SGS-THOMSON MICROELECTRONICS

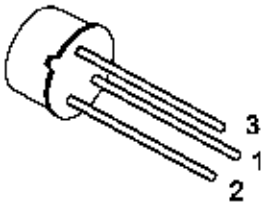
BC141

GENERAL PURPOSE TRANSISTORS

DESCRIPTION

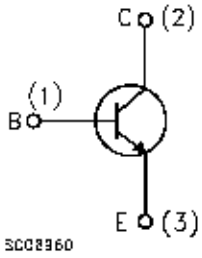
The BC141 is a silicon planar epitaxial NPN transistors in Jedec TO-39 metal case. They are particularly designed for audio amplifiers and switching application up to 1A.

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 $T_{amb} \leq 45\ ^oC$ 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

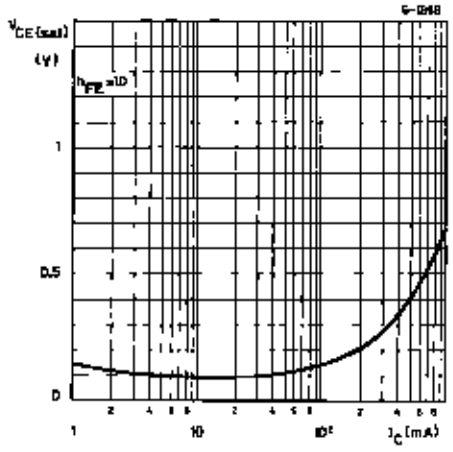
$R_{thj\text{-}case}$	Thermal Resistance Junction-Case Max	35	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-Ambient Max	200	°C/W

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

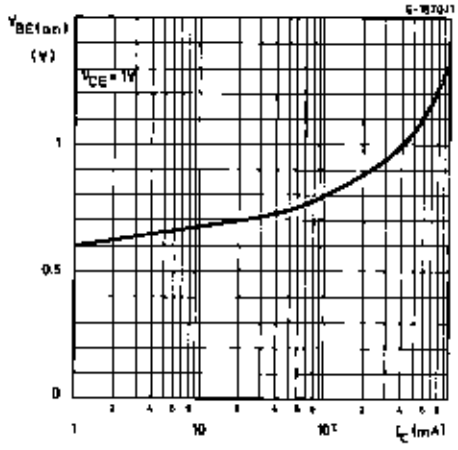
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector Cut-off Current (V_{BE} = 0)	V_{CE} = 60 V V_{CE} = 60 V T_{amb} = 150 °C			100 100	nA µA
$V_{(BR)CBO}$*	Collector-Base Breakdown Voltage (I_E = 0)	I_C = 100 µA	100			V
$V_{(BR)CEO}$*	Collector-Emitter Breakdown Voltage (I_B = 0)	I_C = 30 mA	60			V
$V_{(BR)EBO}$*	Emitter-Base Breakdown Voltage (I_C = 0)	I_E = 100 µA	7			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		1.25	1.8	V
h_{FE}*	DC Current Gain	I_C = 100 µA V_{CE} = 1 V for **BC141** for **BC141** Gr. 6 for **BC141** Gr. 10 for **BC141** Gr. 16 I_C = 100 mA V_{CE} = 1 V for **BC141** for **BC141** Gr. 6 for **BC141** Gr. 10 for **BC141** Gr. 16 I_C = 1 A V_{CE} = 1 V for **BC141** for **BC141** Gr. 6 for **BC141** Gr. 10 for **BC141** Gr. 16	 40 40 63 100 	 75 28 40 90 140 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} = 5 V f = 1MHz		12	25	pF
t_{on}	Turn-on Time	I_C = 100 mA I_{B1} = 5 mA			250	ns
t_{off}	Turn-off Time	I_C = 100 mA I_{B1} = I_{B2} = 5 mA			850	ns

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

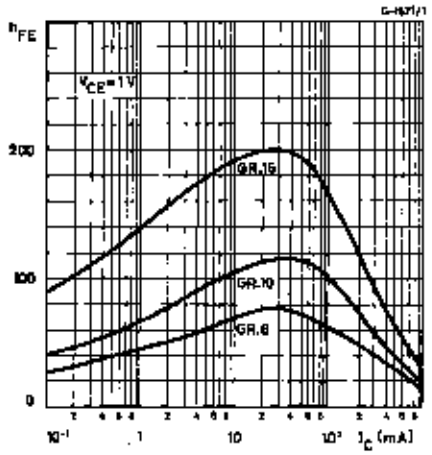
Collector-emitter Saturation Voltage.



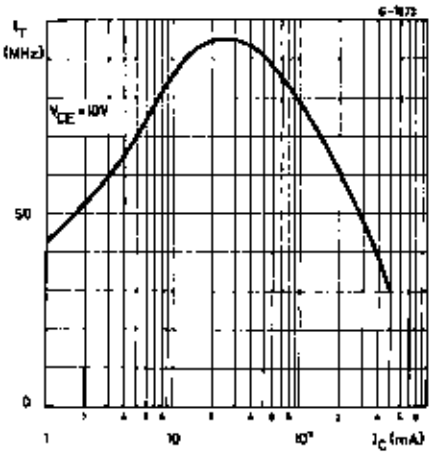
Base-emitter Voltage.



DC Curent Gain.

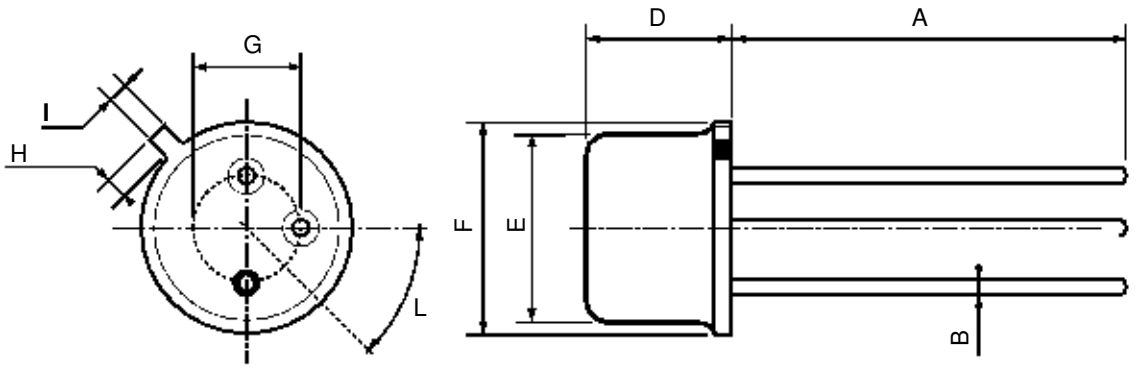


Transiition Frequency.



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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