

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)

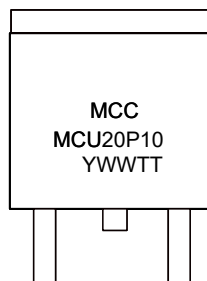
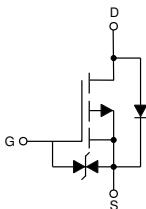
Maximum Ratings

- 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 | I_D | $T_C=25^\circ\text{C}$ | -20 | A |
| | | $T_C=100^\circ\text{C}$ | -12 | A |
| Pulsed Drain Current | I_{DM} | -72 | A | |
| Single Pulsed Avalanche Energy ^(Note 2) | E_{AS} | 225 | mJ | |
| Total Power Dissipation | P_D | 70 | W | |

Note: 1. Surface Mounted on FR4 Board, $t \leq 10$ sec.
2. $L=0.5\text{mH}$, $V_{DD}=-50\text{V}$, $V_G=-10\text{V}$, $R_G=25\Omega$, Starting $T_J=25^\circ\text{C}$.

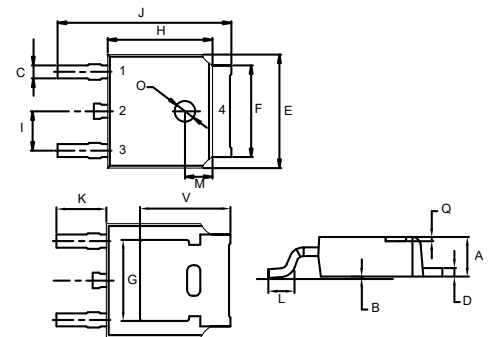
Internal Structure and Marking Code



YWWTT: 5 codes in total
Y is the year
WW is the cycle
TT is the line type

P-CHANNEL MOSFET

DPAK(TO-252)



1. Gate
- 2,4. Drain
3. Source

| DIM | DIMENSIONS | | | | NOTE |
|-----|------------|-------|------|-------|------|
| | INCHES | | MM | | |
| | 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 | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=-250\mu A$ | -100 | | | V |
| Gate-Source Leakage Current | I_{GSS} | $V_{DS}=0V, V_{GS}=\pm 20V$ | | | ± 20 | μA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=-100V, V_{GS}=0V$ | | | -1 | μA |
| Gate-Threshold Voltage ^(Note 3) | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=-250\mu A$ | -1 | -1.9 | -3 | V |
| Drain-Source On-Resistance ^(Note 3) | $R_{DS(on)}$ | $V_{GS}=-10V, I_D=-16A$ | 85 | 100 | 116 | m Ω |
| Forward Transconductance ^(Note 3) | g_{FS} | $V_{DS}=-50V, I_D=-10A$ | 5 | | | S |
| Dynamic Characteristics^(Note 4) | | | | | | |
| 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 | $t_{d(on)}$ | $V_{DD}=-50V, I_D=-16A$ $V_{GS}=-10V, R_{GEN}=9.1\Omega$ | | 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 | $T_C=25^\circ C$ | | | -18 | A |
| Body Diode Voltage | V_{SD} | $I_S=-10A, V_{GS}=0V$ | | | -1.2 | V |
| Reverse Recovery Time | t_{rr} | $I_F=-16A, di/dt=100A/\mu s$ | | 88.3 | | ns |
| Reverse Recovery Charge | Q_{rr} | | | | 65.9 | |
| Forward Turn-on Time | t_{on} | Intrinsic Turn-On Time is Negligible(Turn-On is Dominated by L_S+L_D) | | | | |

Note 3. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

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

Curve Characteristics

Fig. 1 - Typical Output Characteristics

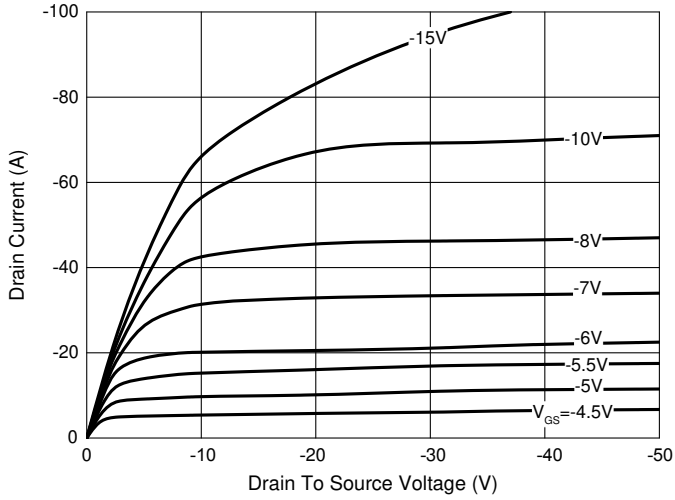


Fig. 2 - $R_{DS(ON)}$ —Temperature

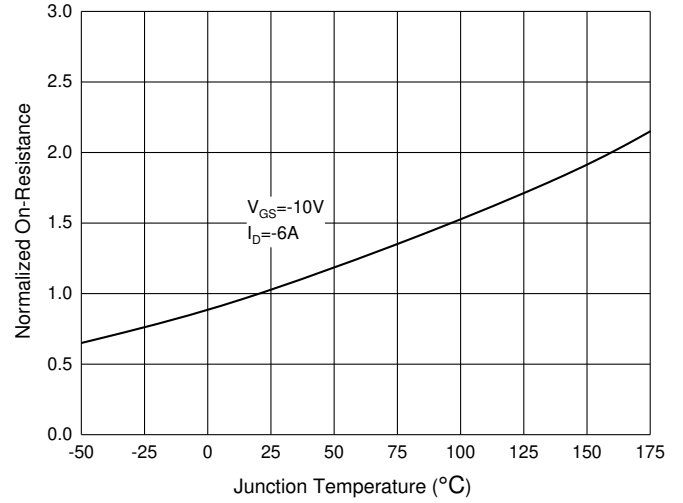


Fig. 3 - $R_{DS(ON)}$ — I_D

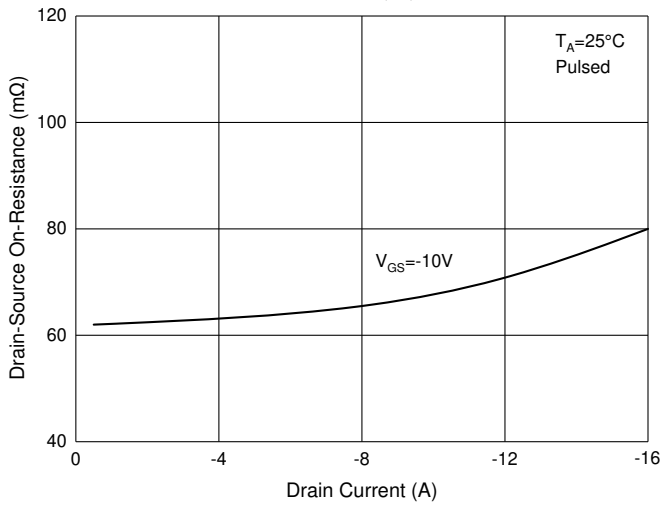


Fig. 4 - Total Gate Charge Characteristics

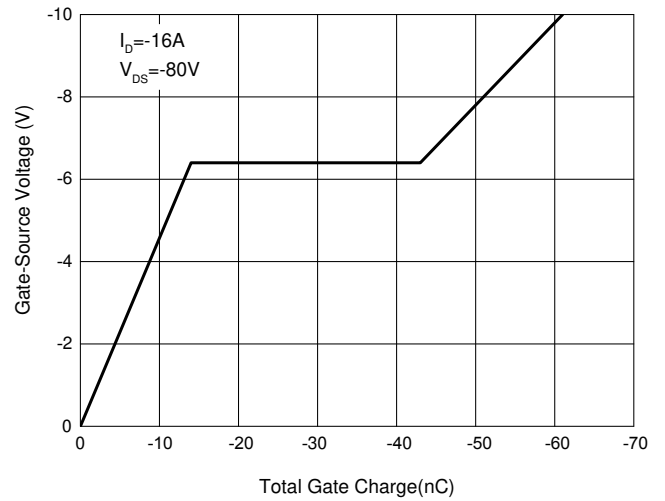
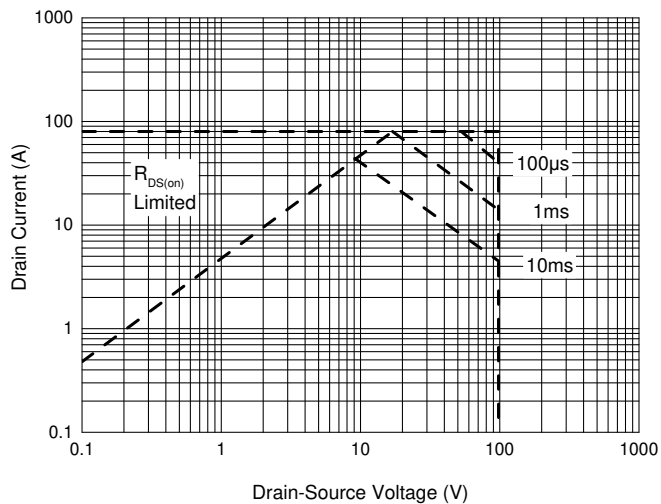


Fig. 5 - Safe Operation Area



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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