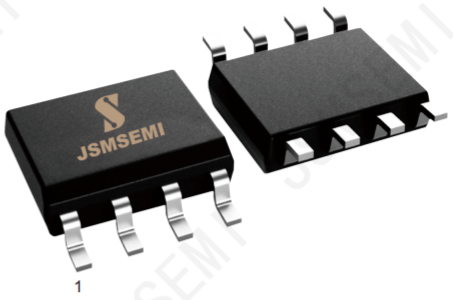
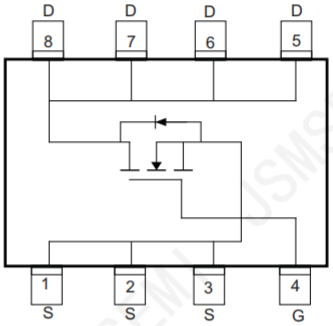
## Product Summary

- $V_{DS}$ 150V
- $I_D$ 8A
- $R_{DS(ON)}$( at $V_{GS}$=10V) ＜50mΩ
- 100% EAS Tested
- 100% ▽$V_{DS}$ Tested




Top View




## General Description

- Split gate trench MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free

## Applications

- Power switching application
- Uninterruptible power supply
- DC-DC convertor
- Motor drivers

### ■ Absolute Maximum Ratings ($T_A$=25℃ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DS}$ | 150 | V |
| Gate-Source Voltage | $V_{GS}$ | ±20 | V |
| Continuous Drain Current (Tc=25℃) (1) | $I_D$ | 8 | A |
| Continuous Drain Current (Tc=100℃) | $I_D$ | 6 | A |
| Pulsed Drain Current (1) | $I_{DM}$ | 32 | A |
| Drain Power Dissipation | $P_D$ | 20 | W |
| Single Pulsed Avalanche Energy (2) | $E_{AS}$ | 150 | mJ |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 51 | ℃/W |
| Thermal Resistance from Junction to Case | $R_{\theta JC}$ | 2.6 | ℃/W |
| Junction Temperature | $T_J$ | -55~ +150 | ℃ |
| Storage Temperature | $T_{STG}$ | -55~ +150 | ℃ |

**Notes:**

1) Repetitive Rating: pulse width limited by maximum junction temperature
2) EAS condition : $T_J$=25℃, $V_{DD}$=75V, $V_G$=10V, L=0.5mH, $R_g$=25Ω, $I_{AS}$=26A

## Ordering Information

| Order number | Package | Marking | Operation Temperature Range | MSL Grade | Ship,Quantity | Green |
|---|---|---|---|---|---|---|
| SI4848DY-T1-E3 | SOP-8 | 4848 | -55 to 150°C | 1 | T&R,3000 | Rohs |

## ■ Electrical Characteristics ($T_J$=25℃ unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Type | Max | Unit |
|---|---|---|---|---|---|---|
| **Static Characteristics** | | | | | | |
| Drain-source breakdown voltage | $V_{(BR)DSS}$ | $V_{GS}$=0V, $I_D$ =250μA | 150 | - | - | V |
| Zero gate voltage drain current | $I_{DSS}$ | $V_{DS}$=150V, $V_{GS}$=0V | - | - | 1 | μA |
| Gate-body leakage current | $I_{GSS}$ | $V_{GS}$ =±20V, $V_{DS}$=0V | - | - | ±100 | nA |
| Gate threshold voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$, $I_D$=250μA | 2.0 | 3.4 | 4.0 | V |
| Drain-source on-resistance | $R_{DS(on)}$ | $V_{GS}$=10V, $I_D$=5A | - | 42 | 50 | mΩ |
| | | $V_{GS}$=6V, $I_D$=4A | - | 50 | 56 | mΩ |
| Gate Resistance | $R_g$ | $V_{GS}$=0V, $V_{DS}$=0V, f=1.0MHz | - | 1.5 | - | Ω |
| **Dynamic characteristics** | | | | | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=75V,$V_{GS}$=0V, f=1MHz | - | 1240 | - | pF |
| Output Capacitance | $C_{oss}$ | | - | 115 | - | |
| Reverse Transfer Capacitance | $C_{rss}$ | | - | 3.5 | - | |
| **Switching characteristics** | | | | | | |
| Turn-on delay time | $t_{d(on)}$ | $V_{GS}$=10V,$V_{DS}$=75V RG=3Ω , $I_D$=10A | - | 8.9 | - | ns |
| Turn-on rise time | $t_r$ | | - | 4.3 | - | |
| Turn-off delay time | $t_{d(off)}$ | | - | 14.1 | - | |
| Turn-off fall time | $t_f$ | | - | 4.8 | - | |
| Total Gate Charge | Qg | $V_{DS}$=75V, $I_D$=10A, $V_{GS}$=10V | - | 18.2 | - | nC |
| Gate-Source Charge | Qgs | | - | 6.2 | - | |
| Gate-Drain Charge | Qgd | | - | 3.8 | - | |
| Gate Plateau | $V_{plateau}$ | | - | 5 | - | V |
| **Source-Drain Diode characteristics** | | | | | | |
| Diode Forward voltage | $V_{SD}$ | $T_J$=25℃, $V_{GS}$ =0V, $I_D$=10A | - | - | 1.2 | V |
| Diode Forward current | $I_S$ | $T_C$=25℃ | - | - | 8 | A |
| Body Diode Reverse Recovery Time | Trr | $T_J$=25℃,di/dt=100A/us, $I_D$=10A | - | 70.6 | - | ns |
| Body Diode Reverse Recovery Charge | Qrr | | - | 182.2 | - | nC |

## ■Typical Electrical and Thermal Characteristics Diagrams

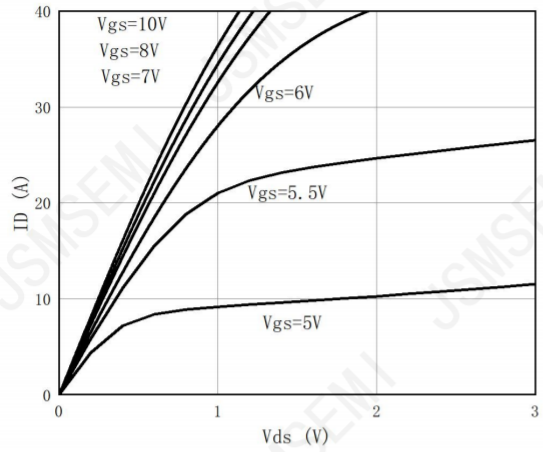



Figure 1. Output Characteristics

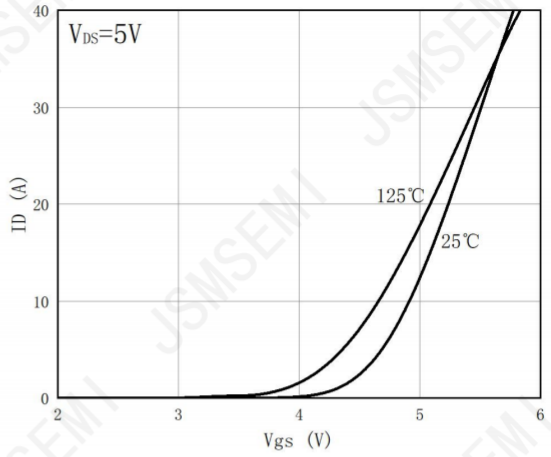



Figure 2. Transfer Characteristics

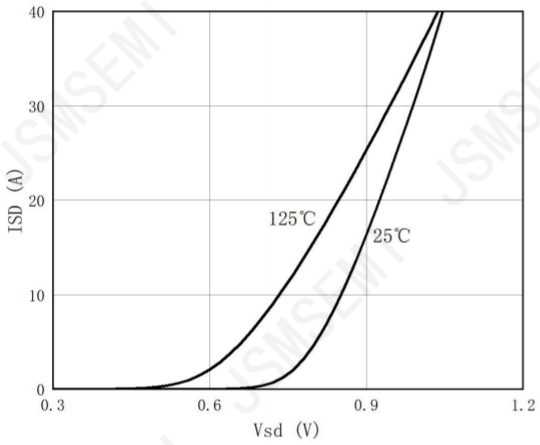



Figure 3. Source Drain Forward Characteristics

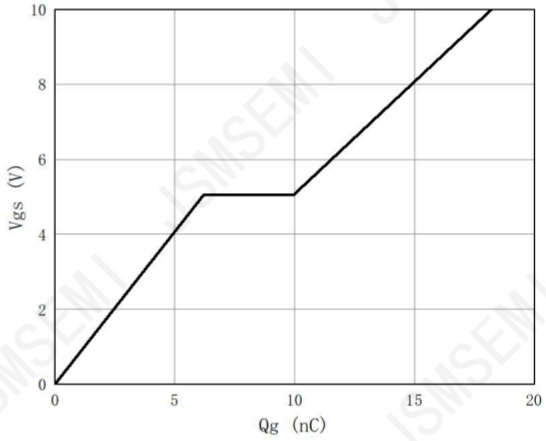



Figure 4. Gate-Charge Characteristics

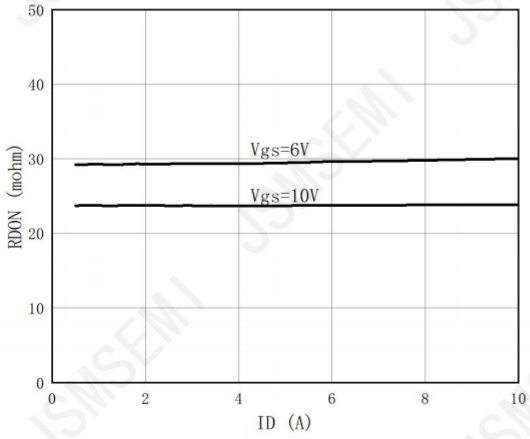



Figure 5. On-Resistance vs. Drain Current and Gate Voltage

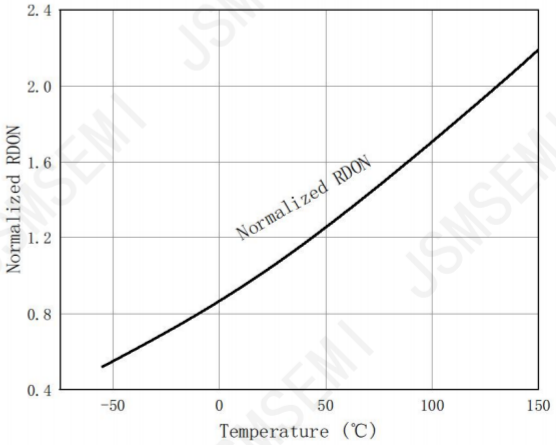



Figure 6. $R_{DS(ON)}$ vs Junction Temperature

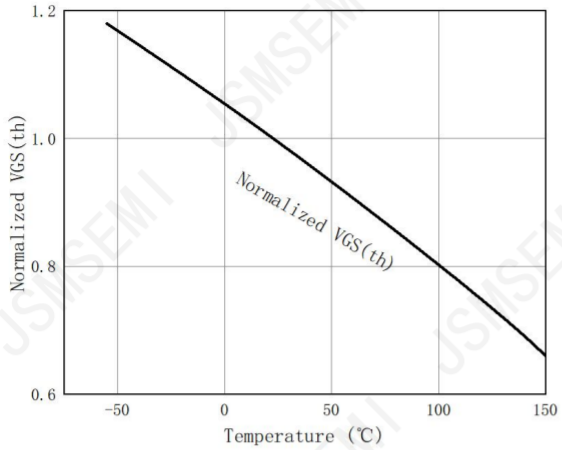



**Figure 7: $V_{th}$ vs Junction Temperature**

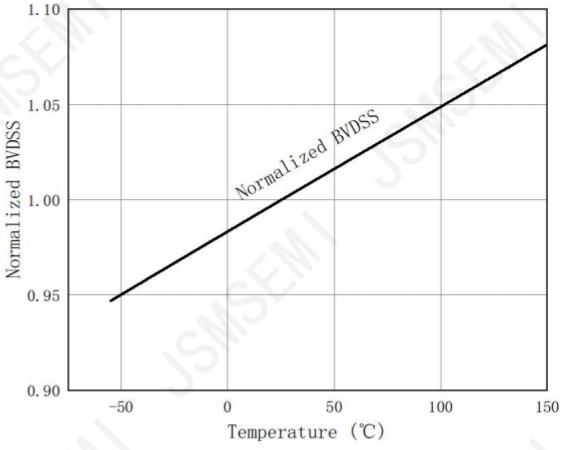



**Figure 8.BVDSS vs. Junction Temperature**

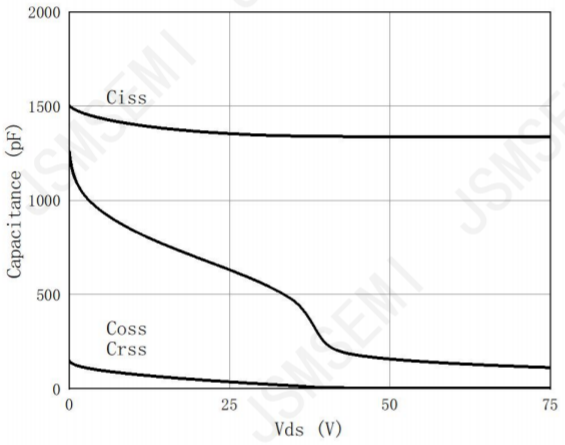



**Figure 9. Capacitance**

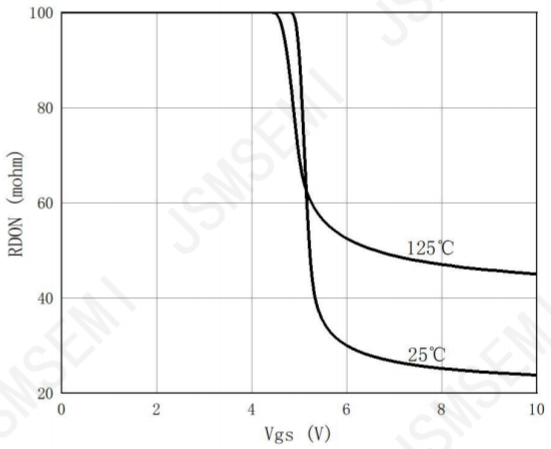



**Figure 10. On-Resistance vs. Gate-Source Voltage**

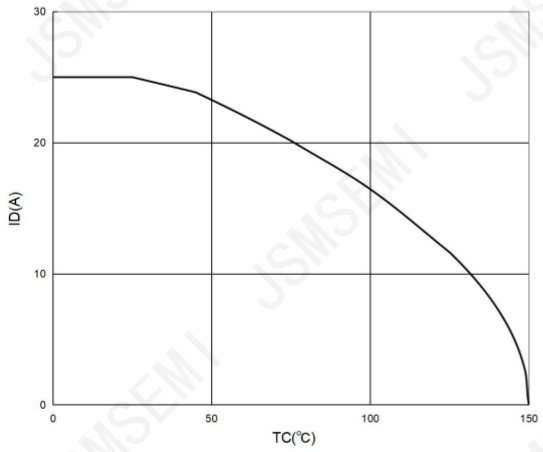



**Figure 11. Current De-rating**

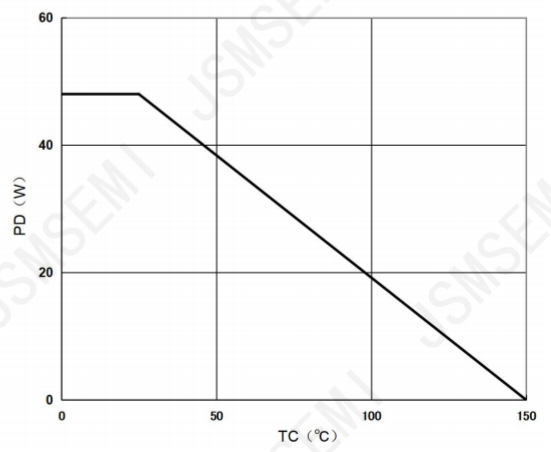



**Figure 12. Power De-rating**

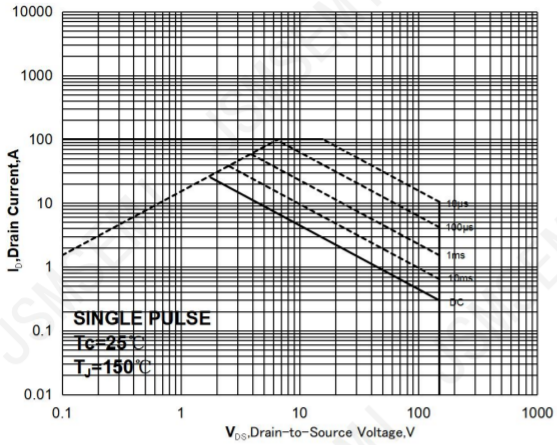



**Figure 13. Safe Operating Area**

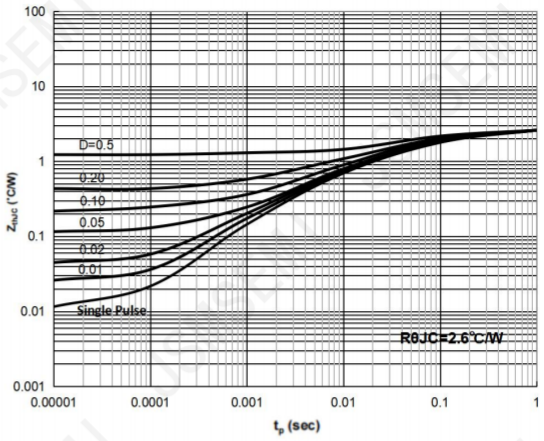
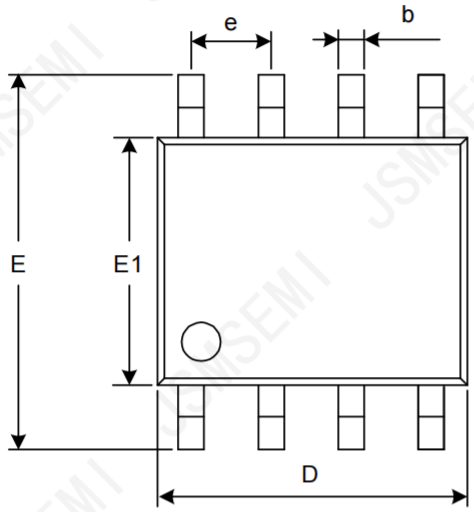
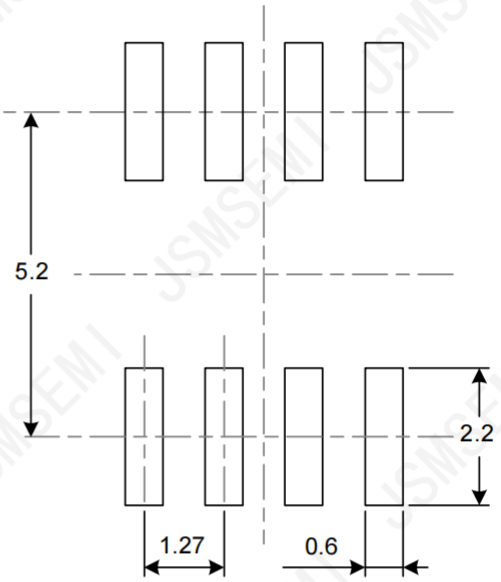



**Figure 14. Normalized Maximum Transient Thermal Impedance**

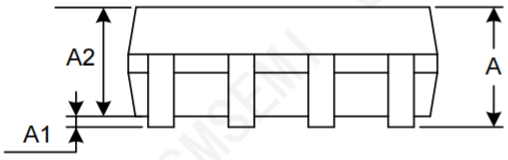
## Package Information

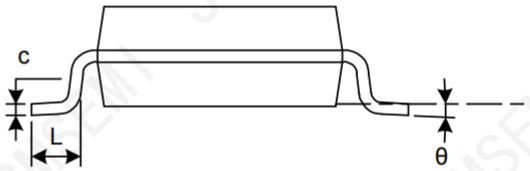
# SOIC-8




**RECOMMENDED LAND PATTERN** (Unit: mm)




| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|---|---|---|---|---|
| | Min | Max | Min | Max |
| A | 1.350 | 1.750 | 0.053 | 0.069 |
| A1 | 0.100 | 0.250 | 0.004 | 0.010 |
| A2 | 1.350 | 1.550 | 0.053 | 0.061 |
| b | 0.330 | 0.510 | 0.013 | 0.020 |
| c | 0.170 | 0.250 | 0.007 | 0.010 |
| D | 4.800 | 5.000 | 0.189 | 0.197 |
| e | 1.270 (BSC) | | 0.050 (BSC) | |
| E | 5.800 | 6.200 | 0.228 | 0.244 |
| E1 | 3.800 | 4.000 | 0.150 | 0.157 |
| L | 0.400 | 1.270 | 0.016 | 0.050 |
| θ | 0° | 8° | 0° | 8° |

## Revision History

| Rev. | Change | Date |
|---|---|---|
| V1.0 | Initial version | 9/17/2021 |
| | | |

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