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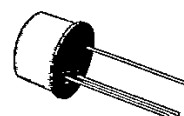
2N3700

SGS-THOMSON

GENERAL PURPOSE AMPLIFIERS

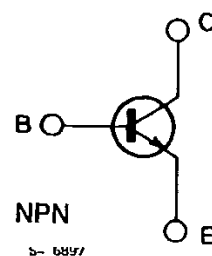
DESCRIPTION

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



TO-18

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

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THERMAL DATA

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

ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\ ^{\circ}C$ unless otherwise specified)

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

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