

2N2219  
2N2219A

SILICON  
NPN TRANSISTORS



TO-39 CASE



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**DESCRIPTION:**

The CENTRAL SEMICONDUCTOR 2N2219 and 2N2219A are silicon NPN transistors manufactured by the epitaxial planar process, and designed for small signal general purpose and switching applications.

**MARKING: FULL PART NUMBER**

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

	SYMBOL	2N2219	2N2219A	UNITS
Collector-Base Voltage	$V_{CBO}$	60	75	V
Collector-Emitter Voltage	$V_{CEO}$	30	40	V
Emitter-Base Voltage	$V_{EBO}$	5.0	6.0	V
Continuous Collector Current	$I_C$		800	mA
Power Dissipation	$P_D$		800	mW
Power Dissipation ( $T_C=25^\circ\text{C}$ )	$P_D$		3.0	W
Operating and Storage Junction Temperature	$T_J, T_{stg}$		-65 to +200	$^\circ\text{C}$

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

SYMBOL	TEST CONDITIONS	2N2219		2N2219A		UNITS
		MIN	MAX	MIN	MAX	
$I_{CBO}$	$V_{CB}=50\text{V}$	-	10	-	-	nA
$I_{CBO}$	$V_{CB}=60\text{V}$	-	-	-	10	nA
$I_{CEV}$	$V_{CE}=60\text{V}, V_{EB}=3.0\text{V}$	-	-	-	10	nA
$I_{EBO}$	$V_{EB}=3.0\text{V}$	-	10	-	10	nA
$BV_{CBO}$	$I_C=10\mu\text{A}$	60	-	75	-	V
$BV_{CEO}$	$I_C=10\text{mA}$	30	-	40	-	V
$BV_{EBO}$	$I_E=10\mu\text{A}$	5.0	-	6.0	-	V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	-	0.4	-	0.3	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$	-	1.6	-	1.0	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	-	1.3	-	1.2	V
$V_{BE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$	-	2.6	-	2.0	V
$h_{FE}$	$V_{CE}=10\text{V}, I_C=100\mu\text{A}$	35	-	35	-	
$h_{FE}$	$V_{CE}=10\text{V}, I_C=1.0\text{mA}$	50	-	50	-	
$h_{FE}$	$V_{CE}=10\text{V}, I_C=10\text{mA}$	75	-	75	-	
$h_{FE}$	$V_{CE}=10\text{V}, I_C=150\text{mA}$	100	300	100	300	
$h_{FE}$	$V_{CE}=1.0\text{V}, I_C=150\text{mA}$	50	-	50	-	
$h_{FE}$	$V_{CE}=10\text{V}, I_C=500\text{mA}$	30	-	-	-	
$h_{FE}$	$V_{CE}=10\text{V}, I_C=500\text{mA}$	-	-	40	-	

R1 (31-July 2013)

2N2219  
2N2219A

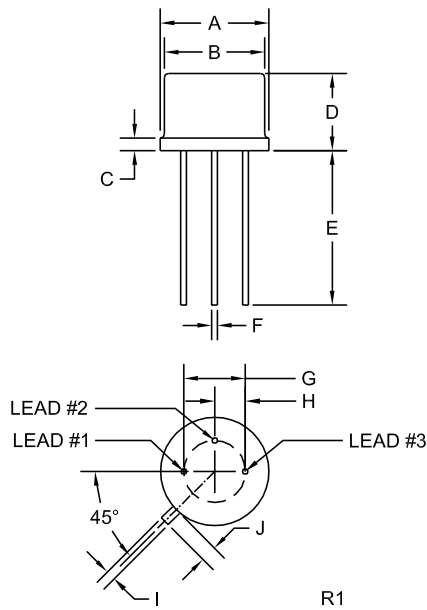
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**ELECTRICAL CHARACTERISTICS - Continued:** ( $T_A=25^\circ\text{C}$ )

SYMBOL	TEST CONDITIONS	2N2219		2N2219A		UNITS
		MIN	MAX	MIN	MAX	
$f_T$	$V_{CE}=20\text{V}, I_C=20\text{mA}$	250	-	300	-	MHz
$C_{ob}$	$V_{CB}=10\text{V}, f=100\text{kHz}$	-	8.0	-	8.0	pF
$t_{on}$	$V_{CC}=30\text{V}, I_C=150\text{mA}, I_B=15\text{mA}$	-	35	-	35	ns
$t_{off}$	$V_{CC}=30\text{V}, I_C=150\text{mA}, I_{B1}=I_{B2}=15\text{mA}$	-	285	-	285	ns

**TO-39 CASE - MECHANICAL OUTLINE**



SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.335	0.370	8.51	9.40
B (DIA)	0.315	0.335	8.00	8.51
C	-	0.040	-	1.02
D	0.240	0.260	6.10	6.60
E	0.500	-	12.70	-
F (DIA)	0.016	0.021	0.41	0.53
G (DIA)	0.200		5.08	
H	0.100		2.54	
I	0.028	0.034	0.71	0.86
J	0.029	0.045	0.74	1.14

TO-39 (REV: R1)

**LEAD CODE:**

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

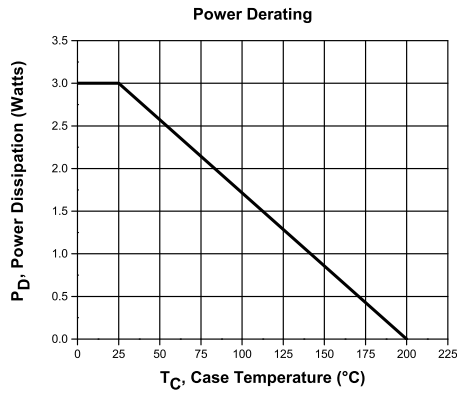
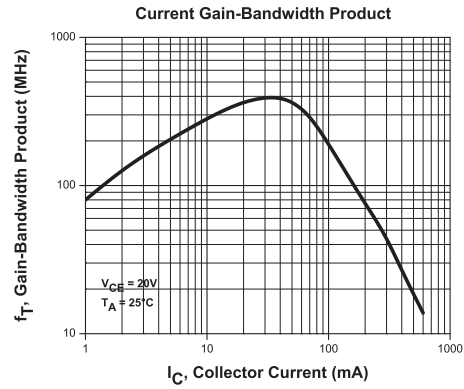
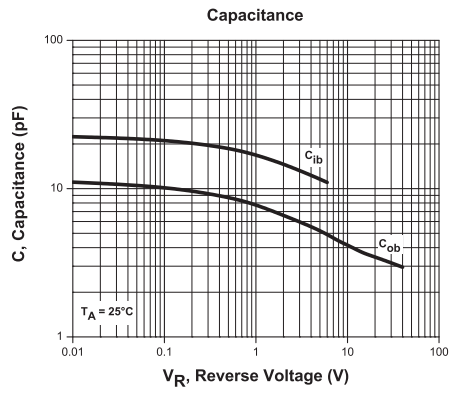
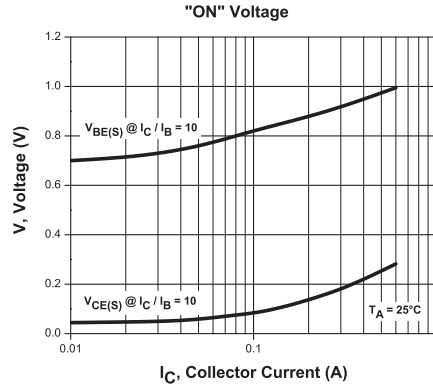
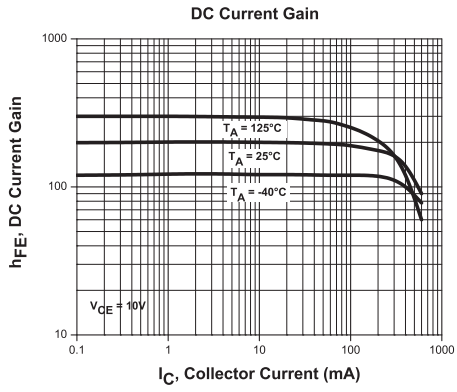
**MARKING: FULL PART NUMBER**

R1 (31-July 2013)

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TYPICAL ELECTRICAL CHARACTERISTICS



R1 (31-July 2013)

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### PRODUCT SUPPORT

Central's operations team provides the highest level of support to insure product is delivered on-time.

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- Inventory bonding
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- Custom bar coding for shipments
- Custom product packing

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### DESIGNER SUPPORT/SERVICES

Central's applications engineering team is ready to discuss your design challenges. Just ask.

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- SPICE models
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- Environmental regulation compliance
- Customer specific screening
- Up-screening capabilities
- Special wafer diffusions
- PbSn plating options
- Package details
- Application notes
- Application and design sample kits
- Custom product and package development

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