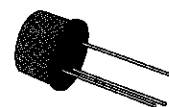


HIGH-FREQUENCY SATURATED SWITCH

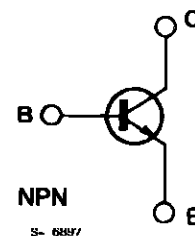
DESCRIPTION

The 2N2369 is a silicon planar epitaxial NPN transistor in Jedec TO-18 metal case. It is designed specifically for high-speed saturated switching applications at current levels from 100 μ A to 100 mA.



TO-18

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base Voltage ($I_E = 0$)	40	V
V_{CES}	Collector-emitter Voltage ($V_{BE} = 0$)	40	V
V_{CEO}	Collector-emitter Voltage ($I_B = 0$)	15	V
V_{EBO}	Emitter-base Voltage ($I_C = 0$)	4.5	V
I_{CM}	Collector Peak Current ($t = 10 \mu s$)	0.5	A
P_{tot}	Total Power Dissipation at $T_{amb} \leq 25 \text{ }^\circ\text{C}$	0.36	W
	at $T_{case} \leq 25 \text{ }^\circ\text{C}$	1.2	W
	at $T_{case} \leq 100 \text{ }^\circ\text{C}$	0.68	W
T_{stg}, T_j	Storage and Junction Temperature	- 65 to 200	$^\circ\text{C}$

Products approved to CECC 50004-022/023 available on request

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	$^{\circ}C/W$

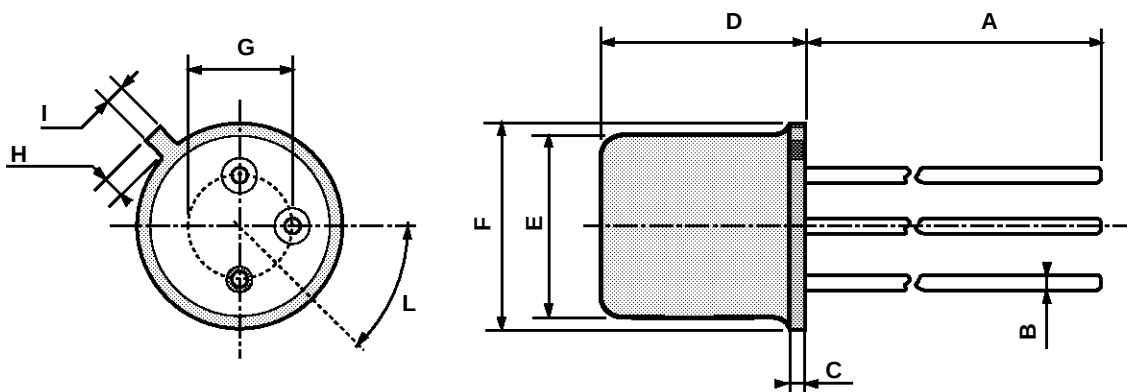
ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\ ^{\circ}C$ unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current ($I_E = 0$)	$V_{CB} = 20\ V$ $V_{CB} = 20\ V$ $T_{amb} = 150\ ^{\circ}C$			0.4 30	μA μA
$V_{(BR)\ CBO}$	Collector-base Breakdown Voltage ($I_E = 0$)	$I_C = 10\ \mu A$	40			V
$V_{(BR)\ CES}$	Collector-emitter Breakdown Voltage ($V_{BE} = 0$)	$I_C = 10\ \mu A$	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 ($I_C = 0$)	$I_E = 10\ \mu A$	4.5			V
$V_{CE(sat)}^*$	Collector-emitter Saturation Voltage	$I_C = 10\ mA$ $I_B = 1\ mA$		0.2	0.25	V
$V_{BE(sat)}^*$	Base-emitter Saturation Voltage	$I_C = 10\ mA$ $I_B = 1\ mA$	0.7	0.75	0.85	V
h_{FE}^*	DC Current Gain	$I_C = 10\ mA$ $V_{CE} = 1\ V$ $I_C = 100\ mA$ $V_{CE} = 2\ V$ $I_C = 10\ mA$ $V_{CE} = 1\ V$ $T_{amb} = -55\ ^{\circ}C$	40 20 20		120	
f_T	Transition Frequency	$I_C = 10\ mA$ $V_{CE} = 10\ V$ $f = 100\ MHz$	500	650		MHz
C_{CBO}	Collector-base Capacitance	$I_E = 0$ $V_{CB} = 5\ V$ $f = 1\ MHz$		2.5	4	pF
t_s	Storage Time	$I_C = 10\ mA$ $V_{CC} = 10\ V$ $I_{B1} = -$ $I_{B2} = 10\ mA$		6	13	ns
t_{on}	Turn-on Time	$I_C = 10\ mA$ $V_{CC} = 3\ V$ $I_{B1} = 3\ mA$		9	12	ns
t_{off}	Turn-off Time	$I_C = 10\ mA$ $V_{CC} = 3\ V$ $I_{B1} = 3\ mA$ $I_{B2} = -1.5\ mA$		13	18	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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