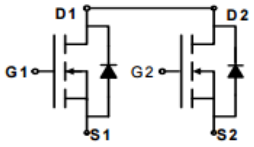
## ● General Description

The ZMD68203TS combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$ . Two P Channel MOSFET inside for dual DIE implication.

## ● Product Summary




$V_{DS1}$ =20V
$V_{DS2}$ =20V
$R_{DS(ON)1}$ =8.5mΩ
$R_{DS(ON)2}$ =8.5mΩ
$I_{D1}$ =14A
$I_{D2}$ =14A

## ● Features

- ■ Advance high cell density Trench technology
- ■Low $R_{DS(ON)}$ to minimize conductive loss
- ■Low Gate Charge for fast switching
- ■ Dual DIE in one package


TSSOP-8

## ●Application

- ■ Power Management
- ■ Load Switch

## ●Ordering Information:

| | |
|---|---|
| Part NO. | ZMD68203TS |
| Marking | ZMD68203T |
| Packing Information | REEL TAPE |
| Basic ordering unit (pcs) | 4000 |

## ●P Channel Absolute Maximum Ratings ($T_C$ =25℃)

| **Parameter** | **Symbol** | Rating | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DS}$ | 20 | V |
| Gate-Source Voltage | $V_{GS}$ | ±12 | V |
| Continuous Drain Current | $I_{D@}$TC=25℃ | 14 | A |
| | $I_{D@}$TC=75℃ | 10.4 | A |
| | $I_{D@}$TC=100℃ | 8.8 | A |
| Pulsed Drain Current ① | $I_{DM}$ | 30 | A |
| Total Power Dissipation(TC=25℃) | $P_D$@TC=25℃ | 3.6 | W |
| Total Power Dissipation(TA=25℃) | $P_D$@TA=25℃ | 0.69 | W |
| Operating Junction Temperature | $T_J$ | -55 to 150 | ℃ |
| Storage Temperature | $T_{STG}$ | -55 to 150 | ℃ |
| Single Pulse Avalanche Energy | $E_{AS}$ | 50 | mJ |

## ●Thermal resistance

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Thermal resistance, junction - case | $R_{thJC}$ | - | - | 34 | ° C/W |
| Thermal resistance, junction - ambient | $R_{thJA}$ | - | - | 180 | ° 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,$I_D$ =250uA | 20 | | | V |
| Gate Threshold Voltage | $V_{GS(TH)}$ | $V_{GS}$ =$V_{DS}$, $I_D$ =250uA | 0.3 | | 1 | V |
| Drain-Source Leakage Current | $I_{DSS}$ | $V_{DS}$=20V, $V_{GS}$ =0V | | | 1.0 | uA |
| Gate- Source Leakage Current | $I_{GSS}$ | $V_{GS}$=±12V ,$V_{DS}$ =0V | | | ±100 | nA |
| Static Drain-source On Resistance | $R_{DS(ON)}$ | $V_{GS}$=4.5V, $I_D$=14A | | 8.5 | 10.5 | mΩ |
| | | $V_{GS}$=2.5V, $I_D$=10A | | 10 | 12 | mΩ |
| Forward Transconductance | $g_{FS}$ | $V_{DS}$ =10V, $I_D$=10A | | 15 | | s |
| Source-drain voltage | $V_{SD}$ | Is=14A | | | 1.28 | V |

## ●Electronic Characteristics

| Parameter | Symbol | Condition | Min. | Typ | Max. | Unit |
|---|---|---|---|---|---|---|
| Input capacitance | $C_{iss}$ | f = 1MHz | - | 1050 | - | pF |
| Output capacitance | $C_{oss}$ | | - | 250 | - | |
| Reverse transfer capacitance | $C_{rss}$ | | - | 120 | - | |

## ●Gate Charge characteristics($T_a$ = 25℃)

| Parameter | Symbol | Condition | Min. | Typ | Max. | Unit |
|---|---|---|---|---|---|---|
| Total gate charge | $Q_g$ | $V_{DD}$ =25V | - | 12 | - | nC |
| Gate - Source charge | $Q_{gs}$ | $I_D$ = 8A | - | 2 | - | |
| Gate - Drain charge | $Q_{gd}$ | $V_{GS}$ = 10V | - | 5 | - | |

## ●P Channel characteristics curve

Fig.1 Power Dissipation Derating Curve

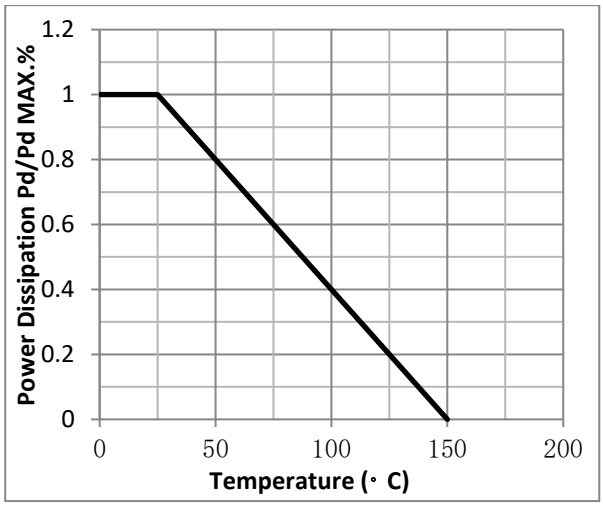



Fig.2 Typical output Characteristics

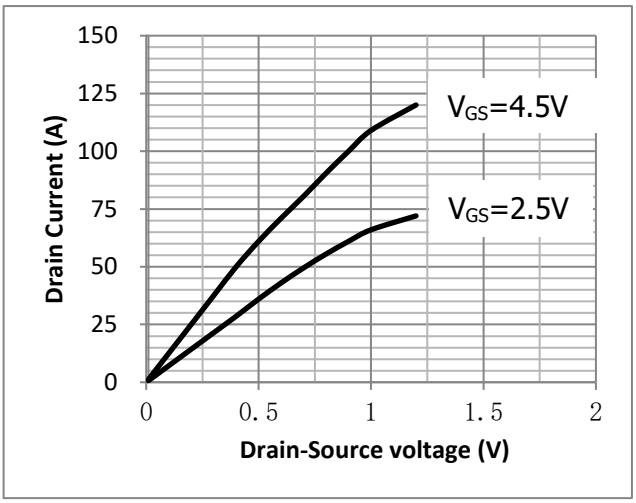



Fig.3 Threshold Voltage V.S Junction Temperature

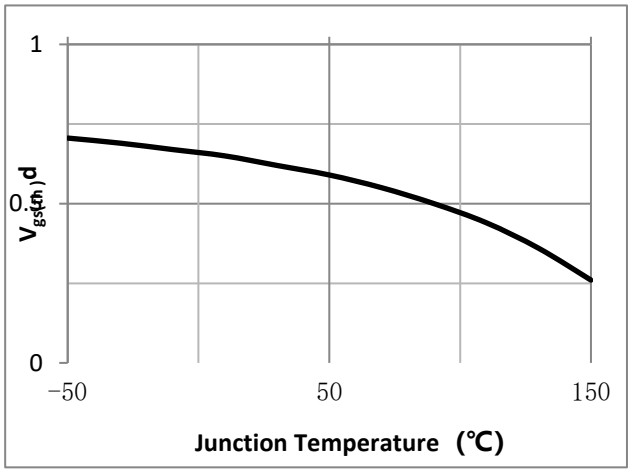



Fig.4 Resistance V.S Drain Current

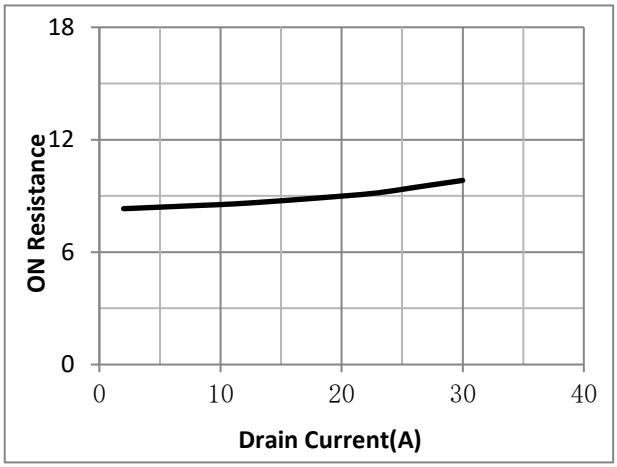



Fig.5 On-Resistance VS Gate Source Voltage

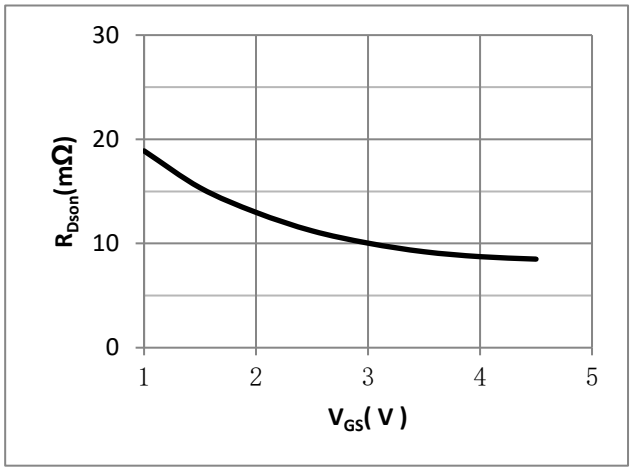
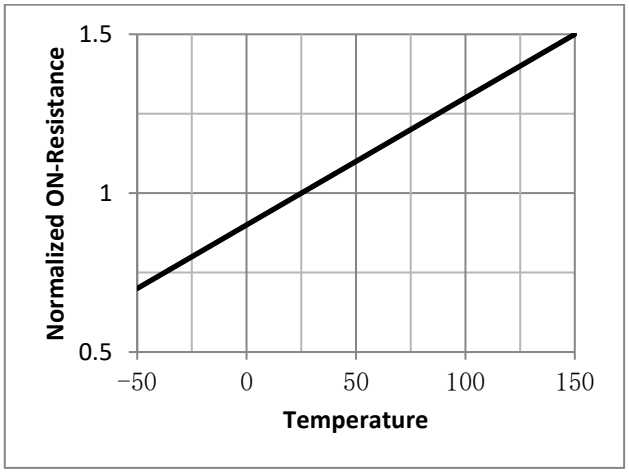



Fig.6 On-Resistance V.S Junction Temperature



## ●Test Circuit

Fig.1 Switching Time Measurement Circuit

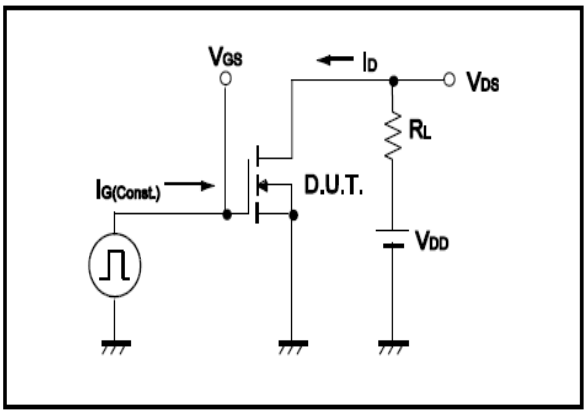



Fig.2 Gate Charge Waveform

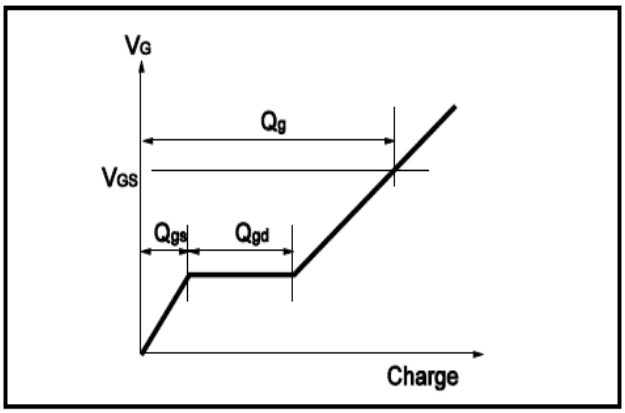



Fig.3 Switching Time Measurement Circuit

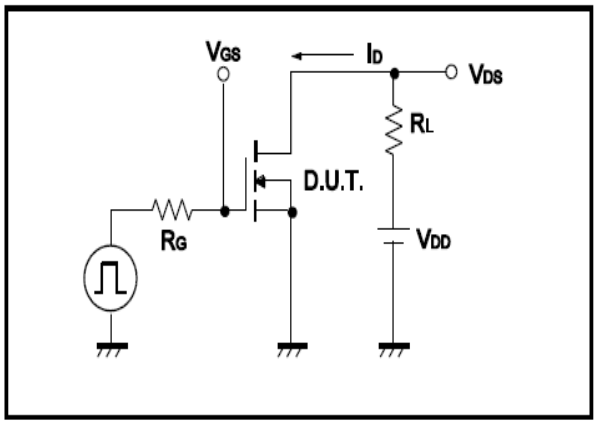



Fig.4 Gate Charge Waveform

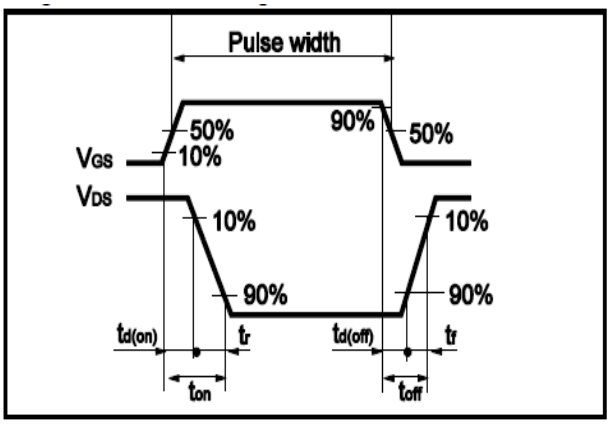



Fig.5 Avalanche Measurement Circuit

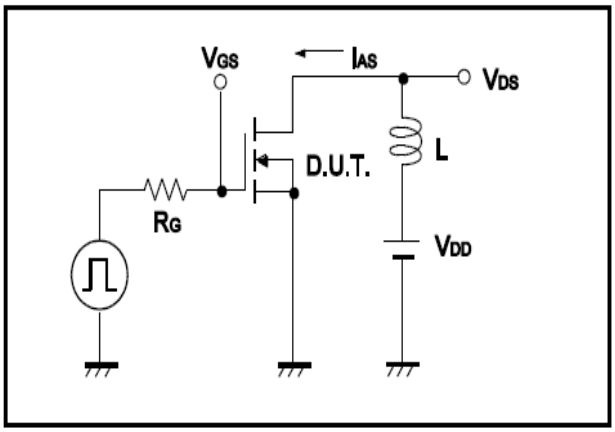
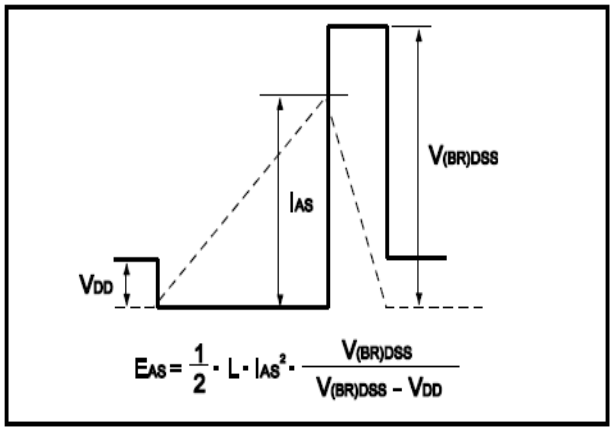



Fig.6 Avalanche Waveform



## ●Dimensions(TSSOP-8)

Unit: mm

| Symbol | Dimensions In Millimeters | |
|---|---|---|
| | Min | Max |
| D | 2.900 | 3.100 |
| E | 4.300 | 4.500 |
| b | 0.190 | 0.300 |
| c | 0.090 | 0.200 |
| E1 | 6.250 | 6.550 |
| A | | 1.100 |
| A2 | 0.800 | 1.000 |
| A1 | 0.020 | 0.150 |
| e | 0.65(BSC) | |
| L | 0.500 | 0.700 |
| H | 0.25(TYP) | |
| Θ | 1° | 7° |