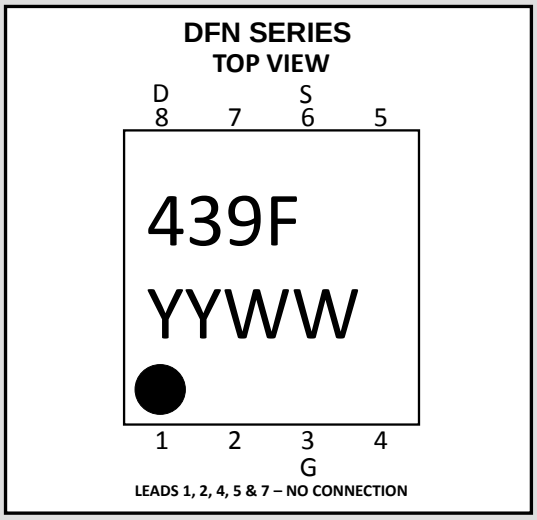
LINEAR SYSTEMS

Improved Standard Products®

4391DFN SERIES

MINIATURE/NON-MAGNETIC
8-PIN DFN PACKAGE
N-CHANNEL JFET SWITCH

FEATURES	
LOW ON RESISTANCE	$r_{DS(on)} \leq 30\Omega$
FAST SWITCHING	$t_{ON} \leq 15ns$
ABSOLUTE MAXIMUM RATINGS[1] @ 25 °C (unless otherwise stated)	
Maximum Temperatures	
Storage Temperature	-55 to 150°C
Junction Operating Temperature	-55 to 150°C
Maximum Power Dissipation	
Continuous Power Dissipation[3]	300mW
Maximum Currents	
Gate Current	50mA
Maximum Voltages	
Gate to Drain or Source	-40V



STATIC ELECTRICAL CHARACTERISTICS @25 °C (unless otherwise stated)

SYM.	CHARACTERISTIC	TYP	4391DFN		4392DFN		4393DFN		UNIT	CONDITIONS
			MIN	MAX	MIN	MAX	MIN	MAX		
BV_{GSS}	Gate to Source Breakdown Voltage		-40		-40		-40		V	I_G = -1µA, V_{DS} = 0V
$V_{GS(off)}$	Gate to Source Cutoff Voltage		-4	-10	-2	-5	-0.5	-3		V_{DS} = 15V, I_D = 10nA
$V_{GS(F)}$	Gate to Source Forward Voltage	0.7		1		1		1		I_G = 1mA, V_{DS} = 0V
$V_{DS(on)}$	Drain to Source On Voltage	0.25						0.4		V_{GS} = 0V, I_D = 3mA
		0.3				0.4				V_{GS} = 0V, I_D = 6mA
		0.35		0.4						V_{GS} = 0V, I_D = 12mA
I_{DSS}	Drain to Source Saturation Current[2]		50		25		5		mA	V_{DS} = 20V, V_{GS} = 0V
I_{GSS}	Gate Leakage Current	-.005		-1.0		-1.0		-1.0	nA	V_{GS} = -20V, V_{DS} = 0V
I_G	Gate Operating Current	-.005								V_{DG} = 15V, I_D = 10mA
$I_{D(off)}$	Drain Cutoff Current	.005		1.0		1.0		1.0	nA	V_{DS} = 10V, V_{GS} = -12V
$r_{DS(on)}$	Drain to Source On Resistance			30		60		100	Ω	V_{GS} = 0V, I_D = 1mA

DYNAMIC ELECTRICAL CHARACTERISTICS @25 °C (unless otherwise stated)

SYM.	CHARACTERISTIC	TYP	4391DFN		4392DFN		4393DFN		UNIT	CONDITIONS
			MIN	MAX	MIN	MAX	MIN	MAX		
g_{fs}	Forward Transconductance	6							mS	V_{DS} = 20V, I_D = 1mA
g_{os}	Output Conductance	25							µS	*f* = 1kHz
C_{iss}	Input Capacitance	13							pF	V_{DS} = 20V, V_{GS} = 0V *f* = 1MHz
C_{rss}	Reverse Transfer Capacitance	3.6								V_{DS} = 0V, V_{GS} = -5V *f* = 1MHz
		3.5								V_{DS} = 0V, V_{GS} = -7V *f* = 1MHz
		3.1								V_{DS} = 0V, V_{GS} = -12V *f* = 1MHz
e_n	Equivalent Input Noise Voltage	3							nV/√Hz	V_{DS} = 10V, I_D = 10mA *f* = 1kHz

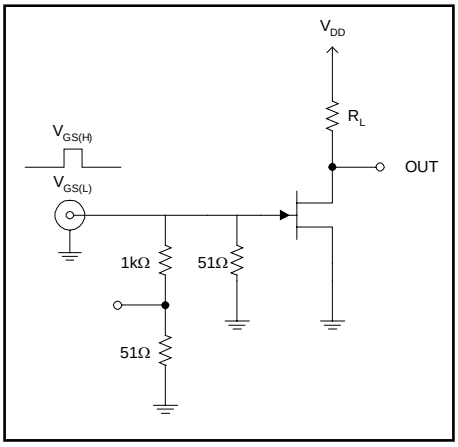
SWITCHING ELECTRICAL CHARACTERISTICS @25 °C (unless otherwise stated)

SYM.	CHARACTERISTIC	TYP	4391DFN		4392DFN		4393DFN		UNIT	CONDITIONS
			MIN	MAX	MIN	MAX	MIN	MAX		
$t_{d(on)}$	Turn On Time	2							ns	V_{DD} = 10V, $V_{GS(H)}$ = 0V
t_r		2								
$t_{d(off)}$	Turn Off Time	6								
t_f		13								

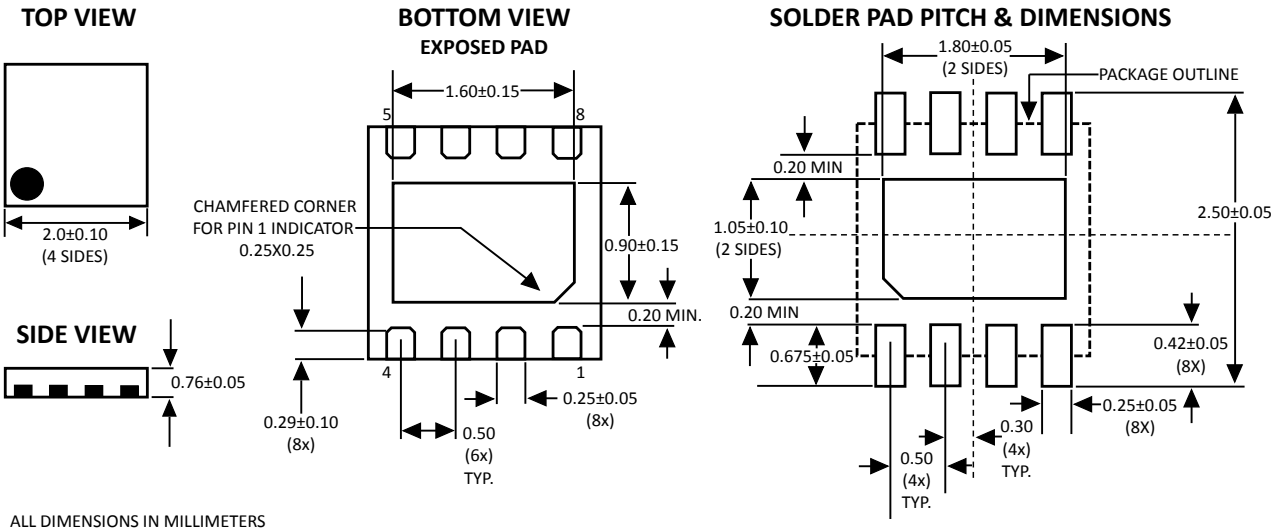
SWITCHING CIRCUIT CHARACTERISTICS

SYM.	4391DFN	4392DFN	4393DFN
$V_{GS(L)}$	-12V	-7V	-5V
R_L	800Ω	1600Ω	3200Ω
$I_{D(on)}$	12mA	6mA	3mA

SWITCHING TEST CIRCUIT



DFN SERIES



NOTES

1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Pulse test: PW ≤ 300μs, Duty Cycle ≤ 3%
3. Derate 2.8mW/°C above 25°C

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• 4042 Clipper Court • Fremont, CA 94538 • Tel: 510 490-9160 • Fax: 510 353-0261