

2N2369A  
SILICON  
NPN TRANSISTOR



TO-18 CASE

**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N2369A is a silicon epitaxial planar NPN transistor designed for ultra high speed saturated switching applications.

**MARKING: FULL PART NUMBER**

**MAXIMUM RATINGS:** ( $T_A=25^\circ\text{C}$ )

Collector-Base Voltage
Collector-Emitter Voltage
Collector-Emitter Voltage
Emitter-Base Voltage
Continuous Collector Current
Peak Collector Current
Power Dissipation
Power Dissipation ( $T_C=25^\circ\text{C}$ )
Operating and Storage Junction Temperature
Thermal Resistance
Thermal Resistance

SYMBOL		UNITS
$V_{CB0}$	40	V
$V_{CES}$	40	V
$V_{CEO}$	15	V
$V_{EBO}$	4.5	V
$I_C$	200	mA
$I_{CM}$	500	mA
$P_D$	360	mW
$P_D$	1.2	W
$T_J, T_{stg}$	-65 to +200	$^\circ\text{C}$
$\theta_{JA}$	486	$^\circ\text{C/W}$
$\theta_{JC}$	146	$^\circ\text{C/W}$

**ELECTRICAL CHARACTERISTICS:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$I_{CBO}$	$V_{CB}=20\text{V}$		400	nA
$I_{CBO}$	$V_{CB}=20\text{V}, T_A=150^\circ\text{C}$		30	$\mu\text{A}$
$BV_{CBO}$	$I_C=10\mu\text{A}$	40		V
$BV_{CES}$	$I_C=10\mu\text{A}$	40		V
$BV_{CEO}$	$I_C=10\text{mA}$	15		V
$BV_{EBO}$	$I_E=10\mu\text{A}$	4.5		V
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$		200	mV
$V_{CE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}, T_A=125^\circ\text{C}$		300	mV
$V_{CE(SAT)}$	$I_C=30\text{mA}, I_B=3.0\text{mA}$		250	mV
$V_{CE(SAT)}$	$I_C=100\text{mA}, I_B=10\text{mA}$		500	mV
$V_{BE(SAT)}$	$I_C=10\text{mA}, I_B=1.0\text{mA}$	700	850	mV
$V_{BE(SAT)}$	$I_C=30\text{mA}, I_B=3.0\text{mA}$		1.15	V
$V_{BE(SAT)}$	$I_C=100\text{mA}, I_B=10\text{mA}$		1.6	V
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=10\text{mA}$	40	120	
$h_{FE}$	$V_{CE}=0.35\text{V}, I_C=10\text{mA}, T_A=-55^\circ\text{C}$	20		
$h_{FE}$	$V_{CE}=0.4\text{V}, I_C=30\text{mA}$	30		
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=100\text{mA}$	20		

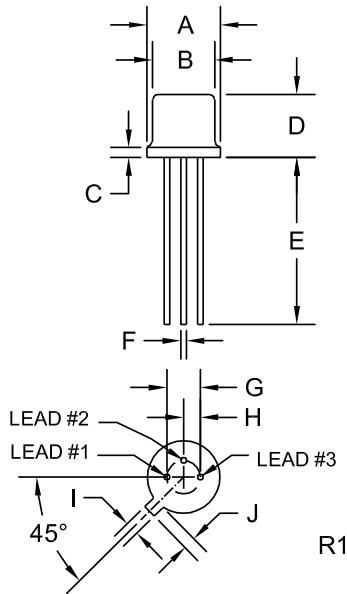
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**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^\circ\text{C}$  unless otherwise noted)

SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
$f_T$	$V_{CE}=10\text{V}$ , $I_C=10\text{mA}$ , $f=100\text{MHz}$	500		MHz
$C_{ob}$	$V_{CB}=5.0\text{V}$ , $I_E=0$ , $f=140\text{kHz}$		4.0	pF
$t_{on}$	$V_{CC}=3.0\text{V}$ , $I_C=10\text{mA}$ , $I_{B1}=3.0\text{mA}$ , $I_{B2}=1.5\text{mA}$		12	ns
$t_{off}$	$V_{CC}=3.0\text{V}$ , $I_C=10\text{mA}$ , $I_{B1}=3.0\text{mA}$ , $I_{B2}=1.5\text{mA}$		18	ns
$t_s$	$V_{CC}=10\text{V}$ , $I_C=10\text{mA}$ , $I_{B1}=I_{B2}=10\text{mA}$		13	ns

**TO-18 CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.209	0.230	5.31	5.84
B (DIA)	0.178	0.195	4.52	4.95
C	-	0.030	-	0.76
D	0.170	0.210	4.32	5.33
E	0.500	-	12.70	-
F (DIA)	0.016	0.019	0.41	0.48
G (DIA)	0.100		2.54	
H	0.050		1.27	
I	0.036	0.046	0.91	1.17
J	0.028	0.048	0.71	1.22

TO-18 (REV: R1)

**LEAD CODE:**

- 1) Emitter
- 2) Base
- 3) Collector

**MARKING: FULL PART NUMBER**

R1 (23-June 2014)

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