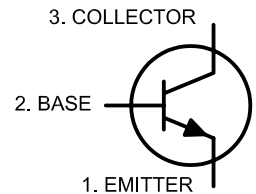


Description:

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

**RoHS
Compliant**

NPN



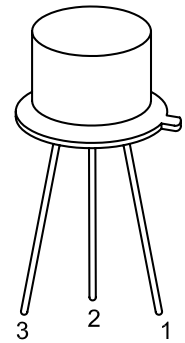
Features:

Low Collector Saturation Voltage : 1V (Max.)

High Current Gain-Bandwidth Product : $f_T = 300\text{MHz}$ (Min) @ $I_C = 20\text{mA}$

Absolute Maximum Ratings:

Characteristic	Symbol	Rating
Collector-Base Voltage	V_{CB0}	40V
Collector-Emitter Voltage	V_{CEO}	15V
Emitter - Base Voltage	V_{EBO}	4.5V
Continuous Collector Current	I_C	200mA
Total Device Dissipation ($T_C = +25^\circ\text{C}$) Derate above 25 $^\circ\text{C}$	P_D	360mW >2.28mW/ $^\circ\text{C}$
Total Device Dissipation ($T_C = +25^\circ\text{C}$) Derate above 25 $^\circ\text{C}$	P_D	1.2W 6.85mW/ $^\circ\text{C}$
Operating Junction Temperature Range	T_J	-65 $^\circ\text{C}$ to +200 $^\circ\text{C}$
Storage Temperature Range	T_{STG}	-65 $^\circ\text{C}$ to +200 $^\circ\text{C}$



Electrical Characteristics: ($T_A = +25^\circ\text{C}$ Unless otherwise specified)

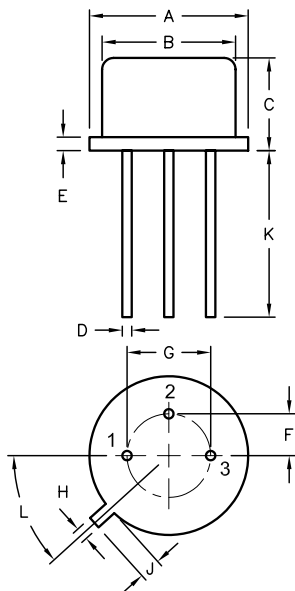
Parameter	Symbol	Test Conditions	Min.	Max.	Unit.
OFF Characteristics					
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}, I_B = 0$, (Note 1)	15	-	V
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}, I_E = 0$	40	-	
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}, I_C = 0$	4.5	-	
Collector-Cut-Off Current	I_{CEX}	$V_{CB} = 20\text{V}, I_{EB(off)} = 3\text{V}$	-	200	nA
	I_{CBO}	$V_{CB} = 20\text{V}, I_E = 0, T_A = +150^\circ\text{C}$	-	30	μA

On Characteristics (Note 1)

DC Current Gain	h_{FE}	$V_{CE} = 0.4\text{V}, I_C = 30\text{mA}$	30	-	-
		$V_{CE} = 1\text{V}, I_C = 10\text{mA}$	-	120	-
		$V_{CE} = 1\text{V}, I_C = 100\text{mA}$	20	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10\text{mA}, I_B = 1\text{mA}$	-	0.2	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10\text{mA}, I_B = 1\text{mA}$	0.7	0.85	V

Parameter	Symbol	Test Conditions	Min.	Max.	Unit.
Small-Signal Characteristics					
Current Gain-Bandwidth Product	f_r	$V_{CE} = 10V, I_C = 10mA, f = 100MHz$	500	-	MHz
Output Capacitance	C_{obo}	$V_{CB} = 5V, I_E = 0, f = 1MHz$	-	4	pF
Input Capacitance	C_{ibo}	$V_{BE} = 1V, I_C = 0, f = 1MHz$	-	4	pF

Note 1. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 1\%$



1. EMITTER
2. BASE
3. COLLECTOR

Dimensions	A	B	C	D	E	F	G	H	J	K	L
Min.	5.24	4.52	4.31	0.4	-	-	-	0.91	0.71	12.7	45°
Max.	5.84	4.97	5.33	0.53	0.76	1.27	2.97	1.17	1.21	-	

Dimensions : Millimetres

Part Number Table

Description	Part Number
Bipolar Transistor, NPN, 200mA, 15V, TO-18	2N2369A

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