

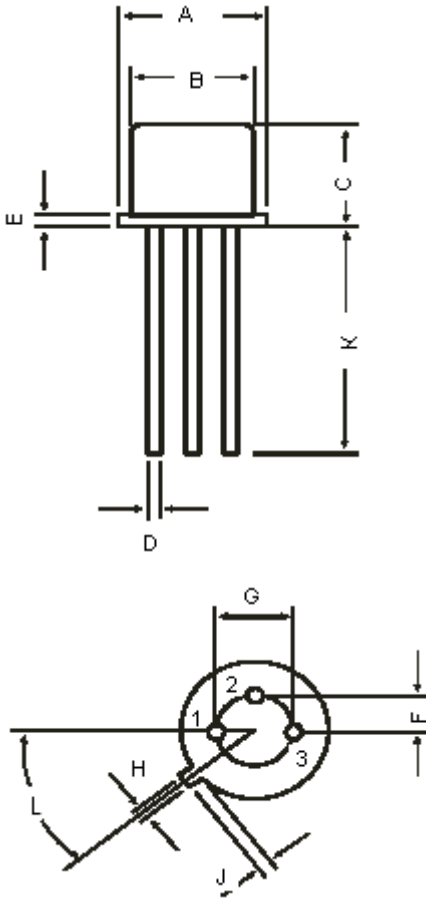
High Speed Switching Transistors



Features:

- NPN silicon planar epitaxial transistors
- Fast switching devices exhibiting short turn-off and low saturation voltage characteristics
- NPN silicon high speed saturated switching, transistors with low power and high speed switching applications

TO-18 Metal Can Package



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

Dimensions : Millimetres



Pin Configuration

1. Emitter
2. Base
3. Collector

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Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Collector Emitter Voltage	V _{CEO}	15	V
	V _{CES}	40	
Collector Base Voltage	V _{CBO}		
Emitter Base Voltage	V _{EBO}	4.5	
Collector Current Continuous	I _C	200	mA
Collector Current Peak (10 μs Pulse)	I _C (Peak)	500	
Power Dissipation at T _C = 25°C Derate above 25°C	P _D	360 2.06	mW mW / °C
Power Dissipation at T _C = 25°C T _C = 100°C Derate above 100°C	P _D	1.2 0.68 6.85	W mW / °C
Operating and Storage Junction Temperature Range	T _j , T _{stg}	-65 to +200	°C

Electrical Characteristics ($T_a = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Condition	2N2369	2N2369A	Unit
Collector Emitter Voltage	V _{CEO*} (sus)	I _C = 10 mA, I _B = 0	>15		V
	V _{CES}	I _C = 10 μA, V _{BE} = 0	>40		
Collector Base Voltage	V _{CBO}	I _C = 10 μA, I _E = 0	>40		
Emitter Base Voltage	V _{EBO}	I _E = 10 μA, I _C = 0	>4.5		
Collector Cut off Current	I _{CBO}	V _{CB} = 20 V, I _E = 0	<400	-	nA
		V _{CB} = 20 V, I _E = 0, T _a = 150°C	<30	-	μA
	I _{CES}	V _{CE} = 20 V, V _{BE} = 0	-	<400	nA
Base Current	I _B	V _{CE} = 20 V, V _{BE} = 0	-	<400	nA
Collector Emitter Saturation Voltage	V _{CE (sat)*}	I _C = 10 mA, I _B = 1 mA	<0.25	<0.2	V
		I _C = 30 mA, I _B = 3 mA	-	<0.25	
		I _C = 100 mA, I _B = 10 mA	-	<0.5	
		I _C = 10 mA, I _B = 1 mA, T _a = 125°C	-	<0.3	
Base Emitter Saturation Voltage	V _{BE (sat)*}	I _C = 10 mA, I _B = 1 mA	0.7 to 0.85	0.7 to 0.85	
		I _C = 30 mA, I _B = 3 mA	-	<1.15	
		I _C = 100 mA, I _B = 10 mA	-	<1.6	
		I _C = 10 mA, I _B = 1 mA, T _a = +125°C	-	>0.59	
		I _C = 10 mA, I _B = 1 mA, T _a = -55°C	-	<1.2	
DC Current Gain	h _{FE*}	I _C = 10 mA, V _{CE} = 1 V	40 to 120	40 to 120	-
		I _C = 10 mA, V _{CE} = 1 V, T _a = -55°C	>20	-	
		I _C = 100 mA, V _{CE} = 0.35 V, T _a = -55°C	-	>20	
		I _C = 10 mA, V _{CE} = 0.35 V	-	40 to 120	
		I _C = 30 mA, V _{CE} = 0.4 V	-	>30	
		I _C = 100 mA, V _{CE} = 1 V	-	>20	
		I _C = 100 mA, V _{CE} = 2 V	>20	-	

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Parameter	Symbol	Test Condition	2N2369	2N2369A	Unit
Small Signal Characteristic					
Transition Frequency	f _t	V _{CE} = 10 V, I _C = 10 mA, f = 100 MHz	>500		MHz
Output Capacitance	C _{obo}	V _{CB} = 5 V, I _E = 0, f = 140 kHz	<4		pF
Turn on Time	t _{on}	I _C = 10 mA, I _{B1} = 3 mA, I _B = -1.5 mA, V _{CC} = 3 V	<12		ns
Turn off Time	t _{off}	I _C = 10 mA, I _{B1} = 3 mA, I _B = -1.5 mA, V _{CC} = 3 V	-	<15	
Storage time	t _s	I _C = 100 mA, I _{B1} = I _B = 10 mA, V _{CC} = 10 V	<13		

*Pulse Test : Pulse Width = 300 μ s, Duty Cycle = 2%

Specification Table

V_{CEO} Maximum (V)	I_C Maximum (A)	$V_{CE(sat)}$ Maximum (V) at $I_C = 10\text{ mA}$	t_{off} Maximum (ns) at $I_C = 10\text{ mA}$	h_{FE} Minimum at $I_C = 10\text{ mA}$	P_D at $T_a = 25^\circ\text{C}$ (mW)	Package and Pin Out	Part Number
15	0.2	0.25	18	40	360	TO-18	2N2369
		0.2					2N2369A

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