

Features

- Fast Switching
- Improved dv/dt Capability
- Excellent Package for Good Heat Dissipation
- Moisture Sensitivity Level 1
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

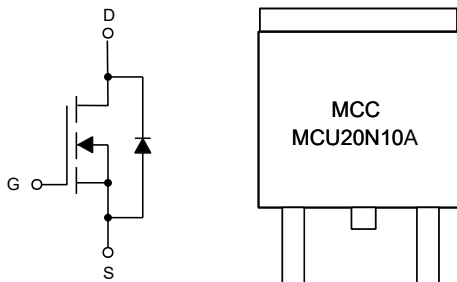
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 2.7°C/W Junction to Case

| Parameter | Symbol | Rating | Unit |
|-------------------------------------|----------|--------|------|
| Drain-Source Voltage | V_{DS} | 100 | V |
| Gate-Source Voltage | V_{GS} | ±20 | V |
| Continuous Drain Current | I_D | 20 | A |
| Pulsed Drain Current ⁽¹⁾ | I_{DM} | 80 | A |
| Total Power Dissipation | P_D | 47 | W |
| Avalanche Energy ⁽²⁾ | E_{AS} | 16 | mJ |

Note:

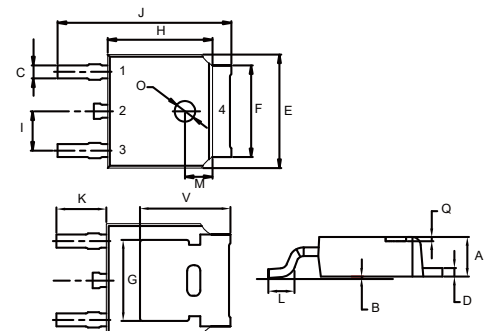
1. Pulse Test: Pulse Width ≤ 300us, Duty cycle ≤ 2%.
2. $T_j=25^\circ\text{C}$, $V_{DD}=50\text{V}$, $L=0.5\text{mH}$, $I_{AS}=8\text{A}$

⚠️ **Do not use this device for applications where failure could result in death or serious injury.**



**N-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} | $V_{DS}=0V, V_{GS}=\pm 20V$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=100V, V_{GS}=0V$ | | | 1 | μA |
| Gate-Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$ | 1.2 | | 2.5 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=10V, I_D=10A$ | | 35 | 45 | m Ω |
| | | $V_{GS}=4.5V, I_D=8A$ | | 40 | 60 | m Ω |
| Diode Characteristics | | | | | | |
| Continuous Body Diode Current | I_S | | | | 20 | A |
| Diode Forward Voltage | V_{SD} | $V_{GS}=0V, I_S=10A$ | | | 1.2 | V |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=50V, V_{GS}=0V, f=1MHz$ | | 2014 | | pF |
| Output Capacitance | C_{oss} | | | 67 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 47 | | |
| Total Gate Charge | Q_g | $V_{DS}=50V, V_{GS}=10V, I_D=4.5A$ | | 53 | | nC |
| Gate-Source Charge | Q_{gs} | | | 8.5 | | |
| Gate-Drain Charge | Q_{gd} | | | 11 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{GS}=10V, V_{DD}=50V,$ $R_{GEN}=3\Omega, R_L=8.6\Omega$ | | 13 | | ns |
| Turn-On Rise Time | t_r | | | 28 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 44 | | |
| Turn-Off Fall Time | t_f | | | 36 | | |
| Drain-Source Body Diode Characteristics | | | | | | |
| Reverse Recovery Time | t_{rr} | $V_{GS}=0V, I_F=20A, di/dt=100A/\mu s$ | | 34 | | ns |
| Reverse Recovery Charge | Q_{rr} | | | 29 | | nC |

Curve Characteristics

Fig. 1 - Output Characteristics

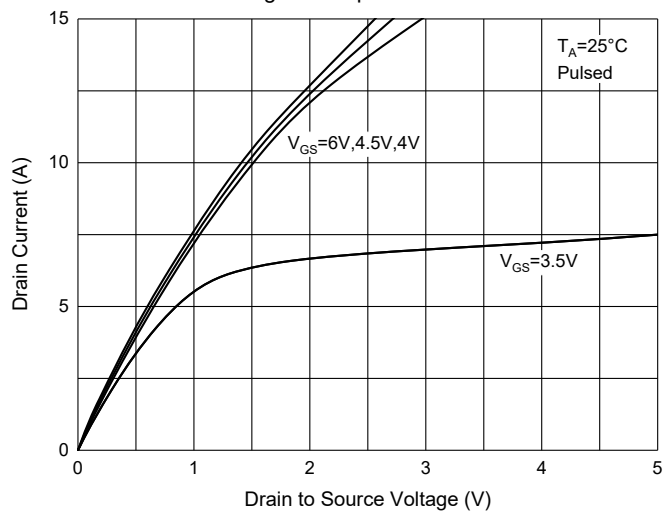


Fig. 2 - Transfer Characteristics

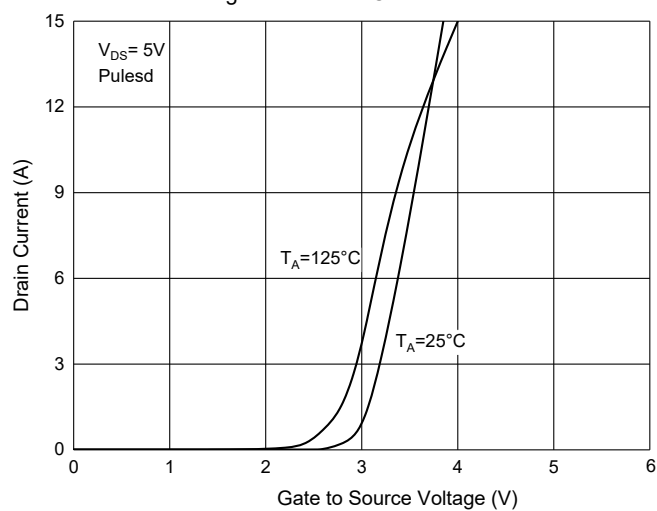


Fig. 3 - $R_{DS(ON)} - I_D$

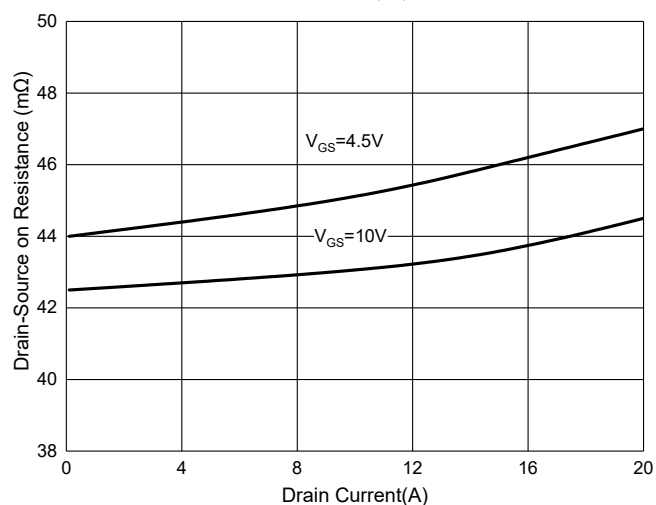


Fig. 4 - Normalized On Resistance Characteristics

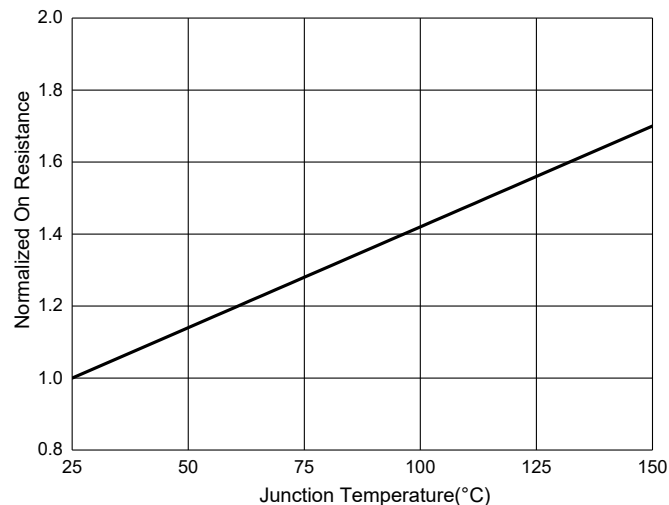


Fig. 5 - Capacitance Characteristics

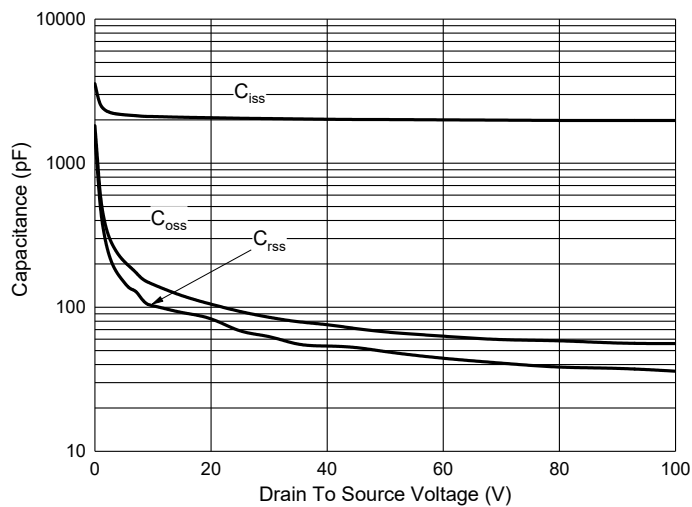
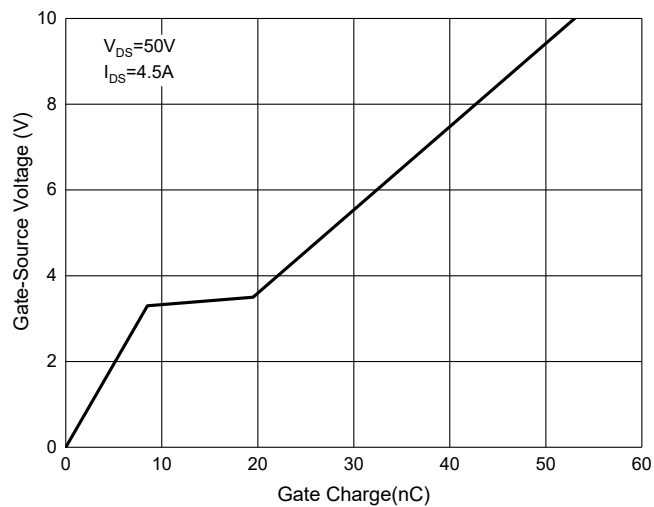
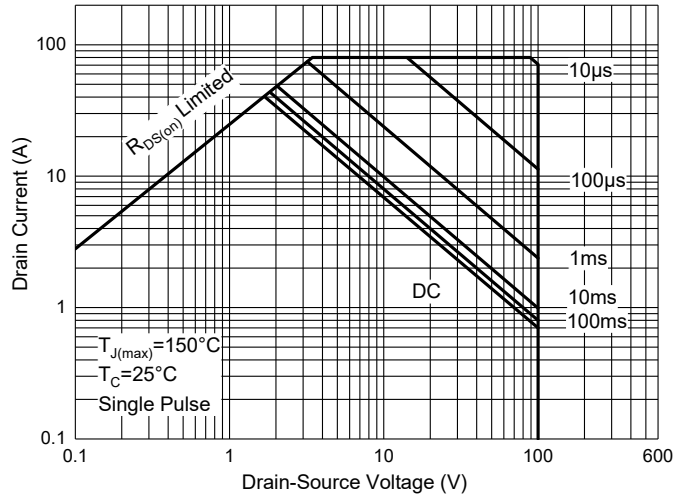


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Safe Operation Area



Ordering Information

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

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