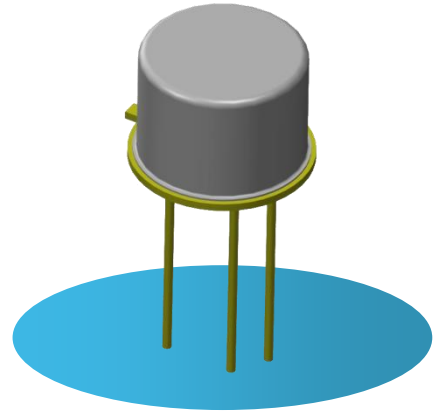


SILICON PLANAR NPN BIPOLAR TRANSISTOR



2N1711

- Hermetic TO39 (TO205AD) Package
- Ideal for amplifier, oscillator and switching applications
- High Reliability and Screening Options Available



ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

V_{CBO}	Collector - Base Voltage	75V
V_{CER}	Collector - Emitter Voltage ($R_{BE} = 10\Omega$)	50V
V_{EBO}	Emitter - Base Voltage	7V
I_C	Continuous Collector Current	0.5A
P_D	Total Power Dissipation at $T_C \leq 25^\circ\text{C}$	2.5W
	De-rate $T_C > 25^\circ\text{C}$	14.28mW/ $^\circ\text{C}$
T_J	Operating Temperature Range	-65 to +200 $^\circ\text{C}$
T_{stg}	Storage Temperature Range	-65 to +200 $^\circ\text{C}$

THERMAL PROPERTIES

Symbols	Parameters	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case	70	$^\circ\text{C}/\text{W}$

Semelab Limited reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

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ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Units
$V_{(BR)CEO}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 30\text{mA}$	30	47.5		V
$V_{(BR)CER}^{(1)}$	Collector-Emitter Breakdown Voltage	$I_C = 100\text{mA}$ $R_{BE} = 10\Omega$	50	93.5		
I_{CBO}	Collector-Base Cut-Off Current	$V_{CB} = 60\text{V}$ $I_E = 0$		0.023	10	nA
		$T_C = 150^\circ\text{C}$		0.240	10	μA
		$V_{CB} = 75\text{V}$ $I_E = 0$		0.0001	100	
I_{EBO}	Emitter-Base Cut-Off Current	$V_{EB} = 5\text{V}$ $I_C = 0$		0.227	5	nA
		$V_{EB} = 7\text{V}$ $I_C = 0$		0.013	100	μA
$V_{CE(SAT)}^{(1)}$	Collector-Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$		0.1	1.5	V
$V_{BE(SAT)}^{(1)}$	Base-Emitter Saturation Voltage	$I_C = 150\text{mA}$ $I_B = 15\text{mA}$		0.82	1.3	
$h_{FE}^{(1)}$	DC Current Gain	$V_{CE} = 10\text{V}$ $I_C = 10\mu\text{A}$	20	164		-
		$V_{CE} = 10\text{V}$ $I_C = 150\text{mA}$	100	154	300	
		$V_{CE} = 10\text{V}$ $I_C = 500\text{mA}$	50	113		
		$V_{CE} = 10\text{V}$ $I_C = 10\text{mA}$ $T_C = -55^\circ\text{C}$	35	93		

DYNAMIC CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise stated)

h_{fe}	Small-Signal Forward Current Transfer Ratio	$V_{CE} = 5\text{V}$ $I_C = 1.0\text{mA}$ $f = 1.0\text{kHz}$	80	162	270	-
		$V_{CE} = 10\text{V}$ $I_C = 5\text{mA}$ $f = 1.0\text{kHz}$	90	165	270	
$ h_{fe} $	Magnitude of Small-Signal Forward Current Transfer Ratio	$V_{CE} = 10\text{V}$ $I_C = 50\text{mA}$ $f = 20\text{MHz}$	3.5	5.7	12	
C_{OBO}	Reverse Transfer Capacitance	$V_{CB} = 10\text{V}$ $f = 1.0\text{MHz}$		8.3	25	pF

Notes

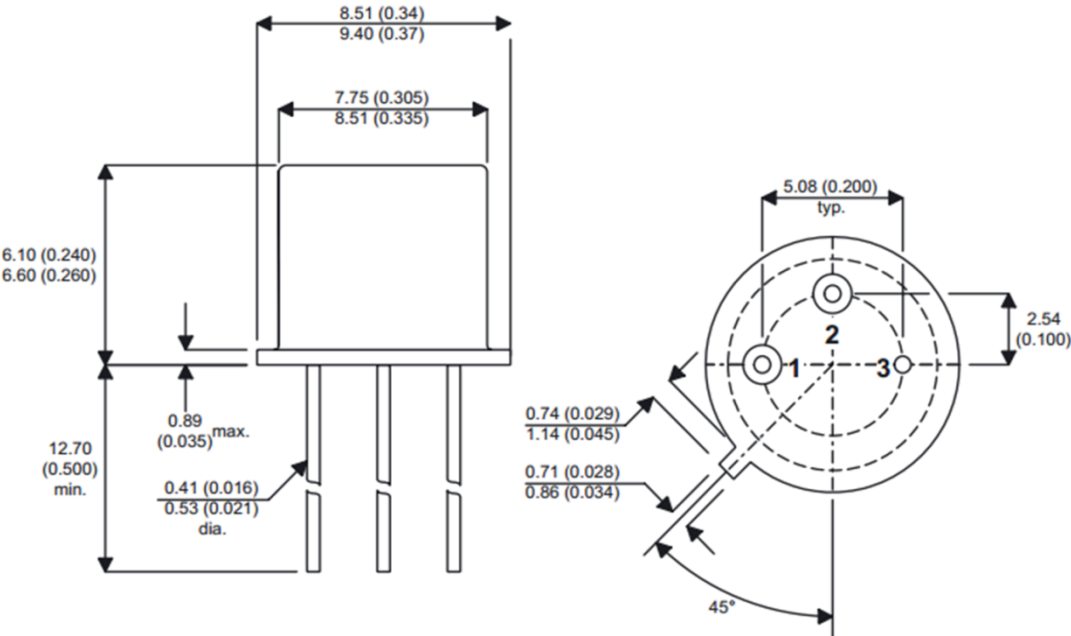
(1) Pulse Width $\leq 380\mu\text{s}$, $\delta \leq 2\%$

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BIPOLAR TRANSISTOR
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MECHANICAL DATA

Dimensions in mm (inches)



Package Outline: TO39 (TO-205AD)

PACKAGE PIN CONNECTIONS

Pin	Connection
1	Emitter
2	Base
3 / CASE	Collector

PART NUMBER VARIANTS

Part Number Reference	Termination Finish ⁽ⁱ⁾	SML ROHS
2N1711	Pre-tinned 63% Tin, 37% Lead	LD ⁽ⁱⁱ⁾

Notes:

- i. Other lead finish options available. Specify lead finish requirements at point of order.
- ii. LD = e0 as defined in J-STD-609 2nd Level Interconnect Category.