



**THE DATASHEET OF  
SMF64AT1**



2N4391  
2N4392  
2N4393

**SILICON  
N-CHANNEL JFET**



**TO-18 CASE**



[www.centrasemi.com](http://www.centrasemi.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	$\mu\text{A}$
$I_{DSS}$	$V_{DS}=20\text{V}$	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	-	-	-	-	$\mu\text{A}$
$I_{D(OFF)}$	$V_{DS}=20\text{V}, V_{GS}=7.0\text{V}, T_A=150^{\circ}\text{C}$	-	-	-	0.2	-	-	$\mu\text{A}$
$I_{D(OFF)}$	$V_{DS}=20\text{V}, V_{GS}=5.0\text{V}, T_A=150^{\circ}\text{C}$	-	-	-	-	-	0.2	$\mu\text{A}$
$BV_{GSS}$	$I_G=1.0\mu\text{A}$	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	$\Omega$
$r_{ds(on)}$	$V_{GS}=0, I_D=0, f=1.0\text{kHz}$	-	30	-	60	-	100	$\Omega$
$C_{rss}$	$V_{GS}=12\text{V}, V_{DS}=0, f=1.0\text{MHz}$	-	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

2N4391  
2N4392  
2N4393

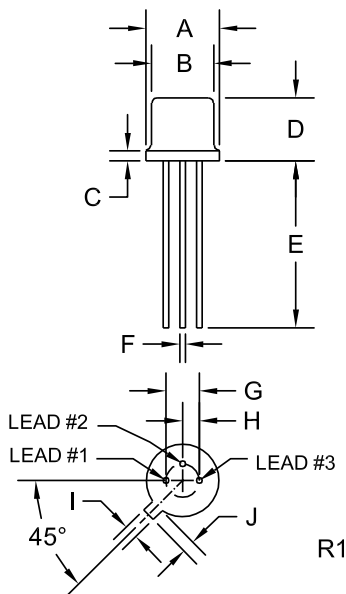
SILICON  
N-CHANNEL JFET



**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**

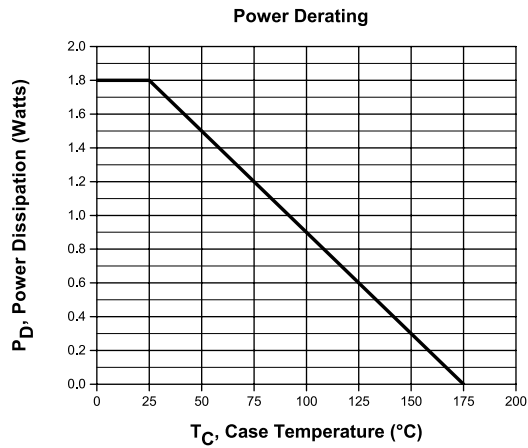
R3 (18-August 2022)

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## TYPICAL ELECTRICAL CHARACTERISTICS



## OUTSTANDING SUPPORT AND SUPERIOR SERVICES



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### 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

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### DESIGNER SUPPORT/SERVICES

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

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- 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

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### 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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### CONTACT US

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