

## N-CHANNEL J-FET

Equivalent To MIL-PRF-19500/431

### DEVICES

**2N4091**  
**2N4092**  
**2N4093**

### LEVELS

**MQ = JAN Equivalent**  
**MX = JANTX Equivalent**  
**MV = JANTXV Equivalent**

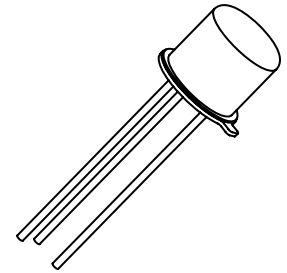
### ABSOLUTE MAXIMUM RATINGS ( $T_C = +25^\circ\text{C}$ unless otherwise noted)

Parameters / Test Conditions	Symbol	Value	Unit
Gate-Source Voltage	$V_{GS}$	-40	V
Drain-Source Voltage	$V_{DS}$	40	V
Drain-Gate Voltage	$V_{DG}$	40	V
Gate Current	$I_G$	10	mAdc
Power Dissipation <sup>(1)</sup> $T_A = +25^\circ\text{C}$	$P_T$	0.36	W
Operating Junction	$T_j$	-65 to +175	$^\circ\text{C}$
Operating Storage Temperature Range	$T_{stg}$	-65 to +200	$^\circ\text{C}$

(1) Derate linearly 2.4 mW/ $^\circ\text{C}$  for  $T_A > 25^\circ\text{C}$ .

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

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Gate-Source Breakdown Voltage $V_{DS} = 0, I_G = -1.0\mu\text{A dc}$	$V_{(BR)GSS}$	-40		Vdc
Gate Reverse Current $V_{DS} = 0, V_{GS} = -20\text{V dc}$	$I_{GSS}$		-0.1	$\eta\text{A}$
Drain Current $V_{GS} = -12\text{V dc}, V_{DS} = 20\text{V dc}$ 2N4091 $V_{GS} = -8.0\text{V dc}, V_{DS} = 20\text{V dc}$ 2N4092 $V_{GS} = -6.0\text{V dc}, V_{DS} = 20\text{V dc}$ 2N4093	$I_{D(off)}$		-0.1	$\eta\text{A}$
Drain Current $V_{GS} = 0, V_{DS} = 20\text{V dc}$ 2N4091 2N4092 2N4093	$I_{DSS}$	30 15 8.0		mA
Drain-Source On-State Voltage $V_{GS} = 0, I_D = 6.6\text{mA dc}$ 2N4091 $V_{GS} = 0, I_D = 4.0\text{mA dc}$ 2N4092 $V_{GS} = 0, I_D = 2.5\text{mA dc}$ 2N4093	$V_{DS(on)}$		0.2 0.2 0.2	Vdc
Static Drain-Source On-State Resistance $V_{GS} = 0, I_D = 1.0\text{mA dc}$ 2N4091 2N4092 2N4093	$r_{DS(on)}$		30 50 80	$\Omega$



**TO-18**  
**(TO-206AA)**

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**DYNAMIC CHARACTERISTICS**

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Small-Signal, Common-Source Reverse Transfer Capacitance $V_{GS} = 20V$ dc, $V_{DS} = 0$ , $f = 1.0MHz$	$C_{rss}$		5.0	pF
Small-Signal, Common-Source Short-Circuit Input Capacitance $V_{GS} = 0$ , $V_{DS} = 20V$ dc, $f = 1.0MHz$	$C_{iss}$		16	pF

**SWITCHING CHARACTERISTICS**

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Turn-On Delay Time	$t_{don}$	See Figure 3 of MIL-PRF-19500/431	15	$\eta s$
			15	
Rise Time	$t_r$	See Figure 3 of MIL-PRF-19500/431	10	$\eta s$
			20	
			40	
Turn-Off Delay Time	$t_{doff}$	See Figure 3 of MIL-PRF-19500/431	40	$\eta s$
			60	
			80	