



PJMG40P60TE

P-Channel Enhancement Mode Power MOSFET

Product Summary

- $V_{DS} = -60V, I_D = -40A$
- $R_{DS(on)} < 28m\Omega @ V_{GS} = -10V$

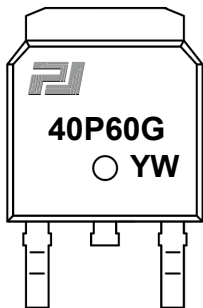
Features

- Advanced Split Gate Trench Technology
- 100% Avalanche Tested
- RoHS and Reach Compliant
- Halogen and Antimony Free
- Moisture Sensitivity Level 3

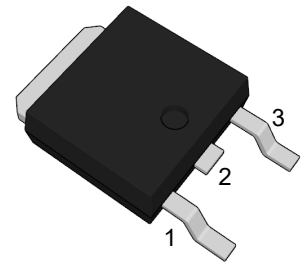
Application

- Battery Switching Application
- Hard Switched and High Frequency Circuits
- Power Management

Marking Code



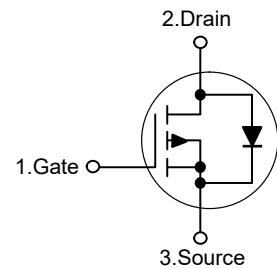
TO-252



(Top View)

| Pin | Description |
|-----|-------------|
| 1 | Gate |
| 2 | Drain |
| 3 | Source |

Schematic Diagram



Absolute Maximum Ratings

Ratings at 25°C case temperature unless otherwise specified.

| Parameter | Symbol | Value | Unit |
|--|-----------|-------------|------|
| Drain-Source Voltage | $-V_{DS}$ | 60 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | V |
| Drain Current-Continuous | $-I_D$ | 40 | A |
| Drain Current-Pulsed ^{Note1} | $-I_{DM}$ | 320 | A |
| Maximum Power Dissipation | P_D | 65 | W |
| Single pulse avalanche energy ^{Note2} | E_{AS} | 90 | mJ |
| Junction Temperature | T_J | 150 | °C |
| Storage Temperature Range | T_{STG} | -55 to +150 | °C |

Thermal Characteristics

| | | | |
|--------------------------------------|-----------------|-----|------|
| Thermal Resistance, Junction-to-Case | $R_{\theta JC}$ | 1.9 | °C/W |
|--------------------------------------|-----------------|-----|------|



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Electrical Characteristics

($T_j=25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---|----------------|---|------|------|-----------|------------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | $-V_{(BR)DSS}$ | $V_{GS}=0V, I_D=-250\mu A$ | 60 | -- | -- | V |
| Zero Gate Voltage Drain Current | $-I_{DSS}$ | $V_{DS}=-60V, V_{GS}=0V$ | -- | -- | 1 | μA |
| Gate-Body Leakage Current | I_{GSS} | $V_{GS}=\pm 20V, V_{DS}=0V$ | -- | -- | ± 100 | nA |
| Gate Threshold Voltage ^{Note3} | $-V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=-250\mu A$ | 1.2 | 1.75 | 2.5 | V |
| Drain-Source On-Resistance ^{Note3} | $R_{DS(on)}$ | $V_{GS}=-10V, I_D=-15A$ | -- | 18 | 25 | m Ω |
| | | $V_{GS}=-4.5V, I_D=-10A$ | -- | 21 | 30 | m Ω |
| Forward Transconductance ^{Note3} | g_{FS} | $V_{DS}=-5V, I_D=-1A$ | -- | 5 | -- | S |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=-25V, V_{GS}=0V, f=1\text{MHz}$ | -- | 1505 | -- | pF |
| Output Capacitance | C_{oss} | | -- | 302 | -- | pF |
| Reverse Transfer Capacitance | C_{rss} | | -- | 17 | -- | pF |
| Gate Resistance | R_g | $V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$ | -- | 7 | -- | Ω |
| Total Gate Charge | Q_g | $V_{DS}=-30V, I_D=-3A,$ $V_{GS}=0\sim -10V$ | -- | 23 | -- | nC |
| Gate-Source Charge | Q_{gs} | | -- | 4 | -- | nC |
| Gate-Drain Charge | Q_{gd} | | -- | 3 | -- | nC |
| Switching Characteristics | | | | | | |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DD}=-30V, I_D=-4A,$ $V_{GS}=-10V, R_{GEN}=6\Omega$ | -- | 7 | -- | nS |
| Turn-on Rise Time | t_r | | -- | 5 | -- | nS |
| Turn-off Delay Time | $t_{d(off)}$ | | -- | 65 | -- | nS |
| Turn-off Fall Time | t_f | | -- | 20 | -- | nS |
| Source-Drain Diode Characteristics | | | | | | |
| Diode Forward Voltage | $-V_{SD}$ | $V_{GS}=0V, I_S=-6A$ | -- | -- | 1.2 | V |
| Diode Forward Current | $-I_S$ | | -- | -- | 40 | A |

Note: 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2. EAS condition: $T_j=25^\circ\text{C}, V_{DD}=-30V, V_G=-10V, L=0.5\text{mH}, R_G=25\Omega, I_{AS}=-19A$.

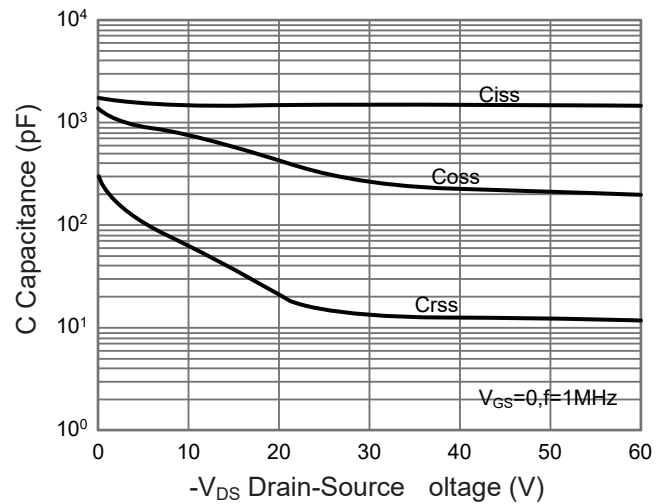
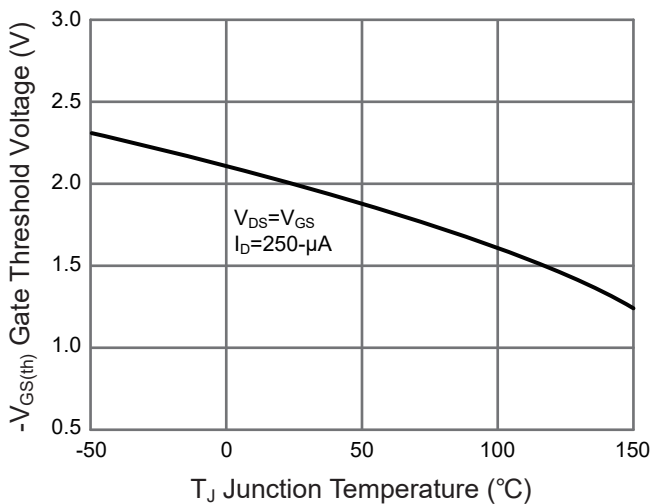
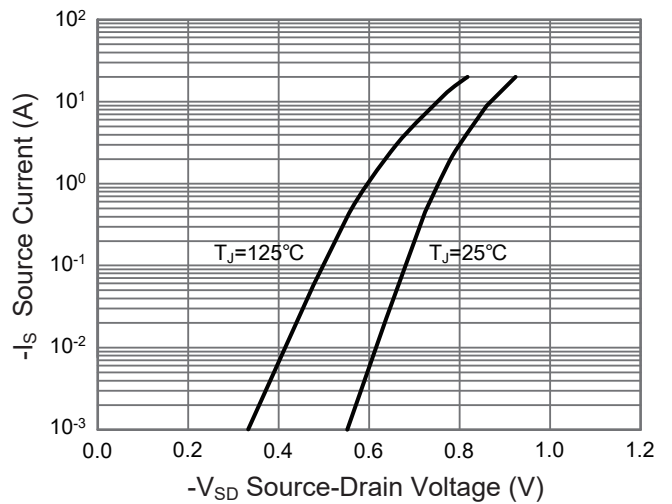
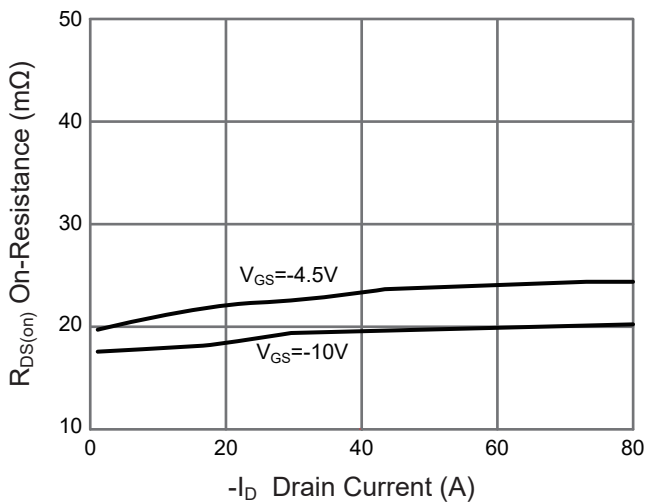
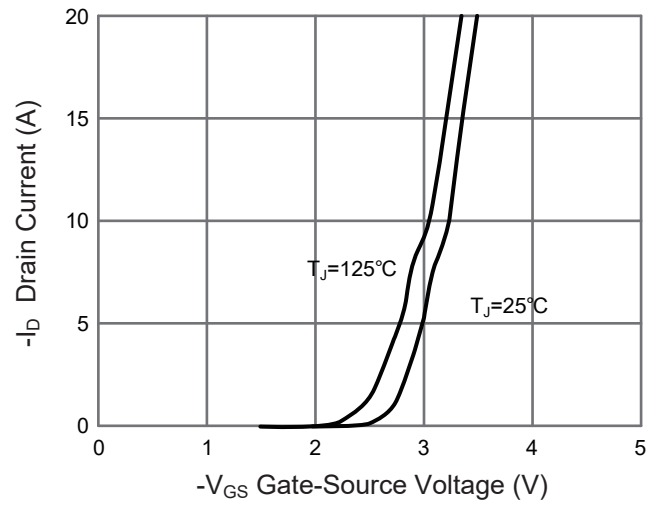
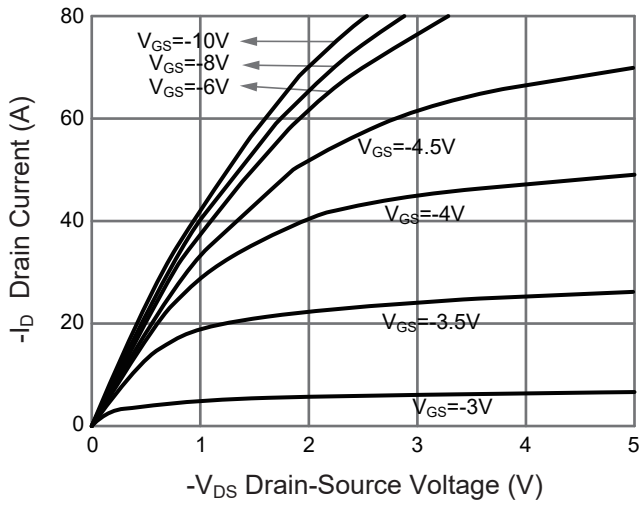
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 0.5\%$.



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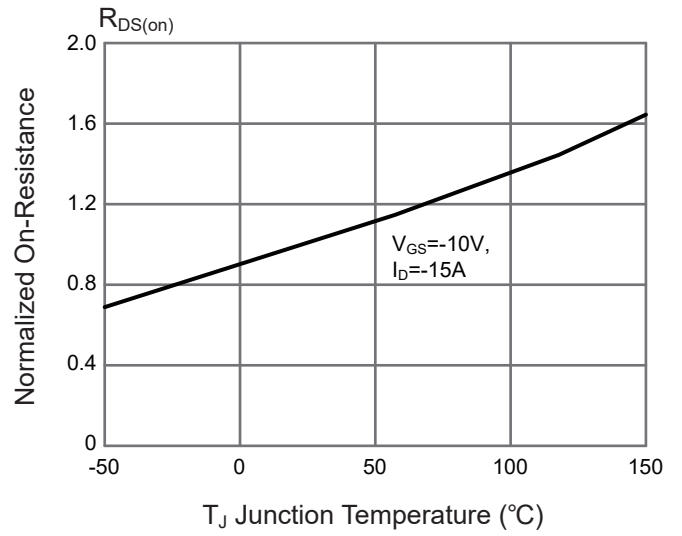
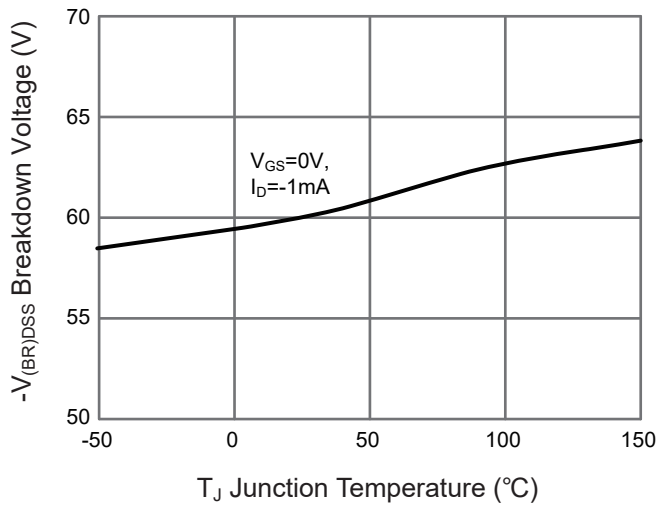
Typical Characteristic Curves





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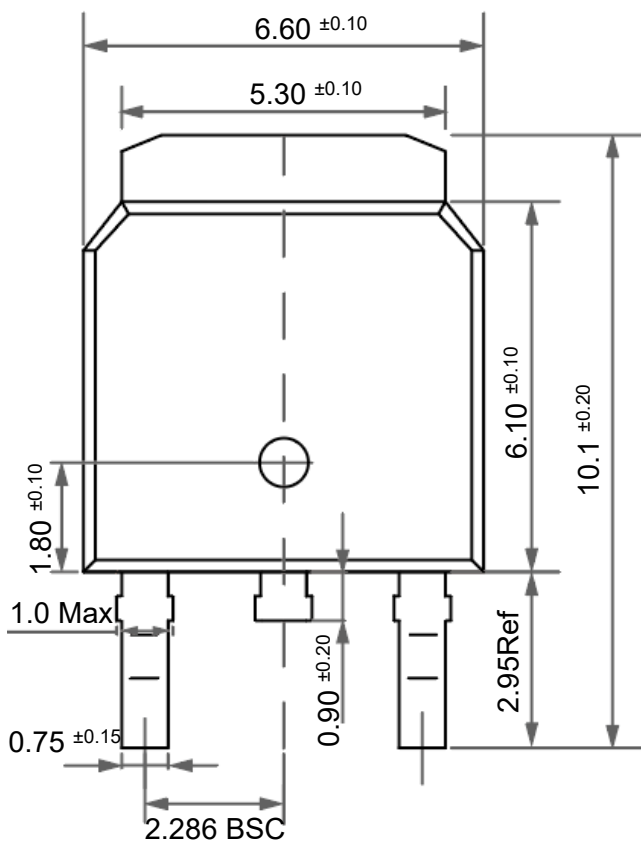
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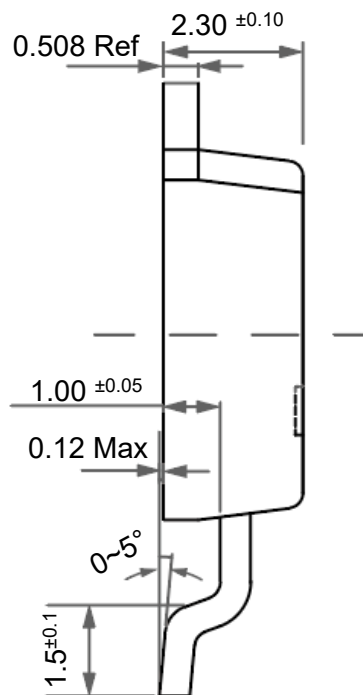
Package Outline

TO-252

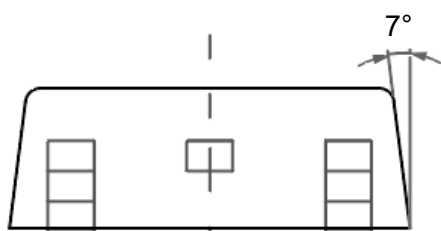
Dimensions in mm



Front View



Side View



Bottom View

Ordering Information

| Device | Package | Shipping |
|-------------|---------|------------------------|
| PJMG40P60TE | TO-252 | 2,500PCS/Reel&13inches |

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