

Features

- Low On-resistance and Low Conduction Loss
- Super Junction technology for High Voltage Application
- Soft Switching with Fast Reverse Recovery Diode
- Ultra Low Gate Charge Cause Lower Driving Requirement
- Moisture Sensitivity Level 1
- Halogen Free. "Green" Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant^(Note2) ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Maximum Ratings

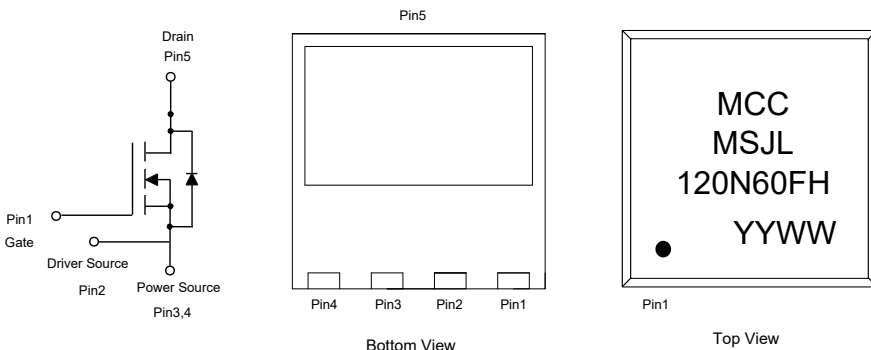
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 50°C/W Junction to Ambient (Note3)
- Thermal Resistance: 0.47°C/W Junction to Case

| Parameter | Symbol | Rating | Unit |
|---------------------------------|----------|-------------------|------|
| Drain-Source Voltage | V_{DS} | 600 | V |
| Gate-Source Voltage | V_{GS} | ±30 | V |
| Continuous Drain Current | I_D | $T_C=25^\circ C$ | 30 |
| | | $T_C=100^\circ C$ | 19 |
| Pulsed Drain Current (Note 4) | I_{DM} | 120 | A |
| Total Power Dissipation (Note5) | P_D | 266 | W |
| Avalanche Energy (Note 6) | E_{AS} | 18 | mJ |

Note:

1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. High temperature solder exemption applied, see EU directive annex 7a.
3. The value of $R_{\theta JA}$ is measured with the device mounted on 1in² FR-4 board with 2oz.Copper, in a still air environment with $T_A = 25^\circ C$.
4. Repetitive rating; pulse width limited by max. junction temperature.
5. PD is based on max. junction temperature, using junction-case thermal resistance.
6. $T_J=25^\circ C, V_{DD}=50V, I_{AS}=8.5A$.

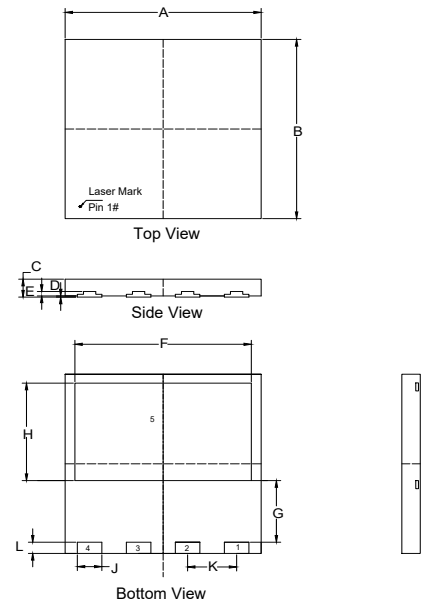
Internal Structure and Marking Code



YYWW: 4 codes in total
YY is the year
WW is the week

**N-CHANNEL
MOSFET**

DFN8080A



DIMENSIONS

| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|------|------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.311 | 0.319 | 7.90 | 8.10 | |
| B | 0.311 | 0.319 | 7.90 | 8.10 | |
| C | 0.030 | 0.037 | 0.75 | 0.95 | |
| D | 0.000 | 0.002 | 0.00 | 0.05 | |
| E | 0.004 | 0.012 | 0.10 | 0.30 | |
| F | 0.280 | 0.287 | 7.10 | 7.30 | |
| G | 0.104 | 0.112 | 2.65 | 2.85 | |
| H | 0.167 | 0.175 | 4.25 | 4.45 | |
| J | 0.035 | 0.043 | 0.90 | 1.10 | |
| K | 0.079 | | 2.00 | | BSC |
| L | 0.016 | 0.024 | 0.40 | 0.60 | |

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---------------------------------|---------------|--|-----|------|-----------|------------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}=0V, I_D=1mA$ | 600 | | | V |
| Gate-Source Leakage Current | I_{GSS} | $V_{DS}=0V, V_{GS}=\pm 30V$ | | | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=600V, V_{GS}=0V$ | | | 10 | μA |
| Gate-Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=2.1mA$ | 3 | 4.3 | 5 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}=10V, I_D=15.3A$ | | 100 | 120 | m Ω |
| Gate Resistance | R_g | f=1MHz, open drain | | 1.3 | | Ω |
| Diode Characteristics | | | | | | |
| Diode Forward Voltage | V_{SD} | $V_{GS}=0V, I_S=15.3A$ | | 1.0 | 1.2 | V |
| Reverse Recovery Time | t_{rr} | $V_R=400V, I_F=15.3A$ $dI_F/dt=100A/\mu s$ | | 105 | | ns |
| Reverse Recovery Charge | Q_{rr} | | | 595 | | nC |
| Peak Reverse Recovery Current | I_{rrm} | | | 10 | | A |
| Dynamic Characteristics | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=100V, V_{GS}=0V, f=1MHz$ | | 2240 | | pF |
| Output Capacitance | C_{oss} | | | 99 | | |
| Reverse Transfer Capacitance | C_{rss} | | | 2.8 | | |
| Total Gate Charge | Q_g | $V_{DS}=400V, V_{GS}=10V, I_D=15.3A$ | | 57 | | nC |
| Gate-Source Charge | Q_{gs} | | | 15 | | |
| Gate-Drain Charge | Q_{gd} | | | 28 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD}=400V, V_{GS}=10V$ $R_G=10\Omega, I_D=15.3A$ | | 100 | | ns |
| Turn-On Rise Time | t_r | | | 35 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 65 | | |
| Turn-Off Fall Time | t_f | | | 22 | | |

Curve Characteristics

Fig. 1 - Typical Output Characteristics

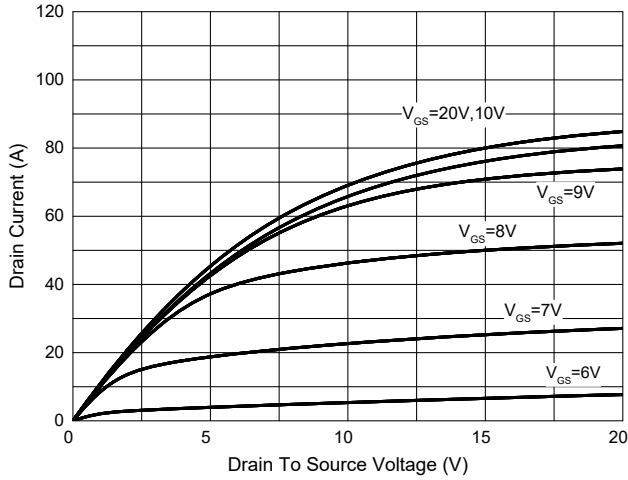


Fig. 2 - Transfer Characteristics

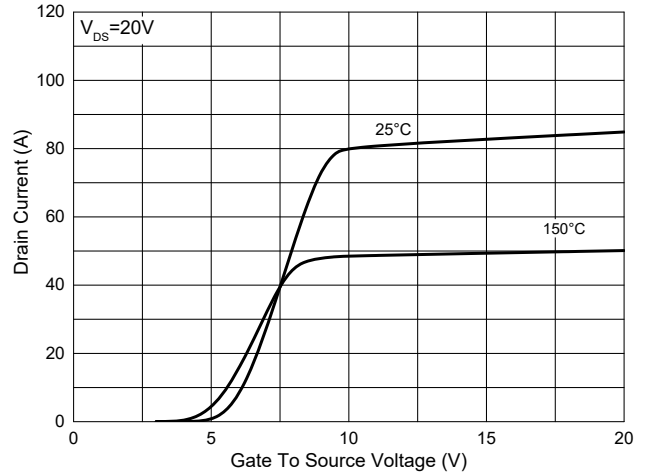


Fig. 3 - $R_{DS(ON)} - V_{GS}$

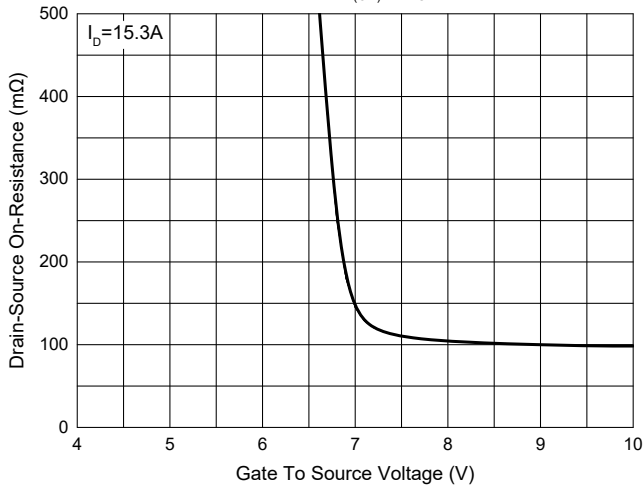


Fig. 4 - $R_{DS(ON)} - I_D$

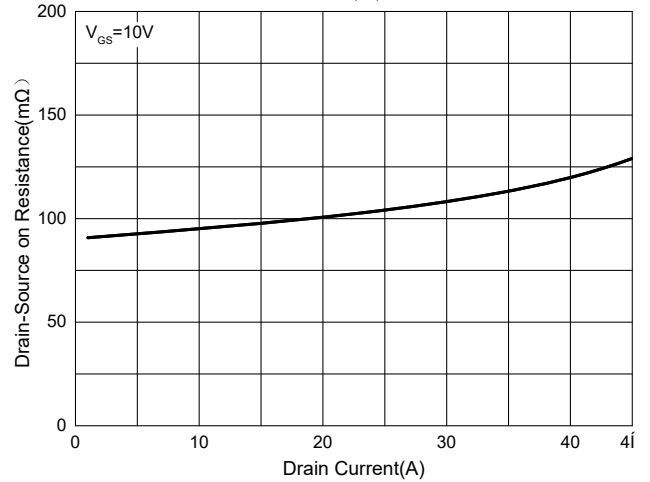


Fig. 5 - Capacitance Characteristics

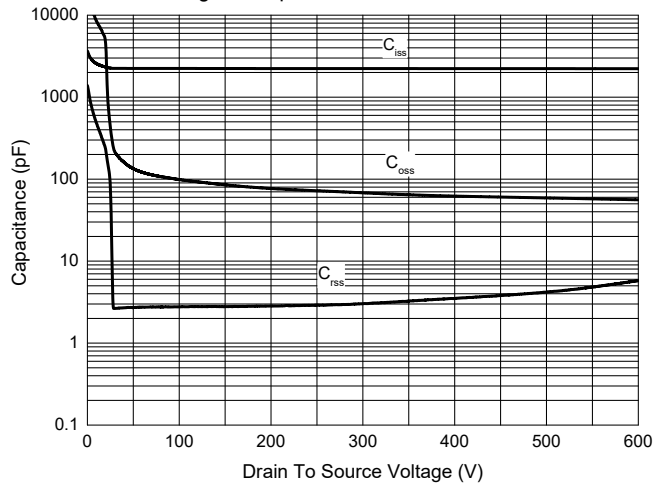
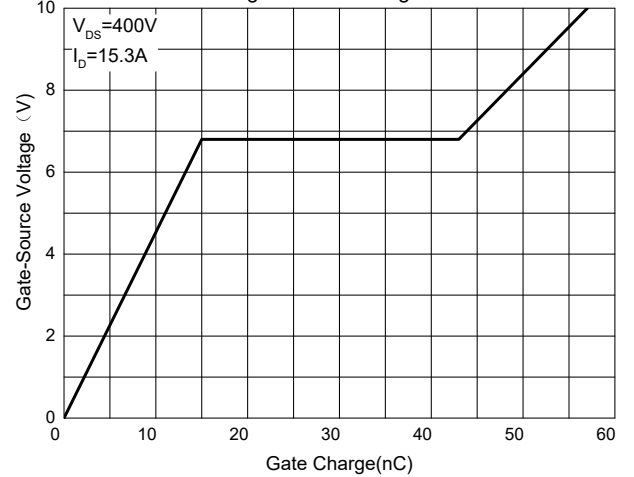


Fig. 6 - Gate Charge



Curve Characteristics

Fig. 7 - Normalized Threshold Voltage

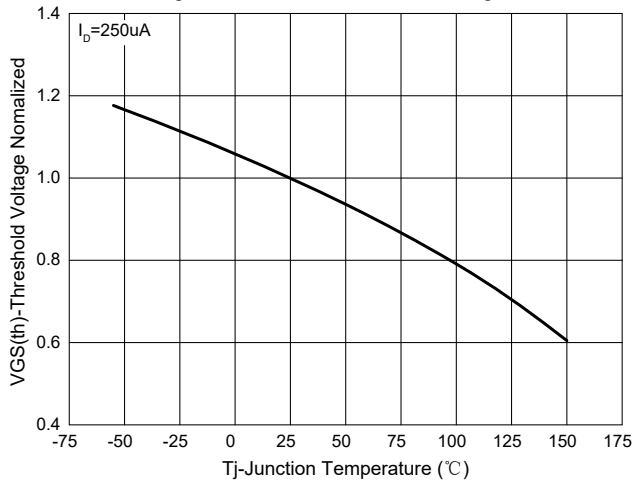


Fig.8-Normalized On Resistance Characteristics

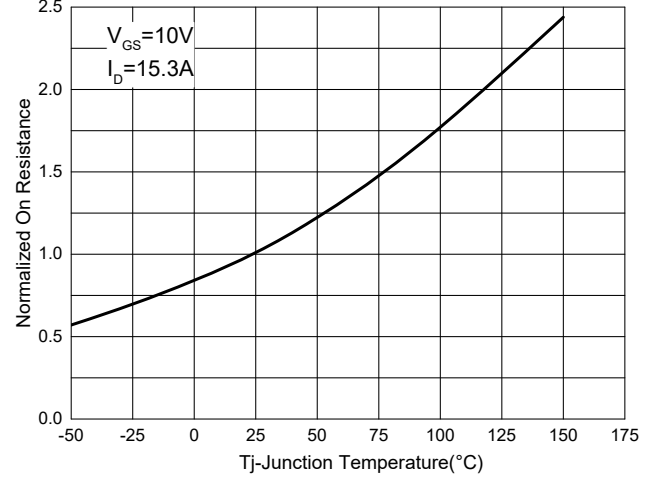


Fig.9 - $I_S - V_{SD}$

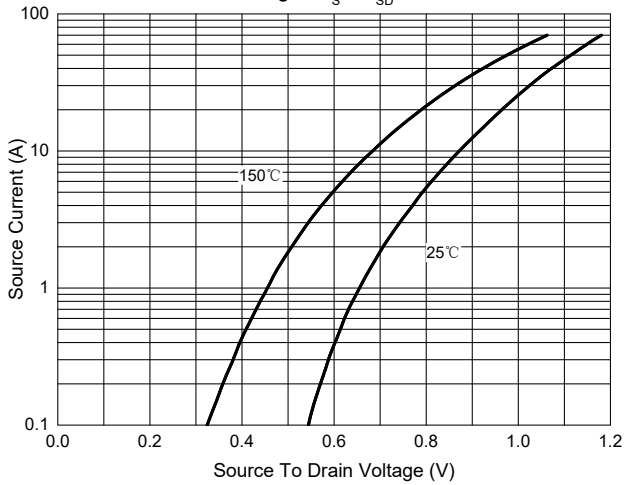


Fig. 10 - Drain Current

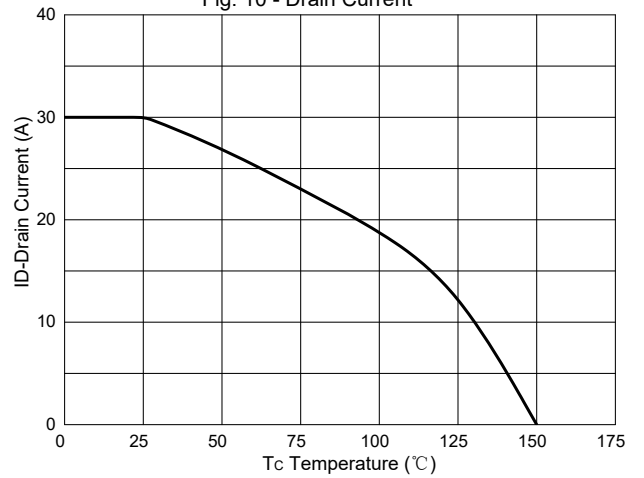
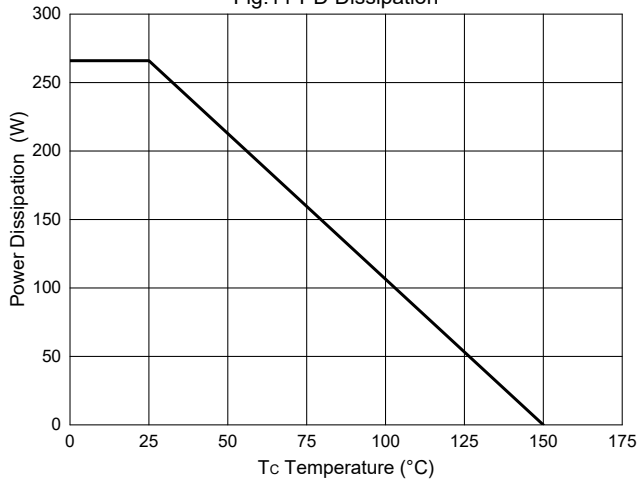
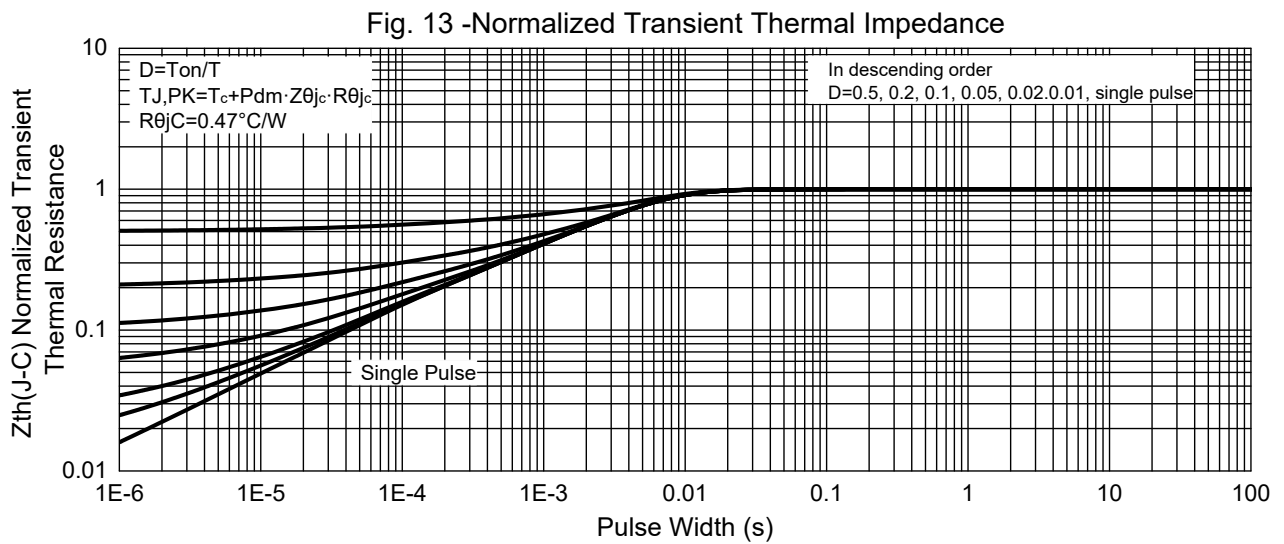
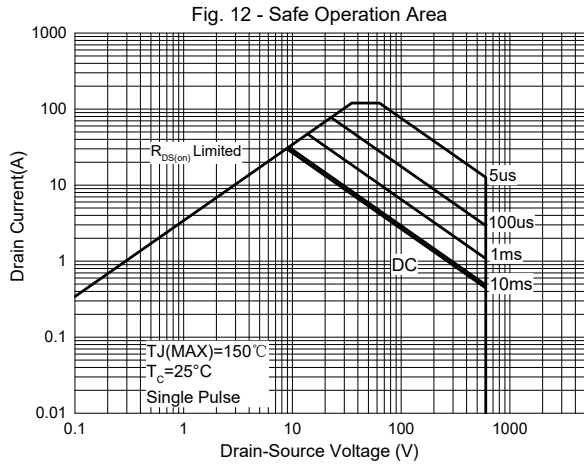


Fig.11-PD Dissipation



Curve Characteristics



Ordering Information

| Device | Packing |
|----------------|----------------------|
| Part Number-TP | Tape&Reel:3Kpcs/Reel |

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