

Low Power Bipolar Transistors



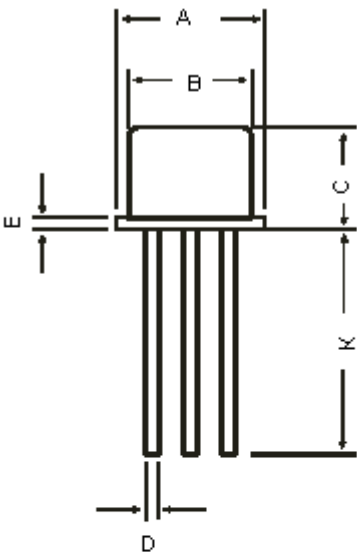
BC177 / BC177B Series



Feature:

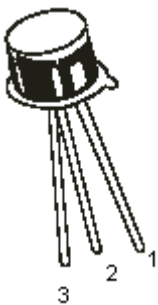
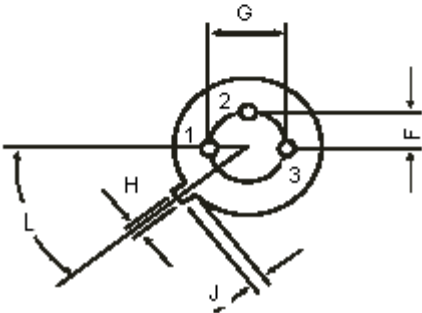
- PNP silicon planar epitaxial transistors

TO-18 Metal Can Package



Dimensions	Minimum	Maximum
A	5.24	5.84
B	4.52	4.97
C	4.31	5.33
D	0.4	0.53
E	-	0.76
F	-	1.27
G	-	2.97
H	0.91	1.17
J	0.71	1.21
K	12.7	-
L	45°	45°

Dimensions : Millimetres



Pin Configuration:

1. Emitter
2. Base
3. Collector

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Absolute Maximum Ratings

Description	Symbol	BC177	Unit
Collector-Emitter Voltage	V _{CEO}	45	V
	V _{CES}	50	
Collector-Base Voltage	V _{CBO}		
Emitter-Base Voltage	V _{EBO}	5	
Collector Current Continuous	I _C	0.2	A
Power Dissipation at T _a = 25°C Derate Above 25°C	P _D	0.6 2.28	W mW / °C
Power Dissipation at T _C = 25°C Derate Above 25°C		1 6.67	
Operating and Storage Junction Temperature Range	T _J , T _{stg}	-65 to +200	°C
Thermal Resistance			
Junction to Case	R _{th (j-c)}	175	°C / W

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

Description	Symbol	Test Condition	Minimum	Typical	Maximum	Unit
Collector-Cut Off Current	I_{CES}	$V_{CE} = 20 \text{ V}, I_E = 0$ $T_{amb} = 125^\circ\text{C}$ $V_{CE} = 20 \text{ V}, I_E = 0$	-	-	100 4	nA μA
Collector-Base Voltage	V_{CBO}	$I_E = 10 \mu\text{A}, I_C = 0$	50	-	-	V
Collector-Emitter Voltage	V_{CEO}	$I_C = 2 \text{ mA}, I_B = 0$	45	-	-	V
Emitter-Base Voltage	V_{EBO}	$I_E = 10 \mu\text{A}, I_C = 0$	5	-	-	V
DC Current	h_{FE}	$I_C = 2 \text{ mA}, V_{CE} = 5 \text{ V}$ BC177 B Group	120 180	-	460 460	-
Collector Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10 \text{ mA}, I_B = 0.5 \text{ mA}$ $I_C = 100 \text{ mA}, I_B = 5 \text{ mA}$	-	-	0.2 0.6	V
Base Emitter Saturation Voltage	$V_{BE(sat)}$		-	- 0.9	0.8 -	
Base Emitter on Voltage	$V_{BE(on)}$	$I_C = 2 \text{ mA}, V_{CE} = 5 \text{ V}$	0.6	-	0.75	

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

Description	Symbol	Test Condition	Minimum	Maximum	Unit
Collector Knee Voltage	$V_{CE(K)}$	$I_C = 10\text{ mA}$, $I_B = \text{The Value for Which } I_C = 11\text{ mA}$ at $V_{CE} = 1\text{ V}$	-	0.6	V
Transition Frequency	f_t	$V_{CE} = 5\text{ V}$, $I_C = 10\text{ mA}$ $f = 50\text{ MHz}$	200	-	MHz
Noise Figure	NF	$V_{CE} = 5\text{ V}$, $I_C = 0.2\text{ mA}$ $R_g = 2\text{ k}\Omega$ $F = 1\text{ KHz}$, $B = 200\text{ Hz}$	-	10	dB
Output Capacitance	C_{obo}	$V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$	-	4	pF
Small Signal Current Gain	h_{fe}	All $f = 1\text{ KHz}$ $I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$ BC177 B Group	125 240	500 500	-
Input Impedance	h_{ie}	$I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$ B Group	3.2	8.5	$\text{K}\Omega$
Output Admittance	h_{oe}	$I_C = 2\text{ mA}$, $V_{CE} = 5\text{ V}$ B Group	-	60	umhos

Specification Table

V_{CEO} (V)	V_{CBO} Maximum (V)	I_C (V)	h_{FE} Minimum at $I_C = 2\text{ mA}$	f_T Minimum (V)	P_{tot} (mW)	Type	Package	Part Number
45	50	0.2	120	200	600	PNP	TO-18	BC177
			180					BC177B

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