

N-Channel JFET

2N4391
2N4392
2N4393



SOLID STATE INC.

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Common Uses

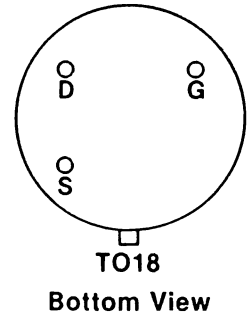
Analog switches
Commutators
Choppers

Absolute Maximum Ratings (25 °C)

Gate-source - 40 V
Gate-drain - 40 V
Drain-source ± 40 V
Gate current 10 mA
Device dissipation
(at or below 25 °C free air temp.) 300 mW
Storage range - 65° to + 200 °C

Features

Low on resistance
High off resistance
High isolation from drives



Electrical Characteristics (25 °C unless specified)

DC				2N4391		2N4392		2N4393		Units
Characteristic	Symbol	Test Conditions	Min	Max	Min	Max	Min	Max		
1.	Gate reverse current	$V_{DS} = 0, V_{GS} = -20 V$		-0.1		-0.1		-0.1	nA	
2.			$T_A = 150^\circ C$		-0.2		-0.2		-0.2	μA
3.	Gate-channel break-down voltage	$V_{DS} = 0, I_G = -1 \mu A$	-40		-40		-40		V	
4.	Gate-source cut off voltage	$V_{DS} = 20 V, I_D = 1 nA$	-4	-10	-2	-5	-0.5	-3		
5.	Drain-source on voltage	$V_{DS} = V$	$I_D = 3 mA$					0.4		
6.				$I_D = 6 mA$				0.4		
7.				$I_D = 12 mA$		0.4				
8.	Saturation drain current (Note 1)	$V_{DS} = 20 V, V_{GS} = 0$	50	150	25	75	5	30	mA	
9.	Drain cut off current	$V_{DS} = 20 V,$ $V_{GS} = -12 V (2N4391)$ $V_{GS} = -7 V (2N4392)$ $V_{GS} = -5 V (2N4393)$		0.1		0.1		0.1	nA	
10.			$T_A = 150^\circ$		0.2		0.2		0.2	μA
11.	Drain source on resistance	$V_{GS} = 0, I_D = 1 mA$		30		60		100	ohms	
12.	Gate source forward voltage	$V_{DS} = 0, I_G = 1 mA$		1		1		1	V	

AC				2N4391		2N4392		2N4393		Units
Characteristic	Symbol	Test Conditions	Min	Max	Min	Max	Min	Max		
13.	Input capacitance	$V_{DS} = 20 V, V_{GS} = 0$		14		14		14	pF	
14.	Feedback capacitance	$V_{DS} = 0$ $V_{GS} = -12 V (2N4391)$ $V_{GS} = -7 V (2N4392)$ $V_{GS} = -5 V (2N4393)$	$f = 1 MHz$		3.5		3.5		3.5	
15.	Drain source on resistance	$V_{DS} = 0, I_D = 0$	$f = 1 kHz$		30		60		100	ohms

Switching

Characteristic	Symbol	Test Conditions	2N4391	2N4392	2N4393	Units	
16.	Turn-on delay time	$V_{DD} = 10 V, V_{GS(on)} = 0$		15		15	ns
17.	Rise time	$I_D(on) \quad V_{GS(off)} \quad R_L$	12 mA - 12 V 800 Ω	5		5	
18.	Turn-off delay time		6 mA - 7 V 1.6 K Ω	20		35	50
19.	Fall time		3 mA - 5 3.2 K Ω	15		20	30

Notes: 1. Pulse test required, pulse width = 300 μs , duty cycle $\leq 3\%$.

N-Channel JFET

FOR

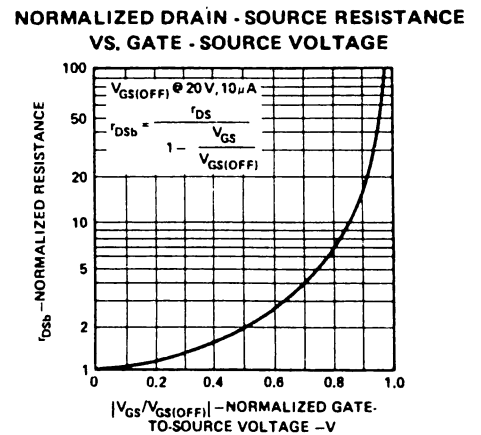
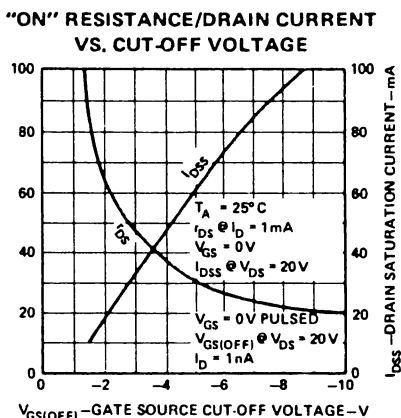
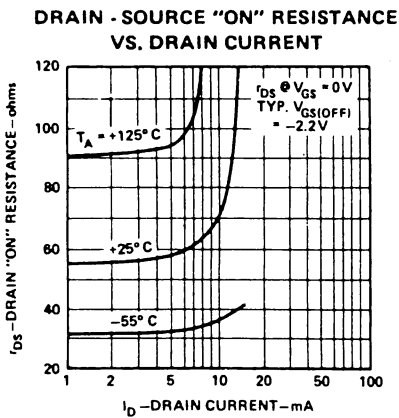
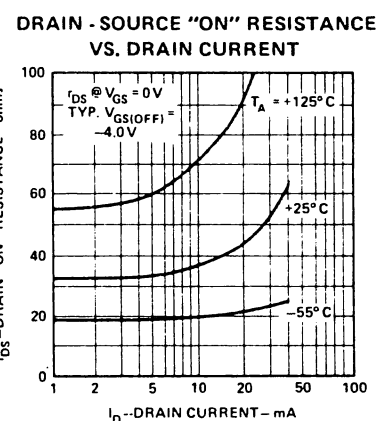
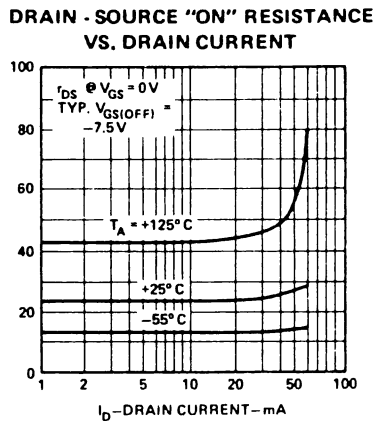
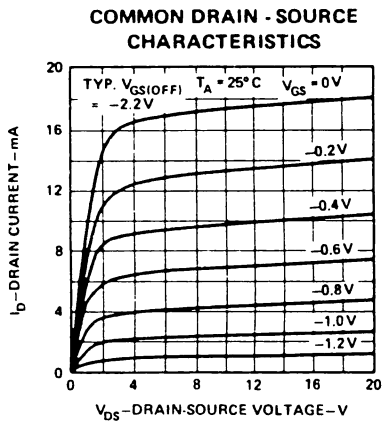
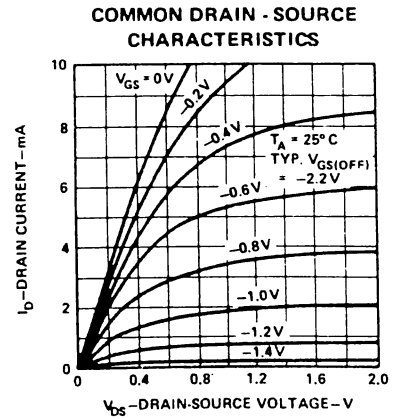
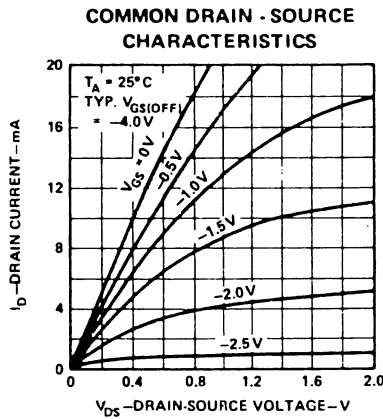
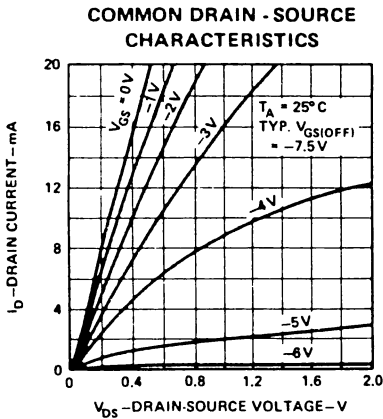
Analog switches
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PACKAGES:

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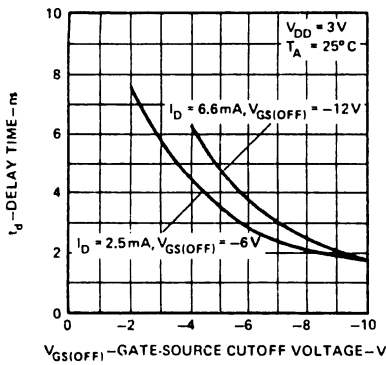
2N4391-3

Typical Characteristics (25°C unless otherwise noted)

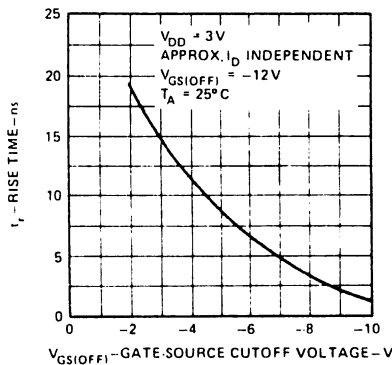


Typical Characteristics (cont.)

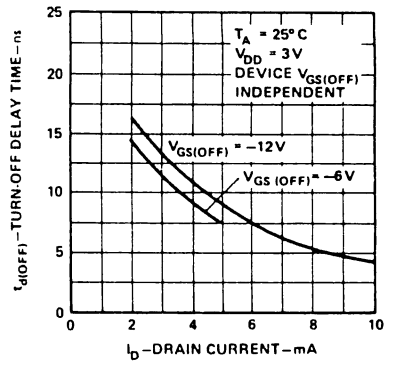
SWITCHING DELAY TIME VS. GATE - SOURCE CUT-OFF VOLTAGE



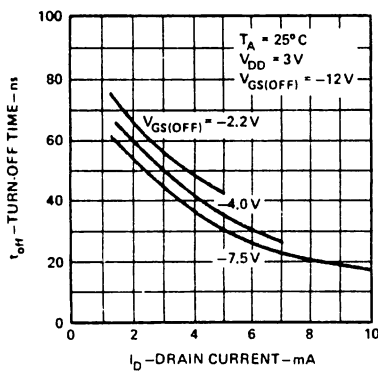
SWITCHING RISE TIME VS. GATE - SOURCE CUT-OFF VOLTAGE



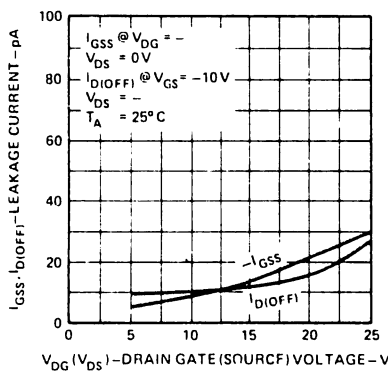
SWITCHING TURN-OFF DELAY TIME VS. DRAIN CURRENT



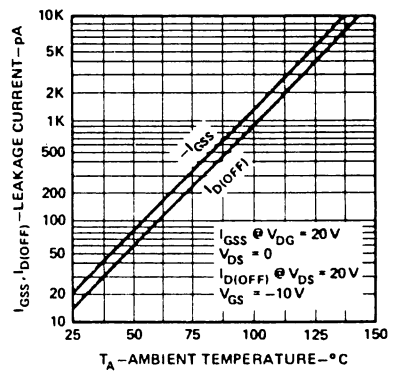
SWITCHING TURN-OFF TIME VS. DRAIN CURRENT



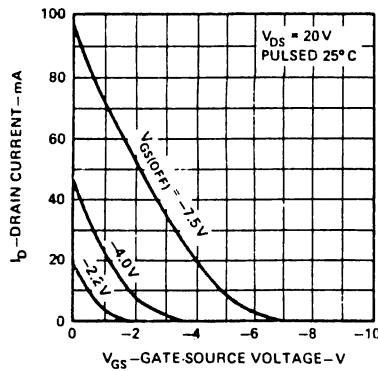
GATE REVERSE/DRAIN CUT-OFF CURRENT VS. DRAIN - SOURCE VOLTAGE



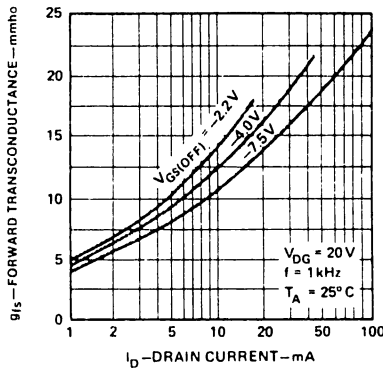
LEAKAGE CURRENT VS. AMBIENT TEMPERATURE



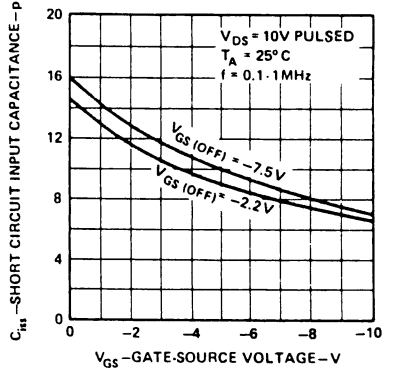
DRAIN CURRENT VS. GATE - SOURCE VOLTAGE



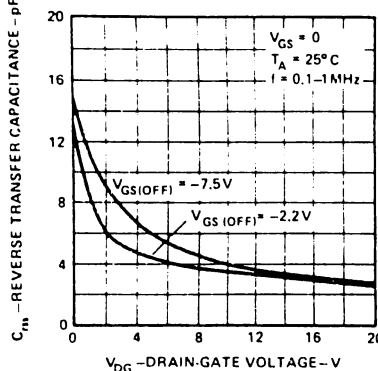
FORWARD TRANSCONDUCTANCE VS. DRAIN CURRENT



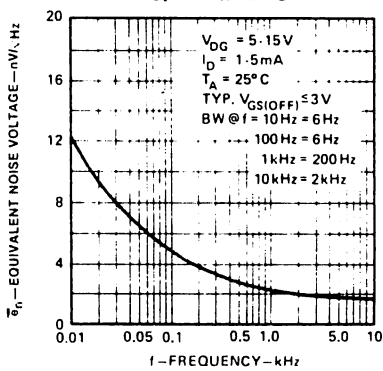
INPUT CAPACITANCE VS. GATE - SOURCE VOLTAGE



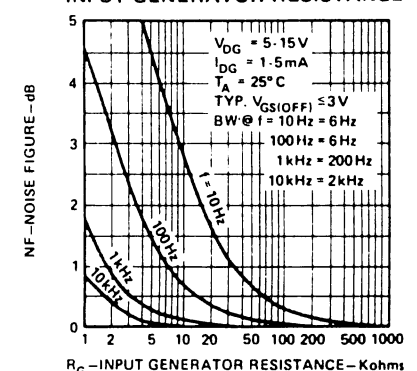
REVERSE TRANSFER CAPACITANCE VS. DRAIN - GATE VOLTAGE



EQUIVALENT NOISE VOLTAGE VS. FREQUENCY



NOISE FIGURE VS. INPUT GENERATOR RESISTANCE



Packaging Information

TO-18

