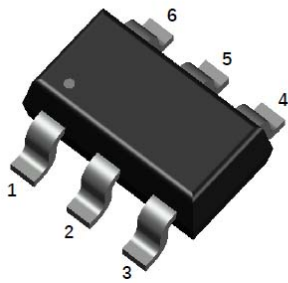
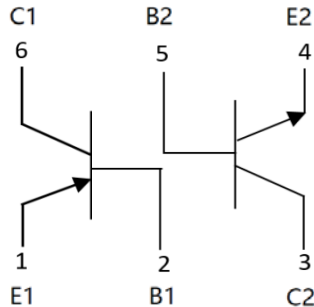


PNP+NPN Transistor



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)

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



BC847DPN

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TR2 NPN Pin3、4、5

Item	Symbol	Unit	Conditions	Value
Collector-base voltage	V_{CB0}	V	$I_C=100\mu A, I_E=0$	60
Collector-emitter voltage	V_{CE0}	V	$I_C=1mA, I_B=0$	50
Emitter-base voltage	V_{EB0}	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



BC847DPN

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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	Cob	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	$I_C=100\mu A, I_E=0$	60		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	$I_C=1mA, I_B=0$	50		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	$I_E=100\mu A, I_C=0$	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	



■ 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) Thermal resistance from junction to ambient and from junction to case mounted on P.C.B. with 25.4*25.4mm copper pad areas



■ Characteristics

TR1 PNP Pin1、2、6

Fig 1: Static Characteristics

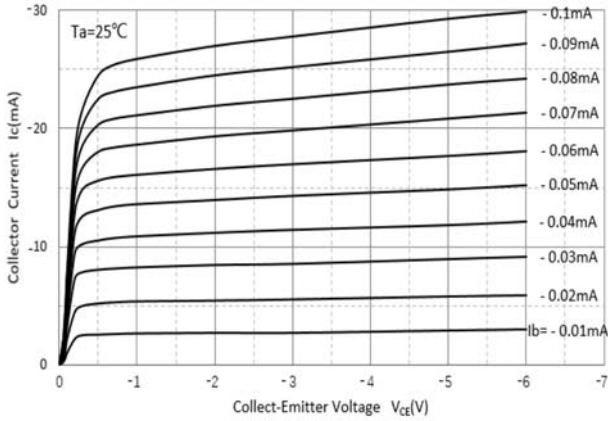


Fig 2: DC Current Gain

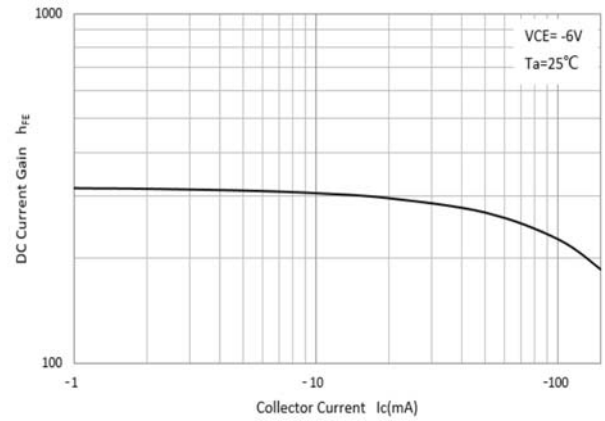


Fig 3: Collector-Emittor Saturation Voltage

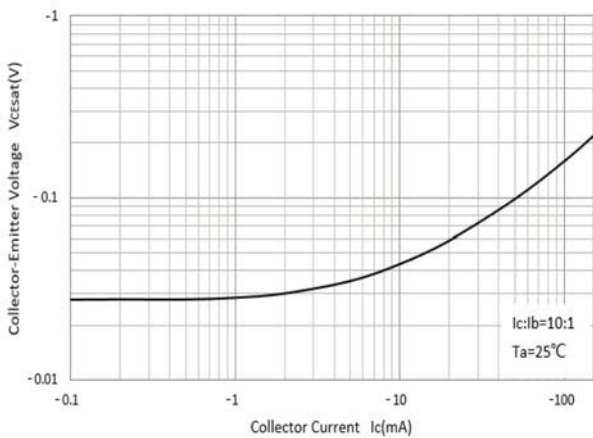


Fig 4: Base-Emittor Saturation Voltage

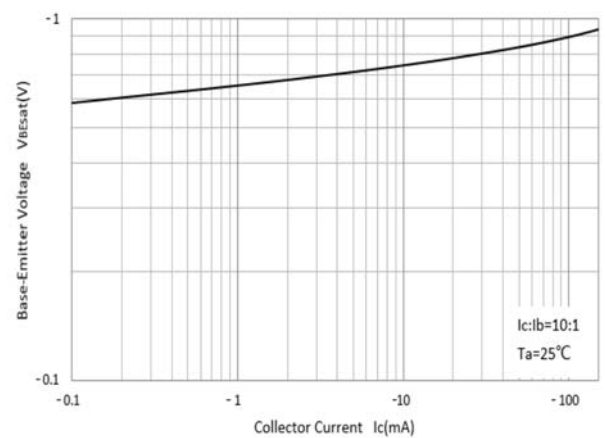


Fig 5: Base-Emittor On Voltage

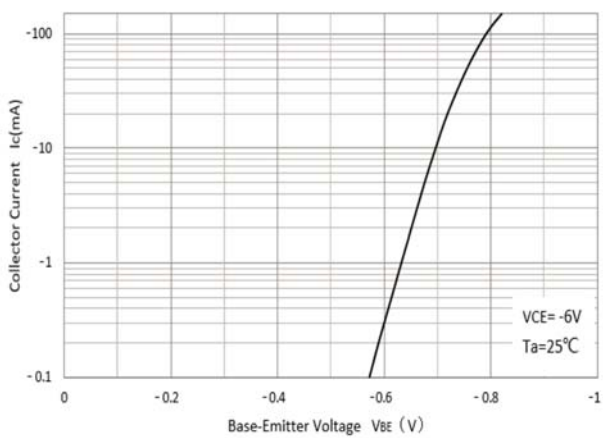


Fig 6: Cob/Cib-Vcb/Veb

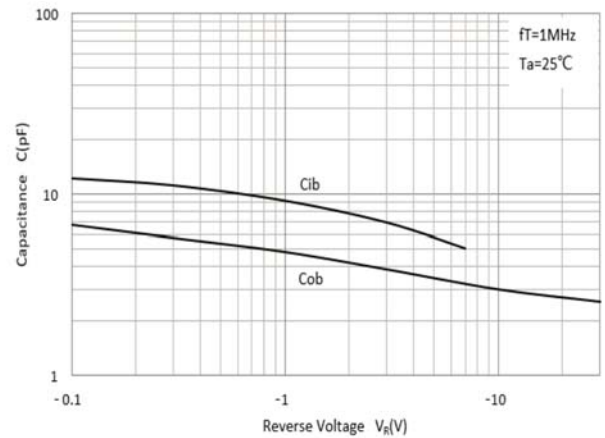
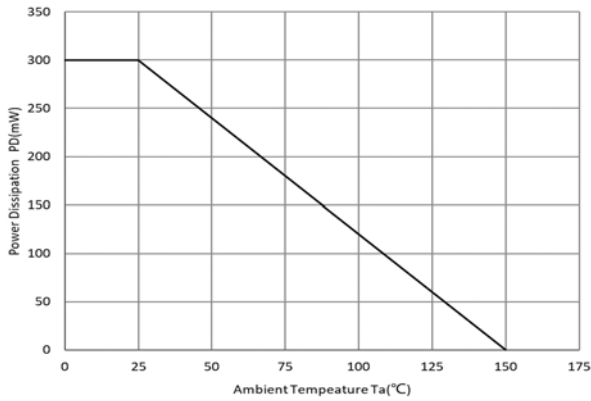




Fig 7: P_D - T_a Curve



TR2 NPN Pin3、4、5

Fig 1: Static Characteristics

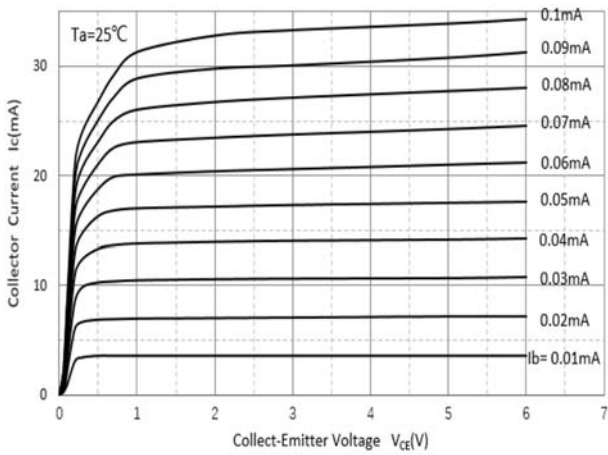


Fig 2: DC Current Gain

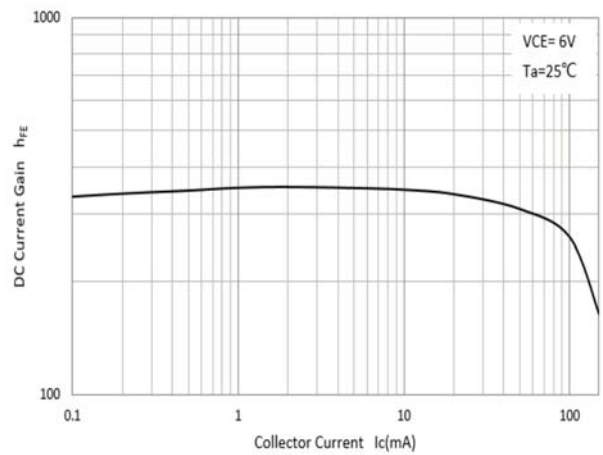


Fig 3: Collector-Emitter Saturation Voltage

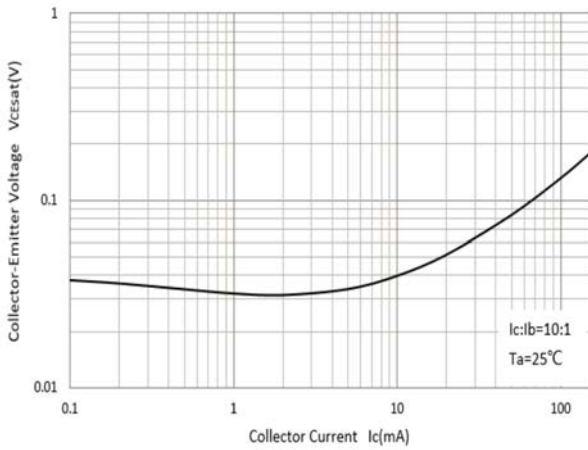


Fig 4: Base-Emitter Saturation Voltage

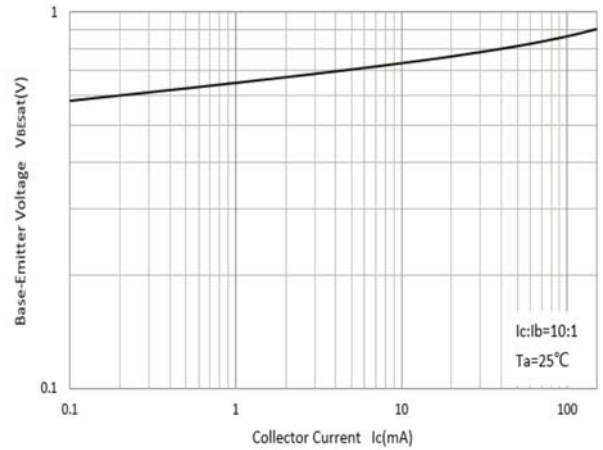




Fig 5: Base-Emitter On Voltage

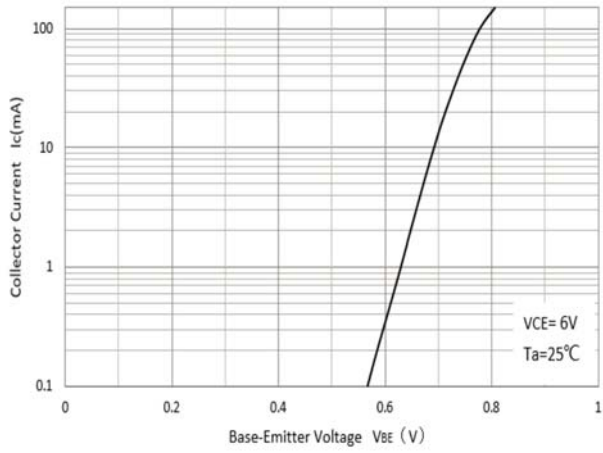
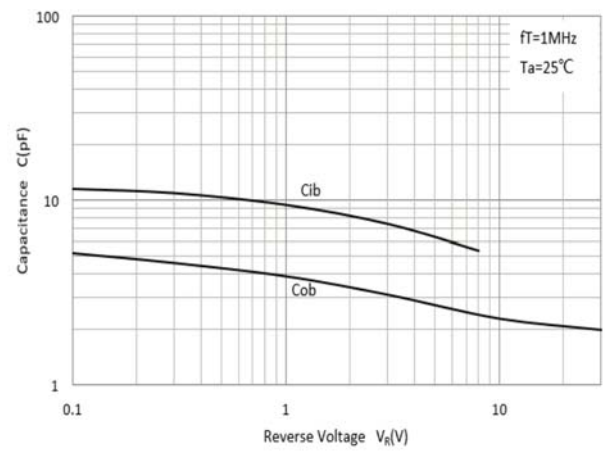


Fig 6: $C_{ob}/C_{ib}-V_{CB}/V_{EB}$





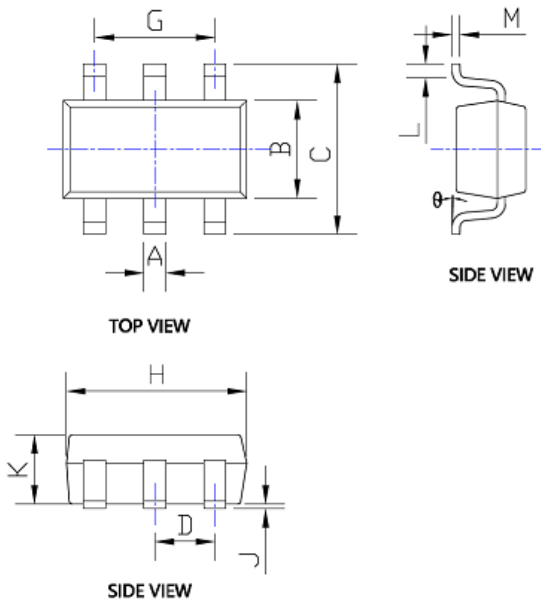
BC847DPN

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Ordering Information

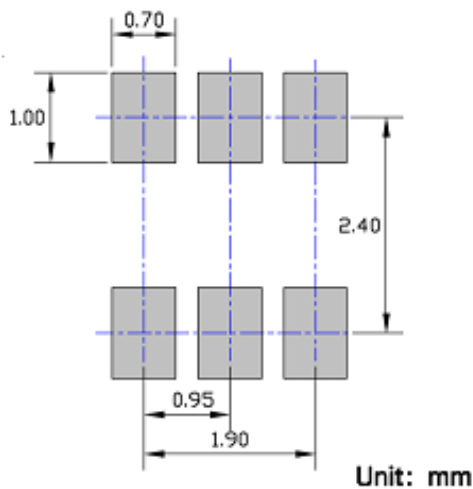
Preferred P/N	Packing Code	Unit weight(mg)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
BC847DPN	F2	Approximate 15.6	3000	30000	120000	7" reel

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





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