

BC847B, BC847C

General Purpose SMD NPN Transistors



SOT-23



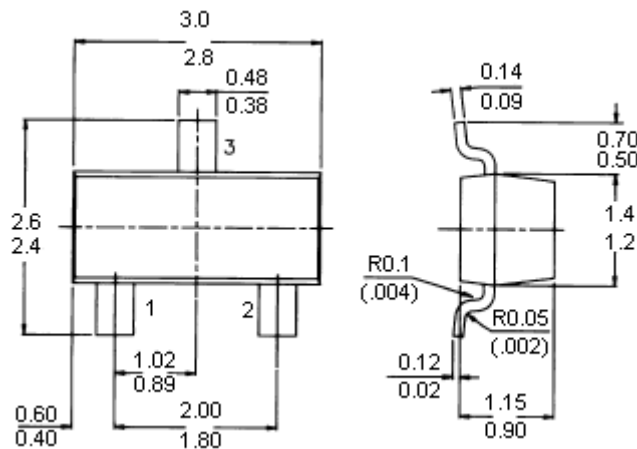
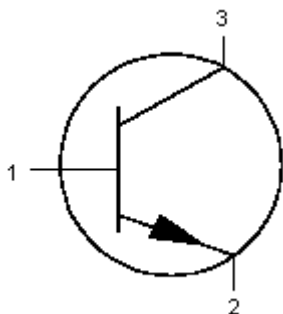
Features:

- Silicon planar epitaxial transistors.
- General purpose NPN transistors.

Package Outline Details

Pin Configuration

1. Base
2. Emitter
3. Collector



Absolute Maximum Ratings

	Symbol		BC847B	BC847C	Units
Collector-emitter voltage ($V_{BE} = 0$)	V_{CES}	Maximum	50	45	V
Collector-emitter voltage (open base)	V_{CEO}				
Collector current (peak value)	I_{CM}		200	mA	
Total power dissipation up to $T_{amb} = 25^{\circ}\text{C}$	P_{tot}		250	mW	
Junction temperature	T_j		150	$^{\circ}\text{C}$	



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Absolute Maximum Ratings

	Symbol		BC847B	BC847C	Units
Small-signal current gain $I_C = 2\text{mA}$; $V_{CE} = 5\text{V}$; $f = 1\text{kHz}$	h_{fe}	Minimum	125		-
Transition frequency at $f = 100\text{MHz}$ $I_C = 10\text{mA}$; $V_{CE} = 5\text{V}$	f_T	Minimum	>100		MHz
Noise figure at $R_S = 2\text{k}\Omega$ $I_C = 200\text{mA}$; $V_{CE} = 5\text{V}$ $f = 1\text{kHz}$; $B = 200\text{Hz}$	F	Typical	2		dB

Ratings (at $T_A = 25^\circ\text{C}$ unless otherwise specified)

	Symbol		BC847B	BC847C	Units
Collector-base voltage (open emitter)	V_{CBO}	Maximum	50		V
Collector-emitter voltage ($V_{BE} = 0$)	V_{CES}				
Collector-emitter voltage (open base)	V_{CEO}				
Emitter-base voltage (open collector)	V_{EBO}				
Collector current (dc)	I_C	Maximum	100		mA
Collector current (peak value)	I_{CM}				
Emitter current (peak value)	$-I_{EM}$				
Base current (peak value)	I_{BM}				
Total power dissipation upto $T_{amb}: 25^\circ\text{C}$	P_{tot}		250		mW
Storage temperature	T_{stg}	-	-55 to +150		$^\circ\text{C}$
Junction temperature	T_j	Maximum	150		
Thermal Resistance					
From junction to ambient	$R_{th(j-a)}$	=	500		K/W

Characteristics ($T_j = 25^\circ\text{C}$ unless otherwise specified)

Collector cut off current $I_E = 0$; $V_{CB} = 30\text{V}$ $I_E = 0$; $V_{CB} = 30\text{V}$; $T_j = 150^\circ\text{C}$	I_{CBO}	<	15 5		nA μA
Base-emitter voltage $I_C = 2\text{mA}$; $V_{CE} = 5\text{V}$	V_{BE}	Typical	660		mV
$I_C = 10\text{mA}$; $V_{CE} = 5\text{V}$	V_{BE}	<	580 to 700 770		
Saturation voltage	$V_{CE(sat)}$	Typical	90		
$I_C = 10\text{mA}$; $I_B = 0.5\text{mA}$	$V_{BE(sat)}$	<	250		
$I_C = 100\text{mA}$; $I_B = 5\text{mA}$	$V_{CE(sat)}$	Typical	700		
	$V_{CE(sat)}$	Typical	200		
	$V_{BE(sat)}$	<	600		
	$V_{BE(sat)}$	Typical	900		

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Ratings (at $T_A = 25^\circ\text{C}$ unless otherwise specified))

	Symbol		BC847B	BC847C	Units
Collector capacitance at $f = 1\text{MHz}$ $I_E = I_e = 0; V_{CB} = 10\text{V}$	C_C	Typical	2.5		pF
Transition frequency at $f = 100\text{MHz}$ $I_C = 10\text{mA}; V_{CE} = 5\text{V}$	f_T	>	100		MHz
Noise figure at $R_S = 2\text{KW}$ $I_C = 200\mu\text{A}; V_{CE} = 5\text{V};$ $f = 1\text{kHz}; B = 200\text{Hz}$	F	Typical Maximum	2 10		dB
DC current gain $I_C = 10\text{mA}; V_{CE} = 5\text{V}$ $I_C = 2\text{mA}; V_{CE} = 5\text{V}$	h_{FE}	Typical > Typical <	150 200 290 450	270 420 520 800	-
Small signal current gain at $f = 1\text{ kHz}$ $I_C = 2\text{mA}; V_{CE} = 5\text{V}$	h_{fe}	Minimum Maximum	125 900		-

Specifications

V_{CEO} (V)	I_C (mA) maximum	F maximum (dB)	P_{tot} (mW)	Device Marking	Part Number
45	100	10	250	IF	BC847B
				IG	BC847C

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Notes:

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