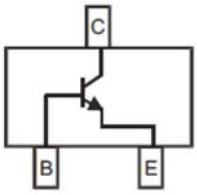
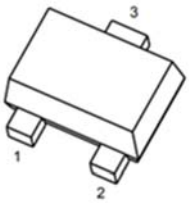
NPN Transistor





1. Base
2. Emitter
3. Collector

SOT-723

Features

- Moisture sensitivity level 1
- Halogen free and RoHS compliant
- Surface mount package ideally suited for auto matic insertion

Application

- Signal amplification
- Switching circuit

Mechanical data

- **Package**: SOT-723
- **Terminals**: Tin plated leads, solderable per J-STD-002 and JESD22-B102

■ **Maximum Ratings** (T_a=25℃ Unless otherwise specified)

Item	Symbol	Unit	Conditions		Value
Device marking code			BC846AM3		1A
			BC846BM3		1B
			BC847AM3		1E
			BC847BM3		1F
			BC847CM3		1G
			BC848AM3		1J
			BC848BM3		1K
			BC848CM3		1L
Collector-base voltage	V_{CBO}	V	BC846	I_C=10uA,I_E=0	80
			BC847		50
			BC848		30
Collector-emitter voltage	V_{CEO}	V	BC846	I_C=10mA,I_B=0	65
			BC847		45
			BC848		30

BC846AM3 THRU BC848CM3

Item	Symbol	Unit	Conditions	Value
Emitter-base voltage	V_{EBO}	V	I_E=10uA,I_C=0	6
Collector current	I_C	mA		100
Power dissipation	P_D	mW		100
Junction temperature	T_J	℃		-55 to +150
Storage temperature	T_{STG}	℃		-55 to +150

■ Electrical Characteristics (Ta=25℃ Unless otherwise specified)

Item	Symbol	Unit	Conditions		Min	Typ	Max
Collector-base breakdown voltage	$V_{(BR)CBO}$	V	BC846	I_C=10uA,I_E=0	80		
			BC847		50		
			BC848		30		
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	V	BC846	I_C=10mA,I_B=0	65		
			BC847		45		
			BC848		30		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	V	I_E=10uA,I_C=0		6		
Collector cut-off current	I_{CBO}	uA	BC846	V_{CB}=70V,I_E=0			0.1
			BC847	V_{CB}=50V,I_E=0			0.1
			BC848	V_{CB}=30V,I_E=0			0.1
Emitter-base cutoff current	I_{EBO}	uA	V_{EB}=5V, I_C=0				0.1
DC current gain	h_{FE}		BC846A,847A,848A	V_{CE}=5V, I_C=2mA	110		220
			BC846B,847B,848B		200		450
			BC847C,BC848C		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	$R_{\theta J-A}$(1)	℃/W	1250
Thermal resistance, junction-to-case	$R_{\theta J-C}$(1)	℃/W	1000

Note:

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

■Characteristics

Fig 1：Static Characteristics

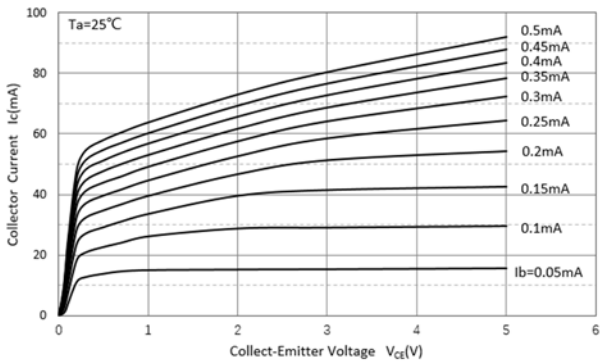


Fig 2：DC Current Gain Characteristics

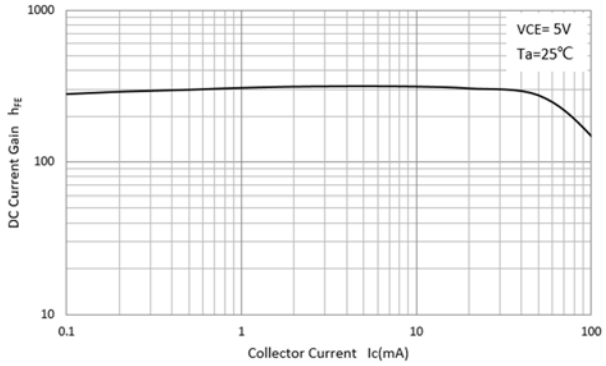


Fig 3：Collector-Emitter Saturation Voltage

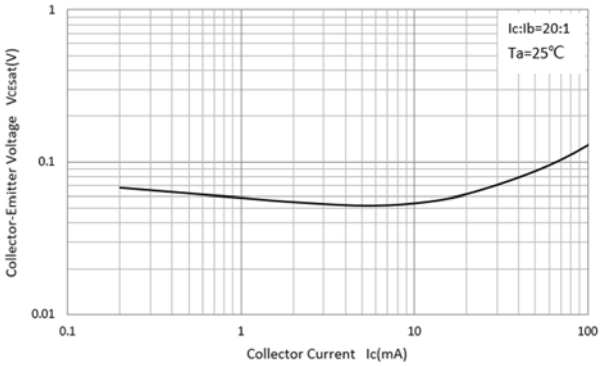


Fig 4：Base-Emitter Saturation Voltage

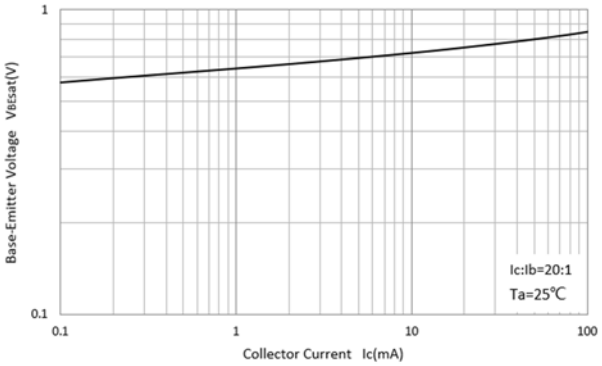


Fig 5：Base-Emitter on Voltage

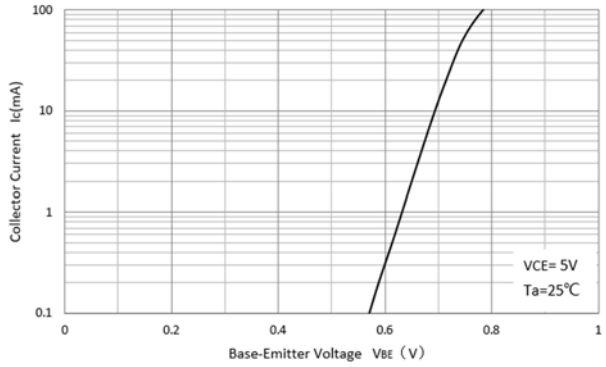


Fig 6：Cob/Cib-V_{CB}/V_{EB}

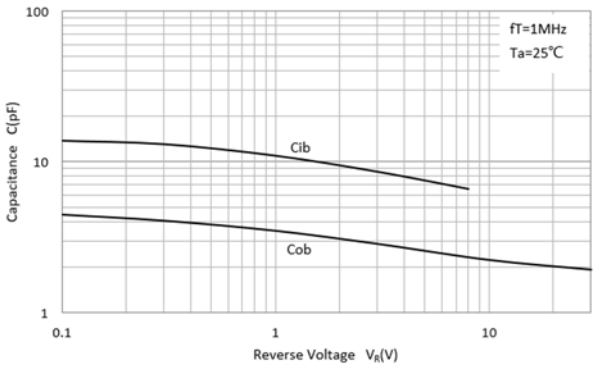
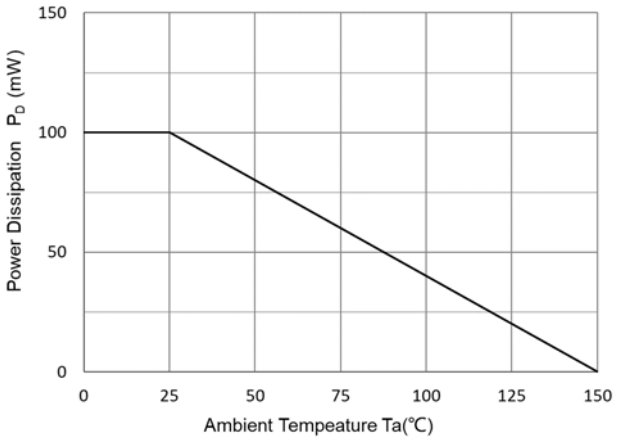


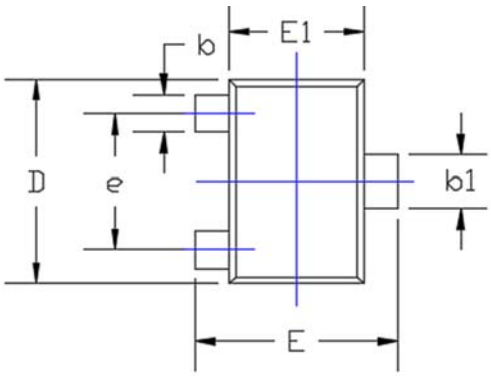
Fig 7：P_D-Ta Curve



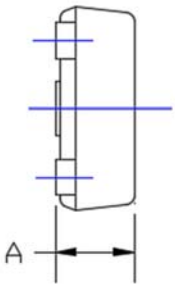
■Ordering Information

Preferred P/N	Packing code	Unit weight(g)	Minimum package(pcs)	Inner box quantity(pcs)	Outer carton quantity(pcs)	Delivery mode
BC846AM3 THRU BC848CM3	F2	Approximate 0.0013	8000	80000	320000	7" reel

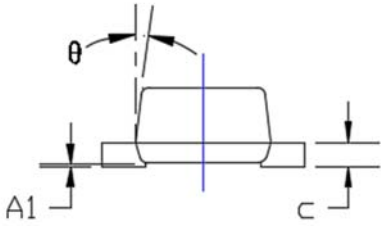
■ Outline Dimensions



TOP VIEW



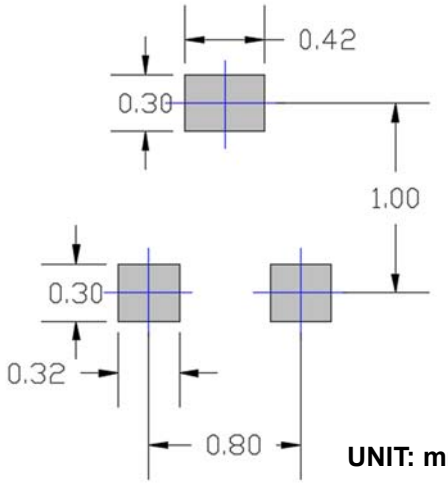
SIDE VIEW



SIDE VIEW

DIMENSIONS				
SYMBOL	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.017	0.022	0.430	0.550
A1	0.000	0.002	0.000	0.050
b	0.007	0.011	0.170	0.270
b1	0.011	0.015	0.270	0.370
c	0.003	0.008	0.080	0.200
D	0.045	0.049	1.150	1.250
E	0.045	0.049	1.150	1.250
E1	0.030	0.033	0.750	0.850
e	0.031TYP.		0.800TYP.	
θ	7°REF.		7°REF.	

■ Suggested Pad Layout



UNIT: mm

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