

CentralTM 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_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 +175	°C

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

SYMBOL	TEST CONDITIONS	2N4391		2N4392		2N4393		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
I _{GSS}	V _{GS} = 20V		0.1		0.1		0.1	nA
I _{GSS}	V _{GS} = 20V, T _A = 125°C		0.2		0.2		0.2	μA
I _{DSS}	V _{DS} = 20V	50	150	25	75	5.0	30	mA
I _{D(off)}	V _{DS} = 20V, V _{GS} = 12V		0.1		-		-	nA
I _{D(off)}	V _{DS} = 20V, V _{GS} = 7.0V		-		0.1		-	nA
I _{D(off)}	V _{DS} = 20V, V _{GS} = 5.0V		-		-		0.1	nA
I _{D(off)}	V _{DS} = 20V, V _{GS} = 12V, T _A = 150°C		0.2		-		-	μA
I _{D(off)}	V _{DS} = 20V, V _{GS} = 7.0V, T _A = 150°C		-		0.2		-	μA
I _{D(off)}	V _{DS} = 20V, V _{GS} = 5.0V, T _A = 150°C		-		-		0.2	μA
BV _{GSS}	I _G = 1.0μA	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 _{GS(f)}	V _{DS} = 0, I _G = 1.0mA		1.0		1.0		1.0	V
V _{DS(on)}	I _D = 12mA		0.4		-		-	V
V _{DS(on)}	I _D = 6.0mA		-		0.4		-	V
V _{DS(on)}	I _D = 3.0mA		-		-		0.4	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

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

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www.centralsemi.com