SGS-THOMSON MICROELECTRONICS

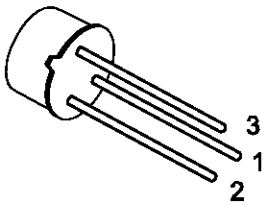
BC161

GENERAL PURPOSE TRANSISTORS

DESCRIPTION

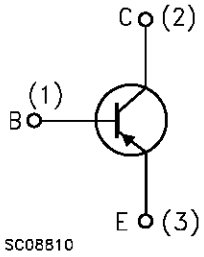
The BC161 is a silicon planar epitaxial PNP transistors in Jedec TO-39 metal case. They are particularly designed for audio amplifiers and switching application up to 1A.

The complementary NPN type is the BC141.



TO-39

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage (I_E = 0)	-60	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)	-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 Dissipation at $T_{amb} \leq 45\ ^oC$ at $T_{case} \leq 45\ ^oC$	0.65 3.7	W W
T_{stg}	Storage Temperature	-55 to 175	^oC
T_j	Max. Operating Junction Temperature	175	^oC

THERMAL DATA

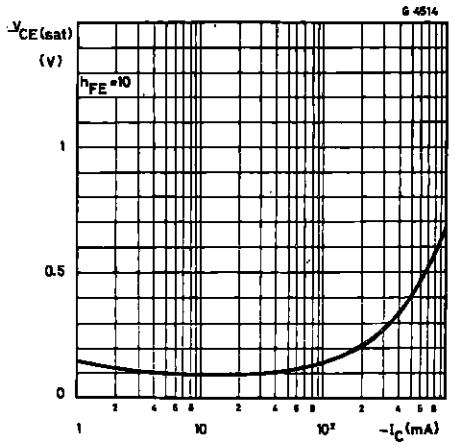
$R_{thj\text{-}case}$	Thermal Resistance Junction-Case Max	35	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-Ambient Max	200	°C/W

ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

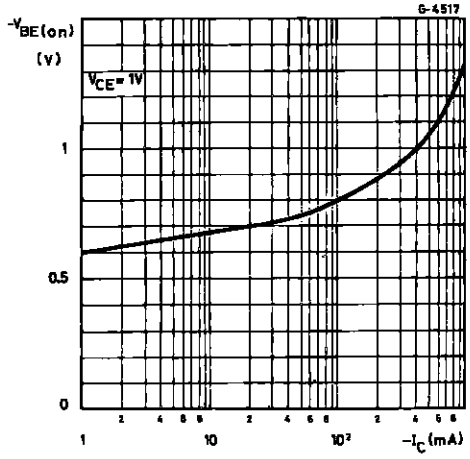
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = -60 V V_{CE} = -60 V T_{amb} = 150 °C			-100 -100	nA µA
$V_{(BR)CBO}$*	Collector-Base Breakdown Voltage (I_E = 0)	I_C = -100 µA	-60			V
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage (I_B = 0)	I_C = -10 mA	-60			V
$V_{(BR)EBO}$*	Emitter-Base Breakdown Voltage (I_C = 0)	I_E = -100 µA	-5			V
$V_{CE(sat)}$*	Collector-Emitter Saturation Voltage	I_C = -100 mA I_B = -10 mA I_C = -500 mA I_B = -50 mA I_C = -1 A I_B = -100 mA		-0.1 -0.35 -0.6	 -1	V V V
$V_{BE(on)}$*	Base-Emitter On Voltage	I_C = -1 A V_{CE} = -1 V		-1	-1.7	V
h_{FE}*	DC Current Gain	I_C = -100 µA V_{CE} = -1 V for **BC161** for **BC161** Gr. 6 for **BC161** Gr. 10 for **BC161** Gr. 16 I_C = -100 mA V_{CE} = -1 V for **BC161** for **BC161** Gr. 6 for **BC161** Gr. 10 for **BC161** Gr. 16 I_C = -1 A V_{CE} = -1 V for **BC161** for **BC161** Gr. 6 for **BC161** Gr. 10 for **BC161** Gr. 16	 40 40 63 100 	 110 46 80 120 140 63 100 160 26 15 20 30	 250 100 160 250	
f_T	Transition Frequency	I_C = -50 mA V_{CE} = -10 V	50			MHz
C_{CBO}	Collector Base Capacitance	I_E = 0 V_{CB} = -20 V f = 1MHz		15	30	pF
C_{EBO}	Emitter Base Capacitance	I_C = 0 V_{CB} = -0.5 V f = 1MHz			180	pF
t_{on}	Turn-on Time	I_C = -100 mA I_{B1} = -5 mA			500	ns
t_{off}	Turn-off Time	I_C = -100 mA I_{B1} = I_{B2} = -5 mA			650	ns

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

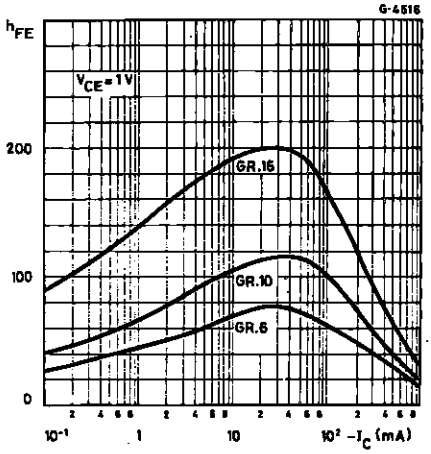
Collector-emitter Saturation Voltage.



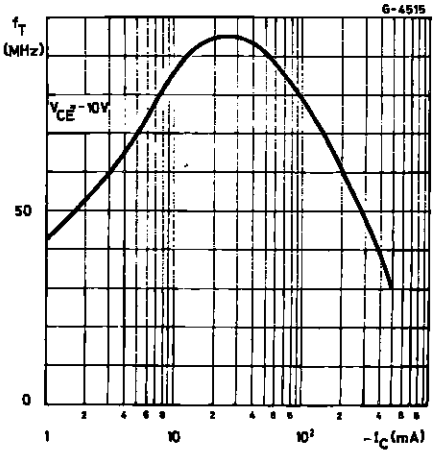
Base-emitter Voltage.



DC Current Gain.

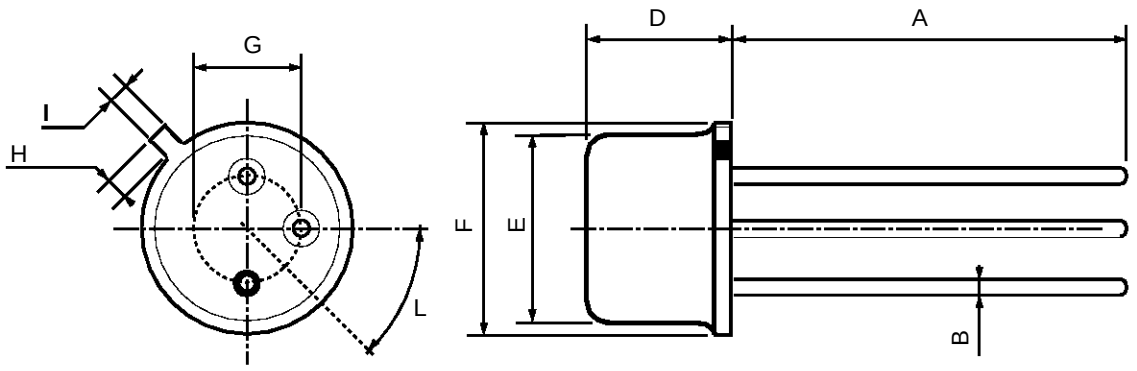


Transition Frequency.



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^{o} (typ.)					



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