



THE DATASHEET OF SMF64AT1



2N4391
2N4392
2N4393

**SILICON
N-CHANNEL JFET**



TO-18 CASE



www.centalsemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR 2N4391 series types are N-Channel silicon JFETs designed for analog switching and chopper applications.

MARKING: FULL PART NUMBER

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

Gate-Drain Voltage
Gate-Source Voltage
Gate Current
Power Dissipation ($T_C=25^{\circ}\text{C}$)
Operating and Storage Junction Temperature

SYMBOL

V_{GD} 40
 V_{GS} 40
 I_G 50
 P_D 1.8
 T_J, T_{stg} -65 to +175

UNITS

V
V
mA
W
 $^{\circ}\text{C}$

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

SYMBOL	TEST CONDITIONS	2N4391		2N4392		2N4393		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
I_{GSS}	$V_{GS}=20\text{V}$	-	0.1	-	0.1	-	0.1	nA
I_{GSS}	$V_{GS}=20\text{V}, T_A=125^{\circ}\text{C}$	-	0.2	-	0.2	-	0.2	μA
I_{DSS}	$V_{DS}=20\text{V}$	50	150	25	75	5.0	30	mA
$I_{D(OFF)}$	$V_{DS}=20\text{V}, V_{GS}=12\text{V}$	-	0.1	-	-	-	-	nA
$I_{D(OFF)}$	$V_{DS}=20\text{V}, V_{GS}=7.0\text{V}$	-	-	-	0.1	-	-	nA
$I_{D(OFF)}$	$V_{DS}=20\text{V}, V_{GS}=5.0\text{V}$	-	-	-	-	-	0.1	nA
$I_{D(OFF)}$	$V_{DS}=20\text{V}, V_{GS}=12\text{V}, T_A=150^{\circ}\text{C}$	-	0.2	-	-	-	-	μA
$I_{D(OFF)}$	$V_{DS}=20\text{V}, V_{GS}=7.0\text{V}, T_A=150^{\circ}\text{C}$	-	-	-	0.2	-	-	μA
$I_{D(OFF)}$	$V_{DS}=20\text{V}, V_{GS}=5.0\text{V}, T_A=150^{\circ}\text{C}$	-	-	-	-	-	0.2	μA
BV_{GSS}	$I_G=1.0\mu\text{A}$	40	-	40	-	40	-	V
$V_{GS(OFF)}$	$V_{DS}=20\text{V}, I_D=1.0\text{nA}$	4.0	10	2.0	5.0	0.5	3.0	V
$V_{GS(f)}$	$V_{DS}=0, I_G=1.0\text{mA}$	-	1.0	-	1.0	-	1.0	V
$V_{DS(ON)}$	$I_D=12\text{mA}$	-	0.4	-	-	-	-	V
$V_{DS(ON)}$	$I_D=6.0\text{mA}$	-	-	-	0.4	-	-	V
$V_{DS(ON)}$	$I_D=3.0\text{mA}$	-	-	-	-	-	0.4	V
$r_{DS(ON)}$	$I_D=1.0\text{mA}, V_{GS}=0$	-	30	-	60	-	100	Ω
$r_{ds(on)}$	$V_{GS}=0, I_D=0, f=1.0\text{kHz}$	-	30	-	60	-	100	Ω
C_{rss}	$V_{GS}=12\text{V}, V_{DS}=0, f=1.0\text{MHz}$	-	4.0	-	-	-	-	pF
C_{rss}	$V_{GS}=7.0\text{V}, V_{DS}=0, f=1.0\text{MHz}$	-	-	-	4.0	-	-	pF
C_{rss}	$V_{GS}=5.0\text{V}, V_{DS}=0, f=1.0\text{MHz}$	-	-	-	-	-	4.0	pF
C_{iss}	$V_{DS}=20\text{V}, V_{GS}=0, f=1.0\text{MHz}$	-	14	-	14	-	14	pF

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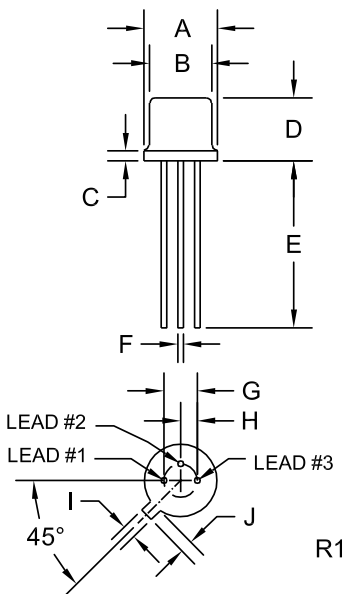
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N-CHANNEL JFET



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

SYMBOL	TEST CONDITIONS	2N4391		2N4392		2N4393		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
t_r	$I_{D(ON)}=12\text{mA}$	-	5.0	-	-	-	-	ns
t_r	$I_{D(ON)}=6.0\text{mA}$	-	-	-	5.0	-	-	ns
t_r	$I_{D(ON)}=3.0\text{mA}$	-	-	-	-	-	5.0	ns
t_f	$V_{GS(OFF)}=12\text{V}$	-	15	-	-	-	-	ns
t_f	$V_{GS(OFF)}=7.0\text{V}$	-	-	-	20	-	-	ns
t_f	$V_{GS(OFF)}=5.0\text{V}$	-	-	-	-	-	30	ns
t_{on}	$I_{D(ON)}=12\text{mA}$	-	15	-	-	-	-	ns
t_{on}	$I_{D(ON)}=6.0\text{mA}$	-	-	-	15	-	-	ns
t_{on}	$I_{D(ON)}=3.0\text{mA}$	-	-	-	-	-	15	ns
t_{off}	$V_{GS(OFF)}=12\text{V}$	-	20	-	-	-	-	ns
t_{off}	$V_{GS(OFF)}=7.0\text{V}$	-	-	-	35	-	-	ns
t_{off}	$V_{GS(OFF)}=5.0\text{V}$	-	-	-	-	-	50	ns

TO-18 CASE - MECHANICAL OUTLINE



SYMBOL	DIMENSIONS			
	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

MARKING: FULL PART NUMBER

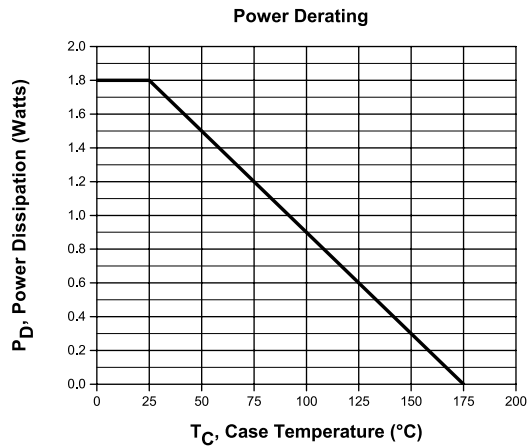
R3 (18-August 2022)

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TYPICAL ELECTRICAL CHARACTERISTICS



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

- Supply management (Customer portals)
- Inventory bonding
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- Custom product packing

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- Custom electrical curves
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- 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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