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Manufacturers of World Class Discrete Semiconductors

2N3019

2N3020

NPN Silicon Transistor

JEDEC TO-39 Case

DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N3019, 2N3020 are NPN Silicon Transistors designed for high current general purpose amplifier applications.

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

		2N3019	2N3020
Collector-Base Voltage	V_{CB0}	140V	
Collector-Emitter Voltage	V_{CE0}	80V	
Emitter-Base Voltage	V_{EB0}	7V	
Collector Current	I_C	1A	
Power Dissipation	P_D	0.8W	
Power Dissipation ($T_C=25^{\circ}\text{C}$)	P_D	5.0W	
Junction & Storage Junction Temperature	T_J, T_{STG}	-65 to +200 $^{\circ}\text{C}$	

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

Symbol	Test Conditions	2N3019		2N3020		Unit
		Min	Max	Min	Max	
I_{CB0}	$V_{CB}=90\text{V}$		10		10	nA
I_{CB0}	$V_{CB}=90\text{V}, T_A=150^{\circ}\text{C}$		10		10	μA
I_{EB0}	$V_{EB}=5\text{V}$		10		10	nA
BV_{CB0}	$I_C=100\mu\text{A}$	140		140		V
BV_{EB0}	$I_E=100\mu\text{A}$	7		7		V
BV_{CE0}	$I_C=30\text{mA}$	80		80		V
$V_{CE}(s)$	$I_C=150\text{mA}, I_B=15\text{mA}$		0.2		0.2	V
$V_{CE}(s)$	$I_C=500\text{mA}, I_B=50\text{mA}$		0.5		0.5	V
$V_{BE}(s)$	$I_C=150\text{mA}, I_B=15\text{mA}$		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}	$V_{CE}=10\text{V}, I_C=1\text{A}$	15		15		
f_T	$V_{CE}=10\text{V}, I_C=50\text{mA}, f=20\text{MHz}$	100		100		MHz
C_{ob}	$V_{CB}=10\text{V}, I_E=0, f=1\text{MHz}$		12		12	pF
C_{ib}	$V_{EB}=0.5\text{V}, I_C=0, f=1\text{MHz}$		60		60	pF
$r_b' C_c$	$V_{CE}=10\text{V}, I_C=10\text{mA}, f=4\text{MHz}$		400		400	pSEC
NF	$V_{CE}=10\text{V}, I_C=100\mu\text{A}, f=1\text{kHz}, R_S=1,000\text{ohms}$		4		-	dB