

CentralTM Semiconductor Corp.

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Manufacturers of World Class Discrete Semiconductors
www.centrasemi.com

2N3970
2N3971
2N3972

N-CHANNEL JFET

JEDEC TO-18 CASE

DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N3970 series types are N-Channel Junction Field Effect Transistors, designed for amplifier, chopping, and analog switching applications.

MAXIMUM RATINGS (T_A=25°C)

	SYMBOL		UNITS
Drain-Gate Voltage	V _{DG}	40	V
Source-Gate Voltage	V _{SG}	40	V
Gate Current	I _G	50	mA
Power Dissipation (T _C =25°C)	P _D	1.8	W
Operating and Storage Junction Temperature	T _J , T _{stg}	-65 to +200	°C

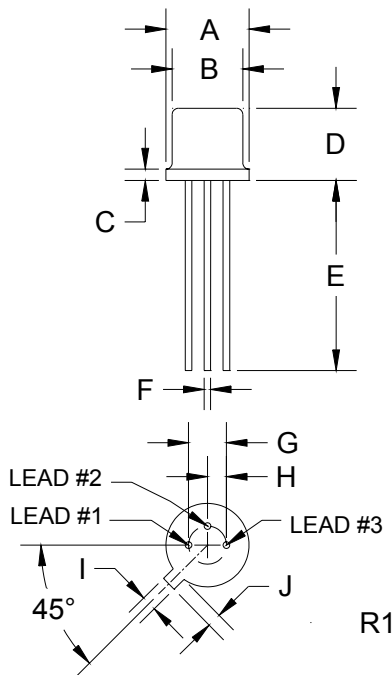
ELECTRICAL CHARACTERISTICS (T_A=25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	2N3970		2N3971		2N3972		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
I _{DSS}	V _{DS} =20V, V _{GS} =0V	50	150	25	75	5.0	30	mA
I _{DGO}	V _{DG} =20V, I _S =0		250		250		250	pA
I _{DGO}	V _{DG} =20V, I _S =0, T _A =150°C		500		500		500	nA
I _{D(off)}	V _{DS} =20V, V _{GS} =12V		250		250		250	pA
I _{D(off)}	V _{DS} =20V, V _{GS} =12V, T _A =150°C		500		500		500	nA
BV _{GSS}	I _G =1.0μA, V _{DS} =0V	40		40		40		V
V _{GS(off)}	V _{DS} =20V, I _D =1.0nA	4.0	10	2.0	5.0	0.5	3.0	V
V _{DS(on)}	I _D =20mA, V _{GS} =0V		1.0		-		-	V
V _{DS(on)}	I _D =10mA, V _{GS} =0V		-		1.5		-	V
V _{DS(on)}	I _D =5.0mA, V _{GS} =0V		-		-		2.0	V
r _{DS(on)}	I _D =1.0mA, V _{GS} =0		30		60		100	Ω
r _{ds(on)}	I _D =0, V _{GS} =0, f=1.0kHz		30		60		100	Ω
C _{iss}	V _{DS} =20V, V _{GS} =0, f=1.0MHz		25		25		25	pF
C _{rss}	V _{DS} =0, V _{GS} =12V, f=1.0MHz		6.0		6.0		6.0	pF

(SEE REVERSE SIDE)

SYMBOL	SWITCHING TEST CONDITIONS	2N3970		2N3971		2N3972		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
$t_{d(on)}$	$I_{D(on)}=20mA, R_L=450\Omega, V_{GS(off)}=10V$ $V_{DD}=10V, V_{GS(on)}=0$	10		-		-		ns
$t_{d(on)}$	$I_{D(on)}=10mA, R_L=850\Omega, V_{GS(off)}=5.0V$ $V_{DD}=10V, V_{GS(on)}=0$	-		15		-		ns
$t_{d(on)}$	$I_{D(on)}=5.0mA, R_L=1.6K\Omega, V_{GS(off)}=3.0V$ $V_{DD}=10V, V_{GS(on)}=0$	-		-		40		ns
t_r	$I_{D(on)}=20mA, R_L=450\Omega, V_{GS(off)}=10V$ $V_{DD}=10V, V_{GS(on)}=0$	10		-		-		ns
t_r	$I_{D(on)}=10mA, R_L=850\Omega, V_{GS(off)}=5.0V$ $V_{DD}=10V, V_{GS(on)}=0$	-		15		-		ns
t_r	$I_{D(on)}=5.0mA, R_L=1.6K\Omega, V_{GS(off)}=3.0V$ $V_{DD}=10V, V_{GS(on)}=0$	-		-		40		ns
t_{off}	$I_{D(on)}=20mA, R_L=450\Omega, V_{GS(off)}=10V$ $V_{DD}=10V, V_{GS(on)}=0$	30		-		-		ns
t_{off}	$I_{D(on)}=10mA, R_L=850\Omega, V_{GS(off)}=5.0V$ $V_{DD}=10V, V_{GS(on)}=0$	-		60		-		ns
t_{off}	$I_{D(on)}=5.0mA, R_L=1.6K\Omega, V_{GS(off)}=3.0V$ $V_{DD}=10V, V_{GS(on)}=0$	-		-		100		ns

TO-18 PACKAGE - MECHANICAL OUTLINE



DIMENSIONS				
SYMBOL	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A (DIA)	0.209	0.230	5.31	5.84
B (DIA)	0.178	0.195	4.52	4.95
C	-	0.030	-	0.76
D	0.170	0.210	4.32	5.33
E	0.500	-	12.70	-
F (DIA)	0.016	0.019	0.41	0.48
G (DIA)	0.100		2.54	
H	0.050		1.27	
I	0.036	0.046	0.91	1.17
J	0.028	0.048	0.71	1.22

TO-18 (REV: R1)

LEAD CODE:

- 1) SOURCE
- 2) DRAIN
- 3) GATE

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