NPN 2N2369 – 2N2369A

HIGH-FREQUENCY SATURATED SWITCH

The 2N2369 and 2N2369A are NPN transistors mounted in TO-18 metal package with the collector connected to the case.
They are designed specifically for high-speed saturated switching applications at current levels from 100 µA to 100 mA.
Compliance to RoHS

ABSOLUTE MAXIMUM RATINGS

Symbol	Ratings			Value	Unit
V_{CES}	Collector-Emitter Voltage (V_{BE} = 0)		2N2369A 2N2369	40	V
V_{CBO}	Collector-Base Voltage (I_E = 0)		2N2369A 2N2369	40	V
V_{CEO}	Collector-Emitter Voltage (I_B = 0)		2N2369A 2N2369	15	V
V_{EBO}	Emitter-Base Voltage (I_C = 0)		2N2369A 2N2369	4.5	V
I_C	Collector Current		2N2369A 2N2369	200	mA
I_{CM}	Peak Collector Current (t_p = 10ms)		2N2369A 2N2369	500	mA
P_D	Total Power Dissipation	@ T_{amb} = 25°C	2N2369A 2N2369	0.36	Watts
P_D	Total Power Dissipation	@ T_{case}= 25°C	2N2369A 2N2369	1.2	Watts
T_J	Junction Temperature		2N2369A 2N2369	200	°C
T_{Stg}	Storage Temperature range		2N2369A 2N2369	-65 to +200	°C

THERMAL CHARACTERISTICS

Symbol	Ratings	Value	Unit
R_{thJ-a}	Thermal Resistance, Junction to ambient in free air	486	°C/W
R_{thJ-c}	Thermal Resistance, Junction to case	146	°C/W

NPN 2N2369 – 2N2369A

ELECTRICAL CHARACTERISTICS

TC=25°C unless otherwise noted

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
I_{CBO}	Collector Cutoff Current	V_{CB}= 20 V I_E= 0	2N2369A 2N2369	-	-	40	nA
		V_{CB}= 20 V I_E= 0, T_j= 150°C	2N2369A 2N2369	-	- -	30	µA
V_{CES}	Collector Emitter Breakdown Voltage	V_{BE}= 0 I_C= 10 µA	2N2369A 2N2369	40	-	-	V
V_{CEO}	Collector Emitter Breakdown Voltage	I_C= 10 mA I_B= 0	2N2369A 2N2369	15	-	-	V
V_{CBO}	Collector Base Breakdown Voltage	I_C= 10 µA I_E= 0	2N2369A 2N2369	40	-	-	V
V_{EBO}	Emitter Base Breakdown Voltage	I_E= 10 µA I_C= 0	2N2369A 2N2369	4.5	-	-	V
h_{FE}	DC Current Gain (*)	I_C= 10 mA V_{CE}= 1 V	2N2369	40	-	120	-
		I_C= 100 mA V_{CE}= 2 V		20	-	-	
		I_C= 10 mA V_{CE}= 1 V T_{amb} = -55°C		20	-	-	
		I_C= 10 mA V_{CE}= 1 V	2N2369A	40	-	120	
		I_C= 10 mA V_{CE}= 0.35 V		40	-	120	
		I_C= 10 mA V_{CE}= 0.35 V T_{amb} = -55°C		20	50	-	
		I_C= 30 mA V_{CE}= 0.4 V		30	71	-	
		I_C= 100 mA V_{CE}= 1 V		20	-	-	

NPN 2N2369 – 2N2369A

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
$V_{CE(SAT)}$	Collector-Emitter saturation Voltage (*)	I_C= 10 mA I_B= 1 mA	2N2369A	-	0.14	0.2	V
			2N2369	-	0.2	0.25	
		I_C= 10 mA, I_B= 1 mA T_{amb} = 125°C	2N2369A	-	0.19	0.3	
		I_C= 30 mA I_B= 3 mA		-	0.17	0.25	
		I_C= 100 mA I_B= 10 mA		-	0.28	0.5	
$V_{BE(SAT)}$	Base-Emitter saturation Voltage (*)	I_C= 10 mA I_B= 1 mA	2N2369A	0.7	0.8	0.85	
			2N2369	0.7	0.75	0.85	
		I_C= 10 mA, I_B= 1 mA T_{amb} = -55 to 125°C	2N2369A	0.59	-	1.02	
		I_C= 30 mA I_B= 3 mA		-	0.9	1.15	
		I_C= 100 mA I_B= 10 mA		-	1.1	1.6	

Symbol	Ratings	Test Condition(s)		Min	Typ	Max	Unit
f_T	Transition frequency	I_C= 10 mA V_{CE}= 10 V f= 100MHz	2N2369A	500	-	-	MHz
			2N2369				
t_d	Delay time	I_C=-150 mA I_B =-15 mA $-V_{CC}$=-30 V	2N2369A	-	-	10	ns
t_r	Rise time		2N2369	-	-	40	

(*) Pulse conditions : tp < 300 μs, δ = 1%

MECHANICAL DATA CASE TO-18

NPN 2N2369 – 2N2369A

DIMENSIONS (mm)		
	min	max
A	12.7	-
B	-	0.49
C	0.9	-
D	-	5.3
E	-	4.9
F	-	5.8
G	2.54	-
H	-	1.2
I	-	1.16
L	45°	-

Pin 1 :	emitter
Pin 2 :	base
Pin 3 :	Collector
Case :	Collector

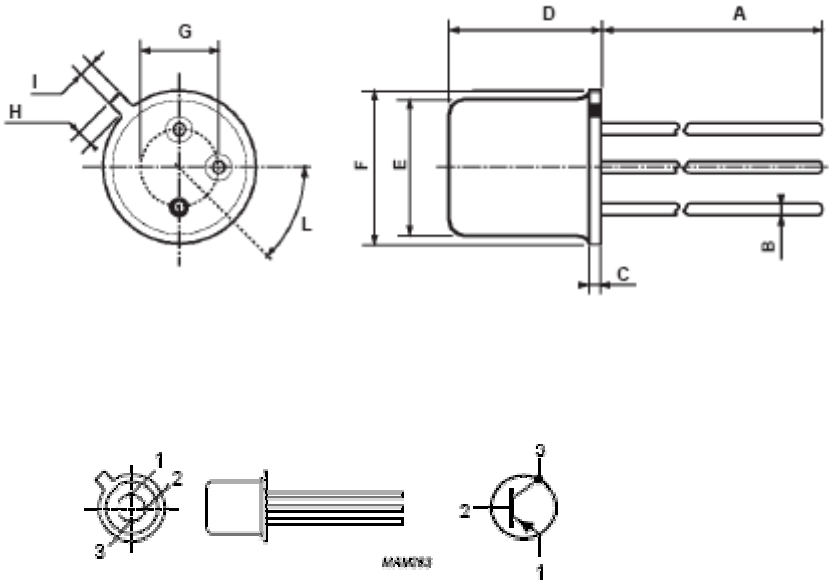

Fig.1 Simplified outline (TO-18) and symbol.

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