

• General Description

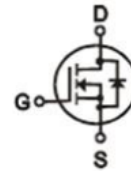
It combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$.

• Features

- Advance high cell density Trench technology
- Low $R_{DS(ON)}$ to minimize conductive loss
- Low Gate Charge for fast switching
- Low Thermal resistance

• Application

- SMPS 2nd Synchronous Rectifier
- BLDC Motor driver

• Product Summary


$V_{DS} = 80V$

$R_{DS(ON)} = 9m\Omega$

$I_D = 80A$


• Ordering Information:

| | |
|---------------------------|-----------|
| Part NO. | ZM100N08B |
| Marking | ZM100N08 |
| Packing Information | REEL TAPE |
| Basic ordering unit (pcs) | 800 |

• Absolute Maximum Ratings ($T_C = 25^\circ C$)

| Parameter | Symbol | Rating | Unit |
|--------------------------------|------------------------|------------|------------|
| Drain-Source Voltage | V_{DS} | 80 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Continuous Drain Current | $I_{D@TC=25^\circ C}$ | 80 | A |
| | $I_{D@TC=75^\circ C}$ | 60.8 | A |
| | $I_{D@TC=100^\circ C}$ | 50.4 | A |
| Pulsed Drain Current ① | I_{DM} | 240 | A |
| Total Power Dissipation | $P_D@TC=25^\circ C$ | 120 | W |
| Total Power Dissipation | $P_D@TA=25^\circ C$ | 5 | W |
| Operating Junction Temperature | T_J | -55 to 150 | $^\circ C$ |
| Storage Temperature | T_{STG} | -55 to 150 | $^\circ C$ |

•Thermal resistance

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|--|------------|------|------|------|-------|
| Thermal resistance, junction - case | R_{thJC} | - | - | 1 | ° C/W |
| Thermal resistance, junction - ambient | R_{thJA} | - | - | 25 | ° C/W |
| Soldering temperature, wavesoldering for 10s | T_{sold} | - | - | 265 | ° C |

•Electronic Characteristics

| Parameter | Symbol | Condition | Min. | Typ | Max. | Unit |
|-----------------------------------|--------------|-----------------------------------|------|-----|-----------|------------|
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS} = 0V, I_D = 250\mu A$ | 80 | | | V |
| Gate Threshold Voltage | $V_{GS(TH)}$ | $V_{GS} = V_{DS}, I_D = 250\mu A$ | 1.3 | 1.8 | 2.5 | V |
| Drain-Source Leakage Current | I_{DSS} | $V_{DS} = 80V, V_{GS} = 0V$ | | | 1.0 | μA |
| Gate- Source Leakage Current | I_{GSS} | $V_{GS} = \pm 20V, V_{DS} = 0V$ | | | ± 100 | nA |
| Static Drain-source On Resistance | $R_{DS(ON)}$ | $V_{GS} = 10V, I_D = 30A$ | | 9 | 11.5 | m Ω |
| | | $V_{GS} = 4.5V, I_D = 20A$ | | 11 | 14 | |
| Forward Transconductance | g_{FS} | $V_{DS} = 25V, I_D = 8A$ | | 28 | | S |
| Source-drain voltage | V_{SD} | $I_S = 20A$ | | | 1.28 | V |

•Electronic Characteristics

| Parameter | Symbol | Condition | Min. | Typ | Max. | Unit |
|------------------------------|-----------|------------|------|------|------|------|
| Input capacitance | C_{iss} | $f = 1MHz$ | - | 4400 | - | pF |
| Output capacitance | C_{oss} | | - | 290 | - | |
| Reverse transfer capacitance | C_{rss} | | - | 200 | - | |

•Gate Charge characteristics($T_a = 25^\circ C$)

| Parameter | Symbol | Condition | Min. | Typ | Max. | Unit |
|----------------------|----------|----------------|------|-----|------|------|
| Total gate charge | Q_g | $V_{DD} = 40V$ | - | 58 | - | nC |
| Gate - Source charge | Q_{gs} | $I_D = 20A$ | - | 13 | - | |
| Gate - Drain charge | Q_{gd} | $V_{GS} = 10V$ | - | 15 | - | |

Note: ① Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$;

Fig.1 Gate-Charge Characteristics

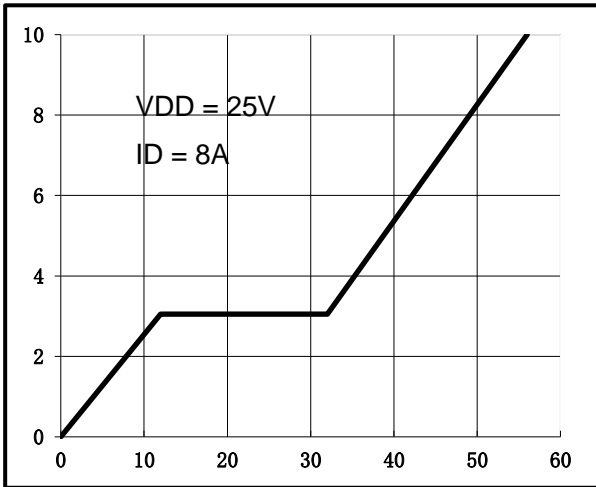


Fig.2 Capacitance Characteristics

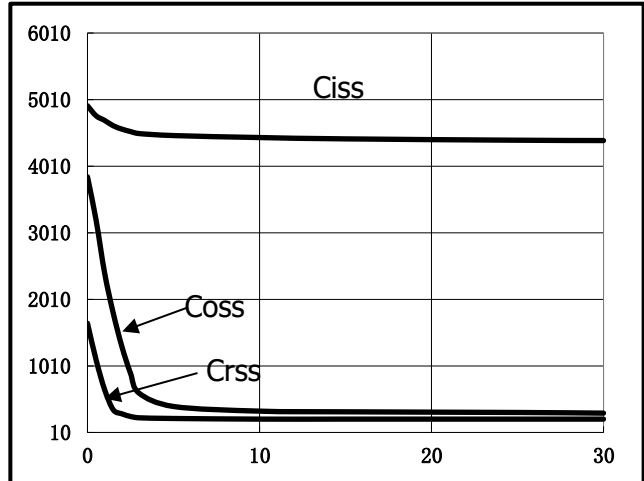


Fig.3 Power Dissipation

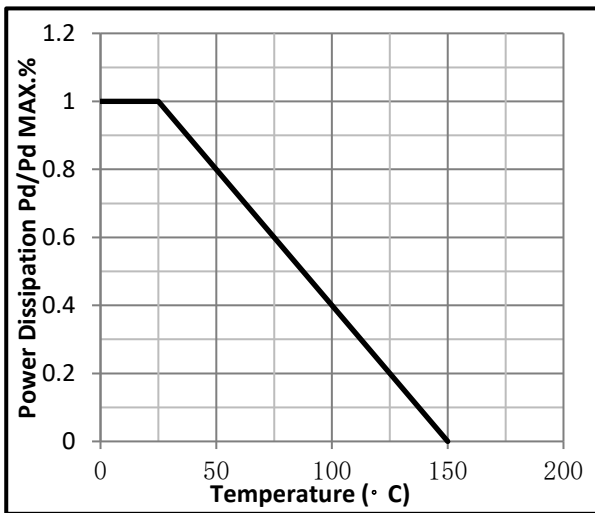


Fig.4 Typical output Characteristics

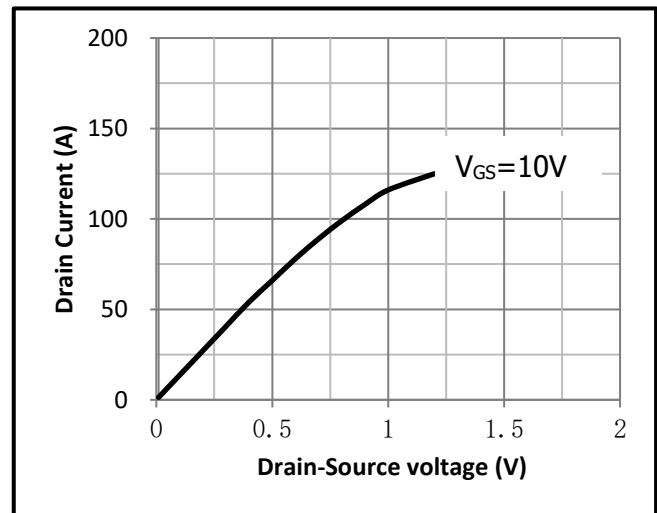


Fig.5 Threshold Voltage V.S Junction Temperature

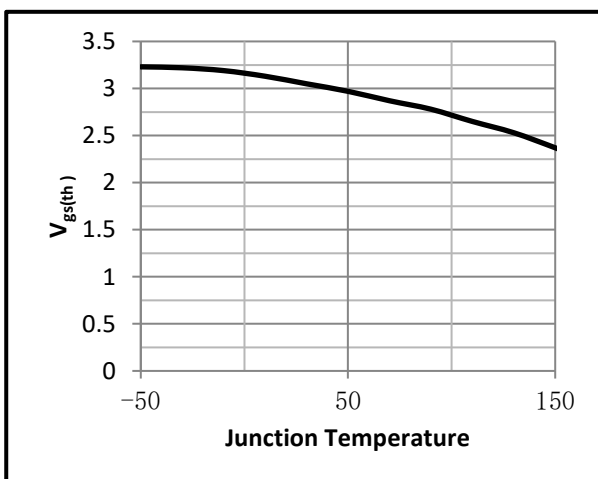


Fig.6 Resistance V.S Drain Current

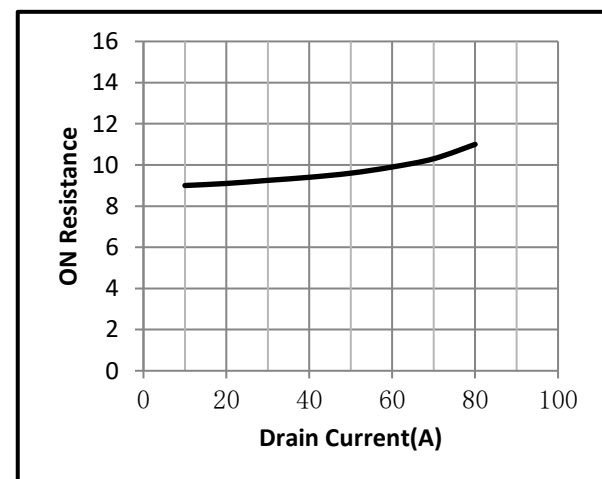


Fig.7 On-Resistance VS Gate Source Voltage

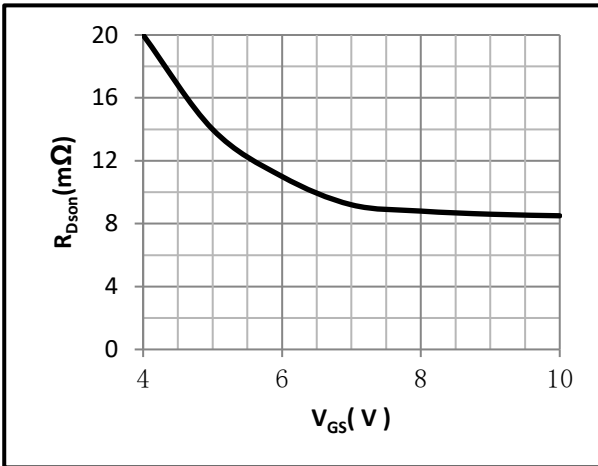


Fig.8 On-Resistance V.S Junction Temperature

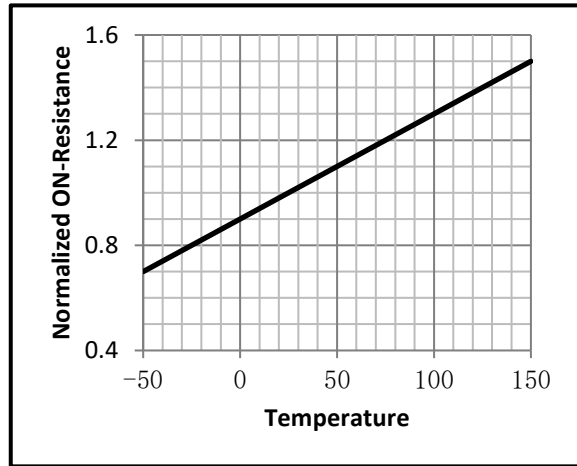


Fig.9 Switching Time Measurement Circuit

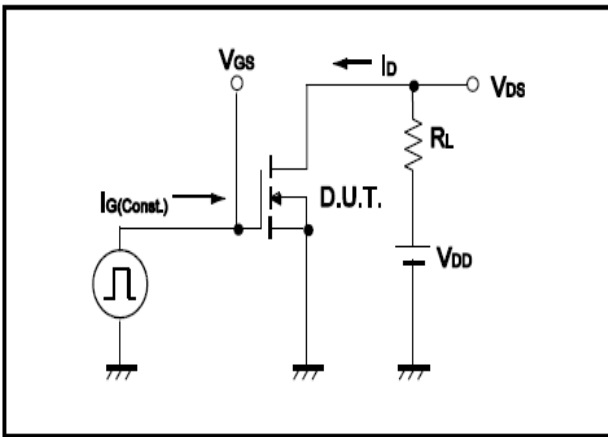


Fig.10 Gate Charge Waveform

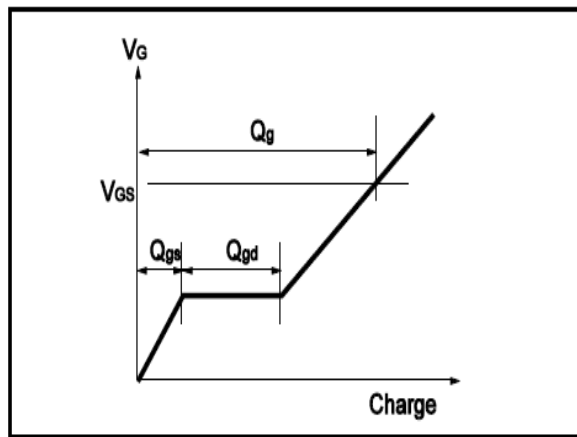


Fig.11 Switching Time Measurement Circuit

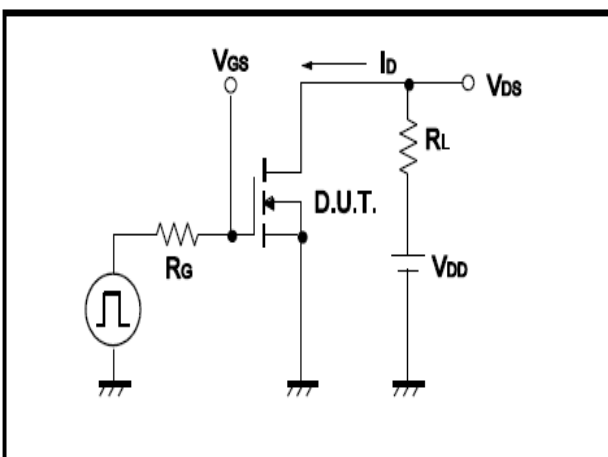
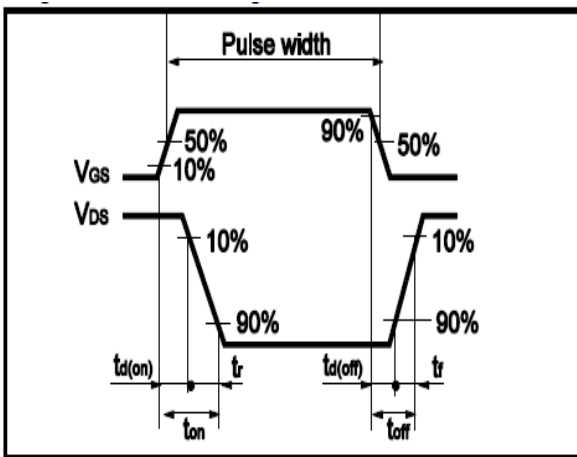


Fig.12 Gate Charge Waveform



•Dimensions (TO-263)

Unit: mm

| Symbol | Dimensions In Millimeters | | Symbol | Dimensions In Millimeters | |
|--------|---------------------------|-------|--------|---------------------------|-------|
| | Min | Max | | Min | Max |
| A | 4.30 | 4.70 | E | 9.00 | 9.40 |
| B | 1.00 | 1.40 | e1 | 2.34 | 2.74 |
| b | 0.70 | 0.90 | e2 | 4.88 | 5.28 |
| b1 | 1.15 | 1.35 | L1 | 15.00 | 16.00 |
| b2 | 0.40 | 0.60 | L2 | 2.24 | 2.84 |
| C | 1.20 | 1.40 | L3 | 1.20 | 1.60 |
| D | 9.80 | 10.20 | | | |

