2N3019
2N3020

NPN SILICON TRANSISTOR

TO-39 CASE

Central Semiconductor Corp.

www.centralsemi.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°C)	**SYMBOL**		**UNITS**
Collector-Base Voltage	V_{CBO}	140	V
Collector-Emitter Voltage	V_{CEO}	80	V
Emitter-Base Voltage	V_{EBO}	7.0	V
Continuous Collector Current	I_C	1.0	A
Power Dissipation	P_D	0.8	W
Power Dissipation (T_C=25°C)	P_D	5.0	W
Operating and Storage Junction Temperature	T_J, T_{stg}	-65 to +200	°C

ELECTRICAL CHARACTERISTICS: (T_A=25°C unless otherwise noted)

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

R1 (11-June 2012)

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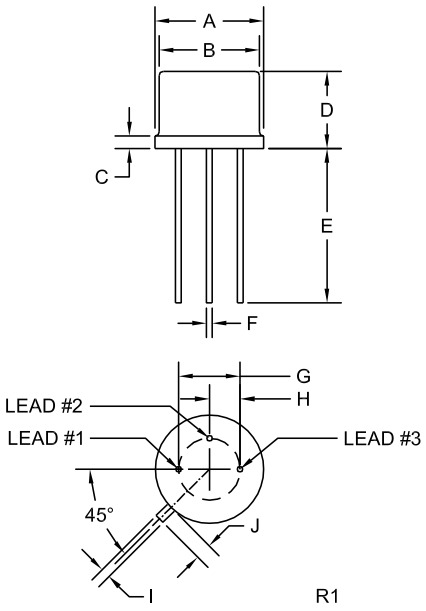
TO-39 CASE - MECHANICAL OUTLINE



DIMENSIONS				
	INCHES		MILLIMETERS	
SYMBOL	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