2N4391 | 2N4392 | 2N4393

N-Channel JFET - 1

FEATURES

- LOW NOISE: 1.2 NV/√HZ TYPICAL
- FAST SWITCHING
- LOW CUTOFF VOLTAGE: 2N4393 < 3.0V

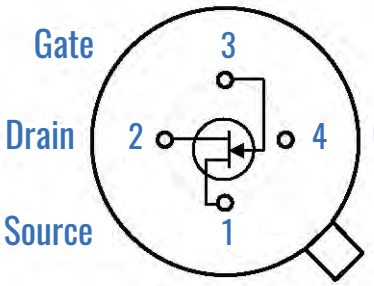
DESCRIPTION

The -40V 2N4391, 2N4392 and 2N4393 are targeted for switch, chopper and commutator designs. Gate leakages are typically less than 50pA at room temperatures.

The 2N4393 has a cutoff voltage of less than 3.0V ideal for low-level power supplies.

The TO-18 package is hermetically sealed and suitable for military applications.

TX, TXV, and S-Level Screening Available - Consult Factory.



Bottom View

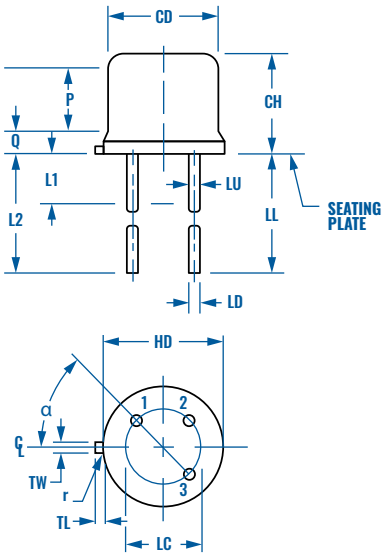
ORDERING GUIDE

Part Number 2N4391, 2N4392, 2N4393

Description -40V N-Channel JFET

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Reverse Gate Source and Gate Drain Voltage	V_{RGS}	-40	V
Continuous Forward Gate Current	I_{FG}	50	mA
Continuous Device Power Dissipation	P_D	1800	mW
Power Derating	P	12	mW/°C
Operating Junction Temperature	T_J	-55 to 125	°C
Storage Temperature	T_{STG}	-65 to 150	°C



Ltr	Dimensions			
	Inches		mm	
	Min.	Max.	Min.	Max.
CD	0.178	0.195	4.52	4.95
CH	0.170	0.210	4.32	5.33
HD	0.209	0.230	5.31	5.84
LC	0.100 TP		2.54 TP	
LD	0.016	0.021	0.41	0.53
LL	0.500	0.750	2.70	19.05
LU	0.016	0.019	0.41	0.48
L1		0.050		1.27
L2	0.250		6.35	
P	0.100		2.54	
Q		0.030		0.76
TL	0.028	0.048	0.71	1.22
TW	0.036	0.046	0.91	1.17
r		0.010		0.25
α	45° TP			

STATIC CHARACTERISTICS

Typical @ 25°C unless otherwise noted, highlighted values = A version.

Parameter		Symbol	2N4391		2N4392		2N4393		Unit
			Min.	Max.	Min.	Max.	Min.	Max.	
Gate to Source Breakdown Voltage	V_{DS} = 0V, I_G = -1µA	$V_{(BR)GSS}$	-40		-40		-40		V
Gate to Source Reverse Current	V_{DS} = 20V, V_{GS} = 0V, T_A = 25°C V_{DS} = 20V, V_{GS} = 0V, T_A = 150°C	I_{GSS}		-100 -200		-100 -200		-100 -200	pA nA
Gate to Source Cutoff Voltage	V_{DS} = 20V, I_D = 1nA	$V_{GS(OFF)}$	-4	-10	-2	-5	-0.5	-3	V
Gate to Source Forward Voltage	V_{DS} = 0V, I_D = 1mA	$V_{GS(F)}$		1		1		1	V
Drain to Source Saturation Current	V_{GS} = 0V, V_{DS} = 20V (Pulsed)	I_{DSS}	50	150	25	75	5	30	mA
Drain Cutoff Current	V_{DS} = 20V, V_{GS} = -5V, T_A = 25°C V_{DS} = 20V, V_{GS} = -5V, T_A = 150°C	$I_{D(OFF)}$						100 200	pA nA
	V_{DS} = 20V, V_{GS} = -7V, T_A = 25°C V_{DS} = 20V, V_{GS} = -7V, T_A = 150°C					100 200			pA nA
	V_{DS} = 20V, V_{GS} = -12V, T_A = 25°C V_{DS} = 20V, V_{GS} = -12V, T_A = 150°C			100 200					pA nA
Drain to Source ON Voltage	V_{GS} = 0V, I_D = 3mA	$V_{DS(ON)}$						0.4	V
	V_{GS} = 0V, I_D = 6mA					0.4			
	V_{GS} = 0V, I_D = 12mA			0.4					
Static Drain to Source ON Resistance	V_{GS} = 0V, I_D = 1mA	$R_{DS(ON)}$		30		60		100	Ω

DYNAMIC CHARACTERISTICS

Typical @ 25°C unless otherwise noted

Parameter		Symbol	2N4391		2N4392		2N4393		Unit
			Min.	Max.	Min.	Max.	Min.	Max.	
Drain to Source ON Resistance	V_{GS} = 0V, I_D = 0A, f = 1kHz	$R_{DS(ON)}$		30		60		100	Ω
Input Capacitance	V_{DS} = 20V, V_{GS} = 0V, f = 1MHz	C_{iss}		14		14		14	pF
Reverse Transfer Capacitance	V_{DS} = 0V, V_{GS} = -5V, f = 1MHz	C_{rss}						3.5	pF
	V_{DS} = 0V, V_{GS} = -7V, f = 1MHz					3.5			
	V_{DS} = 0V, V_{GS} = -12V, f = 1MHz			3.5					
Turn-On Delay Time	V_{DD} = 10V, $V_{GS(ON)}$ = 0V	$t_{d(on)}$		15		15		15	ns
Rise Time	V_{DD} = 10V, $V_{GS(ON)}$ = 0V	t_r		5		5		5	ns
Turn-Off Delay Time	V_{DD} = 10V, $V_{GS(ON)}$ = 0V	$t_{d(off)}$		20		35		50	ns
Turn-Off Time	V_{DD} = 10V, $V_{GS(ON)}$ = 0V	t_{off}		15		20		30	ns