

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)

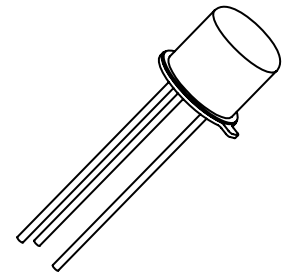
| Parameters / Test Conditions | Symbol | 2N4856 | 2N4859 | Unit |
|--|----------------|---------------------------------|------------------|------------------|
| | | 2N4857 2N4858 | 2N4860 2N4861 | |
| Gate-Source Voltage | V_{GS} | -40 | -30 | V |
| Drain-Source Voltage | V_{DS} | 40 | 30 | V |
| Drain-Gate Voltage | V_{DG} | 40 | 30 | V |
| Gate Current | I_G | 50 | | mA |
| Power Dissipation | P_T | $T_A = +25^\circ\text{C}^{(1)}$ | | W |
| | | $T_C = +25^\circ\text{C}^{(2)}$ | | 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 $V_{DS} = 0, I_G = -1.0\mu\text{A dc}$ | $V_{(BR)GS}$ | 2N4856, 2N4857, 2N4858 | -40 | Vdc |
| | | 2N4859, 2N4860, 2N4861 | -30 | |
| Gate-Source "Off" State Voltage $V_{DS} = 15\text{V dc}$ $I_D = 0.5\eta\text{A dc}$ | $V_{GS(off)}$ | 2N4856, 2N4859 | -4.0 | Vdc |
| | | 2N4857, 2N4860 | -2.0 | |
| | | 2N4858, 2N4861 | -0.8 | |
| Gate Reverse Current $V_{DS} = 0, V_{GS} = -20\text{V dc}$ $V_{DS} = 0, V_{GS} = -15\text{V dc}$ | I_{GSS} | 2N4856, 2N4857, 2N4858 | -0.25 | ηA |
| | | 2N4859, 2N4860, 2N4861 | -0.25 | |
| Drain Current Cutoff $V_{GS} = -10\text{V dc}, V_{DS} = 15\text{V dc}$ | $I_{D(off)}$ | | 0.25 | ηA |
| Drain Current Zero Gate Voltage $V_{GS} = 0, V_{DS} = 15\text{V dc}$ | I_{DSS} | 2N4856, 2N4859 | 50 | mA |
| | | 2N4857, 2N4860 | 20 | |
| | | 2N4858, 2N4861 | 8.0 | |
| Drain-Source "On" State Voltage $V_{GS} = 0, I_D = 20\text{mA dc}$ $V_{GS} = 0, I_D = 10\text{mA dc}$ $V_{GS} = 0, I_D = 5.0\text{mA dc}$ | $V_{DS(on)}$ | 2N4856, 2N4859 | 0.75 | Vdc |
| | | 2N4857, 2N4860 | 0.50 | |
| | | 2N4858, 2N4861 | 0.50 | |
| Static Drain - Source "On" State Resistance $V_{GS} = 0, I_D = 1.0\text{mA dc}$ | $r_{ds(on)}$ | 2N4856, 2N4859 | 25 | Ω |
| | | 2N4857, 2N4860 | 40 | |
| | | 2N4858, 2N4861 | 60 | |



TO-18
(TO-206AA)

N-CHANNEL J-FET

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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 | ηs |
| Rise Time 2N4856, 2N4859 2N4857, 2N4860 2N4858, 2N4861 | | | 3 4 10 | |
| Turn-Off Delay Time 2N4856, 2N4859 2N4857, 2N4860 2N4858, 2N4861 | | | 25 50 100 | |