

# Central<sup>TM</sup> Semiconductor Corp.

145 Adams Avenue, Hauppauge, NY 11788 USA  
Tel: (631) 435-1110 • Fax: (631) 435-1824

Manufacturers of World Class Discrete Semiconductors

2N4391  
2N4392  
2N4393

SILICON N-CHANNEL  
JUNCTION FIELD-EFFECT  
TRANSISTOR

JEDEC TO-18 CASE

## DESCRIPTION

The CENTRAL SEMICONDUCTOR 2N4391 series types are N-Channel Junction Field Effect Transistors designed for analog switching and chopper applications.

## MAXIMUM RATINGS (T<sub>A</sub> = 25°C)

	SYMBOL		UNITS
Drain-Gate Voltage	V <sub>DG</sub>	40	V
Source-Gate Voltage	V <sub>SG</sub>	40	V
Gate Current	I <sub>G</sub>	50	mA
Power Dissipation (T <sub>C</sub> = 25°C)	P <sub>D</sub>	1.8	W
Operating and Storage Junction Temperature	T <sub>J</sub> , T <sub>stg</sub>	-65 to +175	°C

## ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25°C unless otherwise noted)

SYMBOL	TEST CONDITIONS	2N4391		2N4392		2N4393		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
I <sub>GSS</sub>	V <sub>GS</sub> = 20V		0.1		0.1		0.1	nA
I <sub>GSS</sub>	V <sub>GS</sub> = 20V, T <sub>A</sub> = 125°C		0.2		0.2		0.2	μA
I <sub>DSS</sub>	V <sub>DS</sub> = 20V	50	150	25	75	5.0	30	mA
I <sub>D(off)</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 12V		0.1		-		-	nA
I <sub>D(off)</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 7.0V		-		0.1		-	nA
I <sub>D(off)</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 5.0V		-		-		0.1	nA
I <sub>D(off)</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 12V, T <sub>A</sub> = 150°C		0.2		-		-	μA
I <sub>D(off)</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 7.0V, T <sub>A</sub> = 150°C		-		0.2		-	μA
I <sub>D(off)</sub>	V <sub>DS</sub> = 20V, V <sub>GS</sub> = 5.0V, T <sub>A</sub> = 150°C		-		-		0.2	μA
BV <sub>GSS</sub>	I <sub>G</sub> = 1.0μA	40		40		40		V
V <sub>GS(off)</sub>	V <sub>DS</sub> = 20V, I <sub>D</sub> = 1.0nA	4.0	10	2.0	5.0	0.5	3.0	V
V <sub>GS(f)</sub>	V <sub>DS</sub> = 0, I <sub>G</sub> = 1.0mA		1.0		1.0		1.0	V
V <sub>DS(on)</sub>	I <sub>D</sub> = 12mA		0.4		-		-	V
V <sub>DS(on)</sub>	I <sub>D</sub> = 6.0mA		-		0.4		-	V
V <sub>DS(on)</sub>	I <sub>D</sub> = 3.0mA		-		-		0.4	V
r <sub>DS(on)</sub>	I <sub>D</sub> = 1.0mA, V <sub>GS</sub> = 0		30		60		100	Ω
r <sub>ds(on)</sub>	I <sub>D</sub> = 0, V <sub>GS</sub> = 0, f = 1.0kHz		30		60		100	Ω

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

SYMBOL	TEST CONDITIONS	2N4391		2N4392		2N4393		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
$C_{rss}$	$V_{DS}=0, V_{GS}=12V, f=1.0\text{MHz}$		3.5	-	-	-	-	pF
$C_{rss}$	$V_{DS}=0, V_{GS}=7.0V, f=1.0\text{MHz}$		-	3.5	-	-	-	pF
$C_{rss}$	$V_{DS}=0, V_{GS}=5.0V, f=1.0\text{MHz}$		-	-	-	3.5	-	pF
$C_{iss}$	$V_{DS}=20V, V_{GS}=0, f=1.0\text{MHz}$		14	14	14	14	-	pF
$t_r$	$I_{D(on)}=12\text{mA}$		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
$t_f$	$V_{GS(off)}=12V$		15	-	-	-	-	ns
$t_f$	$V_{GS(off)}=7.0V$		-	20	-	-	-	ns
$t_f$	$V_{GS(off)}=5.0V$		-	-	-	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
$t_{off}$	$V_{GS(off)}=12V$		20	-	-	-	-	ns
$t_{off}$	$V_{GS(off)}=7.0V$		-	35	-	-	-	ns
$t_{off}$	$V_{GS(off)}=5.0V$		-	-	-	50	-	ns

**Central**<sup>TM</sup>  
Semiconductor Corp.

145 Adams Avenue  
Hauppauge, NY 11788 USA  
Tel: (631) 435-1110 • Fax: (631) 435-1824  
www.centralsemi.com