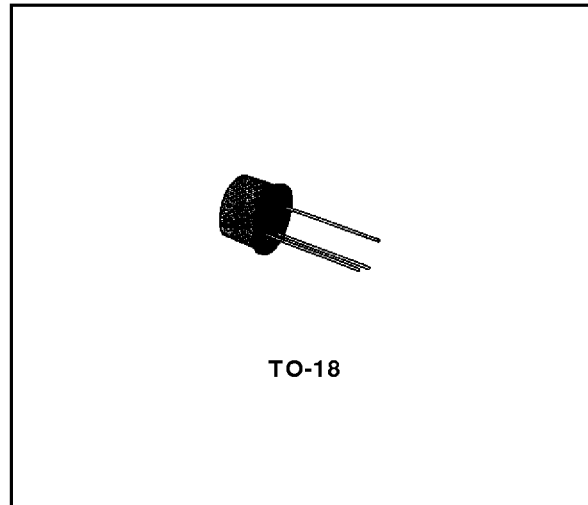


HIGH-SPEED SATURATED SWITCH

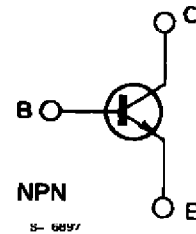
DESCRIPTION

The 2N708 is a silicon planar epitaxial NPN transistor in Jedec TO-18 metal case, designed for very fast switching applications.



TO-18

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	40	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	15	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	5	V
I_C	Collector Current	200	mA
P_{tot}	Total Power Dissipation at $T_{amb} \leq 25^\circ\text{C}$ at $T_{case} \leq 25^\circ\text{C}$	0.36	W
		1.2	W
T_{stg}, T_g	Storage and Junction Temperature	- 65 to 200	$^\circ\text{C}$

THERMAL DATA

$R_{th\ j-case}$	Thermal Resistance Junction-case	Max	146	$^{\circ}C/W$
$R_{th\ j-amb}$	Thermal Resistance Junction-ambient	Max	486	$^{\circ}C/W$

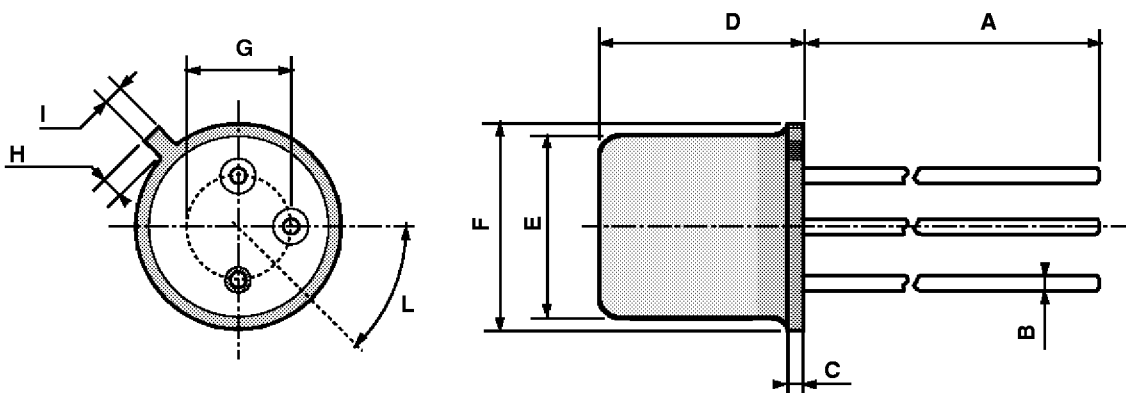
ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\ ^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current ($I_E = 0$)	$V_{CB} = 20\ V$ $V_{CB} = 20\ V$ $T_{amb} = 150\ ^{\circ}C$			25 15	nA μA
$V_{(BR)CBO}$	Collector–base Breakdown Voltage ($I_E = 0$)	$I_C = 100\ \mu A$	40			V
$V_{(BR)CEO}^*$	Collector–emitter Breakdown Voltage ($I_B = 0$)	$I_C = 10\ mA$	15			V
$V_{(BR)EBO}$	Emitter–base Breakdown Voltage ($I_C = 0$)	$I_E = 10\ \mu A$	5			V
I_{EBO}	Emitter Cutoff Current ($I_C = 0$)	$V_{EB} = 4\ V$			100	nA
$V_{CE(sat)}^*$	Collector–emitter Saturation Voltage	$I_C = 10\ mA$ $I_B = 1\ mA$			0.4	V
$V_{BE(sat)}^*$	Base–emitter Saturation Voltage	$I_C = 10\ mA$ $I_B = 1\ mA$			0.9	V
h_{FE}^*	DC Current Gain	$I_C = 0.5\ mA$ $V_{CE} = 1\ V$ $I_C = 10\ mA$ $V_{CE} = 1\ V$ $T_{amb} = -55\ ^{\circ}C$ $I_C = 10\ mA$ $V_{CE} = 1\ V$	15 30 15		120	– – –
h_{fe}	High Frequency Current Gain	$I_C = 10\ mA$ $V_{CE} = 10\ V$ $f = 100\ MHz$	3			–
C_{CBO}	Collector–base Capacitance	$I_E = 0$ $V_{CB} = 10\ V$ $f = 1\ MHz$			6	pF
t_s	Storage Time	$I_C = 10\ mA$ $V_{CC} = 10\ V$ $I_{B1} = - I_{B2} = 10\ mA$			25	ns
t_{on}	Turn–on Time	$I_C = 10\ mA$ $V_{CC} = 10\ V$ $I_{B1} = 3\ mA$			40	ns
t_{off}	Turn–off Time	$I_C = 10\ mA$ $V_{CC} = 10\ V$ $I_{B1} = 3\ mA$ $I_{B2} = -1\ mA$			75	ns

* 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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