

## N-CHANNEL J-FET

Equivalent To MIL-PRF-19500/385

### DEVICES

**2N4856 2N4858 2N4860**  
**2N4857 2N4859 2N4861**

### LEVELS

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

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

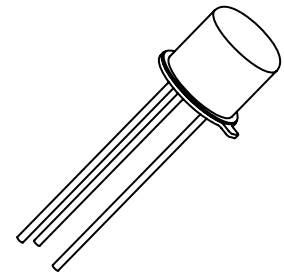
Parameters / Test Conditions	Symbol	2N4856	2N4859	Unit
		2N4857 2N4858	2N4860 2N4861	
Gate-Source Voltage	$V_{GS}$	-40	-30	V
Drain-Source Voltage	$V_{DS}$	40	30	V
Drain-Gate Voltage	$V_{DG}$	40	30	V
Gate Current	$I_G$	50		mA
Power Dissipation $T_A = +25^\circ\text{C}^{(1)}$ $T_C = +25^\circ\text{C}^{(2)}$	$P_T$	0.36		W
		1.8		W
Operating Junction & Storage Temperature Range	$T_J, T_{stg}$	-65 to + 200		$^\circ\text{C}$

(1) Derate linearly 2.06 mW/ $^\circ\text{C}$  for  $T_A > +25^\circ\text{C}$ .

(2) Derate linearly 10.3 mW/ $^\circ\text{C}$  for  $T_C > +25^\circ\text{C}$ .

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

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Gate-Source Breakdown Voltage $V_{DS} = 0, I_G = -1.0\mu\text{A dc}$ 2N4856, 2N4857, 2N4858 2N4859, 2N4860, 2N4861	$V_{(BR)GS}$	-40 -30		Vdc
Gate-Source "Off" State Voltage $V_{DS} = 15\text{V dc}$ 2N4856, 2N4859 $I_D = 0.5\eta\text{A dc}$ 2N4857, 2N4860 2N4858, 2N4861	$V_{GS(off)}$	-4.0 -2.0 -0.8	-10 -6.0 -4.0	Vdc
Gate Reverse Current $V_{DS} = 0, V_{GS} = -20\text{V dc}$ 2N4856, 2N4857, 2N4858 $V_{DS} = 0, V_{GS} = -15\text{V dc}$ 2N4859, 2N4860, 2N4861	$I_{GSS}$		-0.25 -0.25	$\eta\text{A}$
Drain Current Cutoff $V_{GS} = -10\text{V dc}, V_{DS} = 15\text{V dc}$	$I_{D(off)}$		0.25	$\eta\text{A}$
Drain Current Zero Gate Voltage $V_{GS} = 0, V_{DS} = 15\text{V dc}$ 2N4856, 2N4859 2N4857, 2N4860 2N4858, 2N4861	$I_{DSS}$	50 20 8.0	175 100 80	mA
Drain-Source "On" State Voltage $V_{GS} = 0, I_D = 20\text{mA dc}$ 2N4856, 2N4859 $V_{GS} = 0, I_D = 10\text{mA dc}$ 2N4857, 2N4860 $V_{GS} = 0, I_D = 5.0\text{mA dc}$ 2N4858, 2N4861	$V_{DS(on)}$		0.75 0.50 0.50	Vdc
Static Drain - Source "On" State Resistance $V_{GS} = 0, I_D = 1.0\text{mA dc}$ 2N4856, 2N4859 2N4857, 2N4860 2N4858, 2N4861	$r_{ds(on)}$		25 40 60	$\Omega$



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

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### DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Small-Signal, Common Short-Circuit Reverse Transfer Capacitance $V_{GS} = -10V$ dc, $V_{DS} = 0$ , $f = 1.0MHz$ $C_1 = 0.1\mu F$ , $L_1 = L_2 \geq 500\mu H$	$C_{rss}$		8.0	pF
Small-Signal, Common-Source Short-Circuit Input Capacitance $V_{GS} = -10V$ dc, $V_{DS} = 0$ , $f = 1.0MHz$ $C_1 = 0.1\mu F$ , $C_2 = 20.1\mu F$ $L_1 = L_2 \geq 500\mu H$	$C_{iss}$		18	pF

### SWITCHING CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Turn-On Delay Time 2N4856, 2N4859 2N4857, 2N4860 2N4858, 2N4861	See Figure 3 of MIL-PRF-19500/385		6	$\eta s$
Rise Time 2N4856, 2N4859 2N4857, 2N4860 2N4858, 2N4861			3 4 10	
Turn-Off Delay Time 2N4856, 2N4859 2N4857, 2N4860 2N4858, 2N4861			25 50 100	
	$t_{d(on)}$		6 6 10	
	$t_r$		3 4 10	
	$t_{d(off)}$		25 50 100	