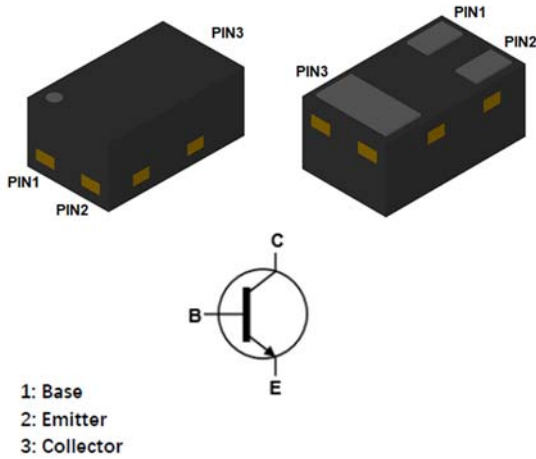


NPN General Purpose Transistor



Features

- Moisture sensitivity level 3
- Halogen free and RoHS compliant
- Surface mount package ideally suited for automatic insertion

Application

- Signal amplification
- Switching circuit

Mechanical data

- **Package:** DFN1006-3L
- **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				1A
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	mA		100
Power dissipation	P_D	mW		100
Operation junction temperature	T_J	$^{\circ}\text{C}$		-55 to +150
Storage temperature	T_{STG}	$^{\circ}\text{C}$		-55 to +150



BC846AL3

■ 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}	nA	V _{CB} =30V, I _E =0			15
Emitter-base cut-off current	I _{EBO}	nA	V _{EB} =5V, I _C =0			100
Collector-emitter cut-off current	I _{CES}	mA	V _{CB} =30V, I _E =0			1
DC current gain	h _{FE}		V _{CE} =5V, I _C =2mA	110		220
Collector-emitter saturation voltage	V _{CE(sat)1}	mV	I _C =10mA, I _B =0.5mA			300
	V _{CE(sat)2}	mV	I _C =100mA, I _B =5mA			600
Base-emitter saturation voltage	V _{BE(sat)1}	V	I _C =10mA, I _B =0.5mA			0.9
	V _{BE(sat)2}	V	I _C =100mA, I _B =5mA		0.9	1.1
Base-emitter voltage	V _{BE1}	mV	V _{CE} =5V, I _C =2mA	580		700
	V _{BE2}	mV	V _{CE} =5V, I _C =10mA			770
Transition frequency	f _T	MHz	I _C =10mA, V _{CE} =5V, f=100MHz	100		
Collector-base output capacitance	C _{ob}	pF	V _{CB} =10V, I _E =0, f=1MHz			4.5

■ Thermal Characteristics

Parameter	Symbol	Unit	Value
Thermal resistance, junction-to-ambient	R _{θJ-A} ⁽¹⁾	°C/W	1250
Thermal resistance, junction-to-case	R _{θJ-C} ⁽¹⁾	°C/W	1000

Note:

(1) Thermal resistance from junction to ambient and from junction to case mounted on P.C.B. with 17mm*10mm copper pad areas

■ Characteristics

Fig 1: Static Characteristics

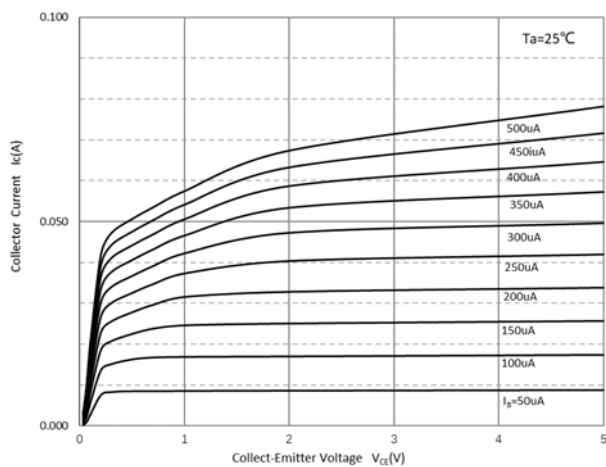


Fig 2: DC Current Gain

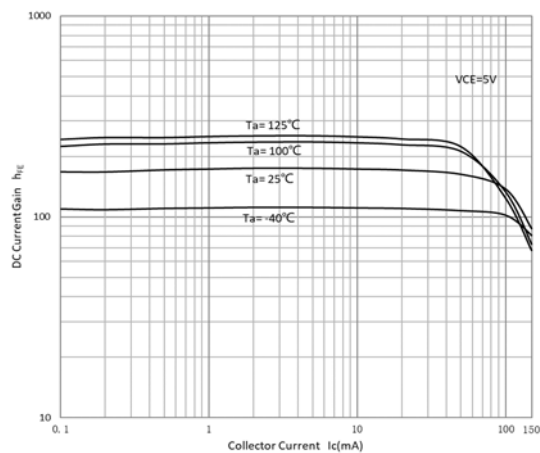


Fig 3: Collector-Emitter Saturation Voltage

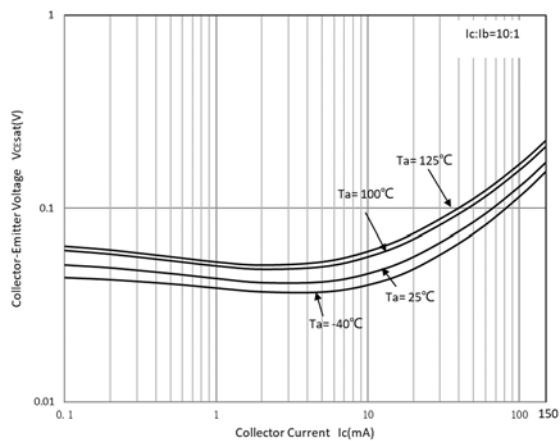


Fig 4: Base-Emitter Saturation Voltage

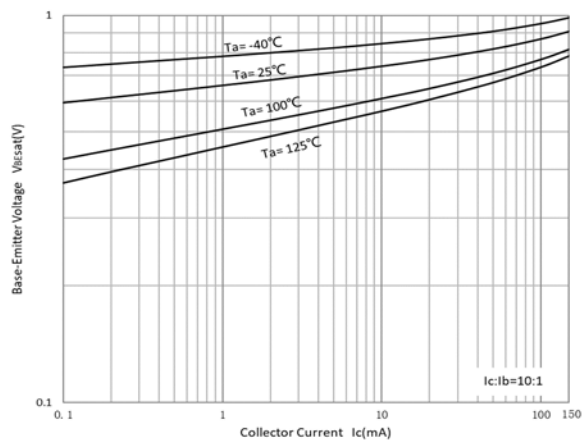


Fig 5: Base-Emitter On Voltage

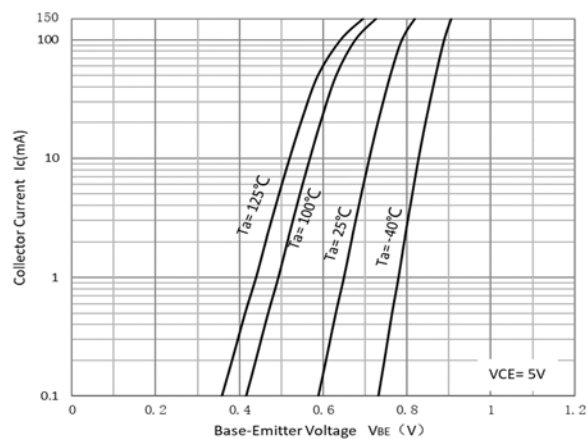


Fig 6: C_{ob}/C_{ib}-V_{CB}/V_{EB}

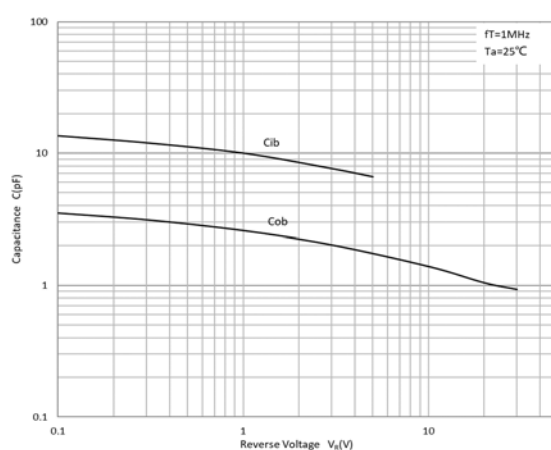
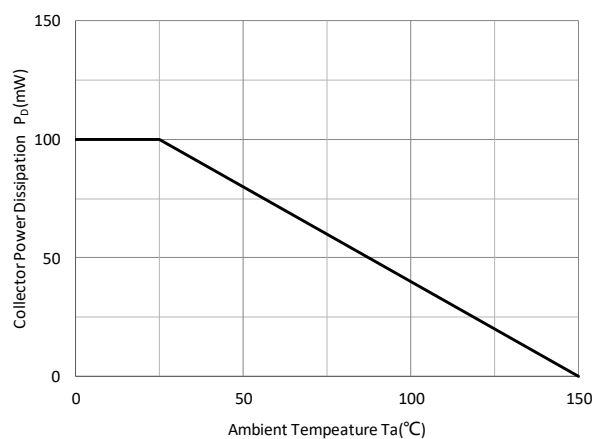




Fig 7: P_D -Ta Curve



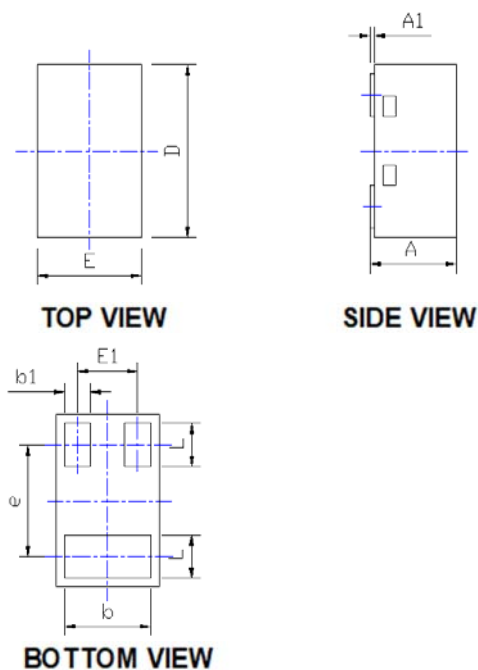


BC846AL3

■ Ordering Information

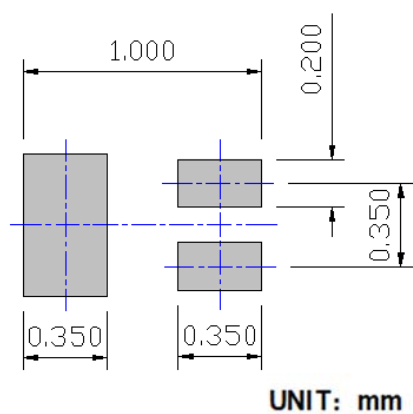
Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
BC847BM	F1	Approximate 0.89	10000	100000	400000	Tape & Reel

■ Outline Dimensions



DIMENSIONS			
SYMBOL	Millimeter		
	MIN.	NOM.	MAX.
A	0.42	---	0.55
A1	0.025REF		
b	0.45	0.50	0.55
b1	0.10	0.15	0.20
D	0.95	1.00	1.05
E	0.55	0.60	0.65
E1	0.35BSC		
e	0.65BSC		
L	0.20	0.25	0.30

■ Suggested Pad Layout





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