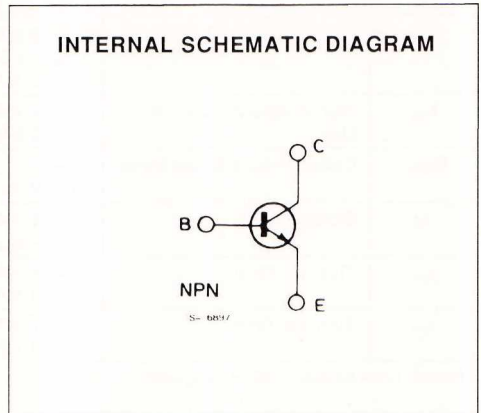
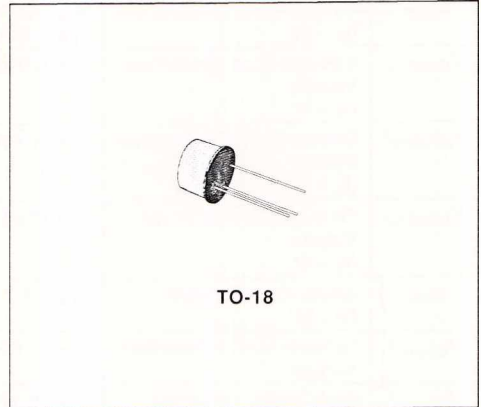


HIGH-SPEED SATURATED SWITCH

DESCRIPTION

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



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 $T_{amb} \leq 25^\circ C$ at $T_{case} \leq 25^\circ C$	0.36	W
		1.2	W
T_{stg}, T_j	Storage and Junction Temperature	- 65 to 200	$^\circ C$

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 %.