



# THE DATASHEET OF BC141-16

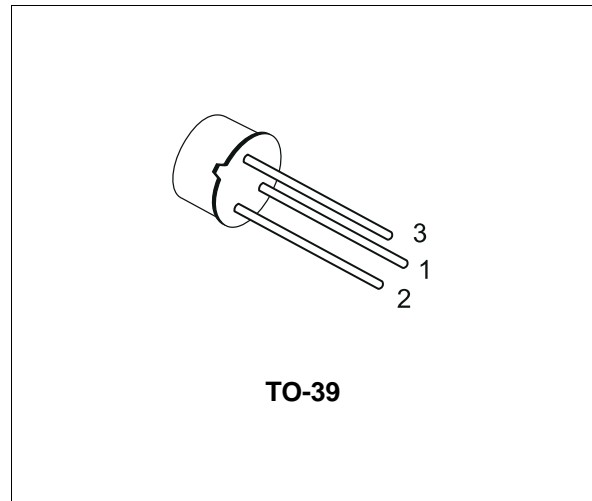


## GENERAL PURPOSE TRANSISTOR

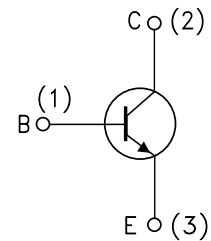
### DESCRIPTION

The BC141-16 is a silicon Planar Epitaxial NPN transistor in Jedec TO-39 metal case. It is particularly designed for audio amplifiers and switching application up to 1A.

The complementary PNP type is the BC161-16.



### 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 $T_{amb} \leq 25\text{ }^\circ\text{C}$ at $T_C \leq 25\text{ }^\circ\text{C}$	0.65	W
		3.7	W
$T_{stg}$	Storage Temperature	-55 to 175	$^\circ\text{C}$
$T_j$	Max. Operating Junction Temperature	175	$^\circ\text{C}$

**THERMAL DATA**

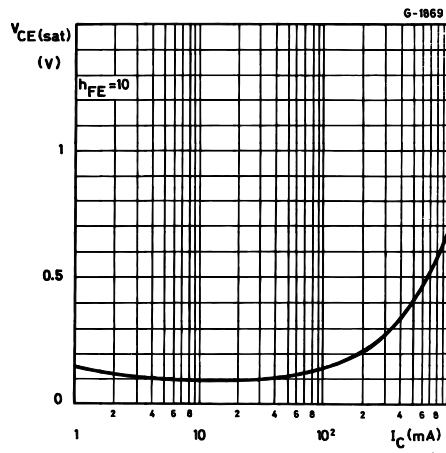
R <sub>thj-case</sub>	Thermal Resistance Junction-Case	35	°C/W
R <sub>thj-amb</sub>	Max Thermal Resistance Junction-Ambient	200	°C/W
	Max		

**ELECTRICAL CHARACTERISTICS** (T<sub>case</sub> = 25 °C unless otherwise specified)

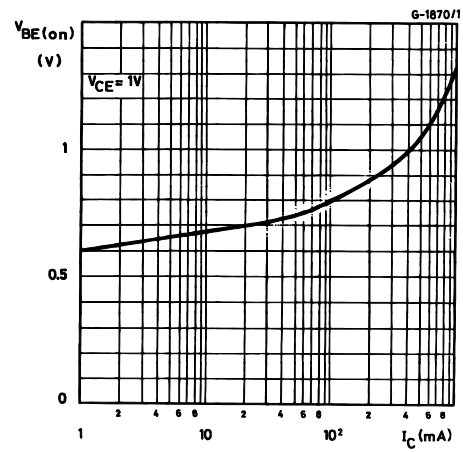
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I <sub>CES</sub>	Collector Cut-off Current (V <sub>BE</sub> = 0)	V <sub>CE</sub> = 60 V V <sub>CE</sub> = 60 V T <sub>C</sub> = 150 °C			100 100	nA μA
V <sub>(BR)CBO</sub> *	Collector-Base Breakdown Voltage (I <sub>E</sub> = 0)	I <sub>C</sub> = 100 μA	100			V
V <sub>(BR)CEO</sub> *	Collector-Emitter Breakdown Voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = 30 mA	60			V
V <sub>(BR)EBO</sub> *	Emitter-Base Breakdown Voltage (I <sub>C</sub> = 0)	I <sub>E</sub> = 100 μA	7			V
V <sub>CE(sat)</sub> *	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 100 mA I <sub>B</sub> = 10 mA I <sub>C</sub> = 500 mA I <sub>B</sub> = 50 mA I <sub>C</sub> = 1 A I <sub>B</sub> = 100 mA		0.1 0.35 0.6	1	V V V
V <sub>BE(on)</sub> *	Base-Emitter On Voltage	I <sub>C</sub> = 1 A V <sub>CE</sub> = 1 V		1.25	1.8	V
h <sub>FE</sub> *	DC Current Gain	I <sub>C</sub> = 100 μA V <sub>CE</sub> = 1 V I <sub>C</sub> = 100 mA V <sub>CE</sub> = 1 V I <sub>C</sub> = 1 A V <sub>CE</sub> = 1 V	100	90 160 30	250	
f <sub>T</sub>	Transition Frequency	I <sub>C</sub> = 50 mA V <sub>CE</sub> = 10 V	50			MHz
C <sub>CBO</sub>	Collector-Base Capacitance	I <sub>E</sub> = 0 V <sub>CB</sub> = 5 V f = 1MHz		12	25	pF
t <sub>on</sub>	Turn-on Time	I <sub>C</sub> = 100 mA I <sub>B1</sub> = 5 mA			250	ns
t <sub>off</sub>	Turn-off Time	I <sub>C</sub> = 100 mA I <sub>B1</sub> = I <sub>B2</sub> = 5 mA			850	ns

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

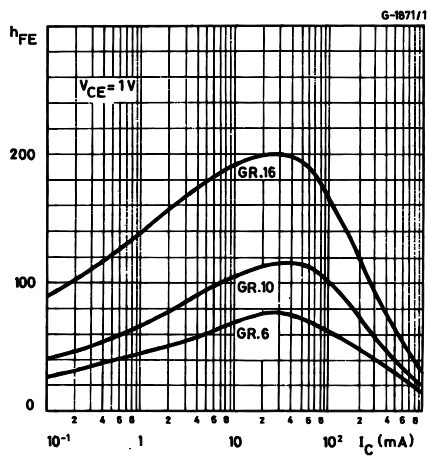
Collector-emitter Saturation Voltage.



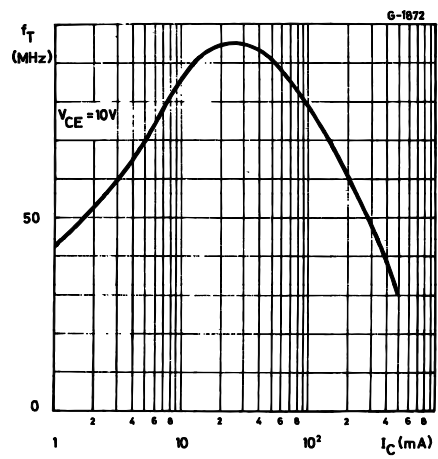
Base-emitter Voltage.



DC Current Gain.

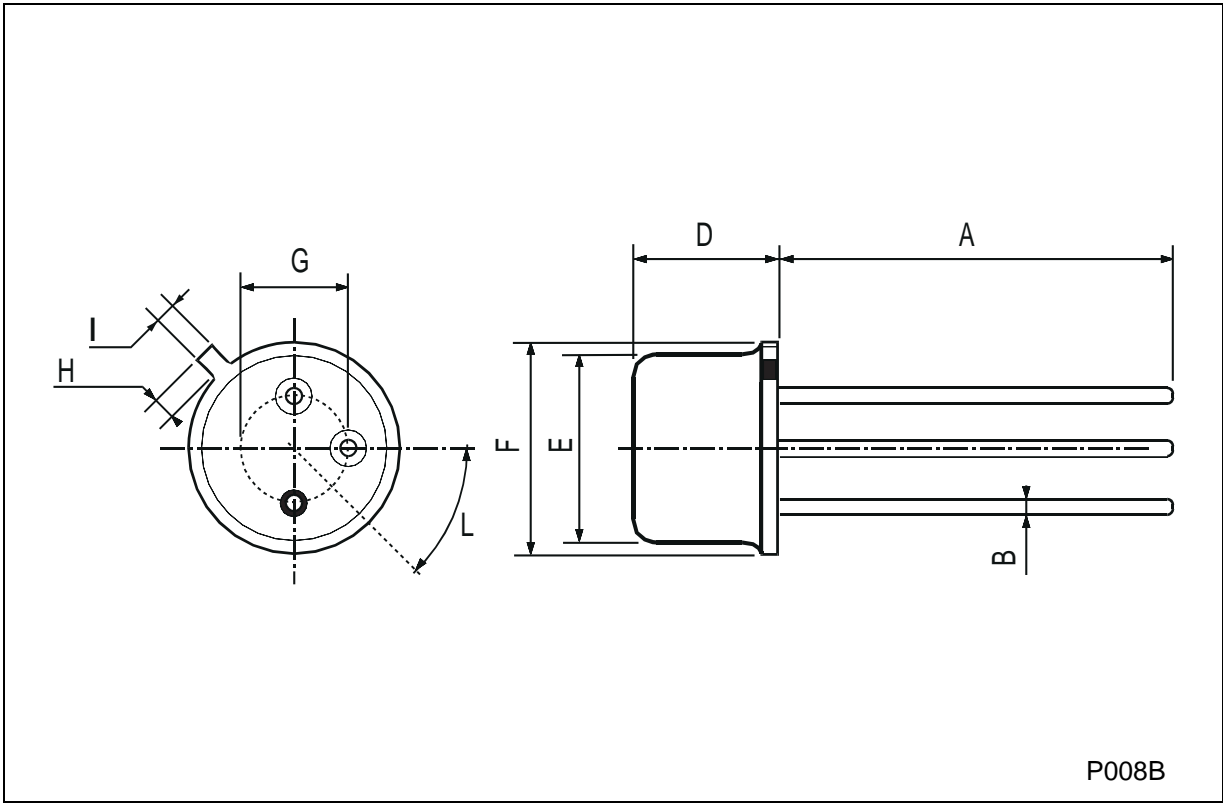


Transition Frequency.



**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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