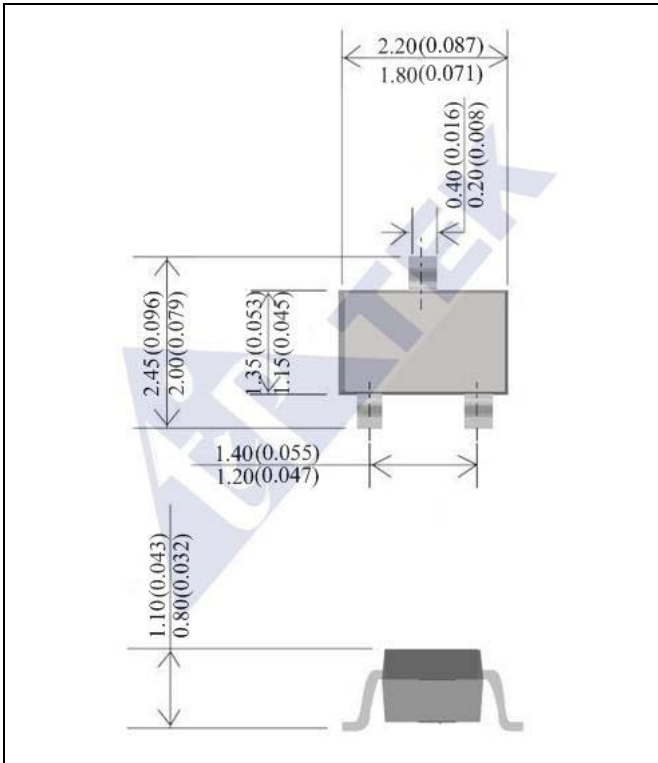


GENERAL PURPOSE TRANSISTORS NPN Silicon



CASE : SOT-323

DIMENSIONS IN MILLIMETERS AND (INCHES)

FEATURES

- NPN SILICON EPITAXIAL PLANAR TRANSISTOR FOR SWITCHING AND AMPLIFIER APPLICATIONS
- COLLECTOR CURRENT $I_C = 100$ mA
- PB FREE PRODUCT ARE AVAILABLE :98.5% SN ABOVE CAN MEET ROHSENVIRONMENT SUBSTANCE DIRECTIVE REQUEST

MECHANICAL DATA

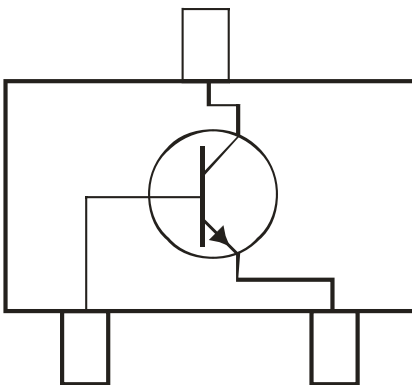
- CASE : SOT-323
- TERMINALS : SOLDERABLE PER MIL-STD-202G, METHOD 208
- APPROX. WEIGHT:0.006 GRAM
- Pb- Free: BC846AW~BC848CW
Halogen Free: BC846AW-H~BC848CW-H

MAXIMUM RATINGS

RATINGS AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE SPECIFIED.

PATING	SYMBOL	BC846	BC847	BC848	UNITS
COLLECTOR - EMITTER VOLTAGE	V_{CEO}	65	45	30	V
COLLECTOR - BASE VOLTAGE	V_{CBO}	80	50	30	V
EMITTER - BASE VOLTAGE	V_{EBO}	6.0		5.0	V
COLLECTOR CURRENT - CONTINUOUS	I_C	100			mA
COLLECTOR DISSIPATION @ $T_A = 25^\circ\text{C}$	P_C	150			mW
THERMAL RESISTANCE, JUNCTION TO AMBIENT	$R_{\theta JA}$	833			$^\circ\text{C}$
OPERATING AND STORAGE JUNCTION TEMPERATURE RANGE	$T_j; T_{STG}$	- 55 TO +150			$^\circ\text{C}$

NPN



ELECTRICAL CHARACTERISTICS

ELECTRICAL CHARACTERISTICS (AT T_A =25°C UNLESS OTHERWISE NOTED)						
CHARACTERISTIC	SYMBOL		MIN	MAX	UNITS	
OFF CHARACTERISTICS						
Collector–Emitter Breakdown Voltage (I _C = 10 mA _{dc})	V _{(BR)CEO}	BC846 SERIES BC847 SERIES BC848 SERIES	65 45 30	–	V	
Collector–Base Breakdown Voltage (I _C = 10 μA _{dc} , I _E = 0)	V _{(BR)CBO}	BC846 SERIES BC847 SERIES BC848 SERIES	80 50 30	–	V	
Emitter–Base Breakdown Voltage (I _E = 1.0 μA _{dc} , I _C = 0)	V _{(BR)EBO}	BC846 SERIES BC847 SERIES BC848 SERIES	6.0 6.0 5.0	–	V	
Collector Cut-off Current	(V _{CB} = 30 V _{dc})	I _{CBO}	–	15	nA	
	(V _{CB} = 30 V _{dc} , T _A =150°C)			5.0	μA	
ON CHARACTERISTICS (NOTE 1)						
CHARACTERISTIC	SYMBOL		MIN	TYP	MAX	UNITS
Dc Current Gain (I _C =10 μA _{dc} , V _{CE} = 5 V _{dc})	h _{FE}	BC846AW, BC847AW, BC848AW	–	90	–	–
		BC846BW, BC847BW, BC848BW	–	150	–	–
		BC847CW, BC848CW	–	270	–	–
Dc Current Gain (I _C = 2.0 mA _{dc} , V _{CE} = 5 V _{dc})	h _{FE}	BC846AW, BC847AW, BC848AW	110	180	220	–
		BC846BW, BC847BW, BC848BW	200	290	450	–
		BC847CW, BC848CW	420	520	800	–
Collector-Emitter Saturation Voltage(I _C = 10 mA _{dc} , I _B = 0.5 mA _{dc}) (I _C = 100 mA _{dc} , I _B = 5 mA _{dc})	V _{CE(sat)}	–	–	–	0.25 0.6	V
Base-Emitter saturation voltage (I _C = 10 mA _{dc} , I _B = 0.5 mA _{dc}) (I _C = 100 mA _{dc} , I _B = 5 mA _{dc})	V _{BE(sat)}	–	–	0.7 0.9	–	V
Base-Emitter voltage (I _C = 2.0 mA _{dc} , V _{CE} = 5.0V) (I _C = 10 mA _{dc} , V _{CE} = 5.0V)	V _{BE(on)}	–	580	660	700 770	mV
SMALL–SIGNAL CHARACTERISTICS						
Current–Gain – Bandwidth Product (I _C = 10 mA _{dc} , V _{CE} = 5 V _{dc} , f = 100 MHz)	f _T	–	100	–	–	MHz
Collector Output Capacitance (V _{CB} =10V , f=1MHz)	C _{ob}	–	–	–	4.5	pF

NOTE: 1.Pulse Test: Pulse Width ≤ □300 μs; Duty Cycle ≤ □2%.

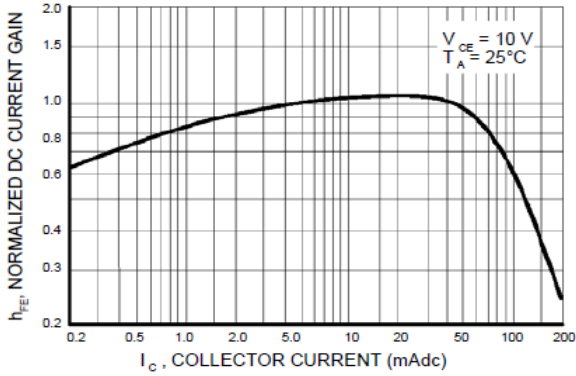


Figure 1. Normalized DC Current Gain

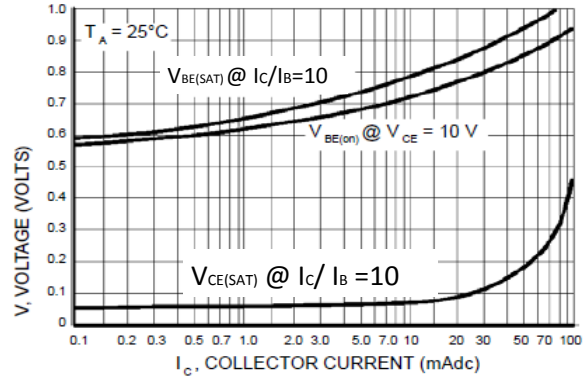


Figure 2. "Saturation" and "On" Voltages

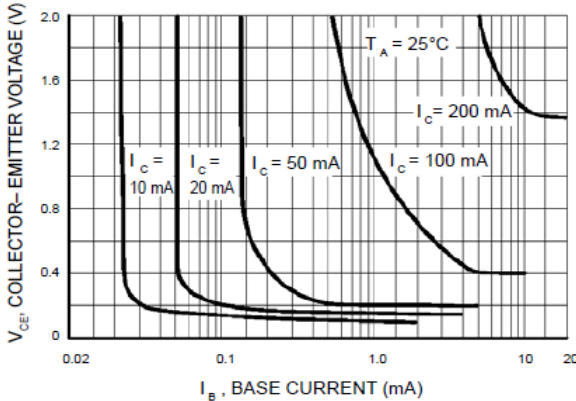


Figure 3. Collector Saturation Region

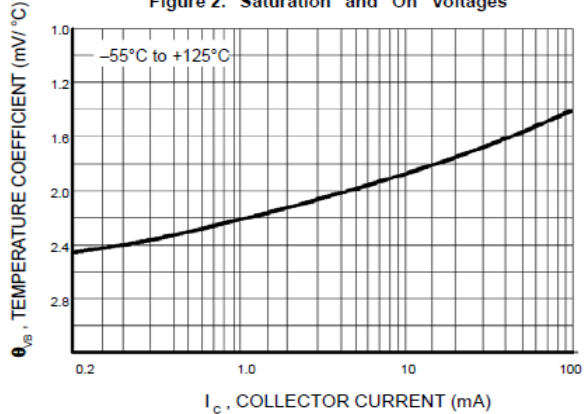


Figure 4. Base-Emitter Temperature Coefficient

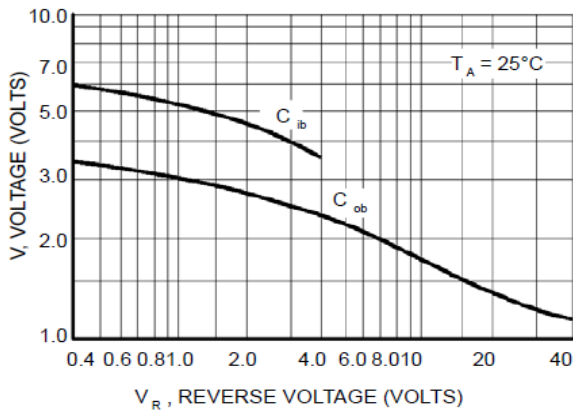


Figure 5. Capacitances

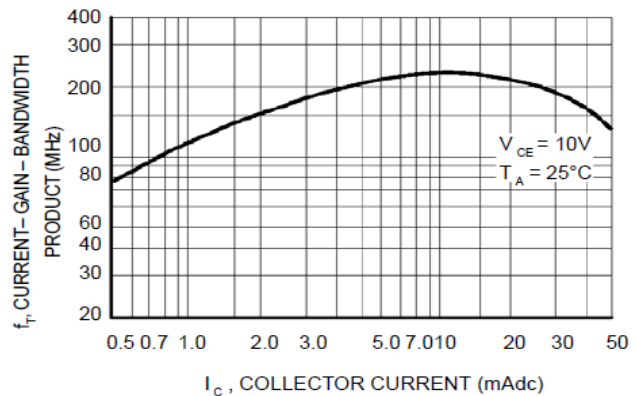


Figure 6. Current-Gain - Bandwidth Product

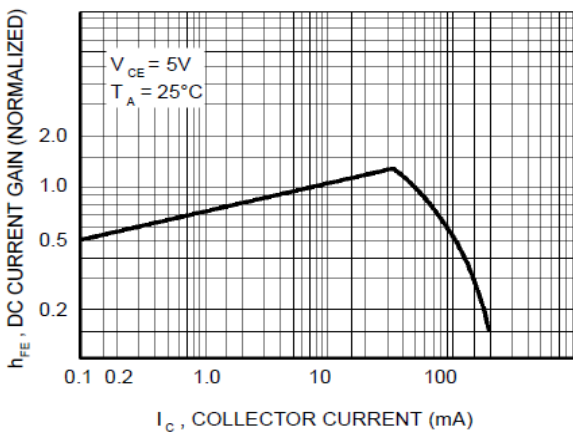


Figure 7. DC Current Gain

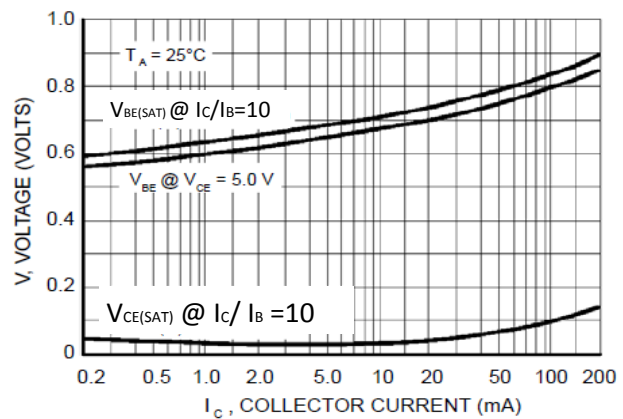


Figure 8. "On" Voltage

