



Product Summary

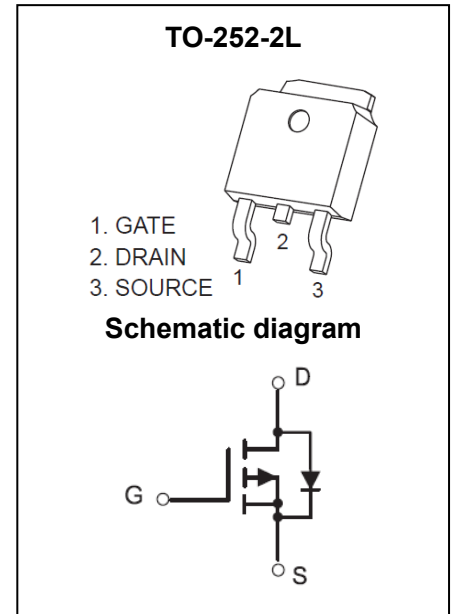
| $V_{(BR)DSS}$ | $R_{DS(on)TYP}$ | I_D |
|---------------|-----------------|-------|
| -100V | 140mΩ@10V | -13A |
| | 150mΩ@4.5V | |

Feature

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested

Application

- Power Switching Application
- DC/DC Converter



Package Marking and Ordering Information

| Part Number | Package | Marking | Packing | Reel Size | Tape Width | Qty |
|--------------|-----------|----------|-------------|-----------|------------|---------|
| GPM14DP10LTF | TO-252-2L | M14DP10L | Reel & Tape | 330mm | 16mm | 2500pcs |

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Value | Unit | |
|--|---------------------------|-----------|--------------------|---|
| Drain-Source Voltage | V_{DS} | -100 | V | |
| Gate-Source Voltage | V_{GS} | ±20 | V | |
| Continuous Drain Current ¹ | $T_C = 25^\circ\text{C}$ | I_D | -13 | A |
| | $T_C = 100^\circ\text{C}$ | I_D | -10 | A |
| Pulsed Drain Current ² | I_{DM} | -52 | A | |
| Single Pulsed Avalanche Current ³ | I_{AS} | -16 | A | |
| Single Pulsed Avalanche Energy ³ | E_{AS} | 64 | mJ | |
| Power Dissipation ⁵ | $T_C = 25^\circ\text{C}$ | P_D | 33 | W |
| Thermal Resistance from Junction to Ambient ⁶ | $R_{\theta JA}$ | 56 | $^\circ\text{C/W}$ | |
| Thermal Resistance from Junction to Case | $R_{\theta JC}$ | 3.75 | $^\circ\text{C/W}$ | |
| Storage Temperature and Junction Temperature | T_{STG}, T_J | -55~ +150 | $^\circ\text{C}$ | |

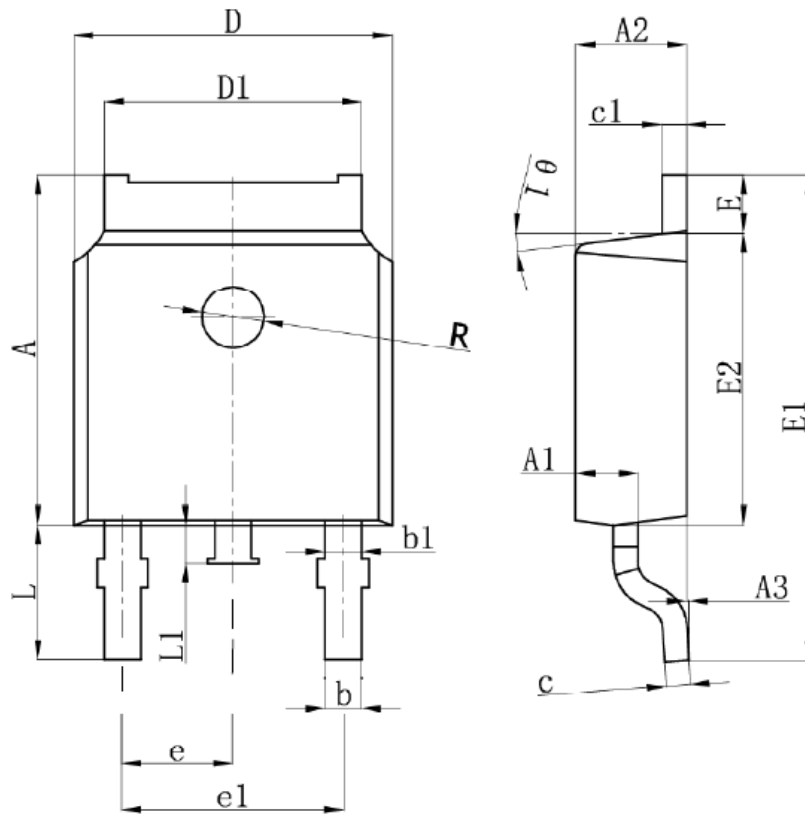
MOSFET ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Type | Max | Unit |
|---|---------------|--|------|------|-----------|-----------|
| Off Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = -250\mu A$ | -100 | | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = -100V, V_{GS} = 0V$ | | | -1 | μA |
| Gate-Body Leakage Current | I_{GSS} | $V_{GS} = \pm 20V, V_{DS} = 0V$ | | | ± 100 | nA |
| On Characteristics⁴ | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = -250\mu A$ | -1.1 | -1.6 | -2.2 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS} = -10V, I_D = -12A$ | | 140 | 175 | $m\Omega$ |
| | | $V_{GS} = -4.5V, I_D = -10A$ | | 150 | 185 | $m\Omega$ |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS} = -45V, V_{GS} = 0V, f = 1MHz$ | | 2608 | | pF |
| Output Capacitance | C_{oss} | | | 47 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 40 | | |
| Gate Resistance | R_g | $V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$ | | 9 | | Ω |
| Switching Characteristics | | | | | | |
| Total Gate Charge | Q_g | $V_{DS} = -55V, V_{GS} = -10V, I_D = -15A$ | | 49 | | nC |
| Gate-Source Charge | Q_{gs} | | | 8 | | |
| Gate-Drain Charge | Q_{gd} | | | 9.3 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD} = -50V, V_{GS} = -10V, I_D = -10A, R_G = -9.1\Omega$ | | 11 | | ns |
| Turn-On Rise Time | t_r | | | 50 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 24 | | |
| Turn-Off Fall Time | t_f | | | 35 | | |
| Source - Drain Diode Characteristics | | | | | | |
| Diode Forward Voltage ⁴ | V_{SD} | $V_{GS} = 0V, I_S = -12A$ | | | -1.2 | V |

Notes :

1. The maximum current rating is limited by package. And device mounted on a large heatsink.
2. Pulse Test : Pulse Width $\leq 10\mu s$, duty cycle $\leq 1\%$.
3. EAS condition: $V_{DD} = -50V, V_{GS} = -10V, L = 0.5mH, R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$.
4. Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
5. The power dissipation P_D is limited by $T_{J(MAX)} = 150^\circ\text{C}$. And device mounted on a large heatsink.
6. Device mounted on $1in^2$ FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ\text{C}$.

TO-252-2L Package Information



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|----------|---------------------------|--------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 6.850 | 7.250 | 0.269 | 0.285 |
| A1 | 0.960 | 1.060 | 0.038 | 0.042 |
| A2 | 2.200 | 2.400 | 0.087 | 0.094 |
| A3 | 0.000 | 0.15 | 0.000 | 0.006 |
| b | 0.760REF | | 0.030REF | |
| b1 | 1.000REF | | 0.039REF | |
| c | 0.508REF | | 0.020REF | |
| c1 | 0.508REF | | 0.020REF | |
| D | 6.250 | 6.850 | 0.246 | 0.270 |
| D1 | 5.050 | 5.650 | 0.199 | 0.222 |
| E | 0.850 | 1.200 | 0.033 | 0.047 |
| E1 | 9.700 | 10.400 | 0.382 | 0.409 |
| E2 | 5.800 | 6.400 | 0.228 | 0.252 |
| e | 2.286BSC | | 0.090BSC | |
| e1 | 4.572REF | | 0.180REF | |
| L | 2.650 | 2.950 | 0.104 | 0.116 |
| L1 | 0.600 | 1.000 | 0.024 | 0.039 |
| θ | 7°REF | | 7°REF | |
| R | 1.300REF | | 0.051REF | |

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