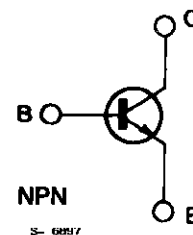


**GENERAL PURPOSE AMPLIFIERS**
**DESCRIPTION**

The 2N3700 is a silicon planar epitaxial NPN transistor in Jedec TO-18 metal case, intended for small signal, low noise industrial applications.


**INTERNAL SCHEMATIC DIAGRAM**

**ABSOLUTE MAXIMUM RATINGS**

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-base Voltage ( $I_E = 0$ )	140	V
$V_{CEO}$	Collector-emitter Voltage ( $I_B = 0$ )	80	V
$V_{EBO}$	Emitter-base Voltage ( $I_C = 0$ )	7	V
$I_C$	Collector Current	1	A
$P_{tot}$	Total Power Dissipation at $T_{amb} \leq 25\text{ }^\circ\text{C}$	0.5	W
	at $T_{case} \leq 25\text{ }^\circ\text{C}$	1.8	W
	at $T_{case} \leq 100\text{ }^\circ\text{C}$	1	W
$T_{stg}, T_j$	Storage and Junction Temperature	- 65 to 200	$^\circ\text{C}$

## 2N3700

### THERMAL DATA

$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	97	°C/W
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	350	°C/W

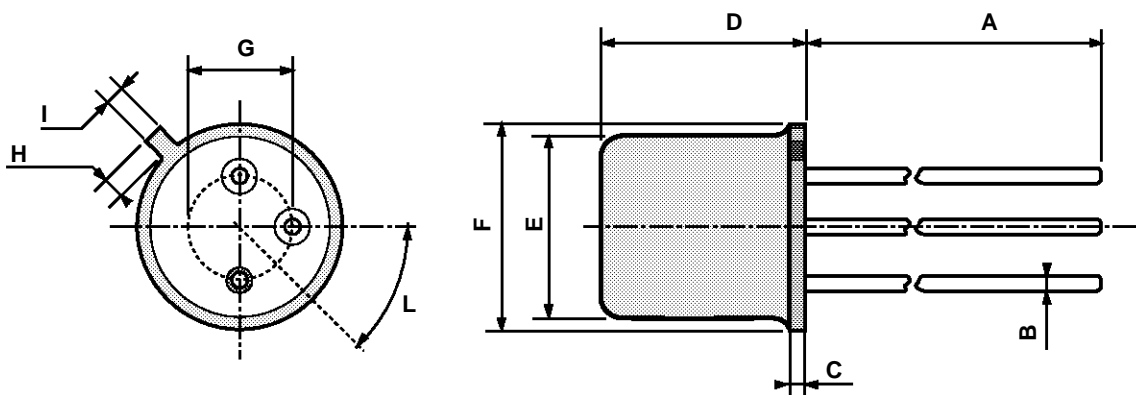
### ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25\text{ °C}$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
$I_{CBO}$	Collector Cutoff Current ( $I_E = 0$ )	$V_{CB} = 90\text{ V}$ $V_{CB} = 90\text{ V}$ $T_{amb} = 150\text{ °C}$			10 10	nA μA
$I_{EBO}$	Emitter Cutoff Current ( $I_C = 0$ )	$V_{EB} = 5\text{ V}$			10	nA
$V_{(BR)CBO}$	Collector-base Breakdown Voltage ( $I_E = 0$ )	$I_C = 100\text{ μA}$	140			V
$V_{(BR)CEO}^*$	Collector-emitter Breakdown Voltage ( $I_B = 0$ )	$I_C = 30\text{ mA}$	80			V
$V_{(BR)EBO}$	Emitter-base Breakdown Voltage ( $I_C = 0$ )	$I_E = 100\text{ μA}$	7			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 150\text{ mA}$ $I_B = 15\text{ mA}$ $I_C = 500\text{ mA}$ $I_B = 50\text{ mA}$			0.2 0.5	V V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 150\text{ mA}$ $I_B = 15\text{ mA}$			1.1	V
$h_{FE}^*$	DC Current Gain	$I_C = 0.1\text{ mA}$ $V_{CE} = 10\text{ V}$ $I_C = 10\text{ mA}$ $V_{CE} = 10\text{ V}$ $I_C = 150\text{ mA}$ $V_{CE} = 10\text{ V}$ $I_C = 500\text{ mA}$ $V_{CE} = 10\text{ V}$ $I_C = 1\text{ A}$ $V_{CE} = 10\text{ V}$ $I_C = 150\text{ mA}$ $V_{CE} = 10\text{ V}$ $T_{amb} = -55\text{ °C}$	50 90 100 50 15 40		300	
$h_{fe}$	Small Signal Current Gain	$I_C = 1\text{ mA}$ $V_{CE} = 5\text{ V}$ $f = 1\text{ kHz}$	80		400	
$f_T$	Transition Frequency	$I_C = 50\text{ mA}$ $V_{CE} = 10\text{ V}$ $f = 20\text{ MHz}$		100		MHz
$C_{EBO}$	Emitter-base Capacitance	$I_C = 0$ $V_{EB} = 0.5\text{ V}$ $f = 1\text{ MHz}$		60		pF
$C_{CBO}$	Collector-base Capacitance	$I_E = 0$ $V_{CB} = 10\text{ V}$ $f = 1\text{ MHz}$		12		pF
$\tau_{bb} \cdot C_{b'c}$	Feedback Time Constant	$I_C = 10\text{ mA}$ $V_{CB} = 10\text{ V}$ $f = 4\text{ MHz}$	25		400	ps

\* Pulsed : pulse duration = 300 μs, duty cycle = 1 %.

## TO-18 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A		12.7			0.500	
B			0.49			0.019
D			5.3			0.208
E			4.9			0.193
F			5.8			0.228
G	2.54			0.100		
H			1.2			0.047
I			1.16			0.045
L	45°			45°		



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