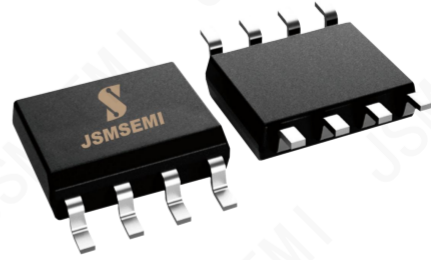


Product Summary

- V_{DS} 60V
- I_D 12A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) $<12m\Omega$
- 100% EAS Tested
- 100% ∇V_{DS} Tested

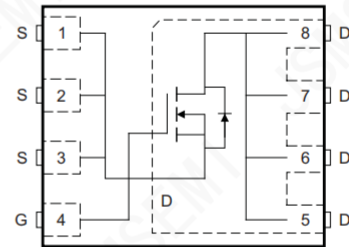


General Description

- 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_J =25°C unless otherwise noted)

| Symbol | Parameter | Ratings | Units |
|----------------------------------|---|------------|-------|
| V_{DS} | Drain-Source Voltage | 60 | V |
| V_{GS} | Gate-Source Voltage | ± 20 | V |
| I_D | Continuous Drain Current ¹ -T _C =25°C | 12 | A |
| $I_{D,pulse}$ | Pulsed Drain Current ² -T _C =25°C | 48 | |
| I_S | Continuous Diode forward current ¹ -T _C =25°C | 12 | |
| $I_{S,pulse}$ | Diode Pulsed current ² -T _C =25°C | 48 | |
| P_D | Power Dissipation ³ -T _C =25°C | 4 | W |
| EAS | Single pulsed avalanche energy ⁵ | 30 | mJ |
| T _J ,T _{STG} | Operating and Storage Junction Temperature Range | -55 to+150 | °C |

Thermal Characteristics:

| Symbol | Parameter | Max | Units |
|------------------|---|-----|-------|
| R _{θJA} | Thermal Resistance,Junction to Ambient ⁴ | 62 | °C/W |

Electrical Characteristics: ($T_j=25^{\circ}\text{C}$ unless otherwise noted)

| Symbol | Parameter | Conditions | Min | Typ | Max | Units |
|------------------------------------|------------------------------------|--|-----|------|-----------|------------|
| Off Characteristics | | | | | | |
| BV_{DSS} | Drain-Source Breakdown Voltage | $V_{GS}=0V, I_D=250\mu A$ | 60 | --- | --- | V |
| I_{DSS} | Drain-Source Leakage Current | $V_{DS}=60V, V_{GS}=0V$ | --- | --- | 1 | μA |
| I_{GSS} | Gate-Source Leakage Current | $V_{GS}=\pm 20V$ | --- | --- | ± 100 | nA |
| On Characteristics | | | | | | |
| $V_{GS(th)}$ | GATE-Source Threshold Voltage | $V_{GS}=V_{DS}, I_D=250\mu A$ | 1 | --- | 2.5 | V |
| $R_{DS(on)}$ | Static Drain-Source On Resistance | $V_{GS}=10V, I_D=20A$ | --- | 9 | 12 | m Ω |
| | | $V_{GS}=4.5V, I_D=10A$ | --- | 11 | 14 | m Ω |
| Dynamic Characteristics | | | | | | |
| C_{iss} | Input Capacitance | $V_{DS}=50V, V_{GS}=0V,$ $f=1MHz$ | --- | 1170 | --- | pF |
| C_{oss} | Output Capacitance | | --- | 192 | --- | |
| C_{rss} | Reverse Transfer Capacitance | | --- | 4 | --- | |
| Switching Characteristics | | | | | | |
| $t_{d(on)}$ | Turn-On Delay Time | $V_{DS}=50V, I_D=10A$ $R_G=2\Omega, V_{GS}=10V$ | --- | 17.9 | --- | ns |
| t_r | Rise Time | | --- | 4 | --- | ns |
| $t_{d(off)}$ | Turn-Off Delay Time | | --- | 34.9 | --- | ns |
| t_f | Fall Time | | --- | 5.5 | --- | ns |
| Q_g | Total Gate Charge | $V_{GS}=10V, V_{DS}=50V,$ $I_D=10A$ | --- | 18.4 | --- | nC |
| Q_{gs} | Gate-Source Charge | | --- | 3.3 | --- | nC |
| Q_{gd} | Gate-Drain "Miller" Charge | | --- | 3.1 | --- | nC |
| Drain-Source Diode Characteristics | | | | | | |
| V_{SD} | Source-Drain Diode Forward Voltage | $V_{GS}=0V, I_S=20A$ | --- | --- | 1.3 | V |
| T_{rr} | Body Diode Reverse Recovery Time | $I_S=10A, V_R=50V$ | --- | 41.8 | --- | Ns |
| Q_{rr} | Body Diode Reverse Recovery Charge | $di/dt=100A/\mu s$ | --- | 36.1 | --- | Nc |

Notes:

1. Calculated continuous current based on maximum allow able junction temperature.
2. Repetitive rating; pulse width limited by max. junction temperature.
3. P_d is based on max. junction temperature, using junction-case thermal resistance.
4. The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_a=25^{\circ}\text{C}$.
5. $V_{DD}=50V, V_{GS}=10V, L=0.3mH$, starting $T_j=25^{\circ}\text{C}$.

Typical Characteristics: ($T_C=25^\circ\text{C}$ unless otherwise noted)

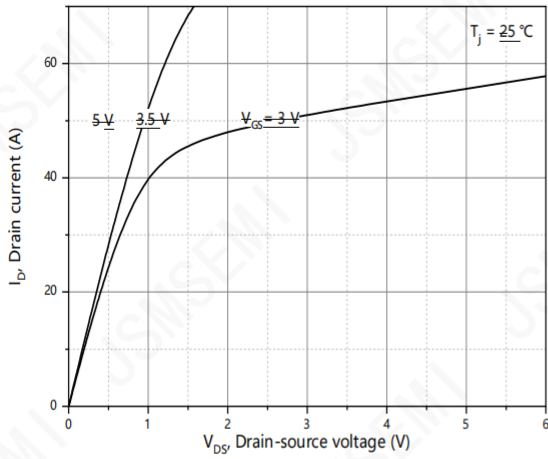


Figure 1. Typ. output characteristics

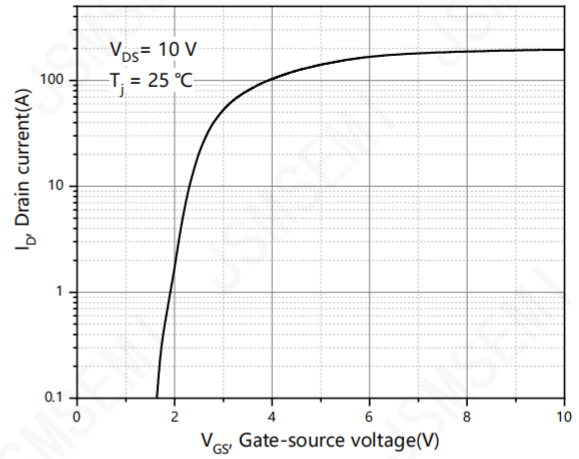


Figure 2. Typ. transfer characteristics

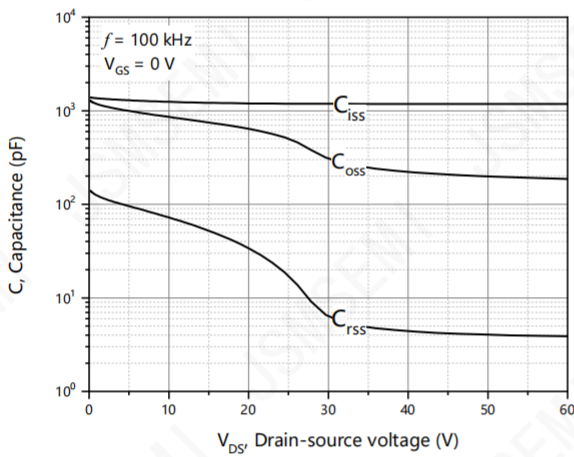


Figure 3. Typ. capacitances

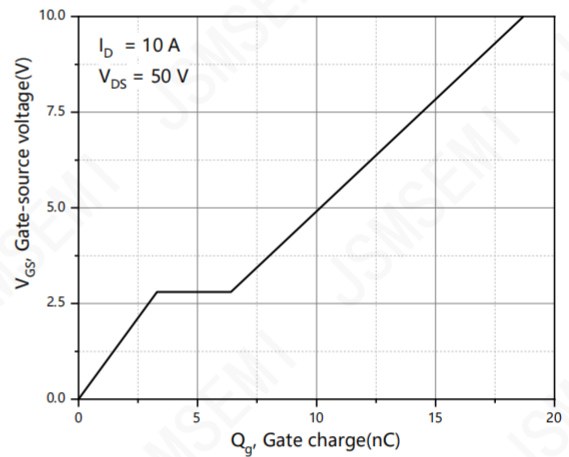


Figure 4. Typ. gate charge

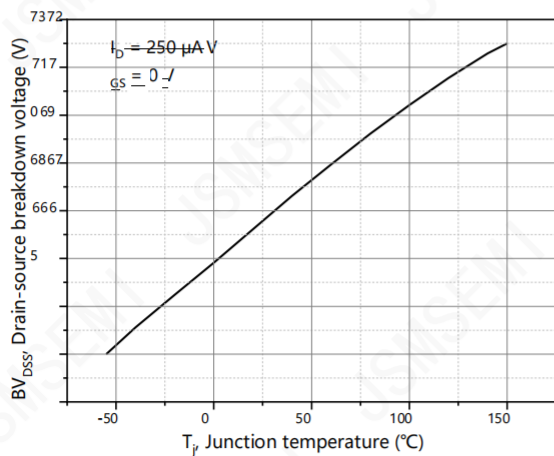


Figure 5. Drain source breakdown voltage

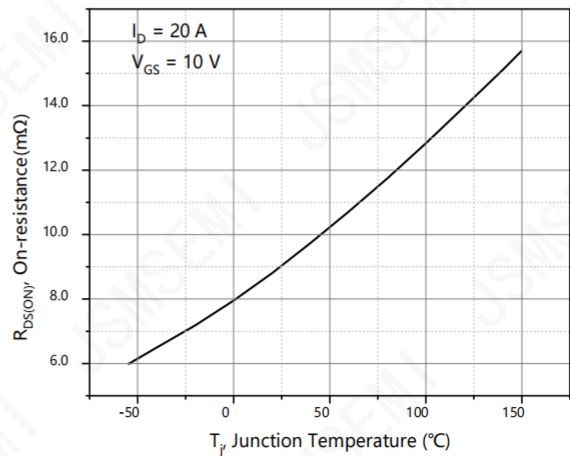
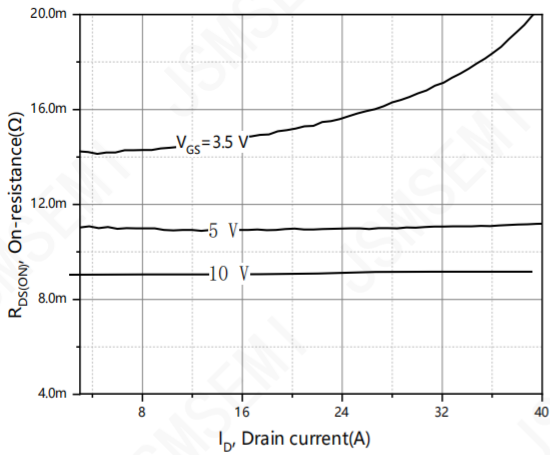
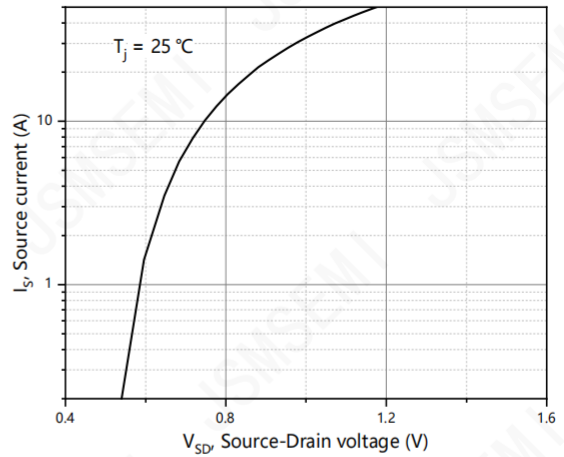
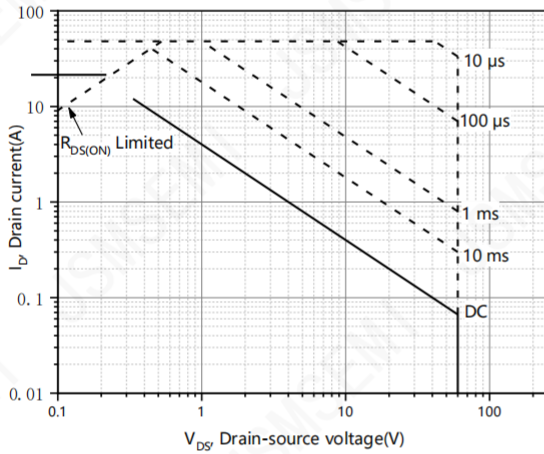


Figure 6. Drain source on state resistance

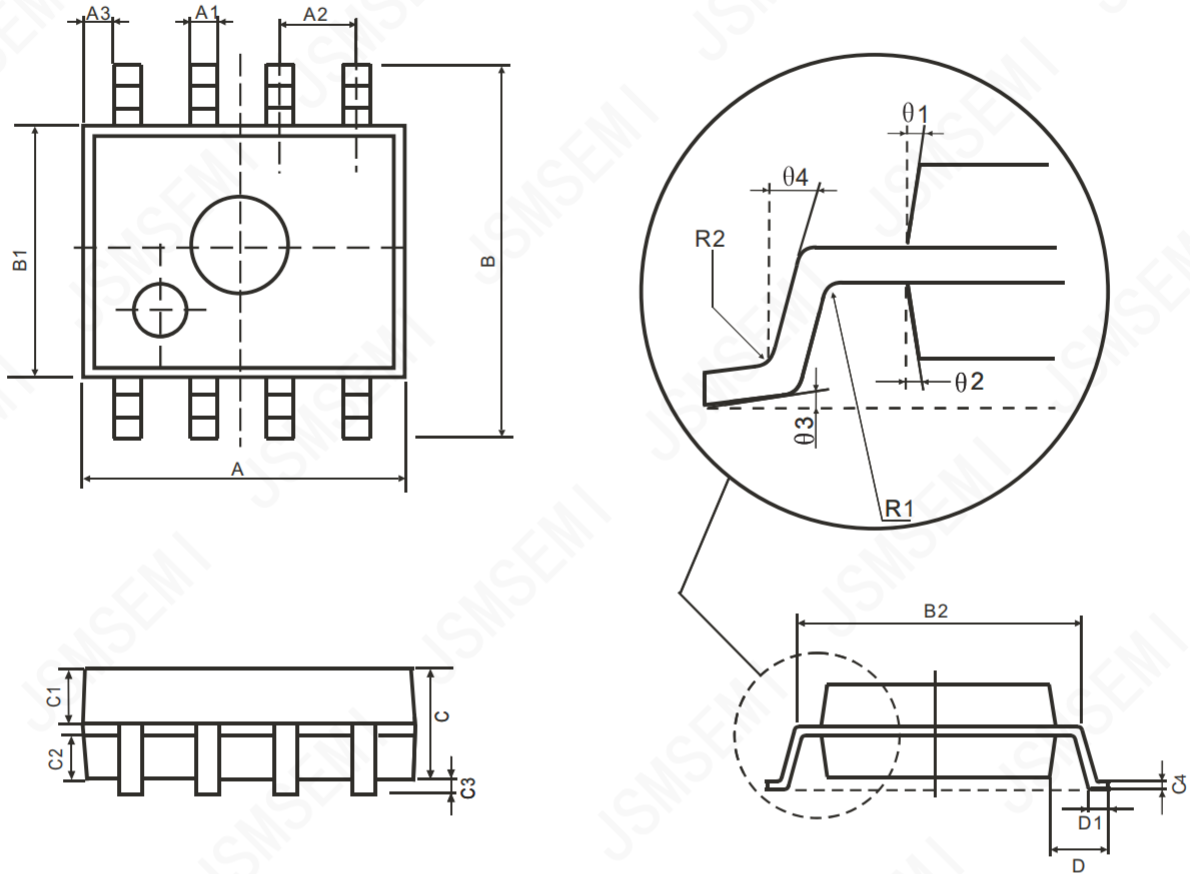

Figure 7. Drain-source on-state resistance

Figure 8. Forward characteristic of body diode

Figure 9. Safe operation area $T_C=25\text{ °C}$

Ordering Information

| Order number | Package | Marking | Operation Temperature Range | MSL Grade | Ship, Quantity | Green |
|--------------|---------|---------|-----------------------------|-----------|----------------|-------|
| JSM4260-JSM | SOP-8 | 4260 | -55 to+150°C | 1 | T&R,3000 | Rohs |

Package Dimensions

SOP-8 Dimensions in mm



| 符号 | 尺寸(mm) | | 符号 | 尺寸(mm) | |
|----|-----------|------|--------|-----------|------|
| | 最小值 | 最大值 | | 最小值 | 最大值 |
| A | 4.95 | 5.15 | C3 | 0.05 | 0.20 |
| A1 | 0.37 | 0.47 | C4 | 0.20(典型值) | |
| A2 | 1.27(典型值) | | D | 1.05(典型值) | |
| A3 | 0.41(典型值) | | D1 | 0.40 | 0.60 |
| B | 5.80 | 6.20 | R1 | 0.07(典型值) | |
| B1 | 3.80 | 4.00 | R2 | 0.07(典型值) | |
| B2 | 5.0(典型值) | | theta1 | 17°(典型值) | |
| C | 1.30 | 1.50 | theta2 | 13°(典型值) | |
| C1 | 0.55 | 0.65 | theta3 | 4°(典型值) | |
| C2 | 0.55 | 0.65 | theta4 | 12°(典型值) | |

Revision History

| Rev. | Change | Date |
|------|-----------------|-----------|
| V1.0 | Initial version | 6/27/2021 |
| | | |

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