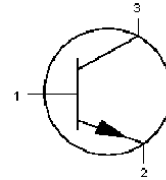# SMD NPN Transistor

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Features:

- Silicon planar epitaxial transistors
- General purpose NPN transistors

Pin Configuration:
1. Base
2. Emitter
3. Collector

Absolute Maximum Ratings:

Description	Symbol		BC847B	Units
Collector-Emitter Voltage ($V_{BE} = 0$)	V_{CES}	Max.	50	V
Collector-Emitter Voltage (Open Base)	V_{CEO}		45	
Collector Current (Peak Value)	I_{CM}		200	mA
Total Power Dissipation up to $T_a = 25°C$	P_{tot}		250	mW
Junction Temperature	T_j		150	°C
Small-Signal Current Gain $I_C = 2mA$; $V_{CE} = 5V$; $f = 1kHz$	h_{fe}	Min.	125	-
Transition Frequency at $f = 100MHz$ $I_C = 10mA$; $V_{CE} = 5V$	f_T		>100	MHz
Noise Figure at $R_S = 2kW$ $I_C = 200mA$; $V_{CE} = 5V$ $f = 1kHz$; $B = 200Hz$	F	Typ.	2	dB

Ratings (at $T_A = 25°C$ unless otherwise specified)

Description	Symbol		BC847B	Units
Collector-Base Voltage (Open Emitter)	V_{CBO}	Max.	50	V
Collector-Emitter Voltage ($V_{BE} = 0$)	V_{CES}			
Collector-Emitter Voltage (Open Base)	V_{CEO}		45	
Emitter-Base Voltage (Open Collector)	V_{EBO}		6	
Collector Current (DC)	I_C		100	mA

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Ratings (at T_A = 25°C unless otherwise specified)

Description	Symbol		BC847B	Units
Collector Current (Peak Value)	I_{CM}			
Emitter Current (Peak Value)	$-I_{EM}$	Max.	200	mA
Base Current (Peak Value)	I_{BM}			
Total Power Dissipation upto T_a: 25°C	P_{tot}		250	mW
Storage Temperature	T_{stg}	-	-55 to +150	°C
Junction Temperature	T_j	Max.	150	

Thermal Resistance

From Junction to Ambient	$R_{th\ (j-a)}$	=	500	K/W

Characteristics (T_j = 25°C unless otherwise specified)

Collector Cut off Current $I_E = 0$; $V_{CB} = 30V$ $I_E = 0$; $V_{CB} = 30V$; $T_j = 150°C$	I_{CBO}	<	15 5	nA µA
Base-Emitter Voltage $I_C = 2mA$; $V_{CE} = 5V$	V_{BE}	Typ.	660	
$I_C = 10mA$; $V_{CE} = 5V$	V_{BE}	<	580 to 700 770	
Saturation Voltage	$V_{CE\ (sat)}$	Typ.	90	mV
$I_C = 10mA$; $I_B = 0.5mA$ $I_C = 100mA$; $IB = 5mA$	$V_{BE\ (sat)}$ $V_{CE\ (sat)}$ $V_{BE\ (sat)}$	< Typ. Typ. < Typ.	250 700 200 600 900	
Collector Capacitance at f = 1MHz $I_E = I_e = 0$; $V_{CB} = 10V$	C_C	Typ.	2.5	pF
Transition Frequency at f = 100MHz $I_C = 10mA$; $V_{CE} = 5V$	f_T	>	100	MHz
Noise Figure at $R_S = 2KW$ $I_C = 200µA$; $V_{CE} = 5V$; f = 1kHz; B = 200Hz	F	Typ. Max.	2 10	dB
DC Current Gain $I_C = 10mA$; $V_{CE} = 5V$ $I_C = 2mA$; $V_{CE} = 5V$	h_{FE}	Typ. > Typ. <	150 200 290 450	-
Small Signal Current Gain at f = 1 kHz $I_C = 2mA$; $V_{CE} = 5V$	h_{fe}	Min. Max.	125 900	-

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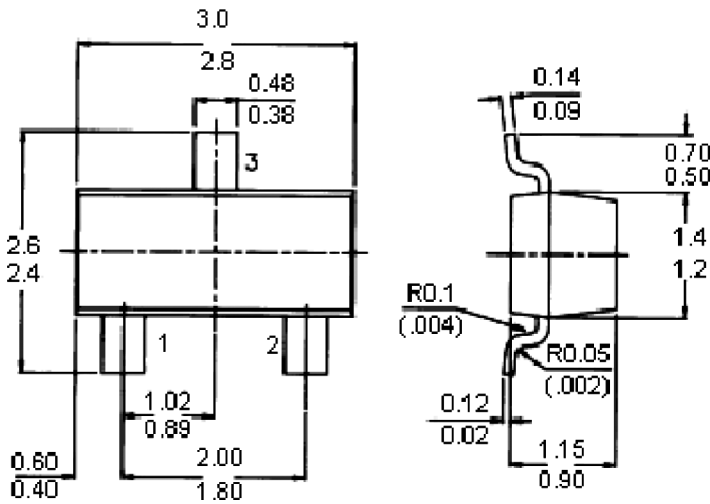
Dimensions : Millimetres

Pin Configuration:
1. Base
2. Emitter
3. Collector

Part Number Table

Description	Part Number
Transistor, NPN, SOT-23	BC847B

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