## ● General Description

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

## ● Features

Trench technology

$_{DS(ON)}$ to minimize conductive loss

## ●Application

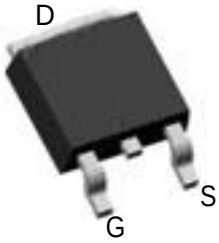
$^{nd}$ Synchronous Rectifier

## ● Product Summary


$V_{DS}$ =100V

$R_{DS(ON)}$ =10mΩ

$I_D$ =12A




TO-252

## ●Ordering Information:

| | |
|---|---|
| Part NO. | ZMS100N10D |
| Marking | ZMS100N10 |
| Packing Information | REEL TAPE |
| Basic ordering unit (pcs) | 2500 |

## ●Absolute Maximum Ratings $T_C$ =25

| **Parameter** | **Symbol** | Rating | Unit |
|---|---|---|---|
| Drain-Source Voltage | $V_{DS}$ | 100 | V |
| Gate-Source Voltage | $V_{GS}$ | ±20 | V |
| Continuous Drain Current | $I_{D@}$TC=25 | 12 | A |
| | $I_{D@}$TC=75 | 10.6 | A |
| | $I_{D@}$TC=100 | 8.8 | A |
| Pulsed Drain Current | $I_{DM}$ | 42 | A |
| Total Power Dissipation | $P_D$@TC=25 | 60 | W |
| Total Power Dissipation | $P_D$@TA=25 | 2.0 | W |
| Operating Junction Temperature | $T_J$ | -55 to 150 | |
| Storage Temperature | $T_{STG}$ | -55 to 150 | |
| Single Pulse Avalanche Energy@L=0.1mH | $E_{AS}$ | 100 | mJ |

## ●Thermal resistance

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|
| Thermal resistance, junction - case | $R_{thJC}$ | - | - | 2.2 | ° C/W |
| Thermal resistance, junction - ambient | $R_{thJA}$ | - | - | 64 | ° 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 | 100 | | | V |
| Gate Threshold Voltage | $V_{GS(TH)}$ | $V_{GS}$ =$V_{DS}$, $I_D$ =250uA | 1.3 | | 2.5 | V |
| Drain-Source Leakage Current | $I_{DSS}$ | $V_{DS}$=100V, $V_{GS}$ =0V | | | 1.0 | uA |
| Gate- Source Leakage Current | $I_{GSS}$ | $V_{GS}$=±20V, $V_{DS}$ =0V | | | 100 | nA |
| Static Drain-source On Resistance | $R_{DS(ON)}$ | $V_{GS}$=10V, $I_D$=20A | | | | |
| | $R_{DS(ON)}$ | $V_{GS}$=4.5V, $I_D$=16A | | | | |
| Forward Transconductance | $g_{FS}$ | $V_{DS}$ =25V, $I_D$=15A | | | | |

## Electronic Characteristics

| Parameter | Symbol | Condition | Min. | Typ | Max. | Unit |
|---|---|---|---|---|---|---|
| Input capacitance | Ciss | f = 1MHz | - | 1400 | - | pF |
| Output capacitance | Coss | | - | 630 | - | |
| Reverse transfer capacitance | Crss | | - | 33 | - | |

## Gate Charge characteristics(Ta= 25 )

| Parameter | Symbol | Condition | Min. | Typ | Max. | Unit |
|---|---|---|---|---|---|---|
| Total gate charge | Qg | $V_{DD}$ =30V | - | 20 | - | nC |
| Gate - Source charge | Qgs | $I_D$ = 8A | - | 3.6 | - | |
| Gate - Drain charge | Qgd | $V_{GS}$ = 10V | - | 2.8 | - | |

Note: ;

Device mounted on FR-4 substrate PC board, 2oz copper, with thermal bias to bottom layer 1inch square copper plate

Fig.1 Gate-Charge Characteristics

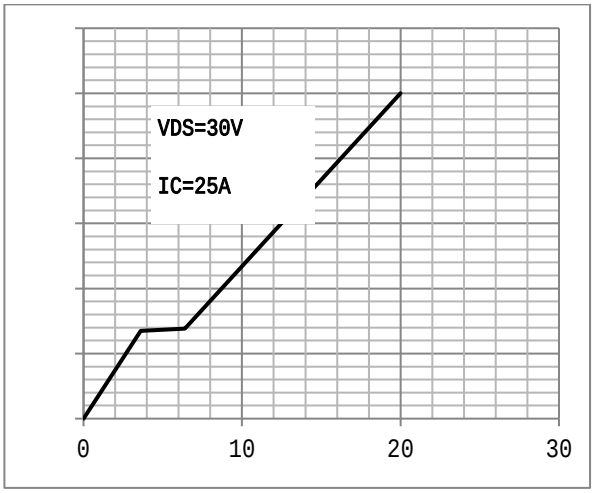



Fig.2 Capacitance Characteristics

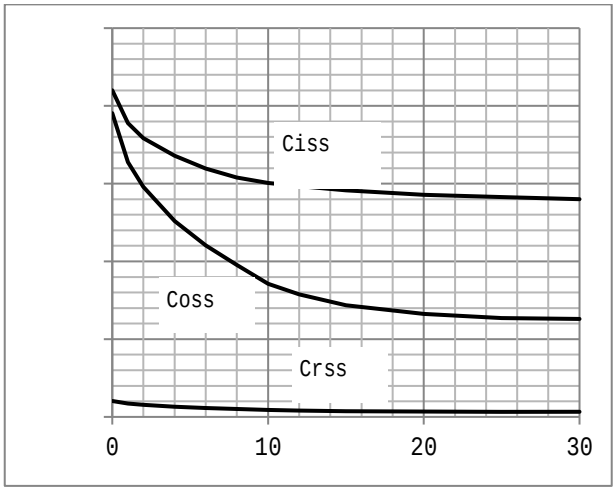



Fig.3 Power Dissipation

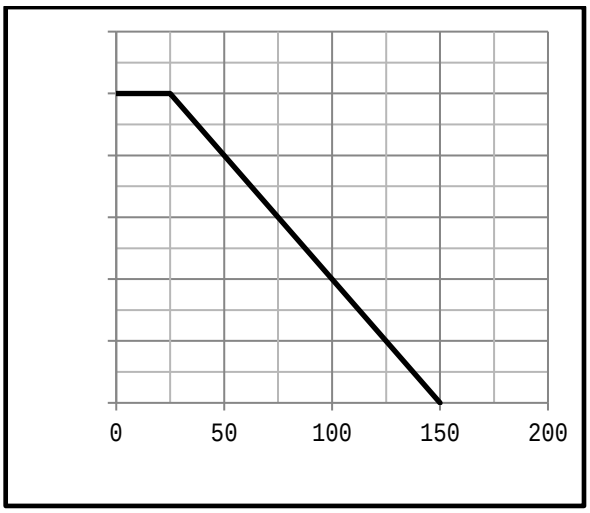



Fig.4 Typical output Characteristics

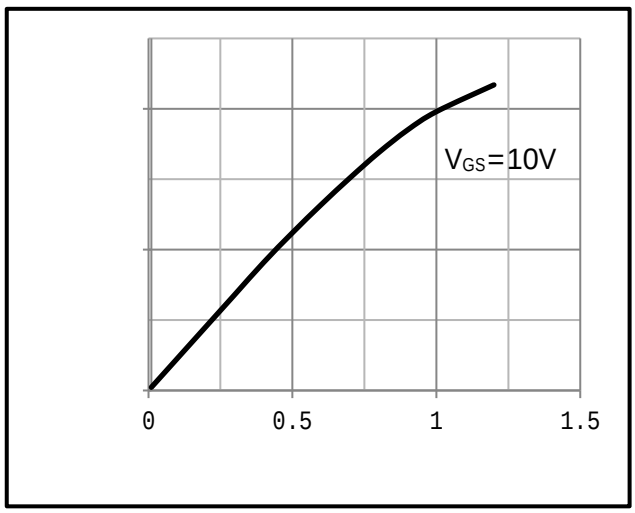



Fig.5 Threshold Voltage V.S Junction Temperature

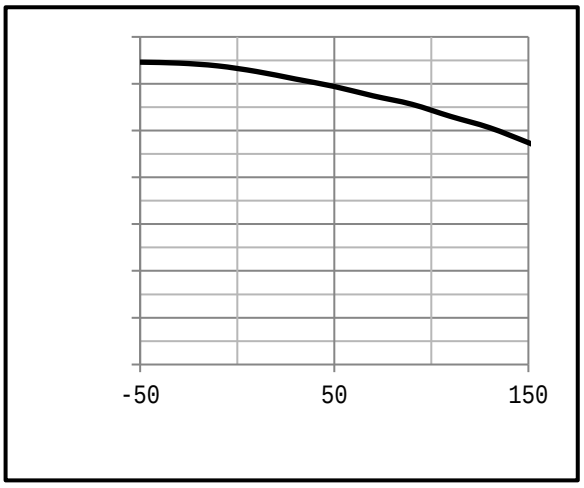
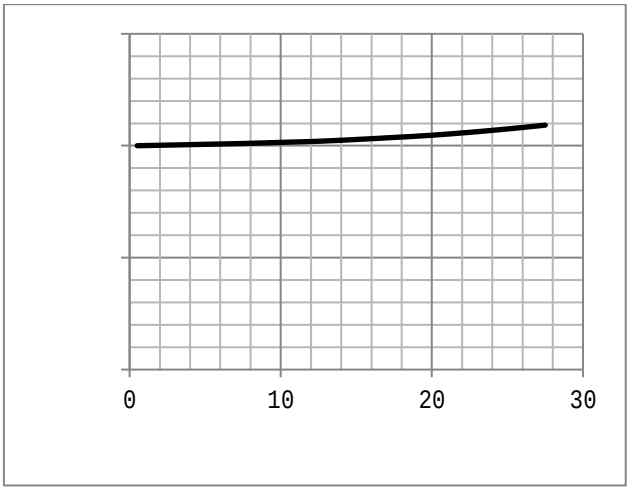



Fig.6 Resistance V.S Drain Current



## ● Dimensions (TO-252)

Unit mm

| SYMBOL | min |
|---|---|