

2N1613
SILICON
NPN TRANSISTOR



TO-39 CASE



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DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N1613 is a silicon NPN epitaxial planar transistor designed for small signal general purpose switching applications.

MARKING: FULL PART NUMBER

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

	SYMBOL		UNITS
Collector-Base Voltage	V_{CB0}	75	V
Collector-Emitter Voltage	V_{CER}	50	V
Emitter-Base Voltage	V_{EBO}	7.0	V
Continuous Collector Current	I_C	500	mA
Power Dissipation ($T_C=25^\circ\text{C}$)	P_D	3.0	W
Power Dissipation	P_D	0.8	W
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +200	$^\circ\text{C}$

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

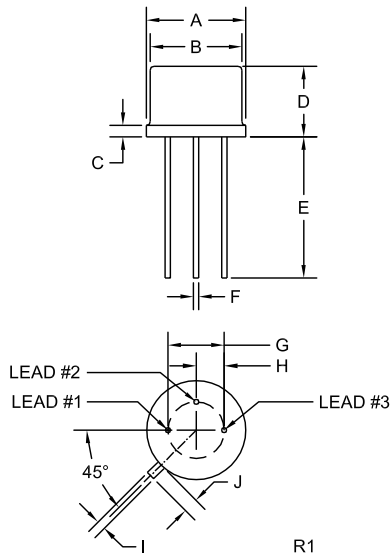
SYMBOL	TEST CONDITIONS	MIN	MAX	UNITS
I_{CBO}	$V_{CB}=60\text{V}$		10	nA
I_{EBO}	$V_{EB}=5.0\text{V}$		10	nA
BV_{CBO}	$I_C=100\mu\text{A}$	75		V
BV_{CER}	$I_C=10\text{mA}, R_{BE}=10\Omega$	50		V
BV_{EBO}	$I_E=100\mu\text{A}$	7.0		V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		1.5	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$		1.3	V
h_{FE}	$V_{CE}=10\text{V}, I_C=100\mu\text{A}$	20		
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}$	35		
h_{FE}	$V_{CE}=10\text{V}, I_C=150\text{mA}$	40	120	
h_{FE}	$V_{CE}=10\text{V}, I_C=500\text{mA}$	20		
f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=20\text{MHz}$	60		MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=100\text{kHz}$		25	pF
C_{ib}	$V_{EB}=0.5\text{V}, I_C=0, f=100\text{kHz}$		80	pF
N_F	$V_{CE}=10\text{V}, I_C=300\mu\text{A}, f=1.0\text{kHz}$		12	dB

R1 (23-April 2013)

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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 (23-April 2013)

OUTSTANDING SUPPORT AND SUPERIOR SERVICES



PRODUCT SUPPORT

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

- Supply management (Customer portals)
- Inventory bonding
- Consolidated shipping options
- Custom bar coding for shipments
- Custom product packing

DESIGNER SUPPORT/SERVICES

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

CONTACT US

Corporate Headquarters & Customer Support Team

Central Semiconductor Corp.
145 Adams Avenue
Hauppauge, NY 11788 USA
Main Tel: (631) 435-1110
Main Fax: (631) 435-1824
Support Team Fax: (631) 435-3388
www.centalsemi.com

Worldwide Field Representatives:
www.centalsemi.com/wwreps

Worldwide Distributors:
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