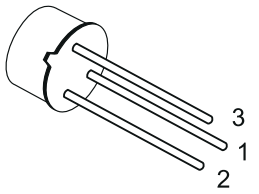
2N1711

EPITAXIAL PLANAR NPN

DESCRIPTION

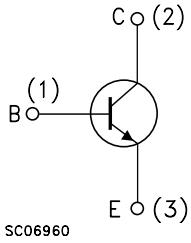
The 2N1711 is a silicon Planar Epitaxial NPN transistor in Jedec TO-39 metal case. It is intented for use in high performance amplifier, oscillator and switching circuits.

The 2N1711 is also used to advantage in amplifiers where low noise is an important factor.



TO-39

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage (I_E = 0)	75	V
V_{CER}	Collector-Emitter Voltage ($R_{BE} \leq 10\Omega$)	50	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)	7	V
I_C	Collector Current	500	mA
P_{tot}	Total Dissipation at $T_{amb} \leq 25\ ^oC$ at $T_C \leq 25\ ^oC$ at $T_C \leq 100\ ^oC$	0.8 3 1.7	W W W
T_{stg}	Storage Temperature	-65 to 175	^oC
T_j	Max. Operating Junction Temperature	175	^oC

THERMAL DATA

$R_{thj\text{-}case}$	Thermal Resistance Junction-Case Max	50	°C/W
$R_{thj\text{-}amb}$	Thermal Resistance Junction-Ambient Max	187.5	°C/W

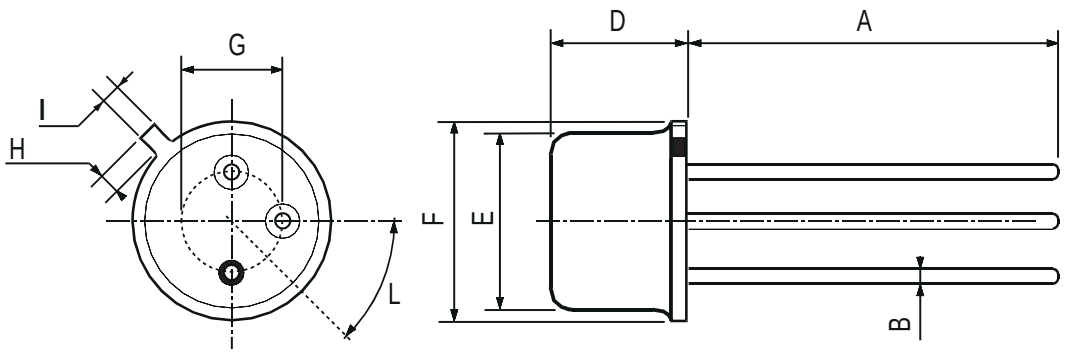
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cut-off Current (I_E = 0)	V_{CB} = 60 V V_{CB} = 60 V T_C = 150 °C			10 10	nA µA
I_{EBO}	Emitter Cut-off Current (I_C = 0)	V_{EB} = 5 V			5	nA
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (I_E = 0)	I_C = 100 µA	75			V
$V_{(BR)CER}$*	Collector-Emitter Breakdown Voltage (R_{BE} ≤ 10Ω)	I_C = 10 mA	50			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 = 150 mA I_B = 15 mA		0.5	1.5	V
$V_{BE(sat)}$*	Base-Emitter Saturation Voltage	I_C = 150 mA I_B = 15 mA		0.95	1.3	V
h_{FE}*	DC Current Gain	I_C = 10 µA V_{CE} = 10 V I_C = 0.1 mA V_{CE} = 10 V I_C = 10 mA V_{CE} = 10 V I_C = 150 mA V_{CE} = 10 V I_C = 500 mA V_{CE} = 10 V I_C = 10 mA V_{CE} = 10 V T_C = -55 °C	20 35 75 100 40 35	60 80 130 130 75 65	 300 	
h_{fe}	Small Signal Current Gain	I_C = 1 mA V_{CE} = 10 V f = 1 KHz	70	135	300	
f_T	Transition Frequency	I_C = 50 mA V_{CE} = 10 V f = 20 MHz	70	100		MHz
C_{EBO}	Emitter-Base Capacitance	I_C = 0 V_{EB} = 0.5 V f = 1 MHz		50	80	pF
C_{CBO}	Collector-Base Capacitance	I_E = 0 V_{CB} = 10 V f = 1 MHz		18	25	pF
NF	Noise Figure	I_C = 0.3 mA V_{CE} = 10 V R_g = 510 Ω f = 1 KHz		3.5	8	dB
h_{ie}	Input Impedance	I_C = 1 mA V_{CE} = 5 V f = 1 KHz		4.4		KΩ
h_{re}	Reverse Voltage Ratio	I_C = 1 mA V_{CE} = 5 V f = 1 KHz		7.3 x 10^{-4}		
h_{oe}	Output Admittance	I_C = 1 mA V_{CE} = 5 V f = 1 KHz		23.8		µS

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

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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