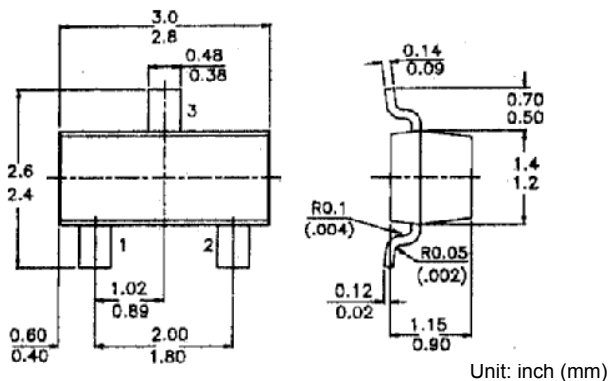
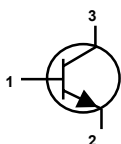


NPN Silicon Planar Epitaxial Transistors

Pin configuration:
1. BASE
2. EMITTER
3. COLLECTOR



SOT-23 SMD Package

Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$ unless specified otherwise)

DESCRIPTION	SYMBOL	BC846	BC847	BC848	UNITS
Collector Base Voltage	V_{CBO}	80	50	30	V
Collector Emmitter Voltage ($V_{BE} = 0V$)	V_{CES}	80	50	30	V
Collector Emitter Voltage	V_{CEO}	65	45	30	V
Emitter Base Voltage	V_{EBO}	6	6	5	V
Collector Current (DC)	I_C		100		mA
Collector Current - Peak	I_{CM}		200		mA
Emitter Current - Peak	$-I_{EM}$		200		mA
Base Current - Peak	I_{BM}		200		mA
Total power dissipation up to $T_{amb} = 25^\circ\text{C}$	P_{tot}^{**}		250		mW
Storge Temperature	T_{stg}		-55 to +150		$^\circ\text{C}$
Junction Temperature	T_j		150		$^\circ\text{C}$

Thermal Resistance

From junction to ambient	$R_{th(j-a)}^{**}$	500	K/W
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******Mounted on a ceramic substrate of 8mm x 10mm x 0.7mm

Electrical Characteristics (at Ta=25 °C unless otherwise specified)

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNITS
Collector Cut Off Current	I_{CBO}	$V_{CB} = 30V, I_E = 0$			15	nA
		$V_{CB} = 30V, I_E = 0, T_j = 150^{\circ}C$			4	uA
Base Emitter On Voltage	$V_{BE(on)}^*$	$I_C = 2mA, V_{CE} = 5V$	0.58	0.7		V
		$I_C = 10mA, V_{CE} = 5V$		0.77		
Collector Emitter Saturation Voltage	$V_{CE(Sat)}$	$I_C = 10mA, I_B = 0.5mA$		0.25		V
		$I_C = 100mA, I_B = 5mA$		0.60		
Base Emitter Saturation Voltage	$V_{BE(Sat)}^{***}$	$I_C = 10mA, I_B = 0.5mA$		0.7		V
		$I_C = 100mA, I_B = 5mA$		0.9		
DC Current Gain	h_{FE}	$I_C = 10uA, V_{CE} = 5V$ BC846A/BC847A/BC848A		90		
		BC846B/BC847B/BC848B		150		
		BC847C/BC848C		270		
		$I_C = 2mA, V_{CE} = 5V$ BC846	110		450	
		BC847/BC848	110		800	
		BC846A/BC847A/BC848A	110		220	
		BC846B/BC847B/BC848B	200		450	
		BC847C/BC848C	420		800	
Collector Capacitance	C_C	$I_E = I_C = 0, V_{CB} = 10V, f = 1MHz$		2.5		pF
Transition Frequency	f_T	$I_C = 10mA, V_{CB} = 5V, f = 100MHz$	100			MHz
Small Signal Current Gain	$ h_{fe} $	$I_C = 2mA, V_{CE} = 5V, f = 1kHz$ BC856	125		500	
		BC857/BC858	125		900	
		BC846A/BC847A/BC848A	125		260	
		BC846B/BC847B/BC848B	240		500	
		BC847C/BC848C	450		900	
Noise Figure	NF	$I_C = 0.2mA, V_{CE} = 5V$ $R_S = 2k\ ohm, f = 1kHz, B = 200Hz$		10		dB

* $V_{BE(on)}$ decreases by about 2mV/K with increase temperature.

*** $V_{BE(Sat)}$ decreases by about 1.7mV/K with increase temperature.