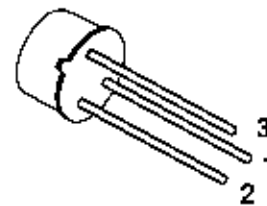


GENERAL PURPOSE TRANSISTORS

DESCRIPTION

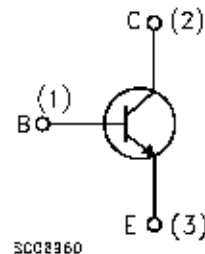
The BC141 is a silicon planar epitaxial NPN transistors in Jedec TO-39 metal case. They are particularly designed for audio amplifiers and switching application up to 1A.

The complementary PNP type is the BC161.



TO-39

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage ($I_E = 0$)	100	V
V_{CEO}	Collector-Emitter Voltage ($I_B = 0$)	60	V
V_{EBO}	Emitter-Base Voltage ($I_C = 0$)	7	V
I_C	Collector Current	1	A
I_B	Base Current	0.1	A
P_{tot}	Total Dissipation at $T_{amb} \leq 45^\circ\text{C}$ at $T_{case} \leq 45^\circ\text{C}$	0.65 3.7	W W
T_{stg}	Storage Temperature	-55 to 175	$^\circ\text{C}$
T_j	Max. Operating Junction Temperature	175	$^\circ\text{C}$

THERMAL DATA

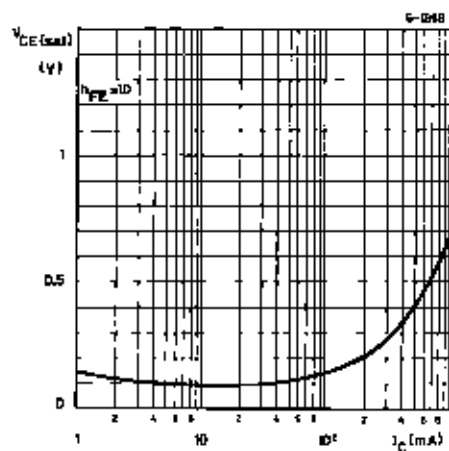
$R_{thj-case}$	Thermal Resistance Junction-Case	Max	35	$^{\circ}\text{C/W}$
$R_{thj-amb}$	Thermal Resistance Junction-Ambient	Max	200	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}\text{C}$ unless otherwise specified)

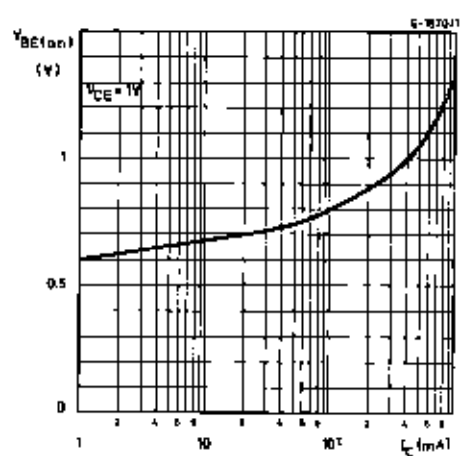
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current ($V_{BE} = 0$)	$V_{CE} = 60\text{ V}$ $V_{CE} = 60\text{ V}$ $T_{amb} = 150^{\circ}\text{C}$			100 100	nA μA
$V_{(BR)CBO}^{*}$	Collector-Base Breakdown Voltage ($I_E = 0$)	$I_C = 100\text{ }\mu\text{A}$	100			V
$V_{(BR)CEO}^{*}$	Collector-Emitter Breakdown Voltage ($I_B = 0$)	$I_C = 30\text{ mA}$	60			V
$V_{(BR)EBO}^{*}$	Emitter-Base Breakdown Voltage ($I_C = 0$)	$I_E = 100\text{ }\mu\text{A}$	7			V
$V_{CE(sat)}^{*}$	Collector-Emitter Saturation Voltage	$I_C = 100\text{ mA}$ $I_B = 10\text{ mA}$ $I_C = 500\text{ mA}$ $I_B = 50\text{ mA}$ $I_C = 1\text{ A}$ $I_B = 100\text{ mA}$		0.1 0.35 0.6	1	V V V
$V_{BE(on)}^{*}$	Base-Emitter On Voltage	$I_C = 1\text{ A}$ $V_{CE} = 1\text{ V}$		1.25	1.8	V
h_{FE}^{*}	DC Current Gain	$I_C = 100\text{ }\mu\text{A}$ $V_{CE} = 1\text{ V}$ for BC141 for BC141 Gr. 6 for BC141 Gr. 10 for BC141 Gr. 16 $I_C = 100\text{ mA}$ $V_{CE} = 1\text{ V}$ for BC141 for BC141 Gr. 6 for BC141 Gr. 10 for BC141 Gr. 16 $I_C = 1\text{ A}$ $V_{CE} = 1\text{ V}$ for BC141 for BC141 Gr. 6 for BC141 Gr. 10 for BC141 Gr. 16		75 28 40 90 40 40 63 63 100 26 15 20 30	250 100 160 250	
f_T	Transition Frequency	$I_C = 50\text{ mA}$ $V_{CE} = 10\text{ V}$	50			MHz
C_{CBO}	Collector Base Capacitance	$I_E = 0$ $V_{CB} = 5\text{ V}$ $f = 1\text{ MHz}$		12	25	pF
t_{on}	Turn-on Time	$I_C = 100\text{ mA}$ $I_{B1} = 5\text{ mA}$			250	ns
t_{off}	Turn-off Time	$I_C = 100\text{ mA}$ $I_{B1} = I_{B2} = 5\text{ mA}$			850	ns

* Pulsed: Pulse duration = 300 μs , duty cycle $\leq 1\%$

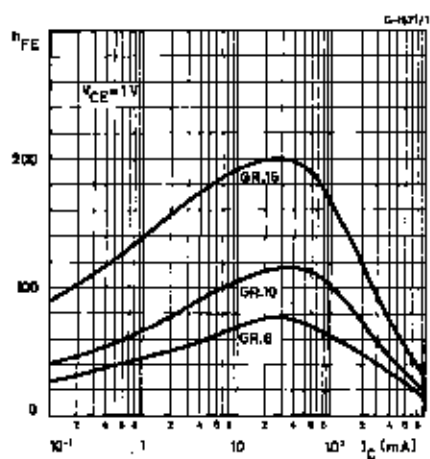
Collector-emitter Saturation Voltage.



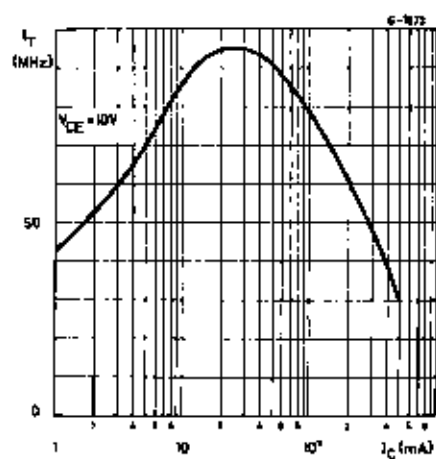
Base-emitter Voltage.



DC Current Gain.

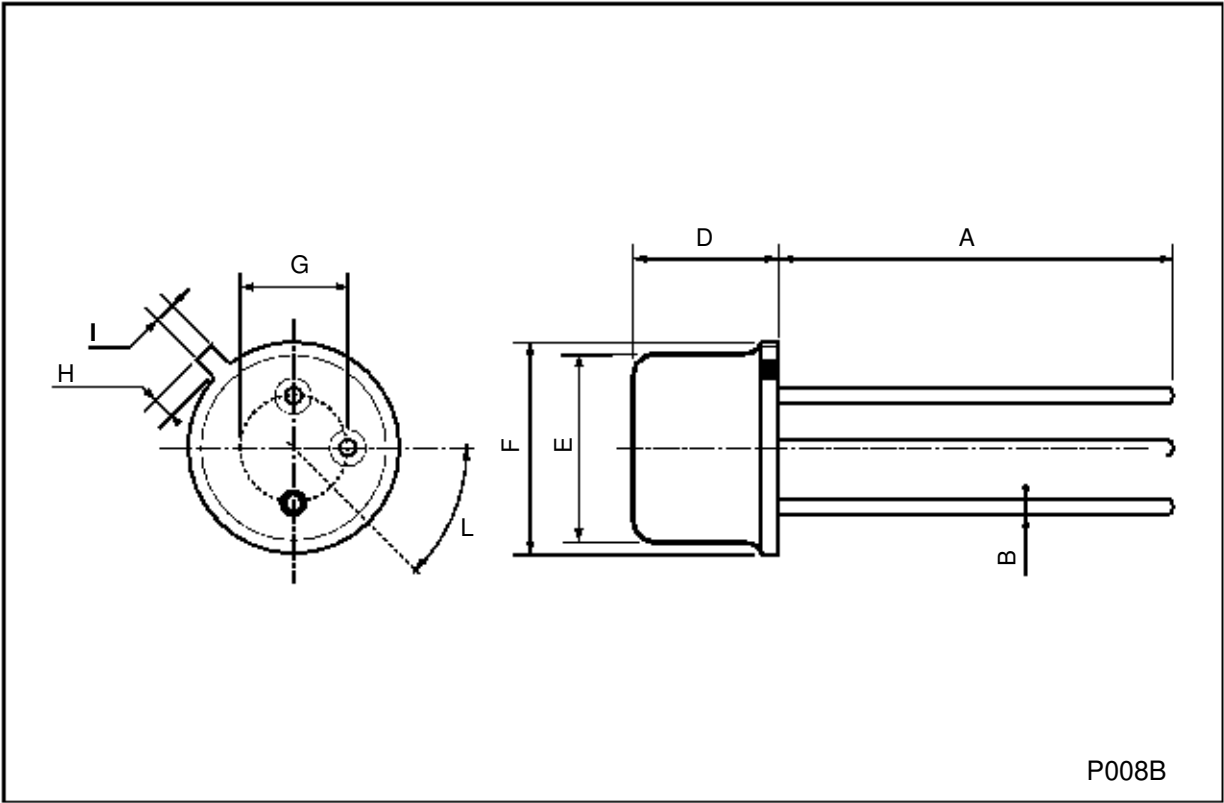


Transition Frequency.



TO-39 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A	12.7			0.500		
B			0.49			0.019
D			6.6			0.260
E			8.5			0.334
F			9.4			0.370
G	5.08			0.200		
H			1.2			0.047
I			0.9			0.035
L	45° (typ.)					



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