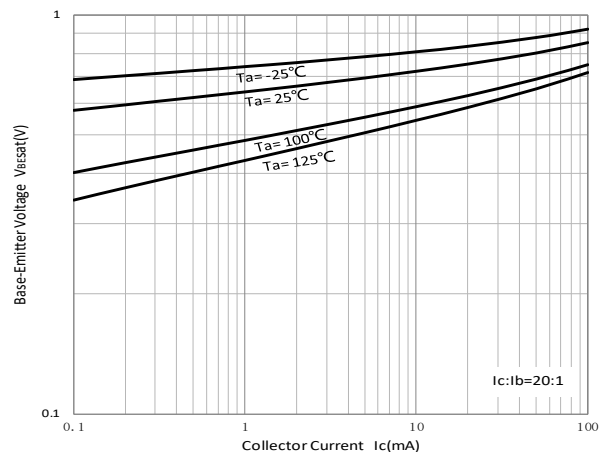


Fig 5: Base-Emitter On Voltage

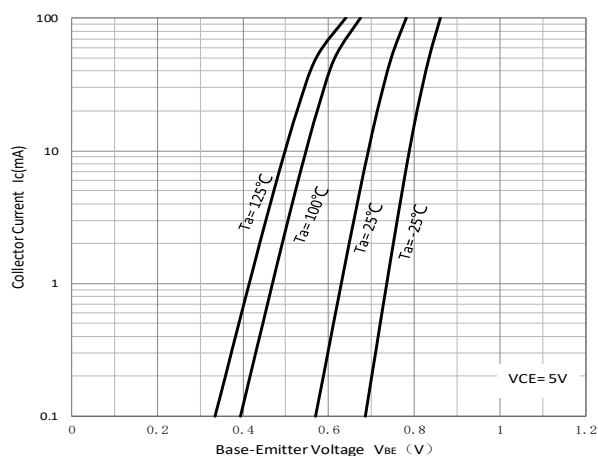


Fig 6: Cob/Cib-V_{CB}/V_{EB}

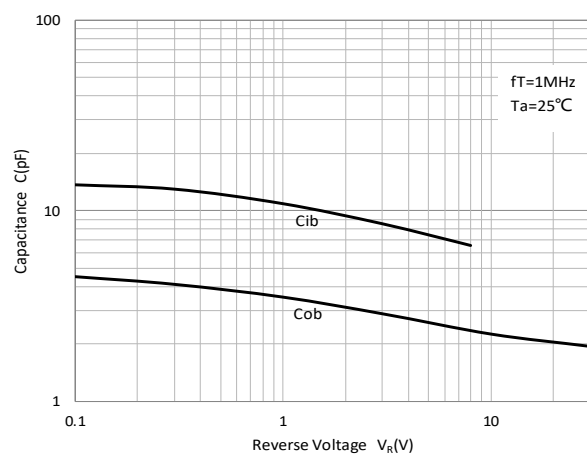
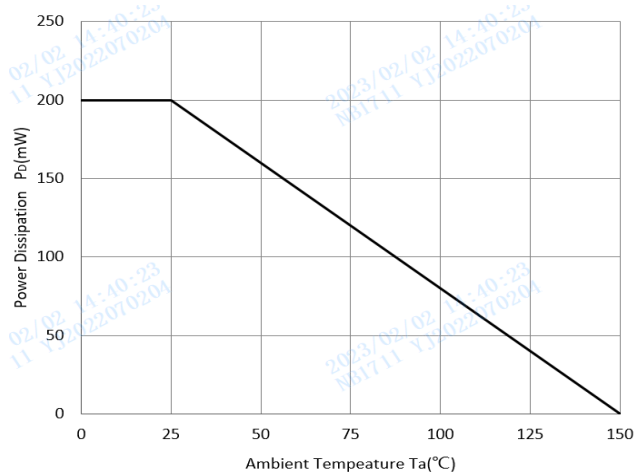


Fig 7: P_D - T_a Curve

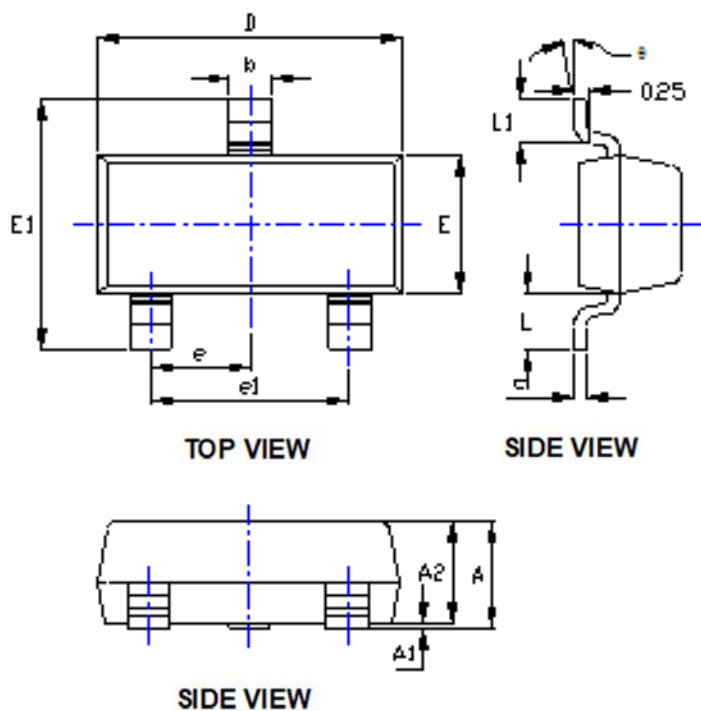


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■ Ordering Information

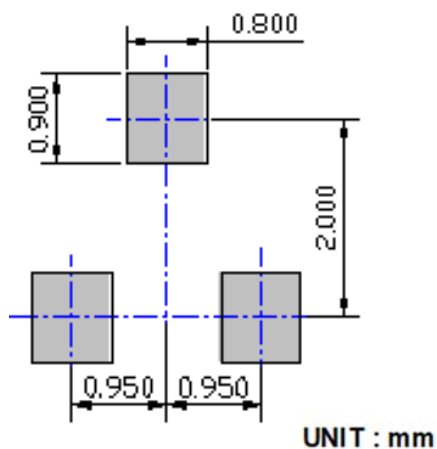
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity (pcs)	Delivery mode
BC846C	F2	Approximate 0.008	3000	30000	120000	7" reel
BC846C	F4	Approximate 0.008	10000	/	210000	

■ Outline Dimensions



DIMENSIONS				
SYMBOL	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037TYP		0.950TYP	
e1	0.071	0.079	1.800	2.000
L	0.022REF		0.550REF	
L1	0.012	0.020	0.300	0.500
θ	0°	8°	0°	8°

■ Suggested Pad Layout



BC846C

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