



#### Product Summary

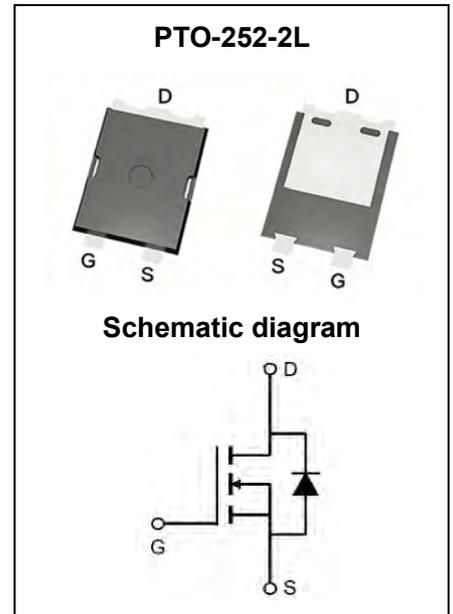
| $V_{(BR)DSS}$ | $R_{DS(on)TYP}$     | $I_D$ |
|---------------|---------------------|-------|
| 30V           | 1.7m $\Omega$ @10V  | 180A  |
|               | 2.3m $\Omega$ @4.5V |       |

#### Feature

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

#### Application

- Power Management
- Load Switching



#### Package Marking and Ordering Information

| Part Number  | Package    | Marking  | Packing     | Reel Size | Tape Width | Qty     |
|--------------|------------|----------|-------------|-----------|------------|---------|
| GPM018N03LTV | PTO-252-2L | M018N03L | Reel & Tape | 330mm     | 16mm       | 3000pcs |

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

| Parameter  | Symbol                   | Value                     | Unit               |
|--|--------------------------|---------------------------|--------------------|
| Drain-Source Voltage                                     | $V_{DS}$                 | 30                        | V                  |
| Gate-Source Voltage                                      | $V_{GS}$                 | $\pm 20$                  | V                  |
| Continuous Drain Current <sup>1</sup>                    | $I_D$                    | $T_C = 25^\circ\text{C}$  | 180                |
|  |                          | $T_C = 100^\circ\text{C}$ | 110                |
| Pulsed Drain Current <sup>2</sup>                        | $I_{DM}$                 | 720                       | A                  |
| Single Pulsed Avalanche Current <sup>3</sup>             | $I_{AS}$                 | 60                        | A                  |
| Single Pulsed Avalanche Energy <sup>3</sup>              | $E_{AS}$                 | 900                       | mJ                 |
| Power Dissipation <sup>5</sup>                           | $T_C = 25^\circ\text{C}$ | $P_D$                     | 63                 |
| Thermal Resistance from Junction to Ambient <sup>6</sup> | $R_{\theta JA}$          | 55                        | $^\circ\text{C/W}$ |
| Thermal Resistance from Junction to Case                 | $R_{\theta JC}$          | 2                         | $^\circ\text{C/W}$ |
| Operating Junction and Storage Temperature Range         | $T_J, T_{STG}$           | -55~ +150                 | $^\circ\text{C}$   |

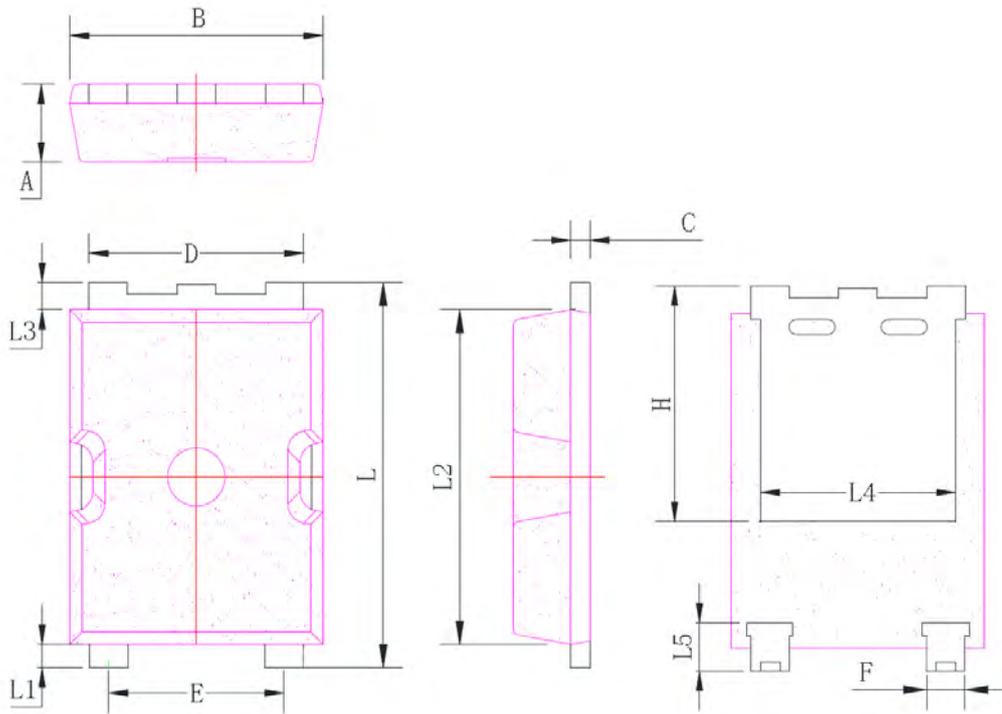
## MOSFET ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

| Parameter                                 | Symbol        | Test Condition   | Min | Type | Max       | Unit       |
|---|---------------|--|-----|------|-----------|------------|
| <b>Off Characteristics</b>                |               |  |     |      |           |            |
| Drain-Source Breakdown Voltage            | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$                            | 30  |      |           | V          |
| Zero Gate Voltage Drain Current           | $I_{DSS}$     | $V_{DS} = 30V, V_{GS} = 0V$                              |     |      | 1         | $\mu A$    |
| Gate-Body Leakage Current                 | $I_{GSS}$     | $V_{GS} = \pm 20V, V_{DS} = 0V$                          |     |      | $\pm 100$ | nA         |
| <b>On Characteristics<sup>4</sup></b>     |               |  |     |      |           |            |
| Gate Threshold Voltage                    | $V_{GS(th)}$  | $V_{DS} = V_{GS}, I_D = 250\mu A$                        | 1   | 1.5  | 3         | V          |
| Drain-Source On-Resistance                | $R_{DS(on)}$  | $V_{GS} = 10V, I_D = 20A$                                |     | 1.7  | 2.2       | m $\Omega$ |
|   |               | $V_{GS} = 4.5V, I_D = 10A$                               |     | 2.3  | 3         |            |
| <b>Dynamic Characteristics</b>            |               |  |     |      |           |            |
| Input Capacitance                         | $C_{iss}$     | $V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$                    |     | 7725 |           | pF         |
| Output Capacitance                        | $C_{oss}$     |  |     | 867  |           |            |
| Reverse Transfer Capacitance              | $C_{rss}$     |  |     | 793  |           |            |
| Gate Resistance                           | $R_g$         | $V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$                     |     | 1    |           | $\Omega$   |
| <b>Switching Characteristics</b>          |               |  |     |      |           |            |
| Total Gate Charge                         | $Q_g$         | $V_{DS} = 15V, V_{GS} = 10V, I_D = 20A$                  |     | 163  |           | nC         |
| Gate-Source Charge                        | $Q_{gs}$      |  |     | 19   |           |            |
| Gate-Drain Charge                         | $Q_{gd}$      |  |     | 40   |           |            |
| Gate Plateau Voltage                      | $V_{plateau}$ |  |     | 2.7  |           | V          |
| Turn-On Delay Time                        | $t_{d(on)}$   | $V_{DD} = 30V, V_{GS} = 10V, R_G = 1.8\Omega, I_D = 30A$ |     | 18   |           | ns         |
| Turn-On Rise Time                         | $t_r$         |  |     | 10   |           |            |
| Turn-Off Delay Time                       | $t_{d(off)}$  |  |     | 64   |           |            |
| Turn-Off Fall Time                        | $t_f$         |  |     | 16   |           |            |
| <b>Source-Drain Diode Characteristics</b> |               |  |     |      |           |            |
| Diode Forward Voltage <sup>4</sup>        | $V_{SD}$      | $V_{GS} = 0V, I_S = 20A$                                 |     |      | 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:  $V_{DD} = 30V, V_{GS} = 10V, L = 0.5mH, R_G = 25\Omega$  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  $T_A = 25^\circ\text{C}$ .

## PTO-252-2L Package Information



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |      |
|--------|---------------------------|-------|----------------------|------|
|        | Min.                      | Max.  | Min.                 | Max. |
| A      | 1.90                      | 2.10  | 0.07                 | 0.08 |
| B      | 6.50                      | 6.70  | 0.26                 | 0.26 |
| C      | 0.45                      | 0.60  | 0.02                 | 0.02 |
| D      | 5.50                      | 5.70  | 0.22                 | 0.22 |
| E      | 4.50                      | 4.70  | 0.18                 | 0.19 |
| F      | 0.90                      | 1.05  | 0.04                 | 0.04 |
| H      | 5.95                      | 6.25  | 0.23                 | 0.25 |
| L      | 9.80                      | 10.00 | 0.39                 | 0.39 |
| L1     | 0.50                      | 0.70  | 0.02                 | 0.03 |
| L2     | 8.50                      | 8.70  | 0.33                 | 0.34 |
| L3     | 0.60                      | 0.80  | 0.02                 | 0.03 |
| L4     | 4.65                      | 4.90  | 0.18                 | 0.19 |
| L5     | 1.05                      | 1.30  | 0.04                 | 0.05 |

**Attention:**

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