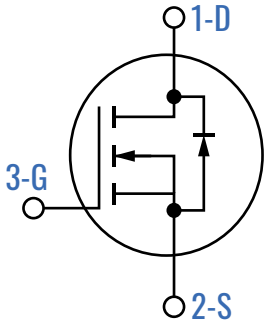
# SD11461
## N-Channel Power MOSFET - 1

### KEY FEATURES

- LOW THERMAL RESISTANCE
- OPTIMIZED FOR FAST SWITCHING
- TO-258 OR TO-254 3L PACKAGE
- HERMETICALLY SEALED, ISOLATED PACKAGE
- JANTX, JANTXV SCREENING AVAILABLE

### APPLICATIONS

- SWITCH-MODE AND RESONANT-MODE POWER SUPPLIES
- DC-DC CONVERTERS
- PFC CIRCUITS
- AC AND DC MOTOR DRIVES
- ROBOTICS AND SERVO CONTROLS




$V_{DS}$ = 100V
$I_D$ @ 25°C = 35A
$R_{DS(on)}$ = 25mΩ

### ORDERING GUIDE

| | | |
|---|---|---|
| **Part Number** | SD11461-1 | TO-258 |
| | SD11461-2 | TO-254 |
| **Description** | 100V N-Channel Power MOSFET | |

### ABSOLUTE MAXIMUM RATINGS ($T_C$ = 25°C)

| SYMBOL | CHARACTERISTIC | TEST CONDITIONS | VALUE | UNIT |
|---|---|---|---|---|
| $V_{DS, max}$ | Drain-Source Voltage | | 100 | V |
| $V_{GS, max}$ | Gate-Source Voltage | | -20/+20 | V |
| $I_D$ | Continuous Drain Current | | 35 | A |
| $P_D$ | Maximum Power Dissipation | | 147 | W |
| $T_J$, $T_{STG}$ | Junction Temperature, Operating and Storage | | -55 to +150 | °C |
| $\Theta_{JC}$ | Thermal Resistance, junction-to-case | | 0.85 | °C/W |
| $T_L$ | Lead Temperature | soldering, 10s | +300 | °C |

## ELECTRICAL CHARACTERISTICS ($T_C$ = 25°C)

| SYMBOL | CHARACTERISTIC | TEST CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage | $V_{GS}$ < 0V, $I_D$ = 4mA | 100 | | | V |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS}$ = $V_{GS}$, $I_D$ = 4mA | 2.0 | | 4.0 | V |
| $I_{DSS}$ | Off -State Drain Current | $V_{GS}$ = 0V, $V_{DS}$ = 100V, $T_J$ = 25°C | | | 5.0 | µA |
| | | $V_{GS}$ = 0V, $V_{DS}$ = 80V, $T_J$ = 125°C | | | 50.0 | |
| $I_{GSS}$ | Gate-Source Leakage Current | $V_{GS}$ = ±20V, $V_{DS}$ = 0V | | | ±100 | nA |
| $R_{DS\ (on)}$ | Drain-Source On-state Resistance | $V_{GS}$ = 10V, $I_D$ = 30A, $T_J$ = 25°C | | 20 | 25 | mΩ |
| | | $V_{GS}$ = 10V, $I_D$ = 30A, $T_J$ = 125°C | | 33 | 40 | |
| $g_{fs}$ | Transconductance | $V_{DS}$ = 15V, $I_D$ = 30A | 18 | | | S |
| $C_{iss}$ | Input Capacitance | $V_{GS}$ = 0V, $V_{DS}$ = 25V, f = 1MHz | | 4300 | | pF |
| $C_{oss}$ | Output Capacitance | | | 450 | | pF |
| $C_{rss}$ | Reverse Transfer Capacitance | | | 175 | | pF |
| $t_{d(on)}$ | Turn-On Delay | $V_{GS}$ = 10V, $V_{DD}$ = 50V, $I_D$ = 50A, $R_g$ = 2.5Ω external | | 15 | | ns |
| $t_r$ | Rise Time | | | 12 | | ns |
| $t_{d(off)}$ | Turn-Off Delay | | | 47 | | ns |
| $t_f$ | Fall Time | | | 12 | | ns |
| $Q_g$ | Total Gate Charge | $V_{GS}$ = 10V, $V_{DS}$ = 80V, $I_D$ = 30A | | 87 | | nC |

## SOURCE-DRAIN DIODE RATINGS ($T_c$ = 25°C)

| SYMBOL | CHARACTERISTIC | TEST CONDITIONS | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| $I_s$ | Continuous Source Current | | | | 35 | A |
| $I_{sm}$ | Pulsed Source Current | PW limited by $T_j$ | | | 100 | A |
| $V_{sd}$ | Diode Forward Voltatge | $V_{GS}$ = 0V, $I_D$ = 30A | | 1 | 1.5 | V |
| $t_{rr}$ | Reverse Recovery | $I_D$ = 10A, di/dt = 100A/ µs | | 89 | 120 | ns |

## PERFORMANCE CHARACTERISTICS

Fig 1: Case Temperature vs. Power Dissipation

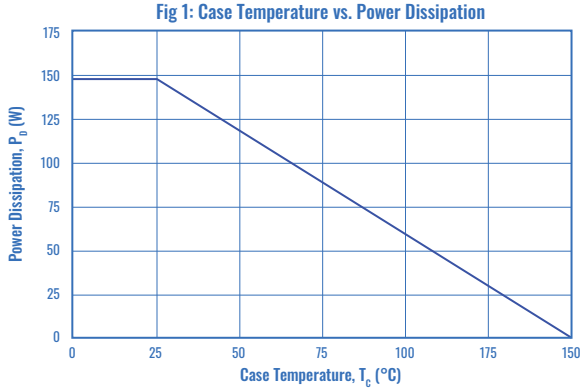
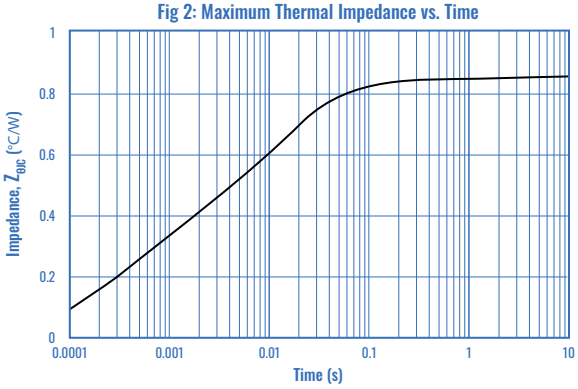



Fig 2: Maximum Thermal Impedance vs. Time



## PERFORMANCE CHARACTERISTICS (cont.)

Fig 3: On-Resistance vs. Junction Temperature

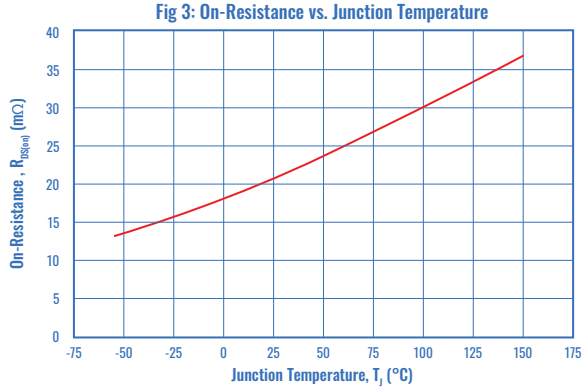



Fig 4: On-Resistance vs. Drain Current

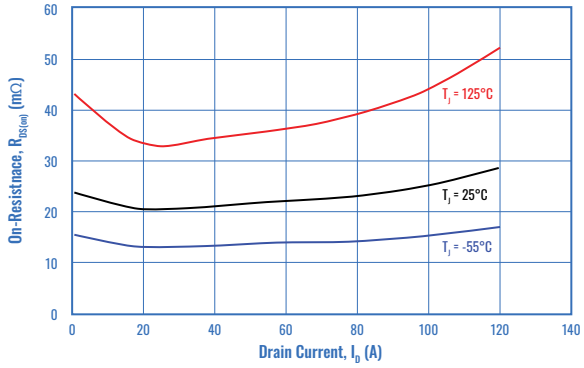



Fig 5: Drain-Source Voltage vs. Drain Current

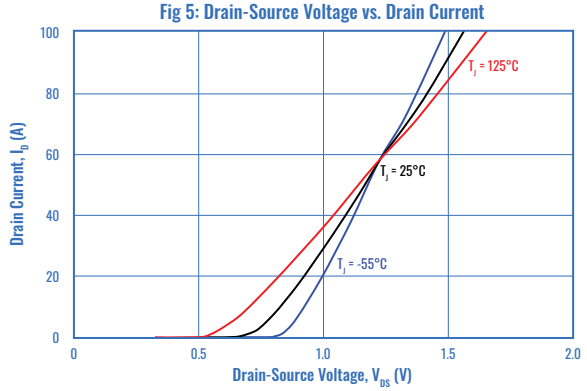
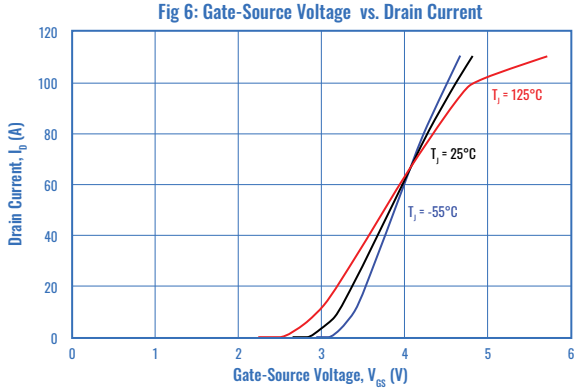
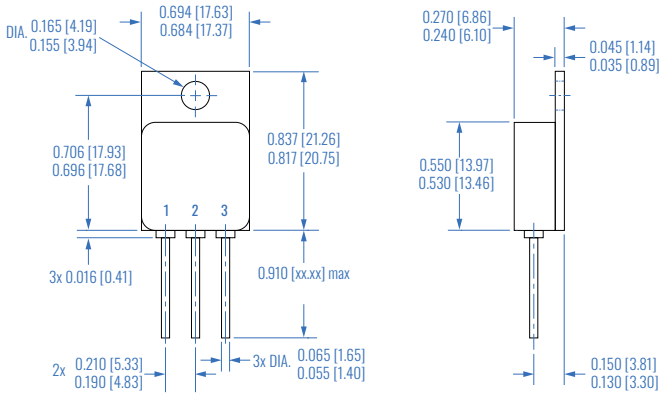



Fig 6: Gate-Source Voltage vs. Drain Current

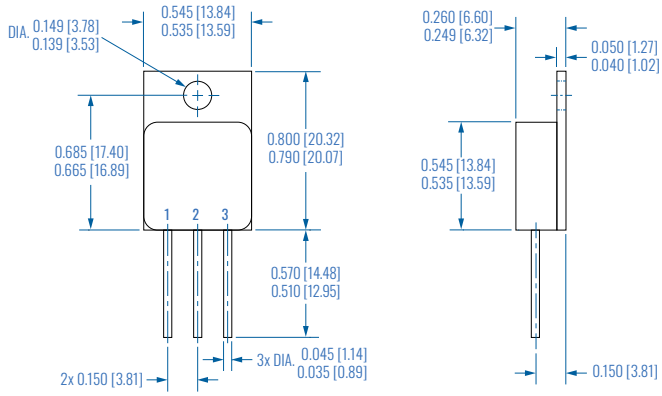



## OUTLINE DIMENSIONS

### TO-258




### TO-254




**Also available with 90° lead bend, consult factory**
**All Dimensions are in Inches (mm)**





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