# 2N4859 | 2N4860 | 2N4861

## N-CHANNEL JFETS - 1

### KEY FEATURES

- JAN/JANTX/JANTXV STANDARD PRODUCTS
- QUALIFIED PER MIL-PRF-19500/385
- LOW ON RESISTANCE
- FAST SWITCHING
- HIGH OFF ISOLATION
- S LEVEL EQUIVALENT SCREENING OPTIONS
- RADIATION TOLERANT
- SECOND SOURCE FOR VISHAY & SILICONIX



| Part Number | Package | 19500/ | Breakdown Voltage | Current | $RD_{S(on)}$ |
|---|---|---|---|---|---|
| 2N4859 | TO-18 | 385 | 30V | 175mA | 25 Ω |
| 2N4860 | TO-18 | 385 | 30V | 100mA | 40 Ω |
| 2N4861 | TO-18 | 385 | 30V | 80mA | 60 Ω |

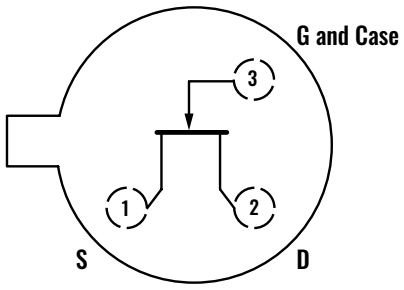
### ABSOLUTE MAXIMUM RATINGS

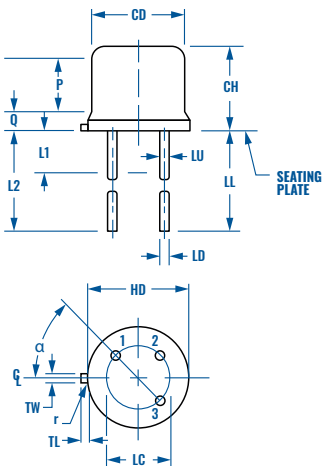
| | | | |
|---|---|---|---|
| Gate-Source Voltage | -30V | Storage Temperature | -65 to 200°C |
| Gate Current | 50mA | Operating Junction Temperature | -65 to 200°C |
| Lead Temperature (1/16 from case, 10 sec) | 300°C | Power Dissipation Derating | 1800mW 10.3mW/°C to TC ≥ 25°C |

### ORDERING GUIDE

| | | |
|---|---|---|
| JAN2N4859 | JANTX2N4859 | JANTXV2N4859 |
| JAN2N4860 | JANTX2N4860 | JANTXV2N4860 |
| JAN2N4861 | JANTX2N4861 | JANTXV2N4861 |

### PACKAGE OUTLINE & PIN CONNECTIONS




| 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 | | | |

## ELECTRICAL SPECIFICATIONS

**Typical @ 25°C unless otherwise noted**

| Parameter | | Symbol | Min. | Max. | Unit |
|---|---|---|---|---|---|
| Gate-Source Breakdown Voltage<br>$V_{DS}$ =0Vdc, IG = 1.0Adc | | $V_{(BR)GSS}$ | -30 | | Vdc |
| Gate-Source "Off" State Voltage<br>$V_{DS}$ = 15Vdc, ID = 0.5nAdc | 2N4859<br>2N4860<br>2N4861 | $V_{GS(on)}$ | -4<br>-2<br>-0.8 | -10<br>-6<br>-4 | Vdc<br>Vdc<br>Vdc |
| Gate Reverse Current<br>$V_{DS}$ = 0Vdc, $V_{GS}$ = -20Vdc<br>$V_{DS}$ = 0Vdc, $V_{GS}$ = -15Vdc | | $I_{GSS}$ | | -0.25<br>-0.25 | nA<br>nA |
| Drain Current<br>$V_{DS}$ = 15Vdc, $V_{GS}$ = -10Vdc<br>$V_{DS}$ = 15Vdc, $V_{GS}$ = 0Vdc | <br>2N4859<br>2N4860<br>2N4861 | $I_{D(off)}$ | <br>50<br>20<br>8 | 0.25<br>175<br>100<br>80 | nA<br>mA<br>mA<br>mA |
| Static Drain - Source "On" State Resistance<br>$V_{GS}$ = 0Vdc, $I_D$ = 1mAdc | 2N4859<br>2N4860<br>2N4861 | $R_{DS(on)}$ | | 25<br>40<br>60 | Ω<br>Ω<br>Ω |
| Drain Source "On" State Voltage<br>$V_{GS}$ = 0Vdc, $I_D$ = 20mAdc<br>$V_{GS}$ = 0Vdc, $I_D$ = 10mAdc<br>$V_{GS}$ = 0Vdc, $I_D$ = 5mAdc | 2N4859<br>2N4860<br>2N4861 | $V_{DS(on)}$ | | 0.75<br>0.5<br>0.5 | Vdc<br>Vdc<br>Vdc |
| Small Signal, Common Source Reverse Transfer Capacitance<br>$V_{GS}$ = -10Vdc $V_{DS}$, $V_D$ = 0Vdc, f = 1.0MHz<br>$C_1$ = 0.1µF, L1 =L2 ≥ 500µH | | $C_{rss}$ | | 8 | pF |
| Small Signal, Common Source Short-Circuit Input Capacitance<br>$V_{GS}$ = -10Vdc $V_{DS}$, $V_D$ = 0, f = 1.0MHz<br>$C_1$ = 0.1µF, C2 = 20.1m<br>$F_{L1}$ = $L_2$ ≥ 500µH | | $C_{iss}$ | | 8 | pF |
| Turn On Delay Time | 2N4859<br>2N4860<br>2N4861 | $t_{D(on)}$ | | 6<br>6<br>10 | nS<br>nS<br>nS |
| Rise Time | 2N4859<br>2N4860<br>2N4861 | $t_r$ | | 3<br>4<br>10 | nS<br>nS<br>nS |
| Turn Off Delay Time | 2N4859<br>2N4860<br>2N4861 | $t_{d(off)}$ | | 25<br>50<br>100 | nS<br>nS<br>nS |

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