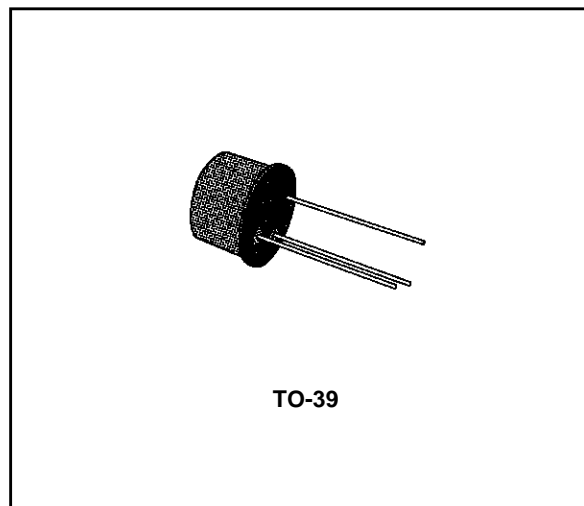


GENERAL PURPOSE TRANSISTORS

DESCRIPTION

The BC160, and BC161 are silicon planar epitaxial PNP transistors in TO-39 metal case. They are particularly designed for audio amplifiers and switching applications up to 1A. The complementary NPN types are the BC140 and BC141.



INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		BC160	BC161	
V_{CBO}	Collector-base Voltage ($I_E = 0$)	- 40	- 60	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	- 40	- 60	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	- 5		V
I_C	Collector Current	- 1		A
I_B	Base Current	- 0.1		A
P_{tot}	Total Power Dissipation at $T_{amb} \leq 45\text{ }^\circ\text{C}$ at $T_{case} \leq 45\text{ }^\circ\text{C}$	0.65		W
		3.7		W
T_{stg}	Storage Temperature	- 55 to 175		$^\circ\text{C}$
T_j	Junction Temperature	175		$^\circ\text{C}$

BC160-BC161

THERMAL DATA

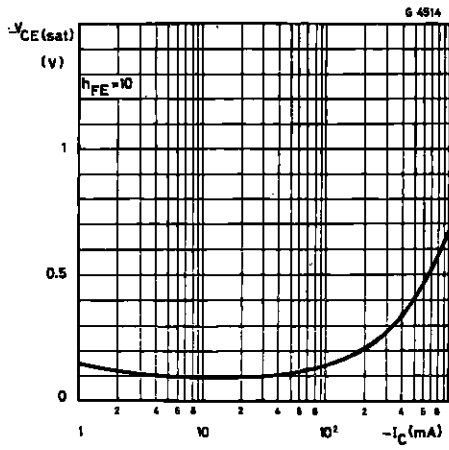
$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	35	°C/W
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	200	°C/W

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ °C}$ unless otherwise specified)

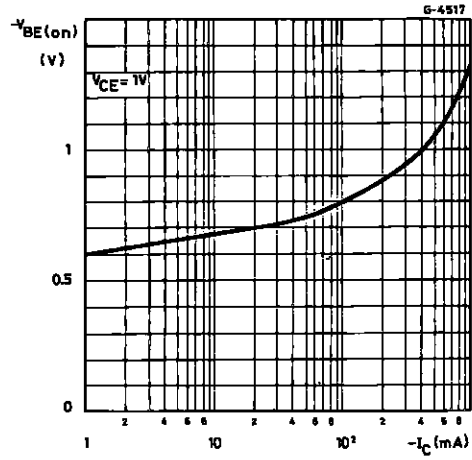
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cutoff Current ($I_E = 0$)	$V_{CES} = 40\text{ V}$ for BC160 $V_{CES} = 60\text{ V}$ for BC161 $V_{CES} = 40\text{ V}$ for BC160 $T_{amb} = 150\text{ °C}$ $V_{CES} = 60\text{ V}$ for BC161 $T_{amb} = 150\text{ °C}$			- 100 - 100 - 100 - 100	nA nA μA μA
$V_{(BR)CBO}$	Collector-base Breakdown Voltage ($I_E = 0$)	$I_C = - 100\ \mu\text{A}$ for BC160 for BC161	- 40 - 60			V V
$V_{(BR)CEO}^*$	Collector-emitter Breakdown Voltage ($I_B = 0$)	$I_C = - 10\text{ mA}$ for BC160 for BC161	- 40 - 60			V V
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage ($I_C = 0$)	$I_E = - 100\ \mu\text{A}$	- 5			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = - 0.1\text{ A}$ $I_B = - 10\text{ mA}$ $I_C = - 0.5\text{ A}$ $I_B = - 50\text{ mA}$ $I_C = - 1\text{ A}$ $I_B = - 0.1\text{ A}$		- 0.1 - 0.35 - 0.6	- 1	V V V
V_{BE}^*	Base-emitter Voltage	$I_C = - 1\text{ A}$ $V_{CE} = - 1\text{ V}$		- 1	- 1.7	V
h_{FE}^*	DC Current Gain	$I_C = - 100\ \mu\text{A}$ $V_{CE} = - 1\text{ V}$ for BC160-161 for BC160-161 Gr. 6 for BC160-161 Gr. 10 for BC160-161 Gr. 16 $I_C = - 100\text{ mA}$ $V_{CE} = - 1\text{ V}$ for BC160-161 for BC160-161 Gr. 6 for BC160-161 Gr. 10 for BC160-161 Gr. 16		110 46 80 120 40 40 63 100 100	250 100 160 250	
h_{FE}^*	DC Current Gain	$I_C = - 1\text{ A}$ $V_{CE} = - 1\text{ V}$ for BC160-161 for BC160-161 Gr. 6 for BC160-161 Gr. 10 for BC160-161 Gr. 16		26 15 20 30		
f_T	Transition Frequency	$I_C = - 50\text{ mA}$ $V_{CE} = - 10\text{ V}$	50			MHz
C_{CBO}	Collector-base Capacitance	$I_E = 0$ $V_{CB} = - 20\text{ V}$ $f = 1\text{ MHz}$		15	30	pF
C_{EBO}	Emitter-base Capacitance	$V_{EB} = - 0.5\text{ V}$ $f = 1\text{ MHz}$			180	pF
t_{on}	Turn-on Time	$I_C = - 100\text{ mA}$ $I_{B1} = - 5\text{ mA}$			500	ns
t_{off}	Turn-off Time	$I_C = - 100\text{ mA}$ $I_{B1} = I_{B2} = - 5\text{ mA}$			650	ns

* Pulsed : pulse duration = 300 μs , duty cycle = 1 %.

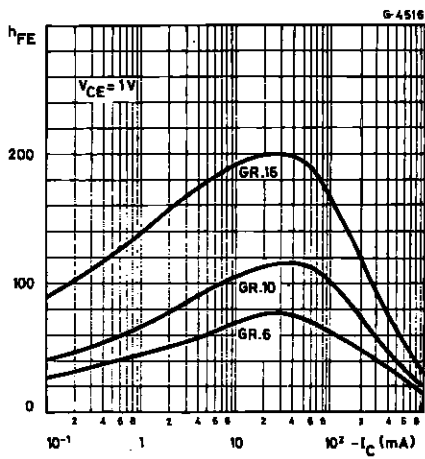
Collector-emitter Saturation Voltage.



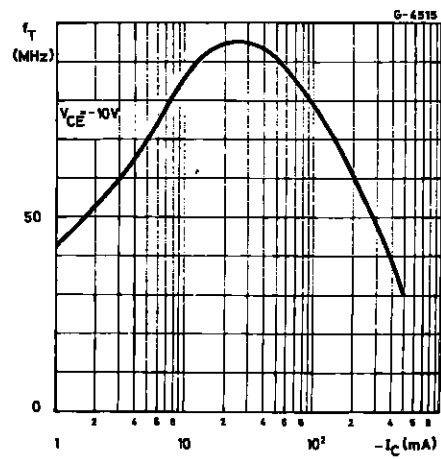
Base-emitter Voltage.



DC Current Gain.

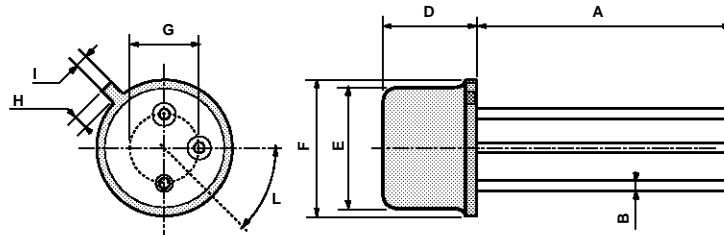


Transition Frequency.



TO39 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.)					



P008B

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