

Product Summary

| $V_{(BR)DSS}$ | $R_{DS(on)TYP}$ | I_D |
|---------------|--------------------|-------|
| 100V | 1.1m Ω @10V | 370A |



合肥矽普半导体

Siliup Semiconductor Technology Co., Ltd

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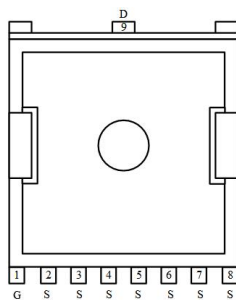
Feature

- Fast Switching
- Low Gate Charge and Rdson
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

Applications

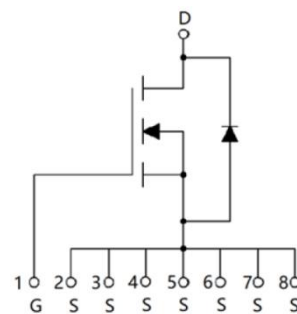
- PWM Application
- Hard switched and high frequency circuits
- Power Management

Package

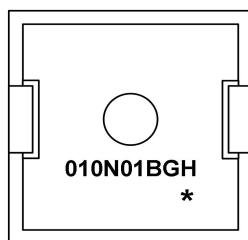


TOLL

Circuit diagram



Marking



010N01BGH : Product code
* : Month code

Order Information

| Device | Package | Unit/Tape |
|---------------|---------|-----------|
| SP010N01BGHTO | TOLL | 2000 |

Absolute maximum ratings (Ta=25°C unless otherwise noted)

| Parameter | Symbol | Rating | Unit |
|--|-----------------|------------|------|
| Drain-Source Voltage | V_{DS} | 100 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current1 (Tc=25°C) | I_D | 370 | A |
| Continuous Drain Current1 (Tc=100°C) | I_D | 247 | A |
| Pulsed Drain Current | I_{DM} | 1480 | A |
| Single Pulse Avalanche Energy ¹ | E_{AS} | 2304 | mJ |
| Power Dissipation (Tc=25°C) | P_D | 410 | W |
| Thermal Resistance Junction-to-Case | $R_{\theta JC}$ | 0.3 | °C/W |
| Storage Temperature Range | T_{STG} | -55 to 150 | °C |
| Operating Junction Temperature Range | T_J | -55 to 150 | °C |

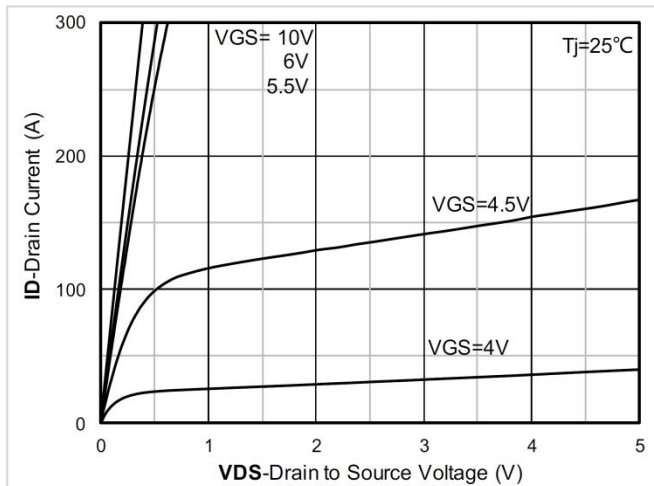
Electrical characteristics (Ta=25°C, unless otherwise noted)

| Characteristics | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|-------------------|-------------------------------------|-----|-------|------|------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | BV _{DSS} | VGS=0V , ID=250uA | 100 | 110 | - | V |
| Drain Cut-Off Current | IDSS | VDS=80V , VGS=0V , TJ=25℃ | - | - | 1 | μA |
| Gate Leakage Current | IGSS | VGS=±20V , VDS=0V | - | - | ±100 | nA |
| Gate Threshold Voltage | VGS(th) | VGS=VDS , ID =250uA | 2 | 3 | 4 | V |
| Drain-Source ON Resistance | RDS(ON) | VGS=10V , ID=125A | - | 1.1 | 1.3 | mΩ |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | Ciss | VDS=50V , VGS=0V , f=1MHz | - | 14658 | - | pF |
| Output Capacitance | Coss | | - | 2335 | - | |
| Reverse Transfer Capacitance | Crss | | - | 39 | - | |
| Total Gate Charge | Qg | VDS=50V , VGS=10V , ID=125A | - | 208 | - | nC |
| Gate-Source Charge | Qgs | | - | 56 | - | |
| Gate-Drain Charge | Qgd | | - | 37 | - | |
| Switching Characteristics | | | | | | |
| Turn-On Delay Time | td(on) | VDD=50V, VGS=10V , RG=1.6Ω, ID=125A | - | 25 | - | nS |
| Rise Time | tr | | - | 75 | - | |
| Turn-Off Delay Time | td(off) | | - | 89 | - | |
| Fall Time | tf | | - | 29 | - | |
| Drain-Source Body Diode Characteristics | | | | | | |
| Source-Drain Diode Forward Voltage | VSD | IS = 1A, VGS = 0V | - | - | 1.2 | V |
| Maximum Body-Diode Continuous Current | IS | | - | - | 370 | A |
| Reverse Recovery Time | Trr | IS=100A, di/dt=100A/us, TJ=25℃ | - | 92 | - | nS |
| Reverse Recovery Charge | Qrr | | - | 302 | - | nC |

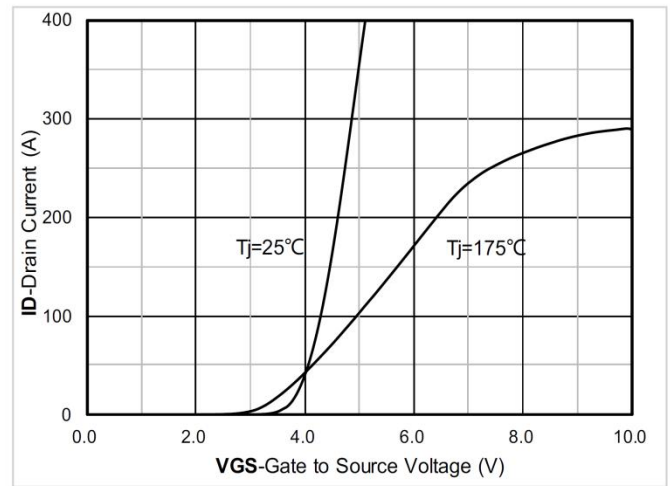
Note :

1. The test condition is $V_{DD}=50V, V_{GS}=10V, L=0.5mH, R_G=25\Omega$

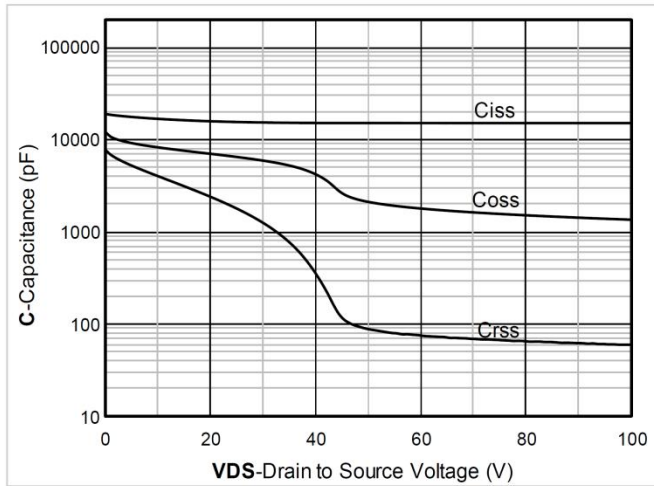
Typical Characteristics



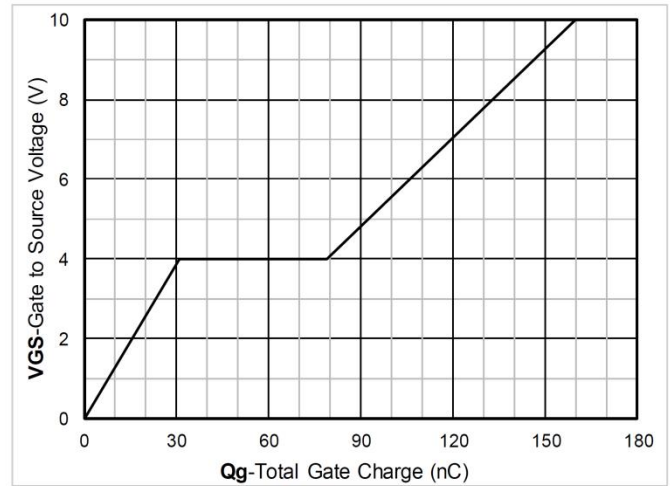
Output Characteristics



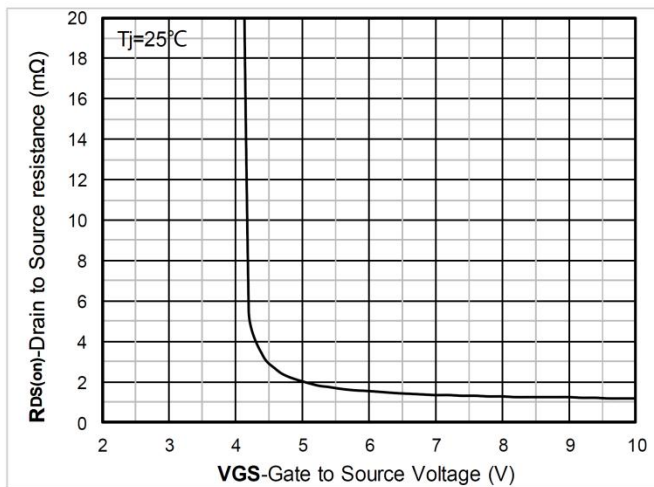
Transfer Characteristics



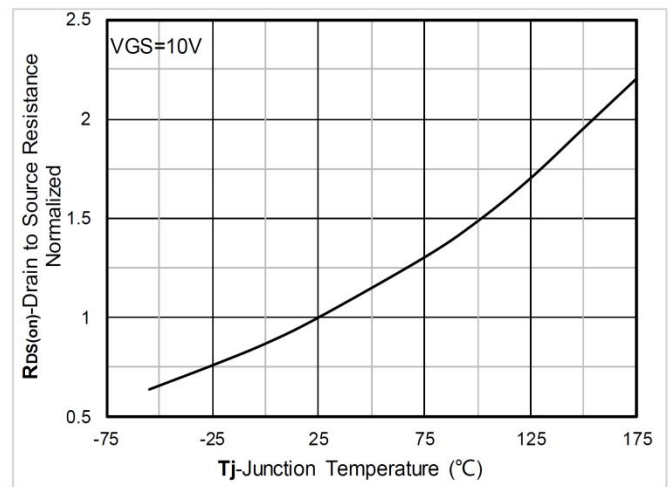
Capacitance Characteristics



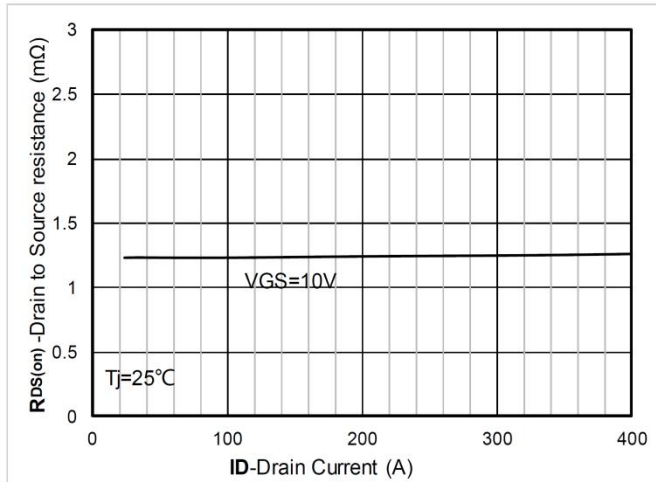
Gate Charge



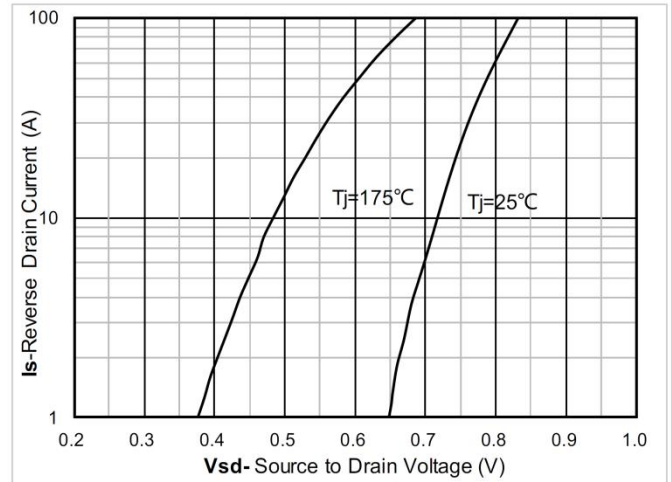
On-Resistance vs Gate to Source Voltage



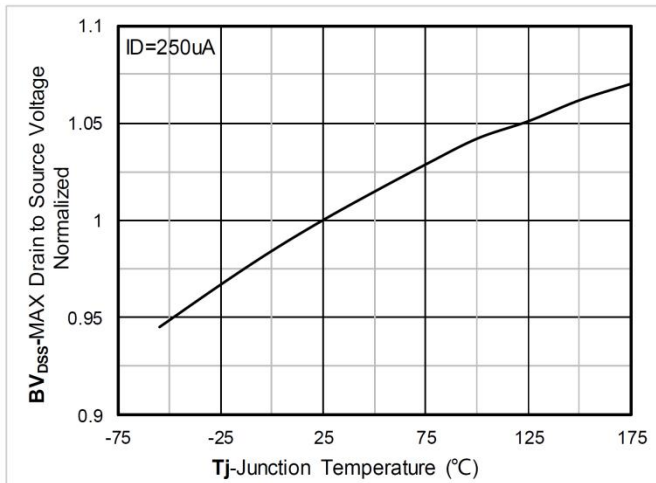
Normalized On-Resistance



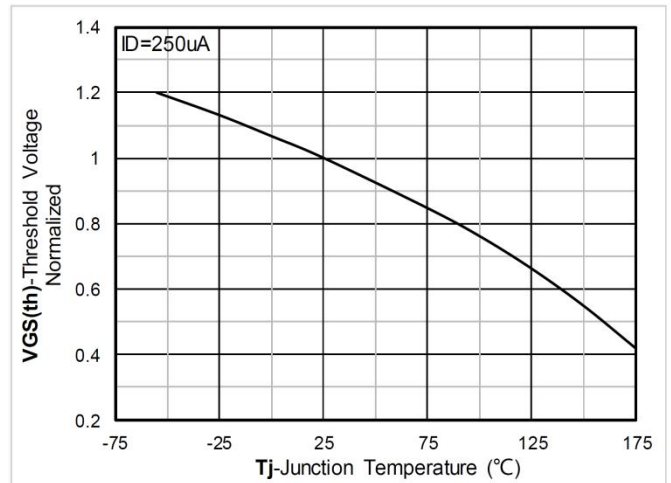
$R_{DS(on)}$ VS Drain Current



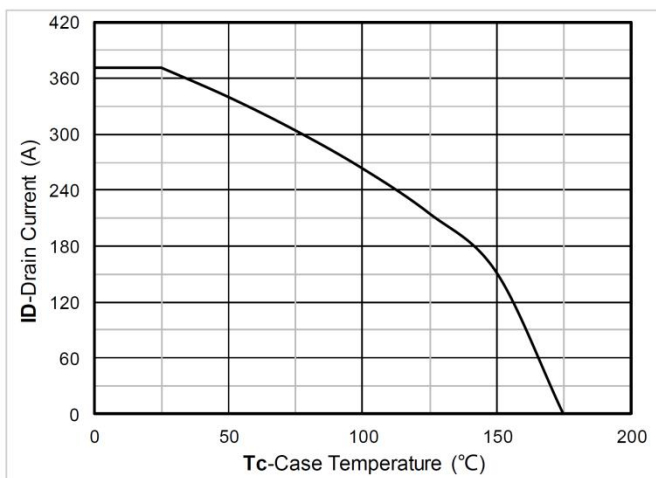
Forward characteristics of reverse diode



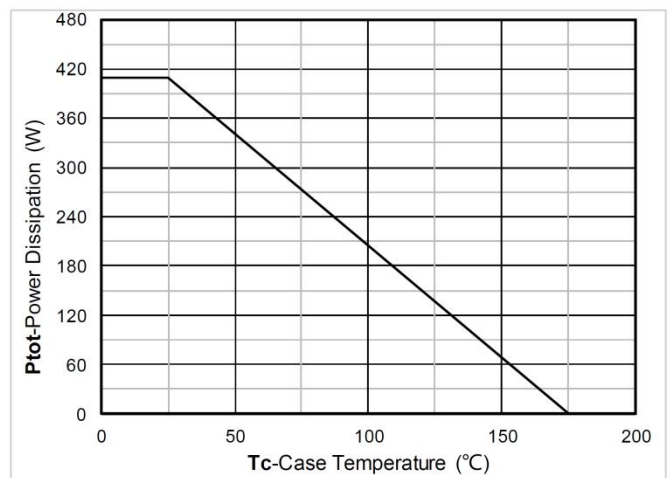
Normalized breakdown voltage



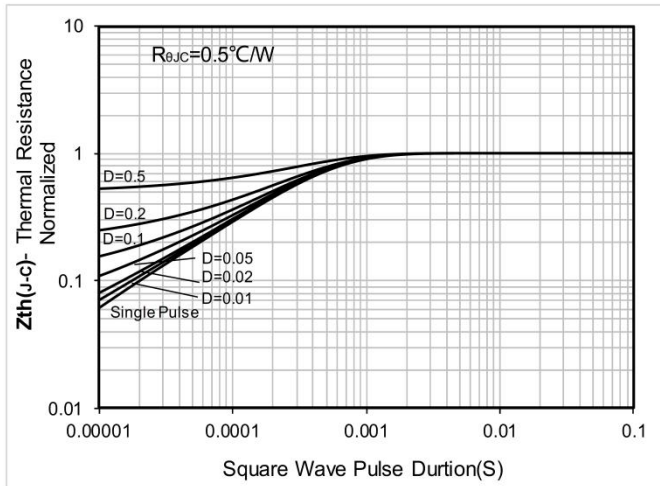
Normalized Threshold voltage



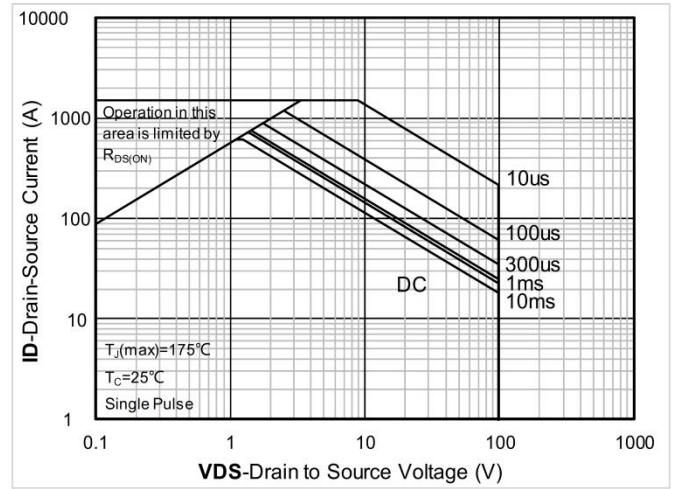
Current dissipation



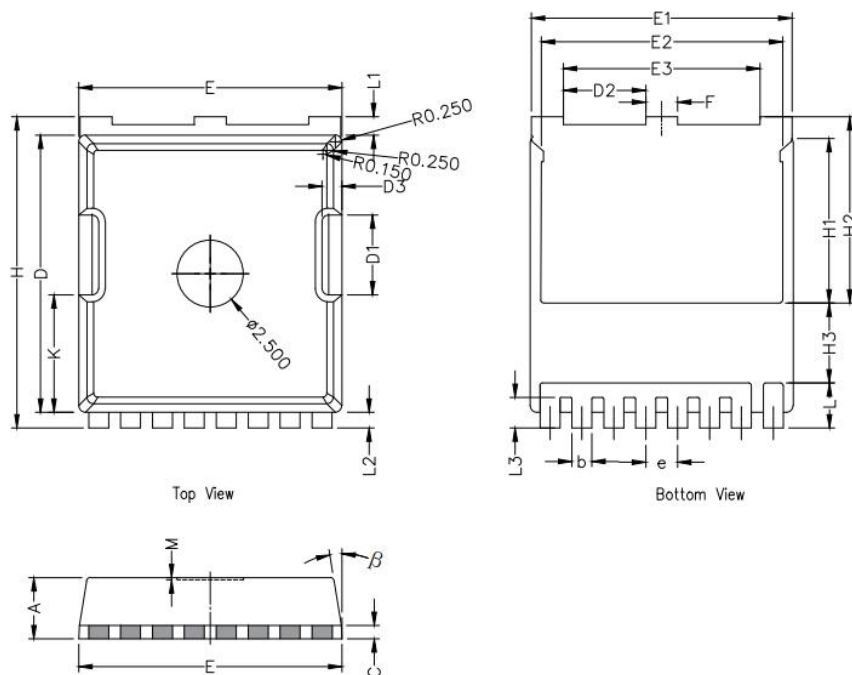
Power dissipation



Maximum Transient Thermal Impedance



Safe Operation Area

TOLL Package Information


| Symbol | Dimensions In Millimeters | | |
|---------|---------------------------|-------|-------|
| | Min. | Nom. | Max. |
| A | 2.20 | 2.30 | 2.40 |
| b | 0.65 | 0.75 | 0.85 |
| C | 0.508 REF | | |
| D | 10.25 | 10.40 | 10.55 |
| D1 | 2.85 | 3.00 | 3.15 |
| E | 9.75 | 9.90 | 10.05 |
| E1 | 9.65 | 9.80 | 9.95 |
| E2 | 8.95 | 9.10 | 9.25 |
| E3 | 7.25 | 7.40 | 7.55 |
| e | 1.20 BSC | | |
| F | 1.05 | 1.20 | 1.35 |
| H | 11.55 | 11.70 | 11.85 |
| H1 | 6.03 | 6.18 | 6.33 |
| H2 | 6.85 | 7.00 | 7.15 |
| H3 | 3.00 BSC | | |
| L | 1.55 | 1.70 | 1.85 |
| L1 | 0.55 | 0.7 | 0.85 |
| L2 | 0.45 | 0.6 | 0.75 |
| M | 0.08 REF. | | |
| β | 8° | 10° | 12° |
| K | 4.25 | 4.40 | 4.55 |