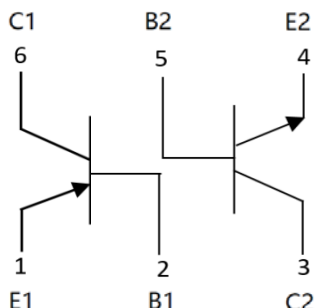


BC847DPN

PNP+NPN 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)

TR1 PNP Pin1、2、6

Item	Symbol	Unit	Conditions	Value
Device marking code			BC847DPN-Y	7Y
			BC847DPN-G	7G
Collector-base voltage	V_{CBO}	V	$I_C = -100\mu A, I_E = 0$	-50
Collector-emitter voltage	V_{CEO}	V	$I_C = -1mA, I_B = 0$	-50
Emitter-base voltage	V_{EBO}	V	$I_E = -100\mu A, I_C = 0$	-5
Collector current	I_C	mA		-150
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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TR2 NPN Pin3、4、5

Item	Symbol	Unit	Conditions	Value
Collector-base voltage	V_{CBO}	V	$I_C=100\mu A, I_E=0$	60
Collector-emitter voltage	V_{CEO}	V	$I_C=1mA, I_B=0$	50
Emitter-base voltage	V_{EBO}	V	$I_E=100\mu A, I_C=0$	5
Collector current	I_C	mA		150
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)

TR1 PNP Pin1、2、6

Item	Symbol	Unit	Conditions		Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	$I_C=-100\mu A, I_E=0$		-50		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	$I_C=-1mA, I_B=0$		-45		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E=-100\mu A, I_C=0$		-5		
Collector-base cut-off current	I_{CBO}	nA	$V_{CB}=-50V, I_E=0$				-100
Emitter-base cut-off current	I_{EBO}	nA	$V_{EB}=-5V, I_C=0$				-100
DC current gain	h_{FE}		BC847DPN-Y	$V_{CE}=-6V, I_C=-2mA$	120		240
			BC847DPN-G		200		400
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C=-100mA, I_B=-10mA$				-0.3
Transition frequency	f_T	MHz	$I_C=-10mA, V_{CE}=-6V$		100		
Collector-base output capacitance	C_{ob}	pF	$V_{CB}=-10V, I_E=0A, f=1MHz$			4.5	

TR2 NPN Pin3、4、5

Item	Symbol	Unit	Conditions		Min	Typ	Max
Collector-base breakdown voltage	V _{(BR)CBO}	V	I _C =100uA, I _E =0		60		
Collector-emitter breakdown voltage	V _{(BR)CEO}	V	I _C =1mA, I _B =0		50		
Emitter-base breakdown voltage	V _{(BR)EBO}	V	I _E =100uA, I _C =0		5		
Collector-base cut-off current	I _{CBO}	nA	V _{CB} =60V, I _E =0				100
Emitter-base cut-off current	I _{EBO}	nA	V _{EB} =5V, I _C =0				100
DC current gain	h _{FE}		BC847DPN-Y	V _{CE} =6V,I _C =2mA	120		240
			BC847DPN-G		200		400
Collector-emitter saturation voltage	V _{CE(sat)}	V	I _C =100mA, I _B =10mA				0.25
Transition frequency	f _T	MHz	I _C =10mA,V _{CE} =6V		100		
Collector-base output capacitance	Cob	pF	V _{CB} =10V,I _E =0A,f=1MHz			4.5	

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■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	$R_{\theta J-A}^{(1)}$	$^{\circ}\text{C/W}$	417
Thermal resistance, junction-to-case	$R_{\theta J-C}^{(1)}$	$^{\circ}\text{C/W}$	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

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■ Characteristics

TR1 PNP Pin1、2、6

Fig 1: Static Characteristics

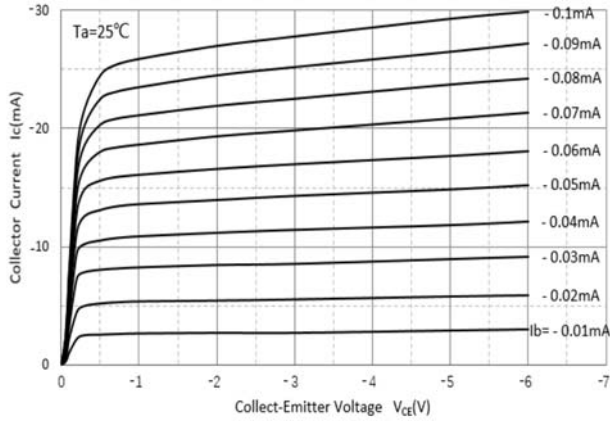


Fig 2: DC Current Gain

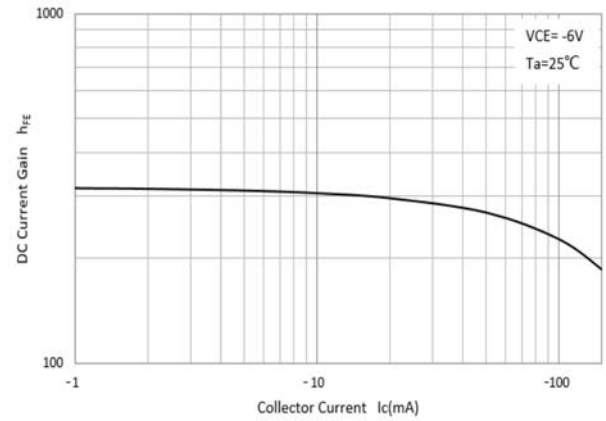


Fig 3: Collector-Emitter Saturation Voltage

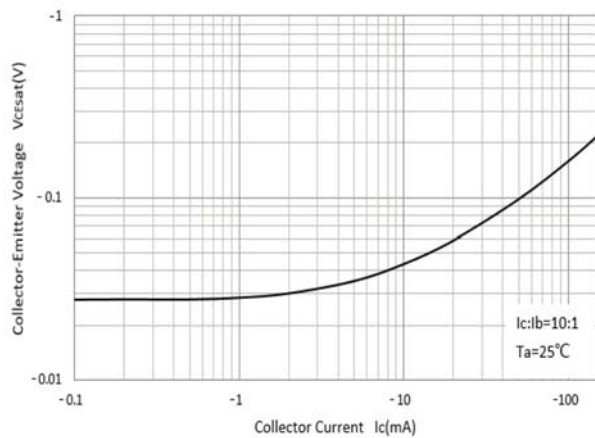


Fig 4: Base-Emitter Saturation Voltage

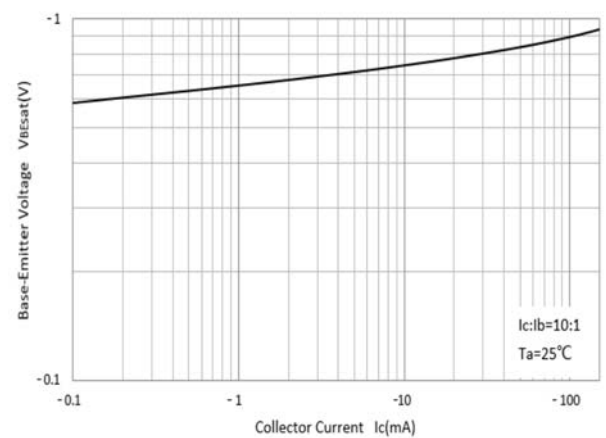


Fig 5: Base-Emitter On Voltage

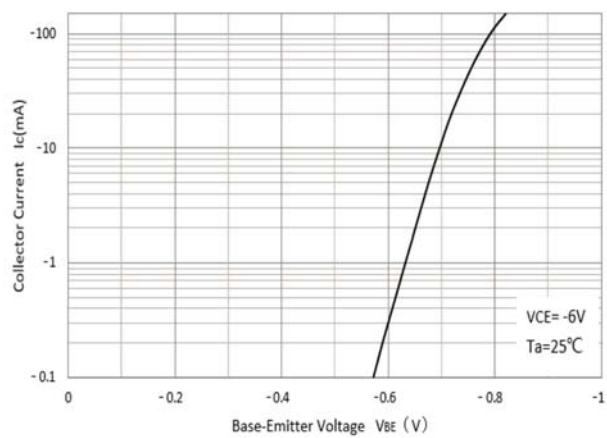
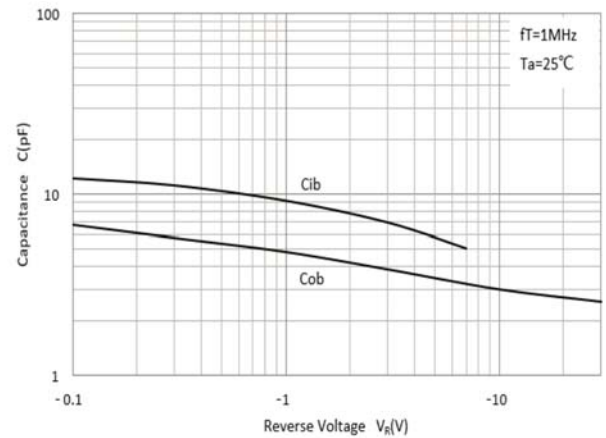
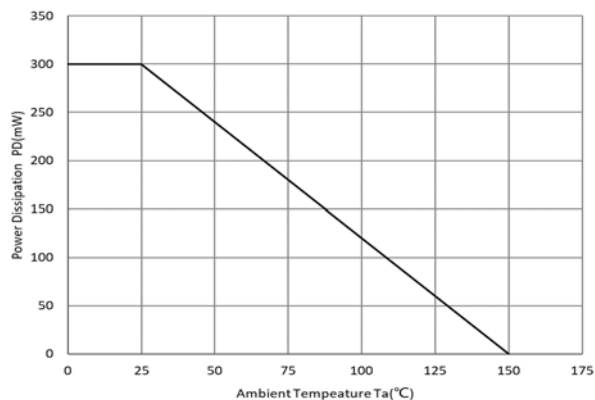


Fig 6: C_{ob}/C_{ib}-V_{CB}/V_{EB}



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Fig 7: P_D - T_a Curve



TR2 NPN Pin3、4、5

Fig 1: Static Characteristics

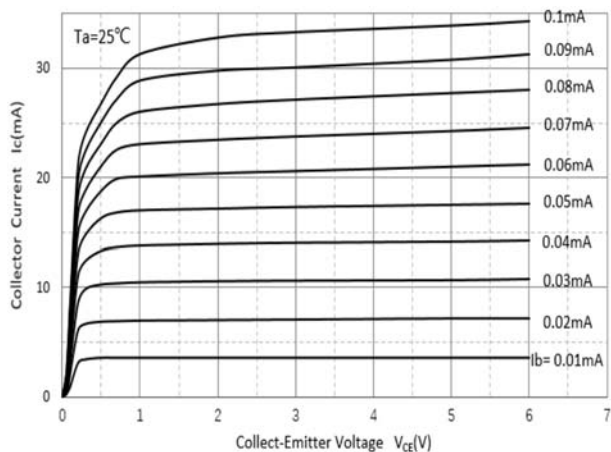


Fig 2: DC Current Gain

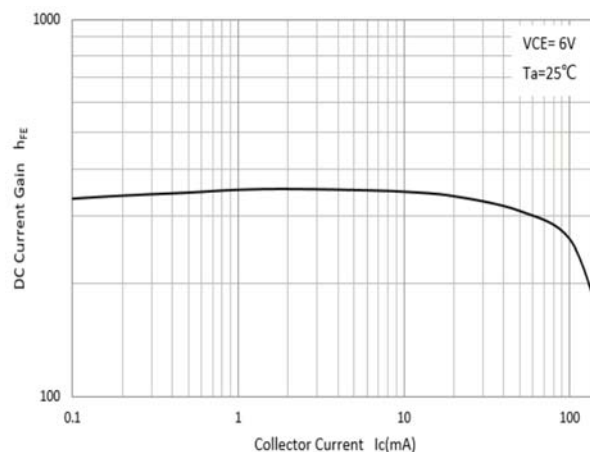


Fig 3: Collector-Emitter Saturation Voltage

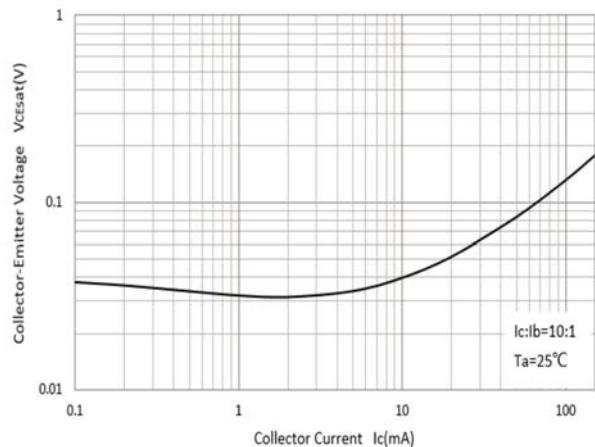
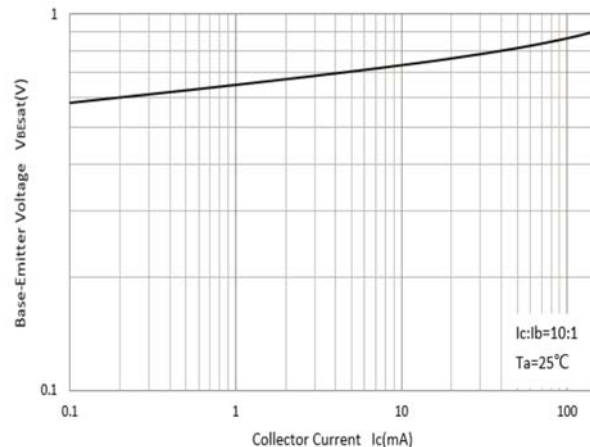


Fig 4: Base-Emitter Saturation Voltage



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Fig 5: Base-Emitter On Voltage

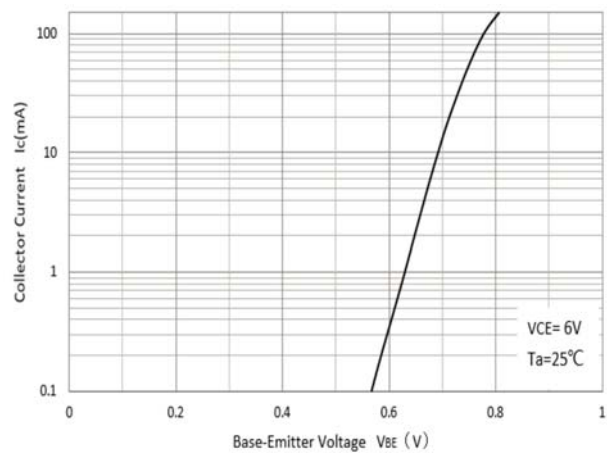
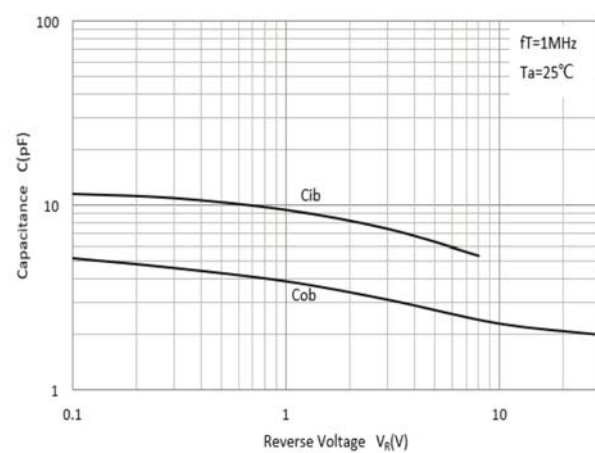


Fig 6: $C_{ob}/C_{ib}-V_{CB}/V_{EB}$

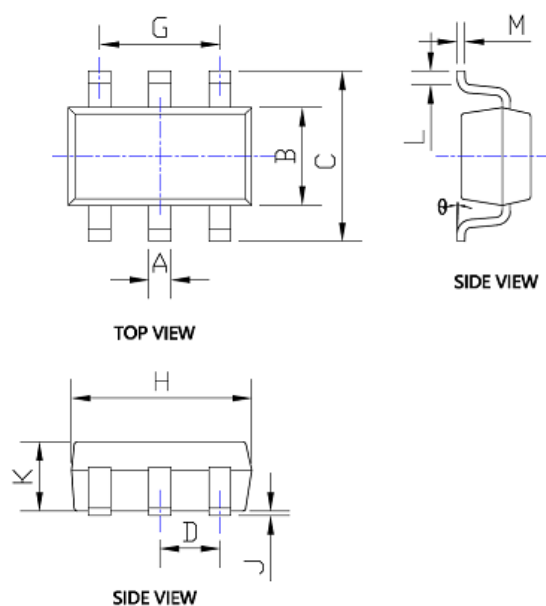


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■ Ordering Information

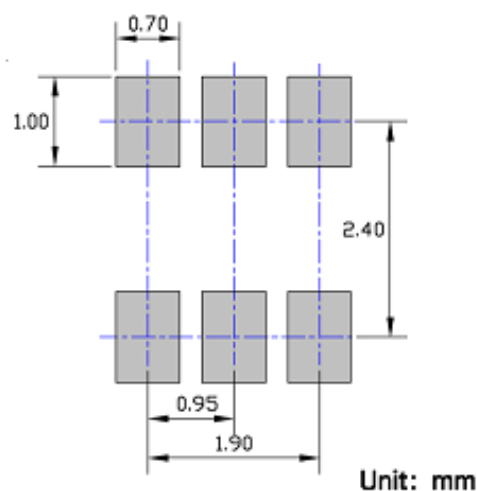
Prefered P/N	Packing Code	Unit weight(mg)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
BC847DPN	F2	Approximate 15.6	3000	30000	120000	7" reel

■ 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



BC847DPN

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