

**Features**

- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

**Maximum Ratings @ 25°C Unless Otherwise Specified**

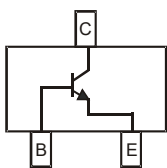
- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Maximum Thermal Resistance: 472°C/W Junction to Ambient<sup>(Note 2)</sup>

Parameter	Symbol	Rating	Unit
Collector-Base Voltage BC846AM3-BC846BM3 BC847AM3-BC847CM3 BC848AM3-BC848CM3	$V_{CBO}$	80 50 30	V
Collector-Emitter Voltage BC846AM3-BC846BM3 BC847AM3-BC847CM3 BC848AM3-BC848CM3	$V_{CEO}$	65 45 30	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current	$I_C$	100	mA
Peak Base Current <sup>(Note3)</sup>	$I_{BM}$	200	mA
Collector Power Dissipation@ $T_A=25^\circ C$ <sup>(Note2)</sup>	$P_C$	265	mW

Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Device Mounted on FR-5: 1.0 X 0.75 X 0.062 inch.
3. Single pulse;  $t_p < 1$  ms.

**Internal Structure**

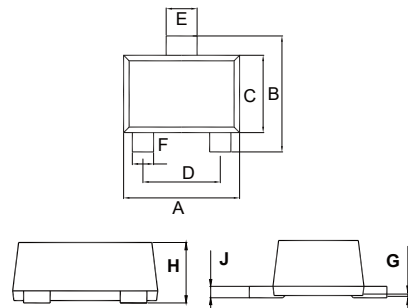


**Marking:**

BC846AM3:1A; BC846BM3:1B;  
BC847AM3:1E; BC847BM3:1F; BC847CM3:1G;  
BC848AM3:1J; BC848BM3:1K; BC848CM3:1L;

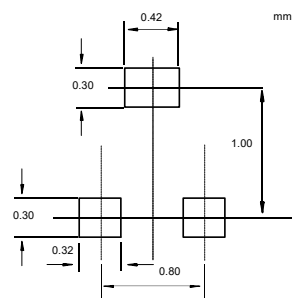
**NPN  
Plastic-Encapsulate  
Transistors**

**SOT-723**



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.043	0.051	1.10	1.30	
B	0.043	0.051	1.10	1.30	
C	0.028	0.035	0.70	0.90	
D	0.031		0.80		TYP.
E	0.009	0.017	0.22	0.42	
F	0.005	0.013	0.12	0.32	
G	0.000	0.002	0.00	0.05	
H	0.017	0.021	0.43	0.54	
J	0.003	0.006	0.08	0.15	

**Suggested Solder Pad Layout**



Electrical Characteristics @  $T_A=25^\circ\text{C}$  Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage BC846AM3-BC846BM3 BC847AM3-BC847CM3 BC848AM3-BC848CM3	$V_{(BR)CBO}$	80 50 30			V	$I_C=10\mu\text{A}, I_E=0$
Collector-Emitter Breakdown Voltage BC846AM3-BC846BM3 BC847AM3-BC847CM3 BC848AM3-BC848CM3	$V_{(BR)CEO}$	65 45 30			V	$I_C=10\text{mA}, I_B=0$
Emitter-Base Breakdown Voltage BC846AM3-BC846BM3 BC847AM3-BC847CM3 BC848AM3-BC848CM3	$V_{(BR)EBO}$	6 6 5			V	$I_E=10\mu\text{A}, I_C=0$
Collector Cut-off Current	$I_{CBO}$			15	nA	$V_{CB}=30\text{V}, I_E=0$
Emitter Cutoff Current	$I_{EBO}$			100	nA	$V_{EB}=5\text{V}, I_C=0$
Emitter Cutoff Current	$I_{CEO}$			1	mA	$V_{CE}=30\text{V}, I_B=0$
DC Current Gain BC846AM3/BC847AM3/BC848AM3 BC846BM3/BC847BM3/BC848BM3 BC847CM3/BC848CM3	$h_{FE(1)}$		110 250 480			$V_{CE}=5\text{V}, I_C=10\mu\text{A}$
DC Current Gain BC846AM3/BC847AM3/BC848AM3 BC846BM3/BC847BM3/BC848BM3 BC847CM3/BC848CM3	$h_{FE(2)}$	110 200 420		220 450 800		$V_{CE}=5\text{V}, I_C=2\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.09 0.2	0.3 0.6	V	$I_C=10\text{mA}, I_B=0.5\text{mA}$ $I_C=100\text{mA}, I_B=5\text{mA}$
Base-Emitter Saturation Voltage	$V_{BE(sat)}$		0.7 0.9	0.9 1.1	V	$I_C=10\text{mA}, I_B=0.5\text{mA}$ $I_C=100\text{mA}, I_B=5\text{mA}$
Base-Emitter On Voltage	$V_{BE(on)}$	0.52	0.66	0.7 0.77	V	$V_{CE}=5\text{V}, I_C=2\text{mA}$ $V_{CE}=5\text{V}, I_C=10\text{mA}$
Transition Frequency	$f_T$	100			MHZ	$V_{CE}=5\text{V}, I_C=10\text{mA}, f=100\text{MHz}$

**Curve Characteristics**

Fig. 1 - Static Characteristics

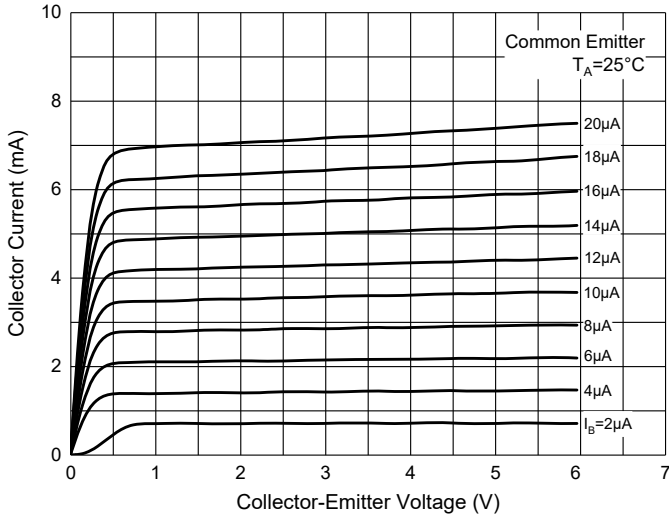


Fig. 2 - DC Current Gain Characteristics

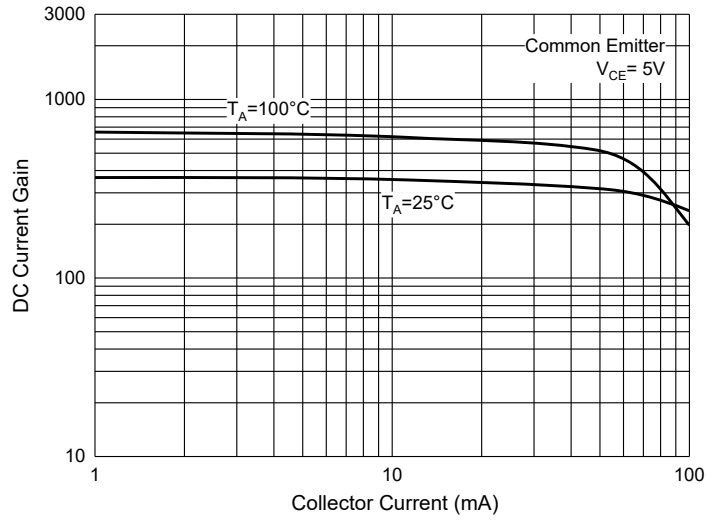


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

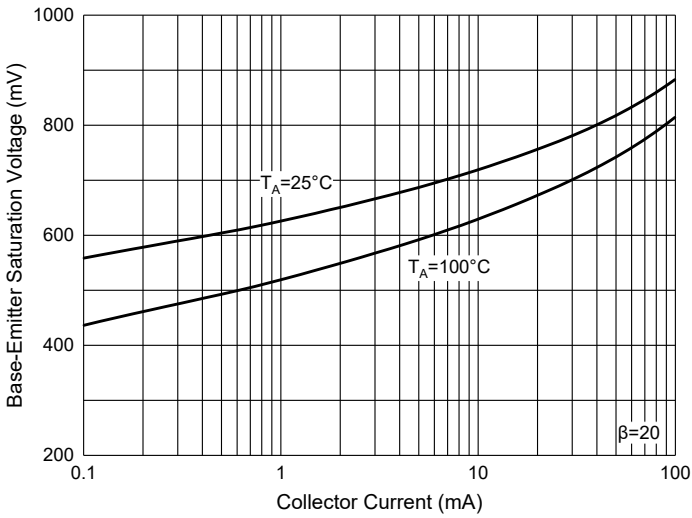


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

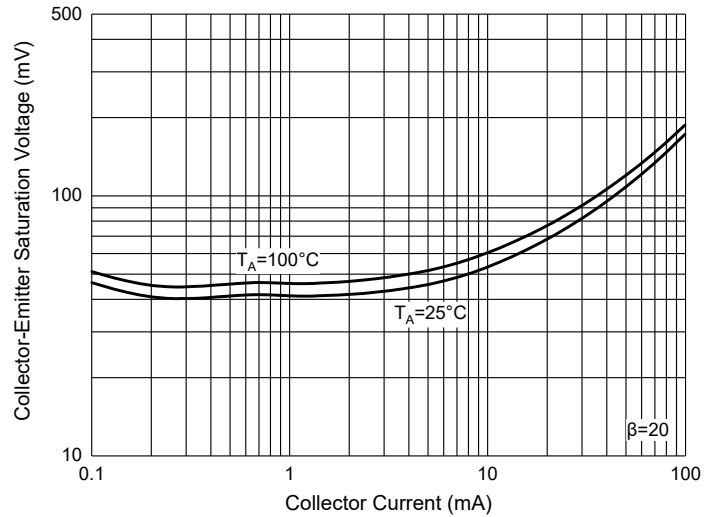


Fig. 5 - Base-Emitter Voltage Characteristics

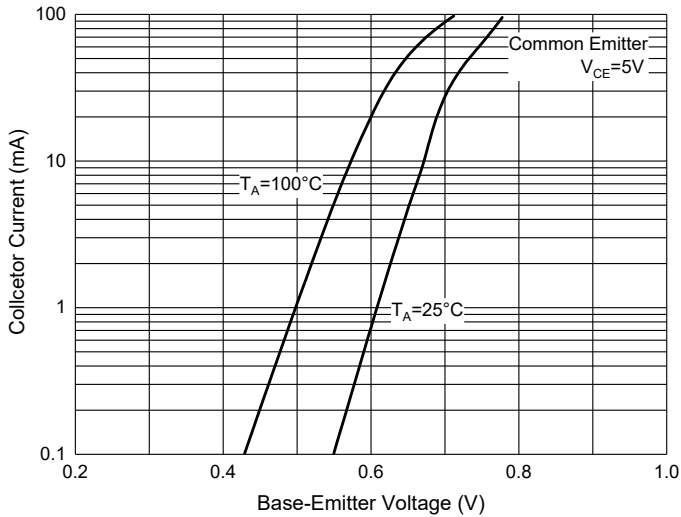
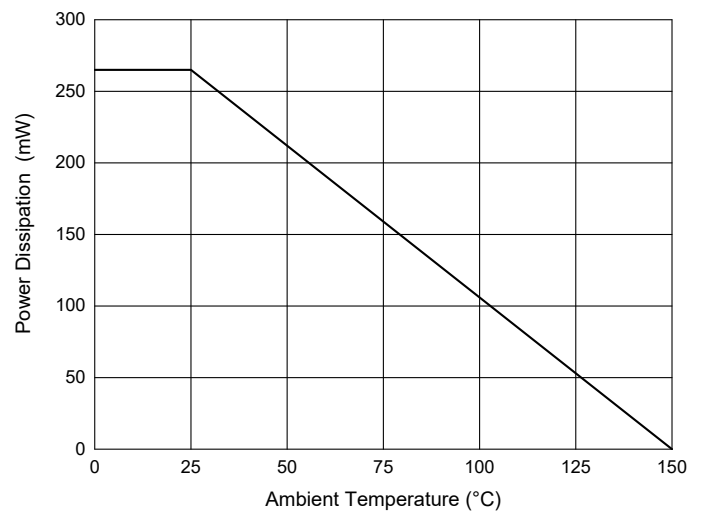


Fig. 6 - Power Derating Curve



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 8Kpcs/Reel

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