

FEATURES

- 60V/210A
RDS(ON)= 4mΩ (Max)@ VGS=10V
 - Lead free and Green Device Available
 - Low Rds-on to Minimize Conductive Loss
 - High avalanche Current
-
- Application
 - Power Supply
 - UPS
 - Battery Management System

$$BV_{DSS} = 100 \text{ V}$$

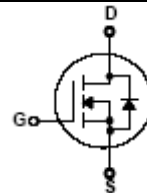
$$R_{DS(on) \text{ typ}} = 4\text{m}\Omega$$

$$I_D = 210 \text{ A}$$

TO-3P



1.Gate 2. Drain 3. Source



Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

| Symbol | Parameter | Maximum | Unit |
|-----------------------------------|--------------------------------------|-----------------------|------|
| | Drain-to-Source Voltage | 100 | V |
| V _{GSS} | Gate-to-Source Voltage | ±25 | V |
| I _D ³ | Continuous Drain Current | T _C =25°C | 210 |
| | | T _C =100°C | 130 |
| I _{DP} ⁴ | Pulsed Drain Current | T _C =25°C | A |
| I _{AS} ⁵ | Avalanche Current | 40 | |
| EAS ⁵ | Avalanche energy | 800 | mJ |
| PD | Maximum Power Dissipation | T _C =25°C | 220 |
| | | T _C =100°C | 110 |
| T _J , T _{STG} | Junction & Storage Temperature Range | -55~175 | °C |

Thermal Characteristics

| Symbol | Parameter | Typical | Unit |
|------------------|--|---------|------|
| R _{θjc} | Thermal Resistance-Junction to Case | 0.68 | °C/W |
| R _{θja} | Thermal Resistance-Junction to Ambient | 62.5 | |

Electrical Characteristics (TA=25°C unless otherwise noted)

| Symbol | Parameter | Test Conditions | Min. | Typ | Max. | Unit |
|--|----------------------------------|--|------|------|-----------|------|
| Static Characteristics | | | | | | |
| BV_{DSS} | Drain-Source Breakdown Voltage | $V_{GS}=0V, I_D=250\mu A$ | 100 | — | — | V |
| I_{DSS} | Zero Gate Voltage Drain Current | $V_{DS}=48V, V_{GS}=0V$ | — | — | 1 | uA |
| | | $T_J=125^\circ C$ | — | — | 20 | |
| $V_{GS(th)}$ | Gate Threshold Voltage | $V_{DS}=V_{GS}, I_D=250\mu A$ | 2 | 3 | 4 | V |
| I_{GSS} | Gate Leakage Current | $V_{GS}=\pm 25V, V_{DS}=0V$ | — | — | ± 100 | nA |
| $R_{DS(on)}^1$ | Drain-Source On-Resistance | $V_{GS}=10V, I_D=75A$ | — | 3.2 | 4 | mΩ |
| | | | — | — | — | |
| Diode Characteristics | | | | | | |
| V_{SD}^1 | Diode Forward Voltage | $I_{SD}=75A, V_{GS}=0V$ | — | 0.8 | 1.3 | V |
| I_S^3 | Diode Continuous Forward Current | | — | — | 50 | A |
| t_{rr} | Reverse Recovery Time | $I_F=75A, V_{DD}=60V$ | — | 48 | — | nS |
| Q_{rr} | Reverse Recovery Charge | $di/dt=100A/\mu s$ | — | 72 | — | nC |
| Dynamic Characteristics² | | | | | | |
| R_G | Gate Resistance | $V_{GS}=0V, V_{DS}=0V,$ Frequency=1MHz | — | 2 | — | Ω |
| C_{iss} | Input Capacitance | $V_{GS}=0V, V_{DS}=25V$ Frequency=1MHz | — | 5800 | — | pF |
| C_{oss} | Output Capacitance | | — | 1020 | — | |
| C_{rss} | Reverse Transfer Capacitance | | — | 505 | — | |
| $t_{d(on)}$ | Turn-On Delay Time | $V_{DD}=30V, I_D=75A,$ $V_{GS}=10V, R_G=25\Omega$ | — | 29 | — | nS |
| t_r | Rise Time | | — | 19 | — | |
| $t_{d(off)}$ | Turn-Off Delay Time | | — | 42 | — | |
| t_f | Fall Time | | — | 53 | — | |
| Gate Charge Characteristics² | | | | | | |
| Q_g | Total Gate Charge | $V_{DS}=48V, V_{GS}=10V$ $I_D=75A$ | — | 135 | — | nC |
| Q_{gs} | Gate-to-Source Charge | | — | 23 | — | |
| Q_{gd} | Gate-to-Drain Charge | | — | 48 | — | |

Note: 1: Pulse test; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

2: Guaranteed by design, not subject to production testing.

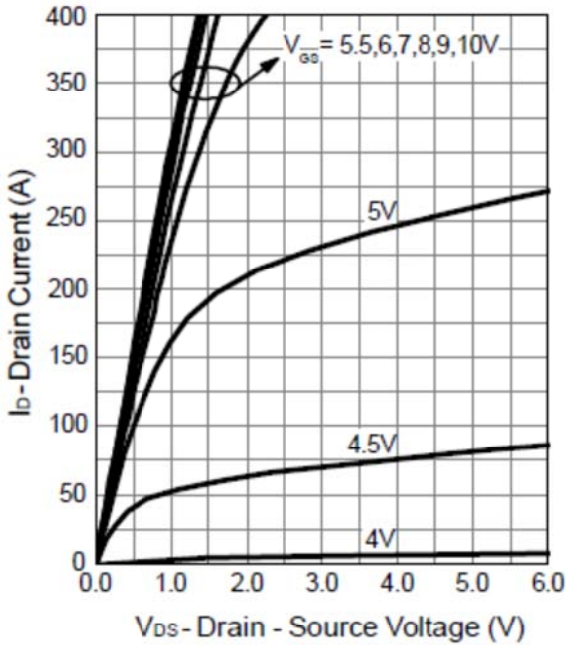
3: Package limitation current is 50A. Calculated continuous current based on maximum allowable junction temperature.

4: Repetitive rating, pulse width limited by max junction temperature.

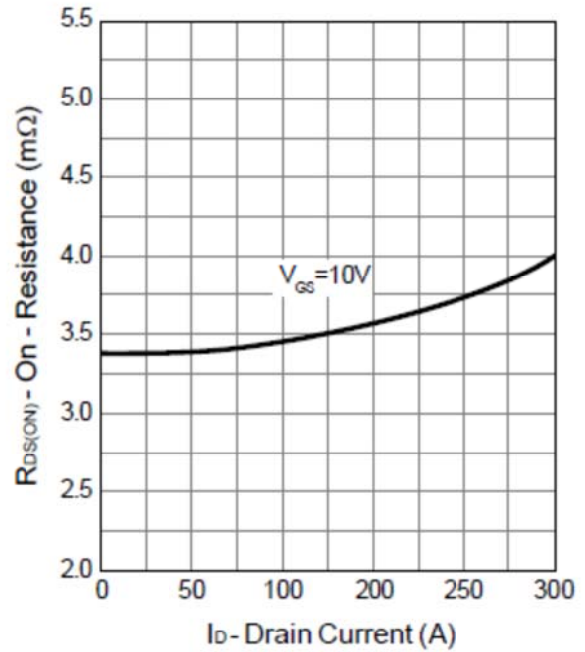
5: Starting $T_J = 25^\circ C, L = 0.5mH, I_{AS} = 82A$.

Typical Operating Characteristics

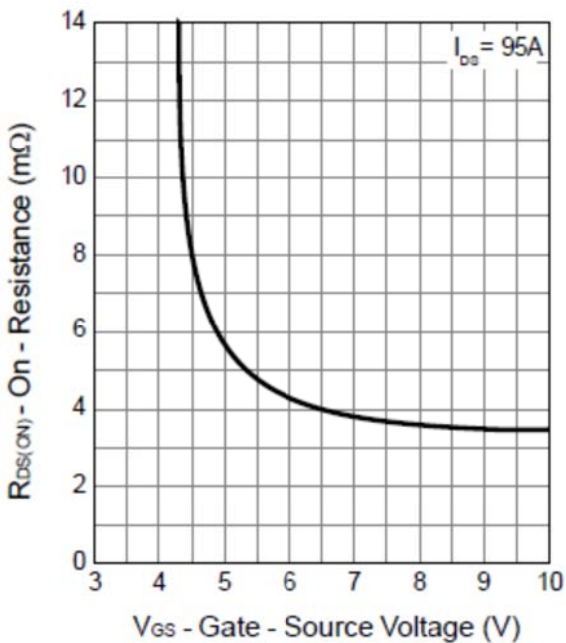
Output Characteristics



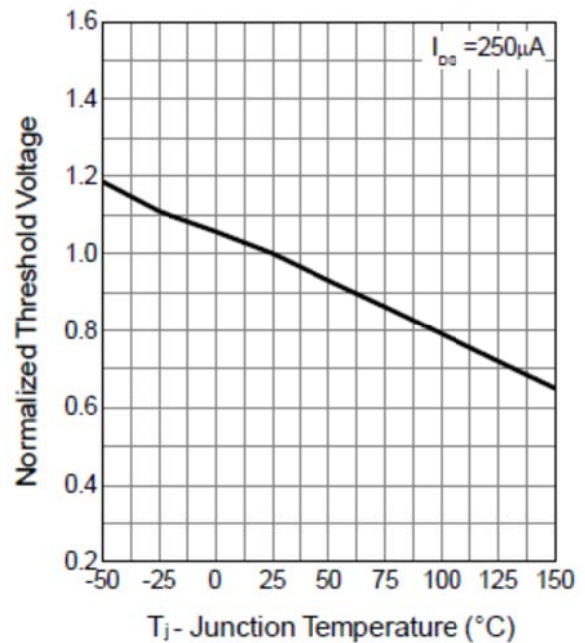
Drain-Source On Resistance



Gate-Source On Resistance

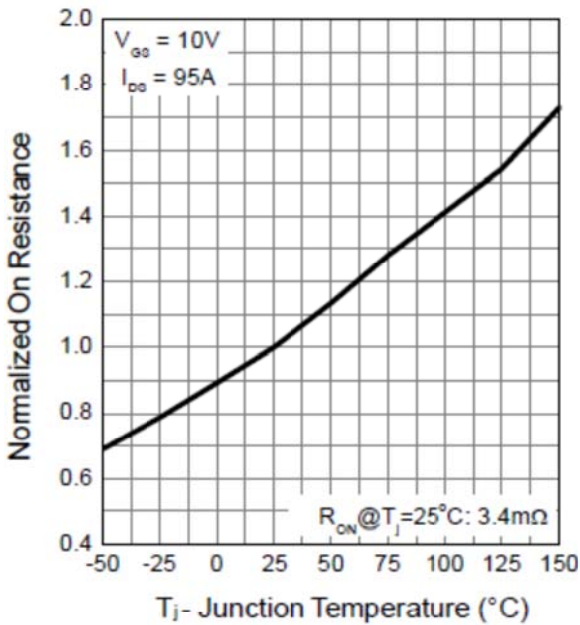


Gate Threshold Voltage

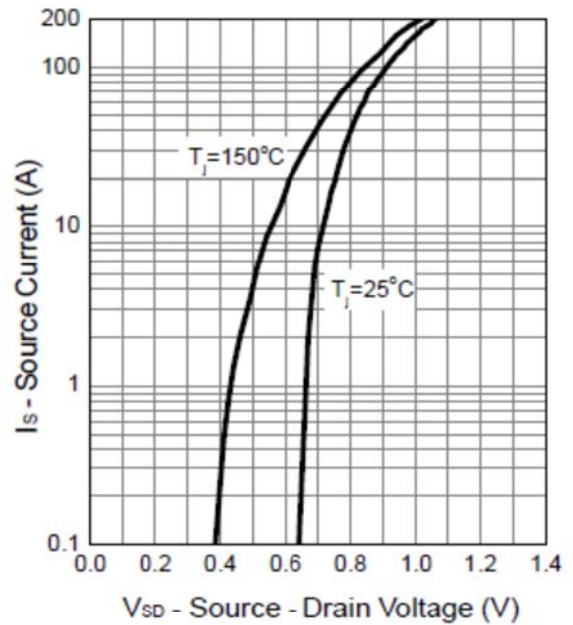


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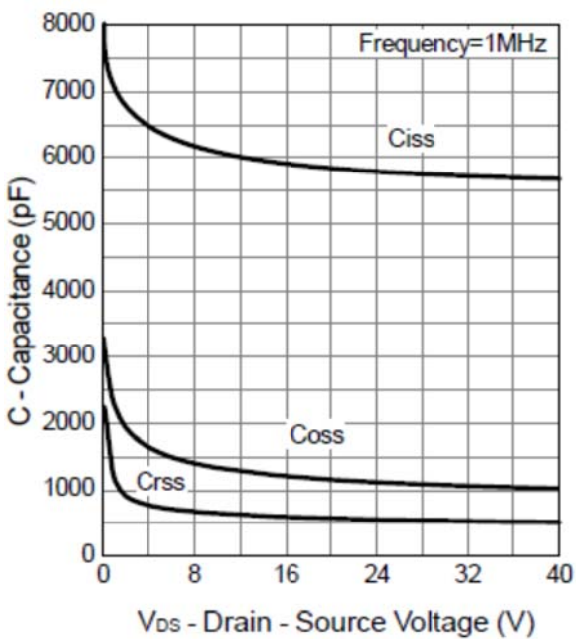
Drain-Source On Resistance



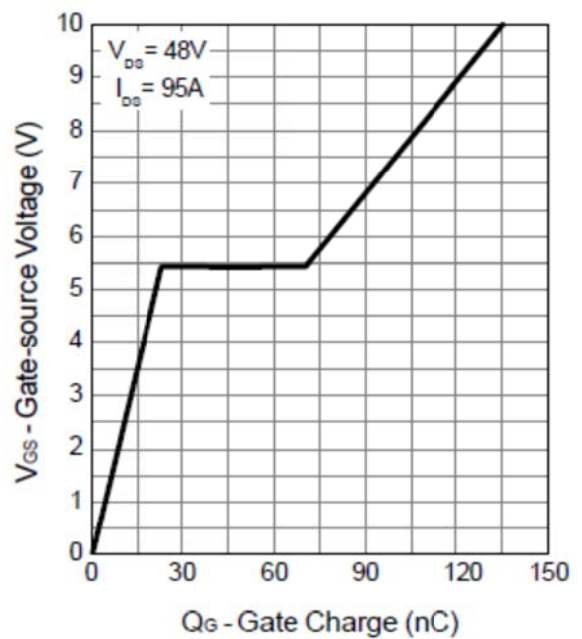
Source-Drain Diode Forward



Capacitance

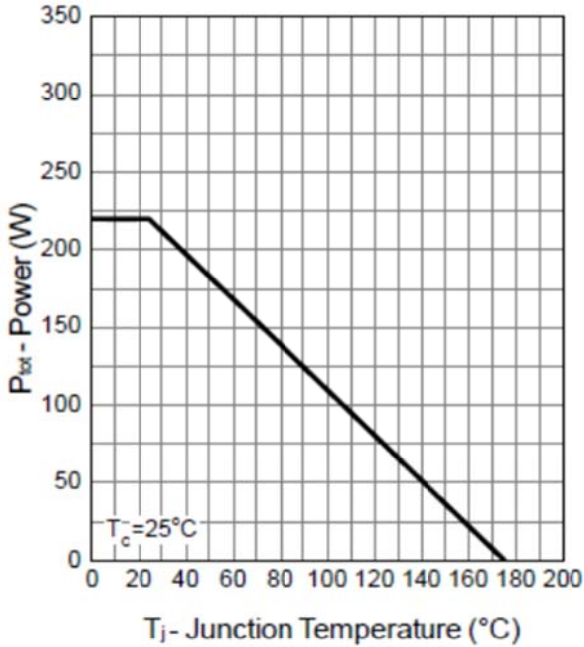


Gate Charge

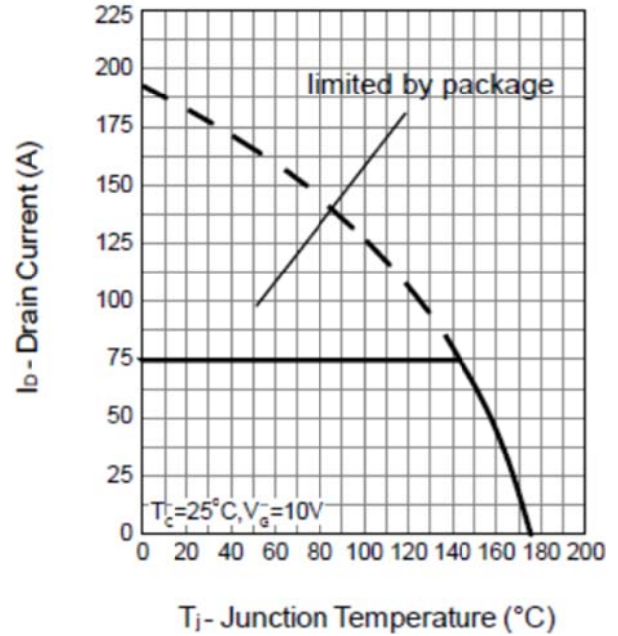


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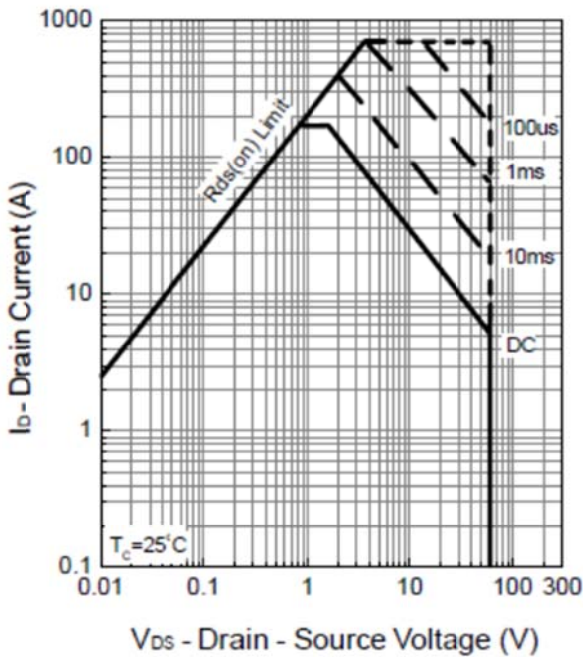
Power Dissipation



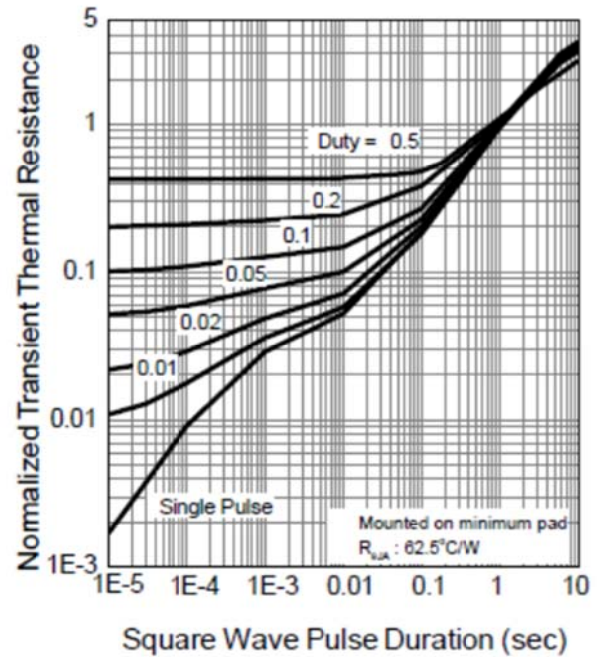
Drain Current



Safe Operation Area



Thermal Transient Impedance



Package Dimension

TO-3P

