

Features

- Advanced Trench Process Technology
- High Density Cell Design for Ultra Low On-Resistance
- Reliable and Rugged
- Epoxy Meets UL 94 V-0 Flammability Rating
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

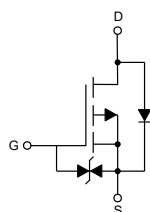
Maximum Ratings

- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 1.79°C/W Junction to Case ^(Note 1)

| Parameter | | Symbol | Rating | Unit |
|--------------------------|---------------------------|----------|--------|------|
| Drain-Source Voltage | | V_{DS} | -100 | V |
| Gate-Source Voltage | | V_{GS} | ±20 | V |
| Continuous Drain Current | $T_C=25^{\circ}\text{C}$ | I_D | -20 | A |
| | $T_C=100^{\circ}\text{C}$ | | -12 | A |
| Pulsed Drain Current | | I_{DM} | -72 | A |
| Total Power Dissipation | | P_D | 70 | W |

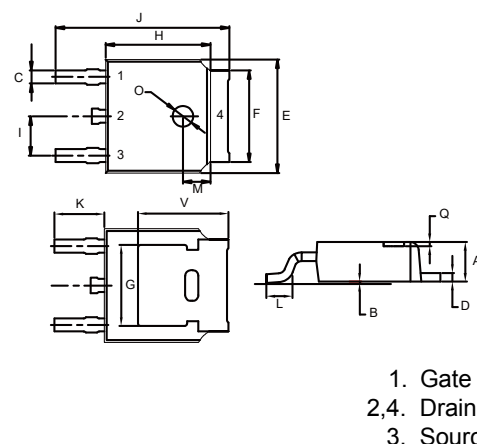
Note: 1.Surface Mounted on FR4 Board, $t \leq 10$ sec.

Internal Structure



P-CHANNEL MOSFET

DPAK(TO-252)



| DIMENSIONS | | | | | |
|------------|--------|-------|------|-------|------|
| DIM | INCHES | | MM | | NOTE |
| | MIN | MAX | MIN | MAX | |
| A | 0.087 | 0.094 | 2.20 | 2.40 | |
| B | 0.000 | 0.005 | 0.00 | 0.13 | |
| C | 0.026 | 0.034 | 0.66 | 0.86 | |
| D | 0.018 | 0.023 | 0.46 | 0.58 | |
| E | 0.256 | 0.264 | 6.50 | 6.70 | |
| F | 0.201 | 0.215 | 5.10 | 5.46 | |
| G | 0.190 | | 4.83 | | TYP. |
| H | 0.236 | 0.244 | 6.00 | 6.20 | |
| I | 0.086 | 0.094 | 2.18 | 2.39 | |
| J | 0.386 | 0.409 | 9.80 | 10.40 | |
| K | 0.114 | | 2.90 | | TYP. |
| L | 0.055 | 0.067 | 1.40 | 1.70 | |
| M | 0.063 | | 1.60 | | TYP. |
| O | 0.043 | 0.051 | 1.10 | 1.30 | |
| Q | 0.000 | 0.012 | 0.00 | 0.30 | |
| V | 0.211 | | 5.35 | | TYP. |

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--|----------------------|---|------|------|------|------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | V _{(BR)DSS} | V _{GS} =0V, I _D =-250μA | -100 | | | V |
| Gate-Source Leakage Current | I _{GSS} | V _{DS} =0V, V _{GS} =±20V | | | ±20 | μA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =-100V, V _{GS} =0V | | | -1 | μA |
| Gate-Threshold Voltage ^(Note 2) | V _{GS(th)} | V _{DS} =V _{GS} , I _D =-250μA | -1 | -1.9 | -3 | V |
| Drain-Source On-Resistance ^(Note 2) | R _{DS(on)} | V _{GS} =-10V, I _D =-16A | | 85 | 100 | mΩ |
| Forward Tranconductance ^(Note 2) | g _{FS} | V _{DS} =-50V, I _D =-10A | 5 | | | S |
| Dynamic Characteristics ^(Note 3) | | | | | | |
| Input Capacitance | C _{iss} | V _{DS} =-25V, V _{GS} =0V, f=1MHz | | 2100 | | pF |
| Output Capacitance | C _{oss} | | | 590 | | |
| Reverse Transfer Capacitance | C _{rss} | | | 140 | | |
| Total Gate Charge | Q _g | V _{DS} =-80V, V _{GS} =-10V, I _D =-16A | | 61 | | nC |
| Gate-Source Charge | Q _{gs} | | | 14 | | |
| Gate-Drain Charge | Q _{gd} | | | 29 | | |
| Turn-On Delay Time | t _{d(on)} | V _{DD} =-50V, I _D =-16A V _{GS} =-10V, R _{GEN} =9.1Ω | | 16 | | ns |
| Turn-On Rise Time | t _r | | | 73 | | |
| Turn-Off Delay Time | t _{d(off)} | | | 34 | | |
| Turn-Off Fall Time | t _f | | | 57 | | |
| Drain-Source Body Diode Characteristics | | | | | | |
| Continuous Body Diode Current | I _S | T _C =25°C | | | -18 | A |
| Body Diode Voltage | V _{SD} | I _S =-10A, V _{GS} =0V | | | -1.2 | V |
| Reverse Recovery Time | t _{rr} | I _F =-16A, di/dt=100A/μs | | 88.3 | | ns |
| Reverse Recovery Charge | Q _{rr} | | | 65.9 | | nC |
| Forward Turn-on Time | t _{on} | Intrinsic Turn-On Time is Negligible(Turn-On is Dominated by L _S +L _D) | | | | |

Note 2. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

3. Guaranteed by Design, Not Subject to Production Testing.

Curve Characteristics

Fig. 1 - Typical Output Characteristics

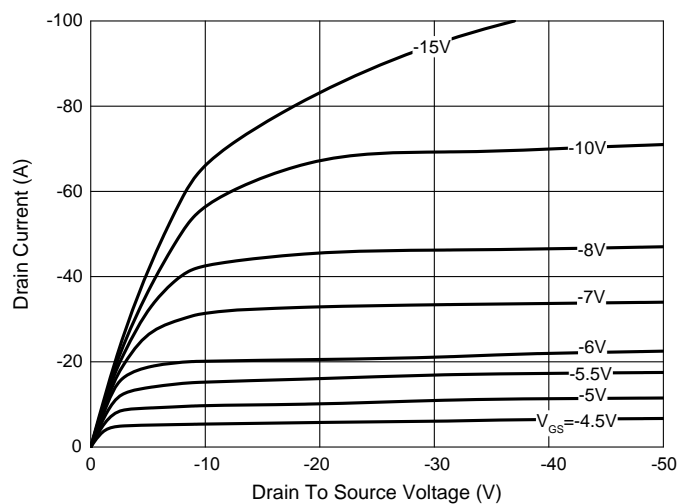


Fig. 2 - $R_{DS(ON)}$ —Temperature

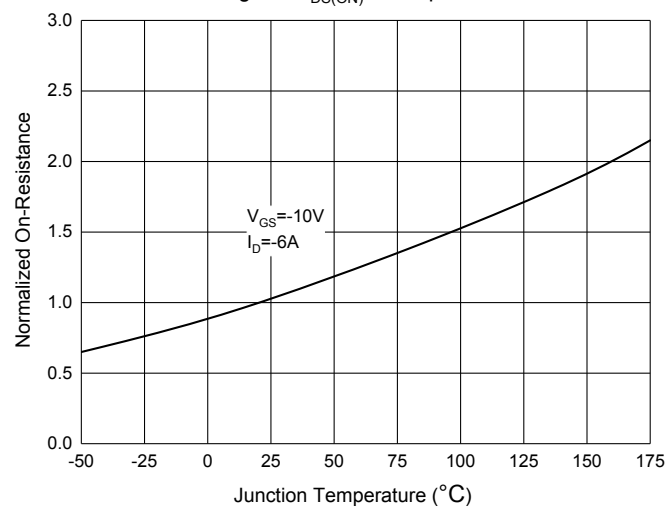


Fig. 3 - $R_{DS(ON)}$ — I_D

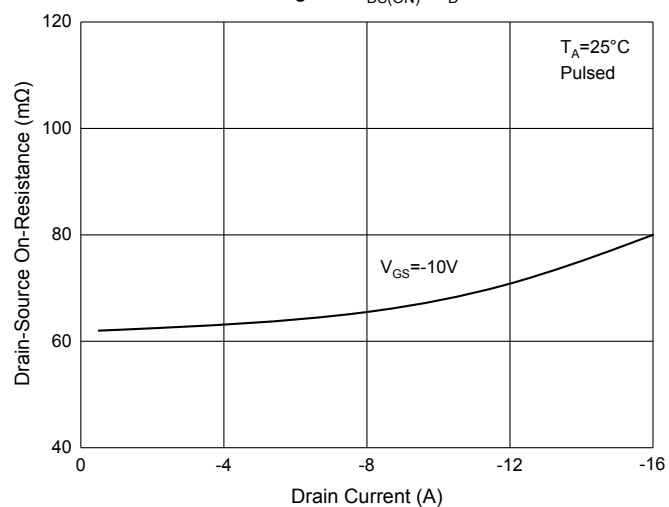
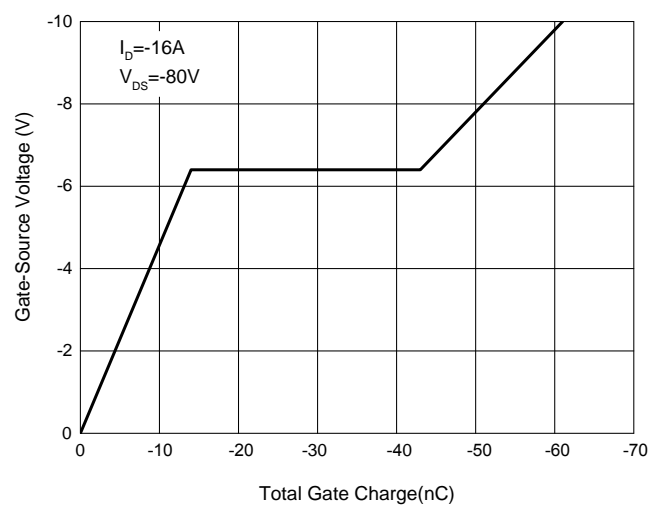


Fig. 4 - Total Gate Charge Characteristics



Ordering Information

| Device | Packing |
|----------------|-------------------------|
| Part Number-TP | Tape&Reel: 2.5Kpcs/Reel |

Note : Adding "-HF" Suffix for Halogen Free, eg. Part Number-TP-HF

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