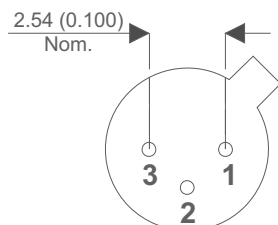
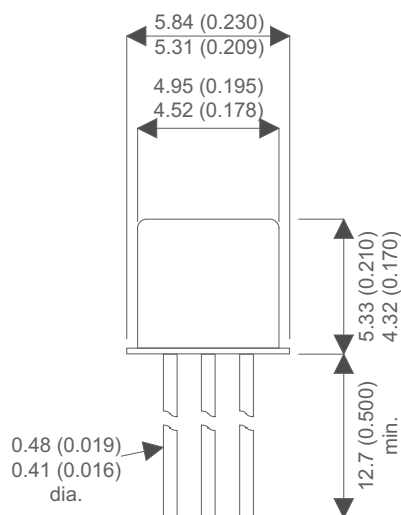


HIGH VOLTAGE, MEDIUM POWER, NPN TRANSISTOR FOR HIGH RELIABILITY APPLICATIONS

MECHANICAL DATA

Dimensions in mm (inches)



**TO-18 (TO-206AA)
METAL PACKAGE**
Underside View

PIN 1 – Emitter PIN 2 – Base PIN 3 – Collector

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

V _{CBO}	Collector – Base Voltage (I _E = 0)	140V
V _{CEO}	Collector – Emitter Voltage (I _B = 0)	80V
V _{EBO}	Emitter – Base Voltage (I _C = 0)	7V
I _C	Collector Current	1A
P _D	Total Power Dissipation (T _{amb} ≤ 25°C)	0.5W
	(T _{case} ≤ 25°C)	1.8W
	(T _{case} ≤ 100°C)	1W
R _{ja}	Thermal Resistance Junction to Ambient	350°C/W
T _{stg}	Storage Temperature	-65 to 200°C

Semelab Plc 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.

FEATURES

- SILICON PLANAR EPITAXIAL NPN TRANSISTOR
- JEDEC TO-18 METAL PACKAGE
- CECC SCREENING OPTIONS
- SPACE QUALITY LEVELS OPTIONS
- HIGH VOLTAGE

APPLICATIONS:

Hermetically sealed 2N3700 for high reliability applications requiring small size and low weight devices.

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO} Collector – Base Cut-off Current ($I_{\text{E}} = 0$)	$V_{\text{CB}} = 90\text{V}$			10	nA
	$V_{\text{CB}} = 90\text{V}$ $T_{\text{amb}} = 150^{\circ}\text{C}$			10	μA
I_{EBO} Emitter Cut-off Current ($I_{\text{C}} = 0$)	$V_{\text{EB}} = 5\text{V}$			10	nA
$V_{\text{CE(sat)}}^*$ Collector – Emitter Saturation Voltage	$I_{\text{C}} = 150\text{mA}$ $I_{\text{B}} = 15\text{mA}$			0.2	V
	$I_{\text{C}} = 500\text{mA}$ $I_{\text{B}} = 50\text{mA}$			0.5	V
$V_{\text{BE(sat)}}^*$ Base – Emitter Saturation Voltage	$I_{\text{C}} = 150\text{mA}$ $I_{\text{B}} = 15\text{mA}$			1.1	V
h_{FE}^* DC Current Gain ($V_{\text{CE}} = 10\text{V}$)	$I_{\text{C}} = 0.1\text{mA}$	50			-
	$I_{\text{C}} = 10\text{mA}$	90			-
	$I_{\text{C}} = 150\text{mA}$	100		300	-
	$I_{\text{C}} = 500\text{mA}$	50			-
	$I_{\text{C}} = 1\text{A}$	15			-
	$I_{\text{C}} = 150\text{mA}$ $T_{\text{amb}} = -55^{\circ}\text{C}$	40			-
$V_{(\text{BR})\text{CBO}}$ Collector-base Breakdown Voltage ($I_{\text{E}} = 0$)	$I_{\text{C}} = 100\mu\text{A}$	140			V
$V_{(\text{BR})\text{EBO}}$ Emitter-base Breakdown Voltage ($I_{\text{C}} = 0$)	$I_{\text{E}} = 100\mu\text{A}$	7			V

* Pulse test $t_{\text{p}} = 300\mu\text{s}$, $\delta \leq 1\%$

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

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
f_{T} Transition Frequency	$I_{\text{C}} = 50\text{mA}$ $V_{\text{CE}} = 10\text{V}$ $f = 20\text{MHz}$		100		MHz
h_{fe} Small Signal Current Gain	$I_{\text{C}} = 1\text{mA}$ $V_{\text{CE}} = 5\text{V}$ $f = 1\text{kHz}$	80		400	-
C_{EBO} Emitter-base Capacitance	$I_{\text{C}} = 0$ $V_{\text{EB}} = 0.5\text{V}$ $f = 1\text{MHz}$		60		pF
C_{CBO} Collector-base Capacitance	$I_{\text{C}} = 0$ $V_{\text{CB}} = 10\text{V}$ $f = 1\text{MHz}$		12		pF
r_{bb} 'C _b 'c Feedback time constant	$I_{\text{C}} = 10\text{mA}$ $V_{\text{CB}} = 10\text{V}$ $f = 4\text{MHz}$	25		400	ps

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