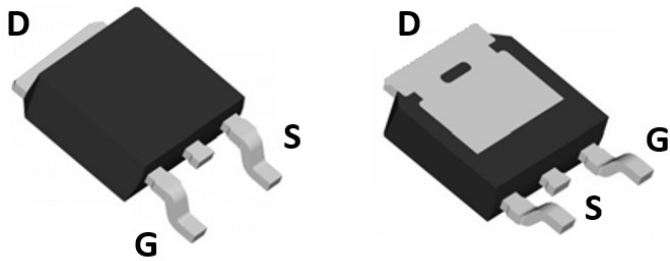
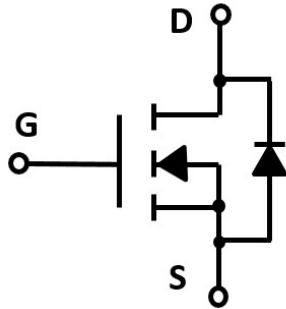


N-Channel Enhancement Mode Field Effect Transistor



TO-252



Product Summary

- V_{DS} 100V
- I_D 25A
- $R_{DS(ON)}$ (at $V_{GS}= 10V$) <45mohm

General Description

- Trench Power MV MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$

Applications

- DC-DC Converters
- Power management functions

■ Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Limit | Unit |
|--|-----------------|----------|---------------------------|
| Drain-source Voltage | V_{DS} | 100 | V |
| Gate-source Voltage | V_{GS} | ± 20 | V |
| Drain Current | I_D | 25 | A |
| Pulsed Drain Current ^A | I_{DM} | 120 | A |
| Single Pulse Avalanche Energy ^B | E_{AS} | 29 | mJ |
| Total Power Dissipation | P_D | 34 | W |
| Thermal Resistance Junction-to-Case ^C | $R_{\theta JC}$ | 4.4 | $^\circ\text{C}/\text{W}$ |
| Junction and Storage Temperature Range | T_J, T_{STG} | -55~+175 | $^\circ\text{C}$ |

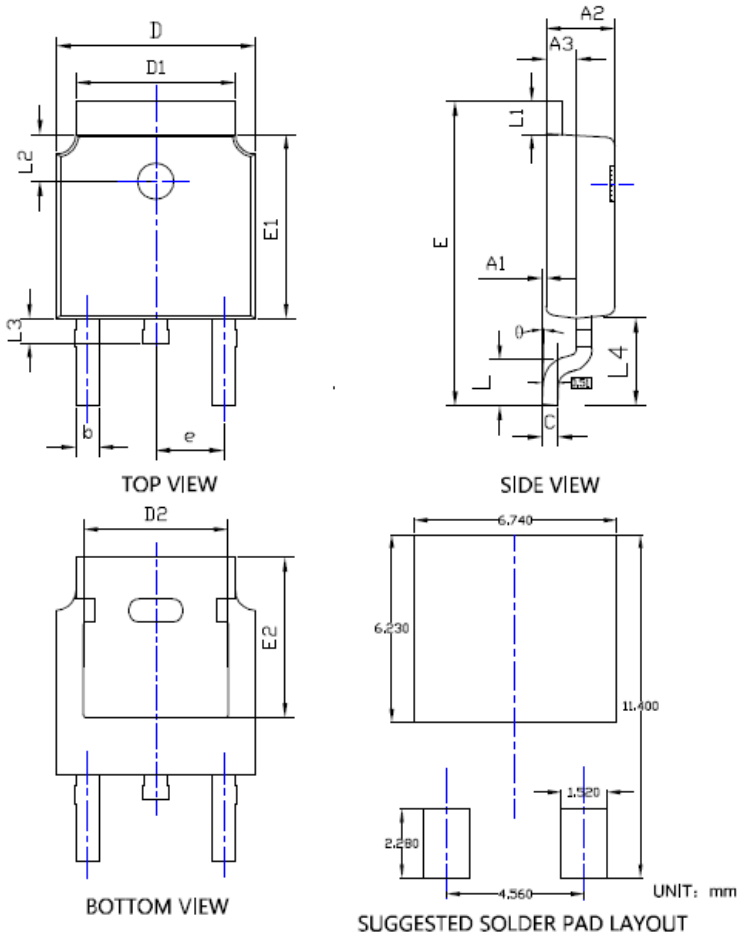
■ Electrical Characteristics (T_J=25°C unless otherwise noted)

| Parameter | Symbol | Conditions | Min | Typ | Max | Units |
|---------------------------------------|---------------------|--|-----|------|------|-------|
| Static Parameter | | | | | | |
| Drain-Source Breakdown Voltage | BV _{DSS} | V _{GS} = 0V, I _D =250μA | 100 | | | V |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =80V, 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 | 1.1 | 1.8 | 3.0 | V |
| Static Drain-Source On-Resistance | R _{DS(on)} | V _{GS} = 10V, I _D =15A | | 35 | 45 | mΩ |
| Diode Forward Voltage | V _{SD} | I _S =15A, V _{GS} =0V | | 0.8 | 1.2 | V |
| Maximum Body-Diode Continuous Current | I _S | | | | 15 | A |
| Dynamic Parameters | | | | | | |
| Input Capacitance | C _{iss} | V _{DS} =50V, V _{GS} =0V, f=1MHZ | | 2250 | | pF |
| Output Capacitance | C _{oss} | | | 33 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 30 | | |
| Switching Parameters | | | | | | |
| Total Gate Charge | Q _g | V _{GS} =10V, V _{DS} =50V, I _D =10A | | 26 | | nC |
| Gate-Source Charge | Q _{gs} | | | 5.4 | | |
| Gate-Drain Charge | Q _{gd} | | | 5.8 | | |
| Reverse Recovery Charge | Q _{rr} | I _F =10A, di/dt=100A/us | | 30.1 | | |
| Reverse Recovery Time | t _{rr} | | | 40 | | |
| Turn-on Delay Time | t _{D(on)} | V _{GS} =10V, V _{DD} =50V, R _L =6.4Ω R _{GEN} =3Ω | | 7 | | ns |
| Turn-on Rise Time | t _r | | | 24 | | |
| Turn-off Delay Time | t _{D(off)} | | | 24 | | |
| Turn-off fall Time | t _f | | | 31 | | |

A. Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.

B. R_{θJA} is the sum of the junction-to-case and case-to-ambient thermal resistance, where the case thermal reference is defined as the solder mounting surface of the drain pins. R_{θJC} is guaranteed by design, while R_{θJA} is determined by the board design. The maximum rating presented here is based on mounting on a 1 in 2 pad of 2oz copper

■ TO-252 Package information



| SYMBOL | DIMENSIONS | | | | | |
|--------|------------|-------|-------|------------|--------|--------|
| | INCHES | | | Millimeter | | |
| | MIN. | NDM. | MAX. | MIN. | NDM. | MAX. |
| A1 | 0.000 | --- | 0.008 | 0.000 | --- | 0.200 |
| A2 | 0.087 | 0.091 | 0.094 | 2.200 | 2.300 | 2.400 |
| A3 | 0.035 | 0.039 | 0.043 | 0.900 | 1.000 | 1.100 |
| b | 0.026 | 0.030 | 0.034 | 0.660 | 0.760 | 0.860 |
| c | 0.018 | 0.020 | 0.023 | 0.460 | 0.520 | 0.580 |
| D | 0.256 | 0.260 | 0.264 | 6.500 | 6.600 | 6.700 |
| D1 | 0.203 | 0.209 | 0.215 | 5.150 | 5.300 | 5.450 |
| D2 | 0.181 | 0.189 | 0.195 | 4.600 | 4.800 | 4.950 |
| E | 0.390 | 0.398 | 0.406 | 9.900 | 10.100 | 10.300 |
| E1 | 0.236 | 0.240 | 0.244 | 6.000 | 6.100 | 6.200 |
| E2 | 0.203 | 0.209 | 0.215 | 5.150 | 5.300 | 5.450 |
| e | 0.090BSC | | | 2.286BSC | | |
| L | 0.049 | 0.059 | 0.069 | 1.250 | 1.500 | 1.750 |
| L1 | 0.035 | --- | 0.050 | 0.900 | --- | 1.270 |
| L2 | 0.055 | --- | 0.075 | 1.400 | --- | 1.900 |
| L3 | 0.240 | 0.310 | 0.039 | 0.600 | 0.800 | 1.000 |
| L4 | 0.114REF | | | 2.900REF | | |
| φ | 0* | --- | 10* | 0* | --- | 10* |

NOTE:

1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.