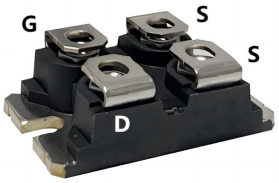
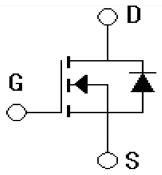
## Features

- N-Channel，Low $R_{DS(on)}$
- High Current Handling Capability
- Fast Intrinsic Diode
- Avalanche Rated




## Applications

- DC-DC Converters
- DC-AC Inverters
- High Voltage Switch-Mode and Resonant - Mode Power Supplies
- High Voltage Pulse Power Applications
- High Voltage Discharge Circuits in Lasers Pulsers, Spark Igniters, RF
- Generators




## Absolute Ratings (Tc=25℃)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DSS}$ | 1200 | V |
| Drain Current -continuous | $I_D$ | 35 | A |
| Drain Current - pulse* | $I_{DM}$ | 100 | A |
| Gate-Source Voltage | $V_{GSS}$ | ±30 | V |
| Single Pulsed Avalanche Energy | $E_{AS}$ | 2 | J |
| Power Dissipation | PD | 900 | W |
| Operating and Storage Temperature Range | $T_j$,$T_{STG}$ | -55~+150 | ℃ |
| Maximum Lead Temperature for Soldering Purposes | $T_L$ | 300 | ℃ |

*Drain current limited by maximum junction temperature

## Electrical Characteristics($T_{CASE}$=25℃ unless otherwise specified)

| Parameter | Symbol | Tests conditions | Min | Type | Max | Units |
|---|---|---|---|---|---|---|
| **Off-Characteristics** | | | | | | |
| Drain-Source Voltage | $BV_{DSS}$ | $I_D$=3mA,$V_{GS}$=0V | 1200 | - | - | V |
| Drain cut-off current | $I_{DSS}$ | $V_{DS}$=1200,$V_{GS}$=0V | - | - | 50 | μA |
| Gate-body leakage current,forward | $I_{GSSF}$ | $V_{DS}$=0V,$V_{GS}$=30V | - | - | 300 | nA |

| | | | | | | |
|---|---|---|---|---|---|---|
| Gate-body leakage current,reverse | $I_{GSSR}$ | $V_{DS}$=0V,$V_{GS}$=-30V | - | - | -300 | nA |
| **On-Characteristics** | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$,$I_D$=250uA | 2.5 | 3.7 | 4.5 | V |
| Static Drain-Source On-Resistance | $R_{DS(ON)}$ | $V_{GS}$=10V,$I_D$=25A (note1) | - | 462 | - | mΩ |
| Forward transconductance | Gfs | $V_{DS}$=20V,$I_D$=15A (note1) | - | 25 | - | S |
| **Dynamic Characteristics** | | | | | | |
| Input capacitance | Ciss | VDS=25V, VGS=0V, f=1MHz | - | 23 | - | nF |
| Output capacitance | Coss | | - | 1153 | - | pF |
| Reverse transfer capacitance | Crss | | - | 75 | - | pF |
| **Switching Characteristics** | | | | | | |
| Turn-On delay time | td(on) | $V_{DD}$=600V,$I_D$=15A Rg=1Ω | - | 72 | - | ns |
| Turn-On rise time | $t_r$ | | - | 60 | - | ns |
| Turn-Off delay time | $T_{d(off)}$ | | - | 86 | - | ns |
| Turn-Off Fall time | $t_f$ | | - | 60 | - | ns |
| Total Gate Charge | Qg | $V_{DD}$=600V,$I_D$=15A $V_{GS}$=10V | - | 360 | - | nC |
| Gate-Source charge | Qgs | | - | 135 | - | nC |
| Gate-Drain charge | Qgd | | - | 153 | - | nC |
| **Drain-Source Diode Characteristics and Maximum Ratings** | | | | | | |
| Drain-Source Diode Forward Voltage | $V_{SD}$ | VGS=0V,IS=30A, (note1) | - | 0.82 | 1.2 | V |
| Maximum Continuous Drain-Source Diode Forward Current | $I_S$ | | - | 35 | - | A |
| Reverse recovery time | trr | IF=20A dIF/dt=-100A/us VR=100V | - | 300 | - | ns |
| Reverse recovery charge | Qrr | | - | 2 | - | uC |

## Thermal Characteristic

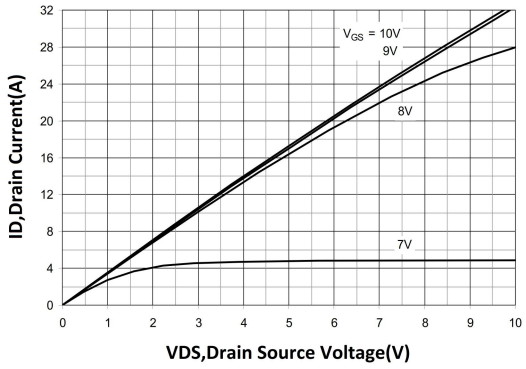
| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Thermal Resistance, Junction-to-Case | $R_{\theta JC}$ | 0.138 | ℃/W |

Notes:

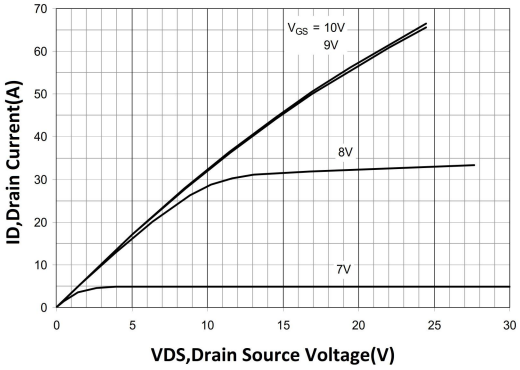
1. Pulse test, t ≦ 300μs, duty cycle, d ≦ 2%.

# Typical Electrical and Thermal Characteristics (Curves)

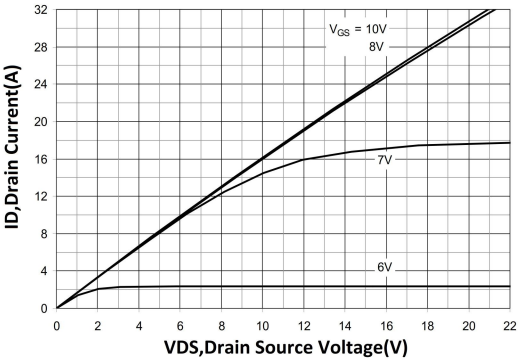
Output Characteristics@Tj=25℃



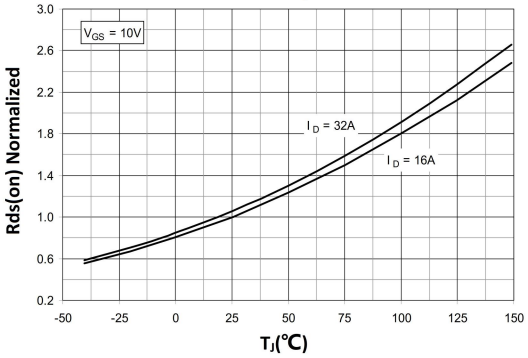

Extended Output Characteristics@Tj=25℃



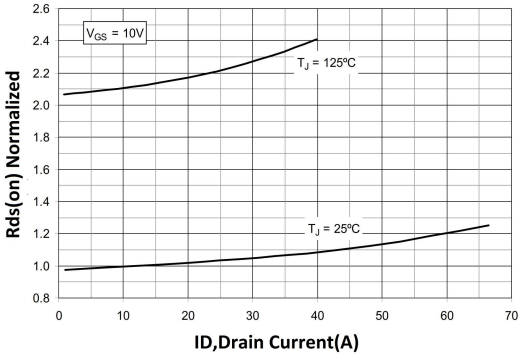

Output Characteristics@Tj=125℃



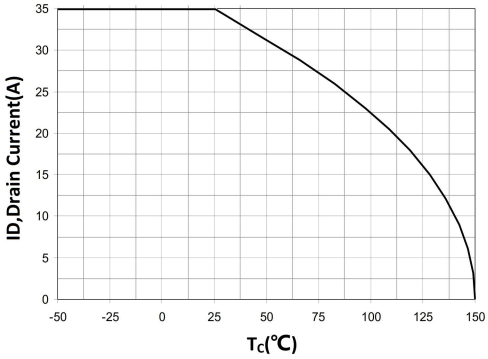

Rds(on) Normalized vs. Junction Temperature



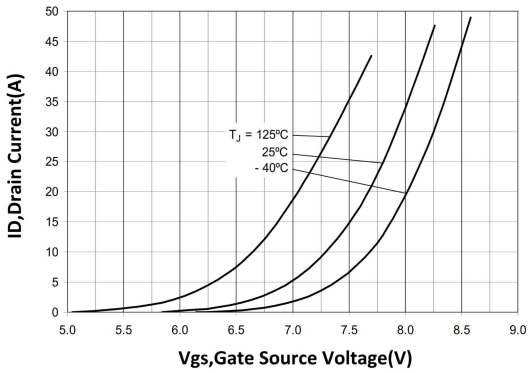

Rds(on) Normalized vs. Drain Current



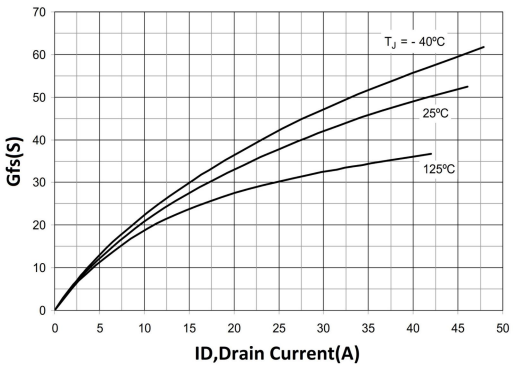

Maximum Drain Current vs. Case Temperature



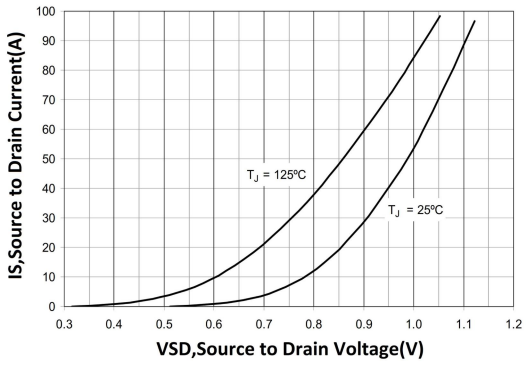
## Input Admittance



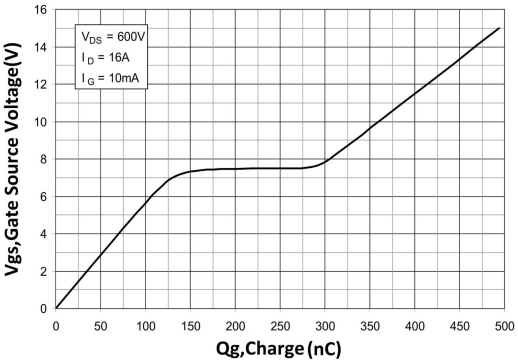

## Transconductance



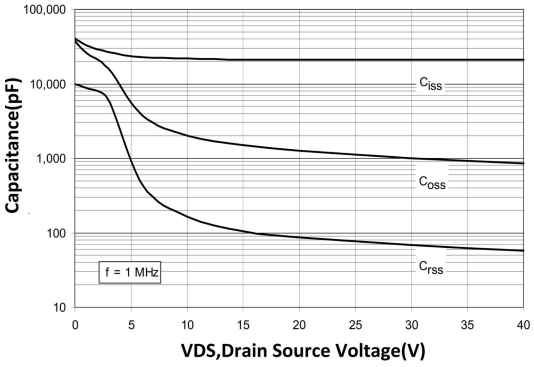

## Diode Forward Voltage



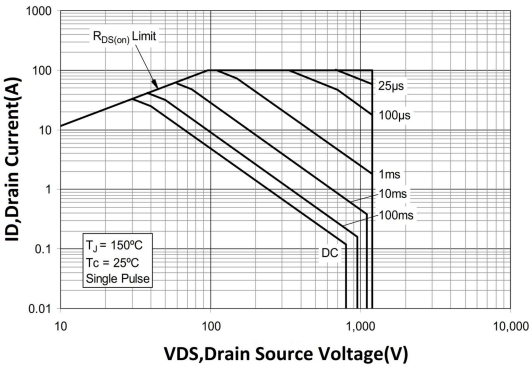

## Gate Charge



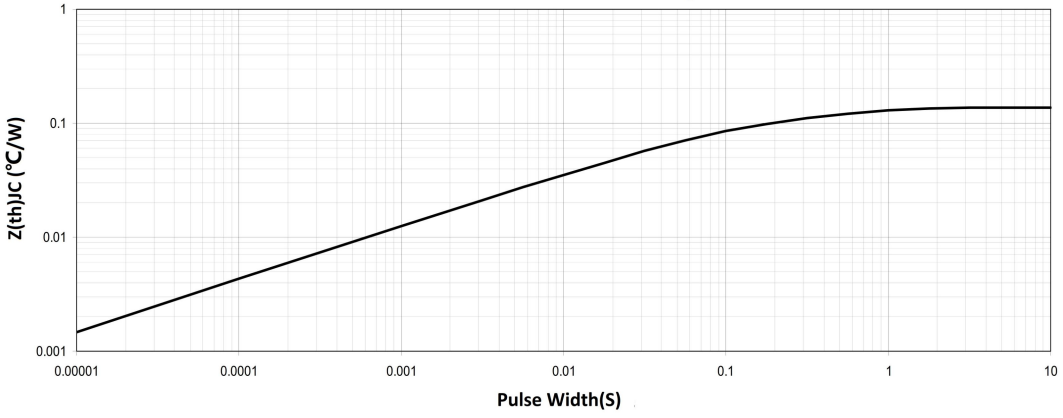

## Capacitance



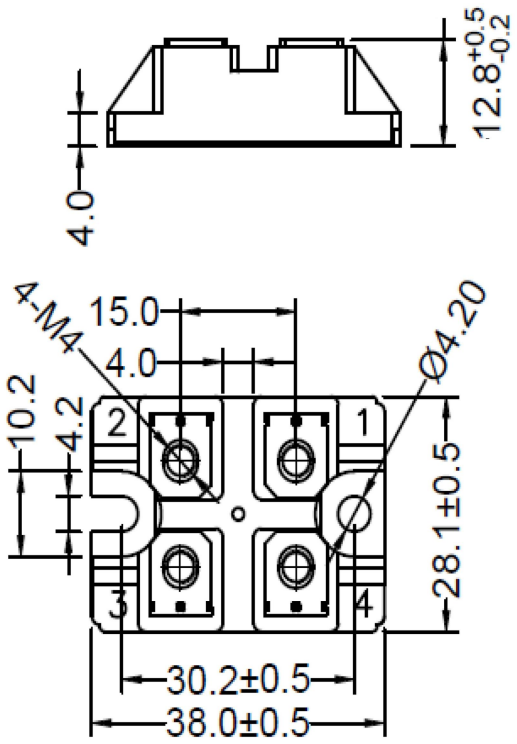

## SOA




## Maximum Transient Thermal Impedance



## Package Mechanical DATA




SOT227 | Unit:mm