



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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2N3019
2N3020

NPN SILICON TRANSISTOR



TO-39 CASE



www.centrasemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N3019, 2N3020 types are NPN silicon transistors designed for general purpose amplifier applications.

MARKING: FULL PART NUMBER

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

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

SYMBOL		UNITS
V_{CB0}	140	V
V_{CEO}	80	V
V_{EBO}	7.0	V
I_C	1.0	A
P_D	0.8	W
P_D	5.0	W
T_J, T_{stg}	-65 to +200	$^\circ\text{C}$

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

SYMBOL	TEST CONDITIONS	2N3019		2N3020		UNITS
		MIN	MAX	MIN	MAX	
I_{CBO}	$V_{CB}=90\text{V}$	-	10	-	10	nA
I_{CBO}	$V_{CB}=90\text{V}, T_A=150^\circ\text{C}$	-	10	-	10	μA
I_{EBO}	$V_{EB}=5.0\text{V}$	-	10	-	10	nA
BV_{CB0}	$I_C=100\mu\text{A}$	140	-	140	-	V
BV_{CEO}	$I_C=30\text{mA}$	80	-	80	-	V
BV_{EBO}	$I_E=100\mu\text{A}$	7.0	-	7.0	-	V
$V_{CE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	-	0.2	-	0.2	V
$V_{CE(SAT)}$	$I_C=500\text{mA}, I_B=50\text{mA}$	-	0.5	-	0.5	V
$V_{BE(SAT)}$	$I_C=150\text{mA}, I_B=15\text{mA}$	-	1.1	-	1.1	V
h_{FE}	$V_{CE}=10\text{V}, I_C=100\mu\text{A}$	50	-	30	100	
h_{FE}	$V_{CE}=10\text{V}, I_C=10\text{mA}$	90	-	40	120	
h_{FE}	$V_{CE}=10\text{V}, I_C=150\text{mA}$	100	300	40	120	
h_{FE}	$V_{CE}=10\text{V}, I_C=150\text{mA}, T_A=-55^\circ\text{C}$	40	-	-	-	
h_{FE}	$V_{CE}=10\text{V}, I_C=500\text{mA}$	50	-	30	100	
h_{FE}	$V_{CE}=10\text{V}, I_C=1.0\text{A}$	15	-	15	-	
f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=20\text{MHz}$	100	-	100	-	MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1.0\text{MHz}$	-	12	-	12	pF
C_{ib}	$V_{EB}=0.5\text{V}, I_C=0, f=1.0\text{MHz}$	-	60	-	60	pF
$r_b'C_c$	$V_{CE}=10\text{V}, I_C=10\text{mA}, f=4.0\text{MHz}$	-	400	-	400	ps
NF	$V_{CE}=10\text{V}, I_C=100\mu\text{A}, f=1.0\text{kHz}, R_S=1.0\text{k}\Omega$	-	4.0	-	-	dB

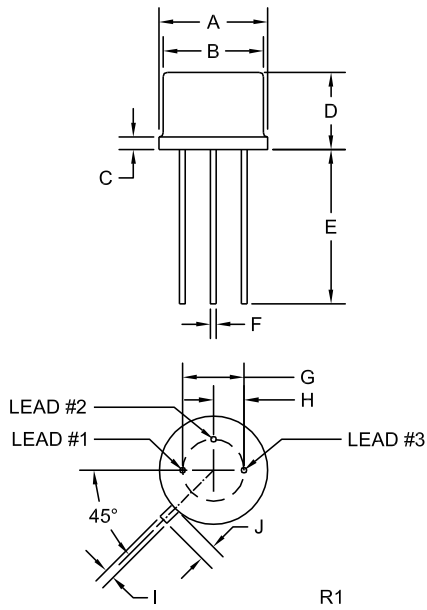
R1 (11-June 2012)

2N3019
2N3020

NPN SILICON TRANSISTOR



TO-39 CASE - MECHANICAL OUTLINE



SYMBOL	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 (11-June 2012)

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

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

- Free quick ship samples (2nd day air)
- Online technical data and parametric search
- SPICE models
- Custom electrical curves
- 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

REQUESTING PRODUCT PLATING

1. If requesting Tin/Lead plated devices, add the suffix "TIN/LEAD" to the part number when ordering (example: 2N2222A TIN/LEAD).
2. If requesting Lead (Pb) Free plated devices, add the suffix "PBFREE" to the part number when ordering (example: 2N2222A PBFREE).

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