



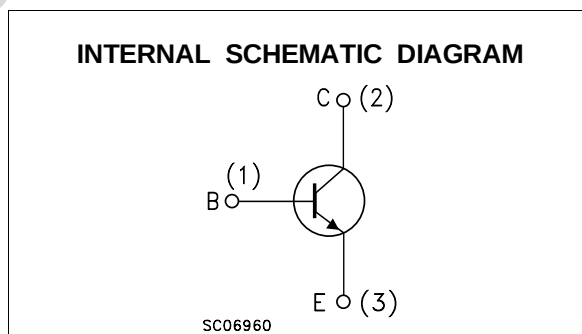
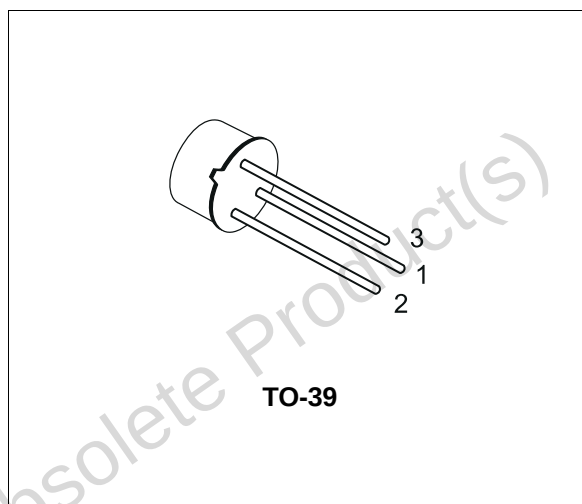
2N1711

EPITAXIAL PLANAR NPN

DESCRIPTION

The 2N1711 is a silicon Planar Epitaxial NPN transistor in Jedec TO-39 metal case. It is intended 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.



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 $T_{amb} \leq 25^\circ\text{C}$	0.8	W
	at $T_C \leq 25^\circ\text{C}$	3	W
	at $T_C \leq 100^\circ\text{C}$	1.7	W
T_{stg}	Storage Temperature	-65 to 175	$^\circ\text{C}$
T_J	Max. Operating Junction Temperature	175	$^\circ\text{C}$

THERMAL DATA

R _{thj-case}	Thermal Resistance Junction-Case	Max	50	°C/W
R _{thj-amb}	Thermal Resistance Junction-Ambient	Max	187.5	°C/W

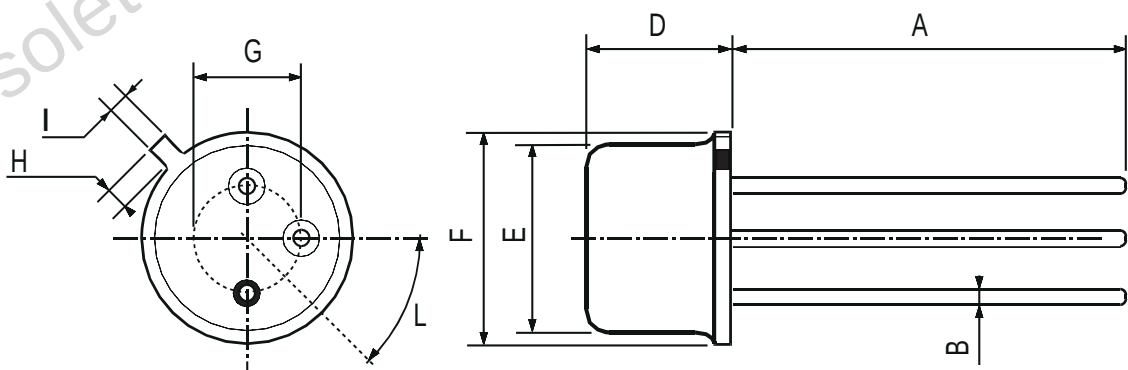
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

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 _{EB0}	Emitter-Base Capacitance	I _C = 0 V _{EB} = 0.5 V f = 1 MHz		50	80	pF
C _{CB0}	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° (typ.)					



P008B

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