## Features

- AEC-Q101 Qualified
- Split Gate Trench MOSFET Technology
- Excellent Package for Heat Dissipation
- Halogen Free. “Green” Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Moisture Sensitivity Level 3

# P-CHANNEL MOSFET

## Maximum Ratings

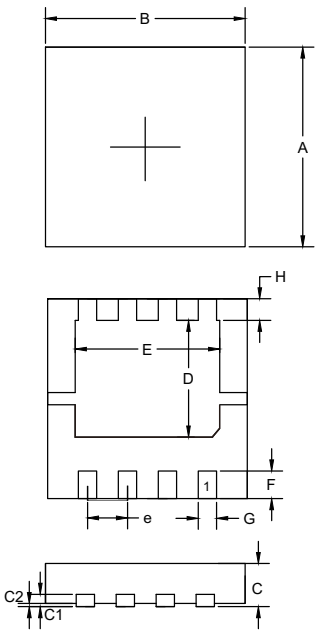
- Operating Junction Temperature Range : -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 2.5°C/W Junction to Case
- Thermal Resistance: 50°C/W Junction to Ambient(Note2)

| Parameter | | Symbol | Rating | Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DS}$ | -100 | V |
| Gate-Source Volltage | | $V_{GS}$ | ±20 | V |
| Continuous Drain Current | $T_C$=25°C | $I_D$ | -15 | A |
| | $T_C$=100°C | | -9.5 | |
| Pulsed Drain Current(Note3) | | $I_{DM}$ | -35 | A |
| Total Power Dissipation(Note4) | | $P_D$ | 50 | W |
| Single Pulsed Avalanche Energy(Note5) | | $E_{AS}$ | 64 | mJ |

Note:

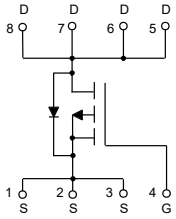
1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. The value of $R_{\theta JA}$ is measured with the device mounted on 1in$^2$ FR-4 board with 2oz. Copper, in a still air environment with $T_A$ =25°C.
3. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.
4. Pd is based on max. junction temperature, using junction-case thermal resistance.
5. VDD=-50V, RG=25Ω, L=0.5mH,

## DFN3333




| DIMENSIONS | | | | | |
|---|---|---|---|---|---|
| DIM | INCHES | | MM | | NOTE |
| | MIN | MAX | MIN | MAX | |
| A | 0.126 | 0.130 | 3.20 | 3.30 | |
| B | 0.126 | 0.130 | 3.20 | 3.30 | |
| C | 0.030 | 0.033 | 0.75 | 0.85 | |
| C1 | 0.007 | 0.009 | 0.18 | 0.22 | |
| C2 | --- | 0.002 | --- | 0.05 | |
| D | 0.071 | 0.079 | 1.80 | 2.00 | |
| E | 0.087 | 0.098 | 2.20 | 2.50 | |
| F | 0.016 | 0.020 | 0.40 | 0.50 | |
| G | 0.010 | 0.014 | 0.25 | 0.35 | |
| H | 0.012 | 0.016 | 0.30 | 0.40 | |
| e | 0.024 | 0.028 | 0.60 | 0.70 | |

## Internal Structure and Marking Code





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

## 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 | | | ±100 | nA |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=-100V, $V_{GS}$=0V | | | 1 | μA |
| Gate-Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$=$V_{GS}$, $I_D$=-250μA | -1.0 | -1.8 | -2.5 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS}$=-10V, $I_D$=-10A | | 83 | 110 | mΩ |
| | | $V_{GS}$=-4.5V, $I_D$=-5A | | 95 | 120 | |
| Gate Resistance | $R_g$ | F=1MHz, Open Drain | | 10 | | Ω |
| **Diode Characteristics** | | | | | | |
| Continuous Body Diode Current | $I_S$ | | | | -15 | A |
| Diode Forward Voltage | $V_{SD}$ | $V_{GS}$=0V, $I_S$=-15A | | | -1.3 | V |
| Reverse Recovery Time | $t_{rr}$ | $I_F$=-5A, $dI_F/dt$=100A/μs | | 80 | | ns |
| Reverse Recovery Charge | $Q_{rr}$ | | | 140 | | nC |
| **Dynamic Characteristics** | | | | | | |
| Input Capacitance | $C_{iss}$ | $V_{DS}$=-25V,$V_{GS}$=0V,f=1MHz | | 1100 | | pF |
| Output Capacitance | $C_{oss}$ | | | 150 | | |
| Reverse Transfer Capacitance | $C_{rss}$ | | | 11 | | |
| Total Gate Charge | $Q_g$ | $V_{DS}$=-50V,$V_{GS}$=-10V,$I_D$=-5A | | 20.1 | | nC |
| Gate-Source Charge | $Q_{gs}$ | | | 3.98 | | |
| Gate-Drain Charge | $Q_{gd}$ | | | 4.38 | | |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DS}$=-50V, $V_{GS}$=-10V, $R_G$=6Ω, $I_{DS}$=-5A | | 10 | | ns |
| Turn-On Rise Time | $t_r$ | | | 30 | | |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 77 | | |
| Turn-Off Fall Time | $t_f$ | | | 81 | | |

## Curve Characteristics

Fig. 1 - Typical Output Characteristics

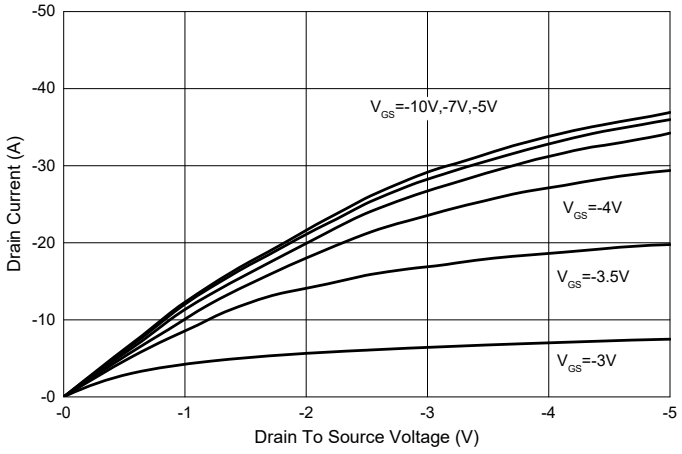



Fig. 2 - Transfer Characteristics

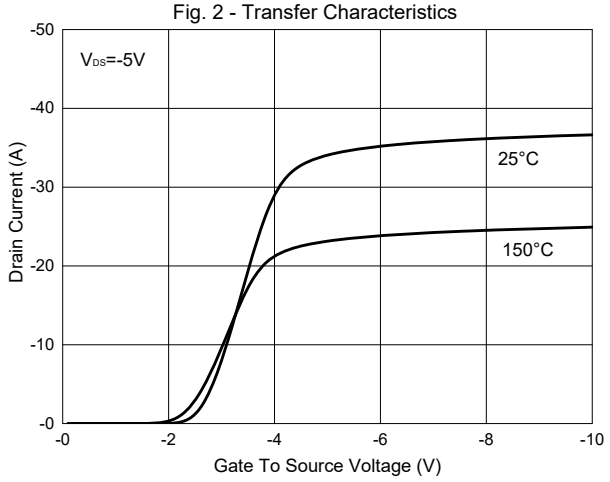



Fig. 3 - $R_{DS(ON)}$—$I_D$

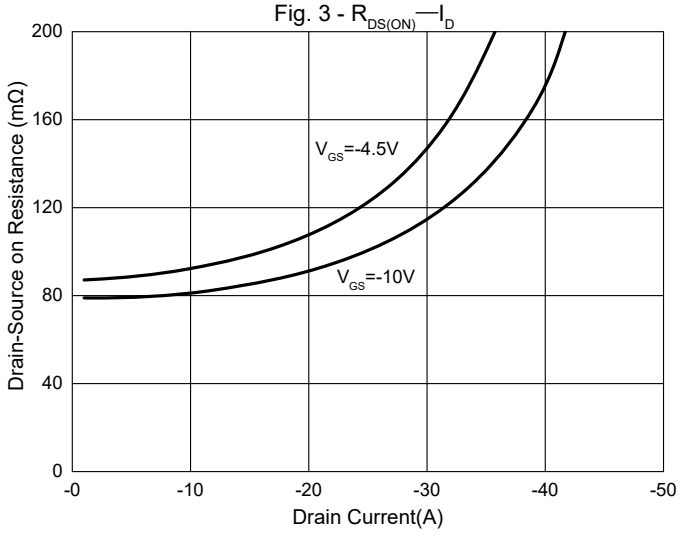



Fig. 4 - $R_{DS(ON)}$—$V_{GS}$

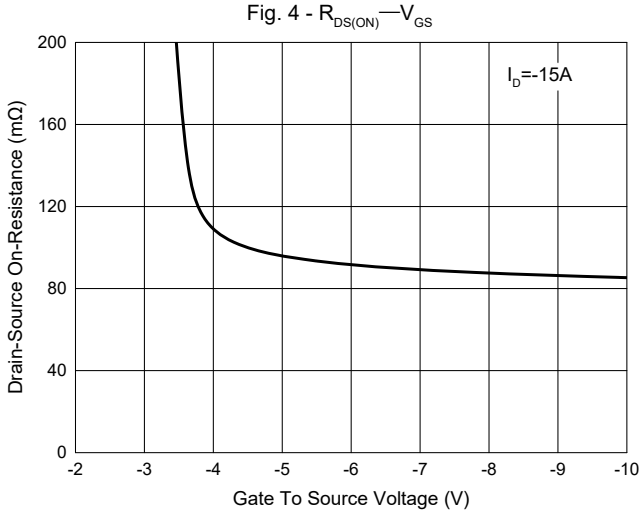



Fig. 5 - Capacitance Characteristics

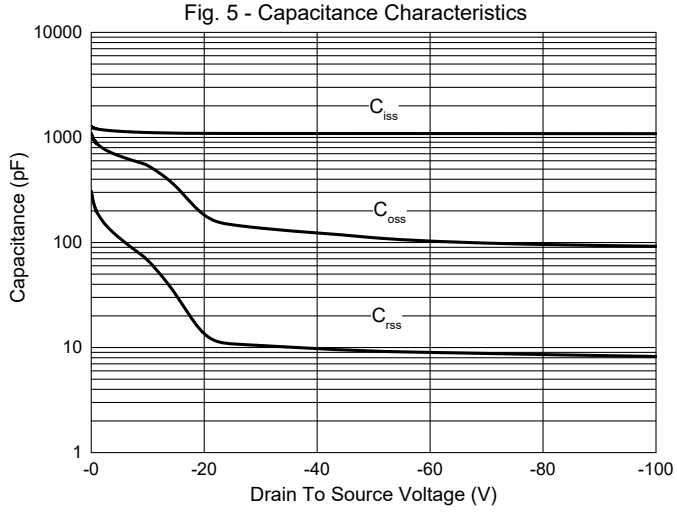
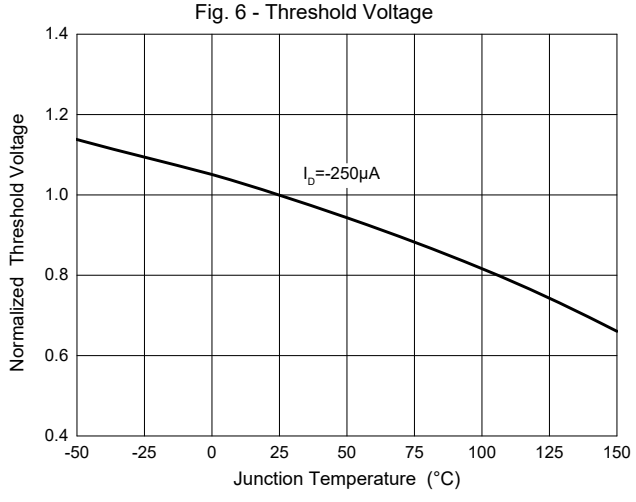



Fig. 6 - Threshold Voltage



## Curve Characteristics

Fig. 7 - Normalized On Resistance Characteristics

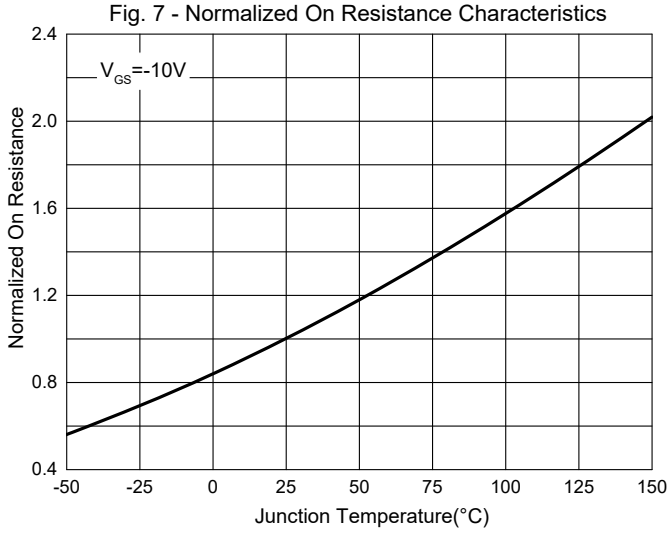



Fig. 8 - $I_S$—$V_{SD}$

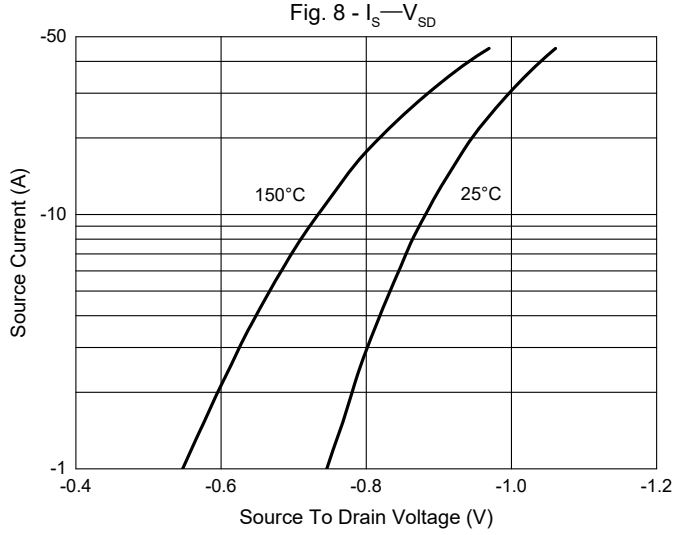



Fig. 9 - Gate Charge

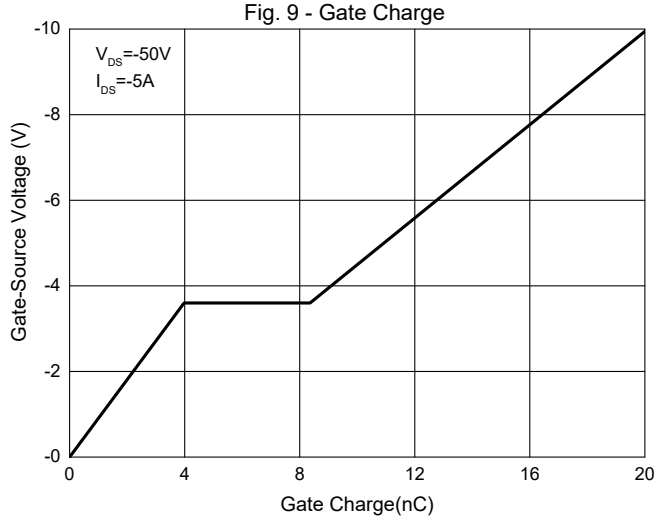



Fig. 10 - Current Dissipation

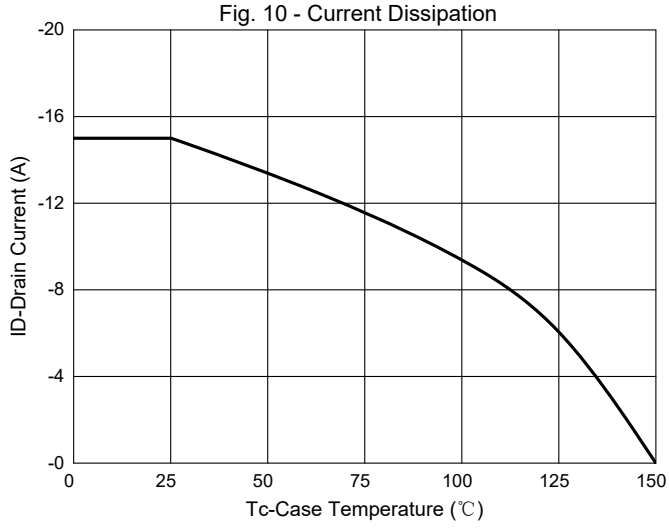
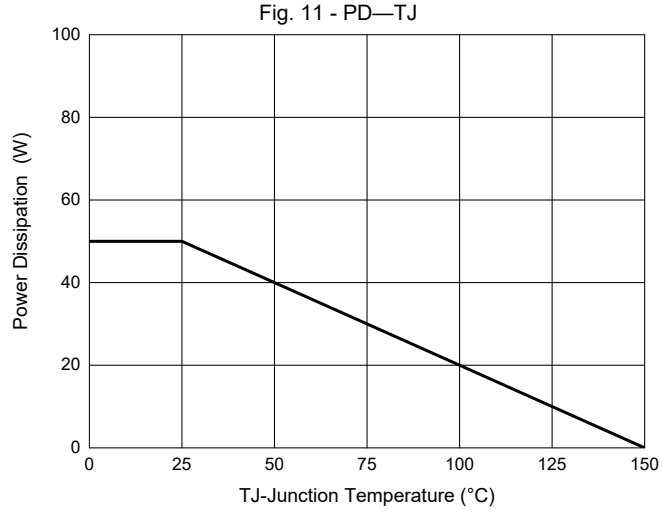



Fig. 11 - PD—TJ



## Curve Characteristics

Fig. 12 - Safe Operation Area

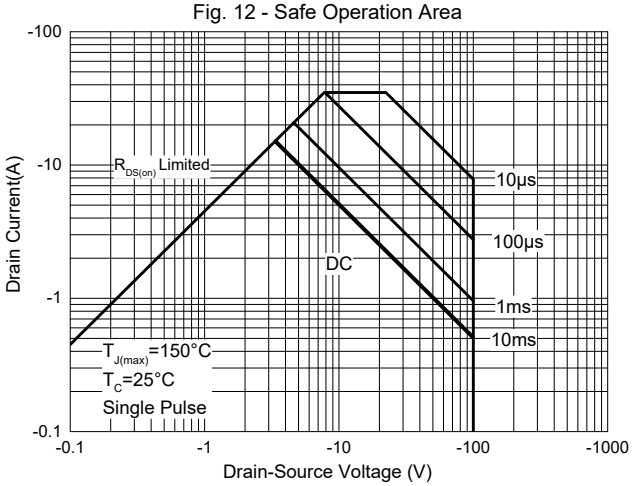
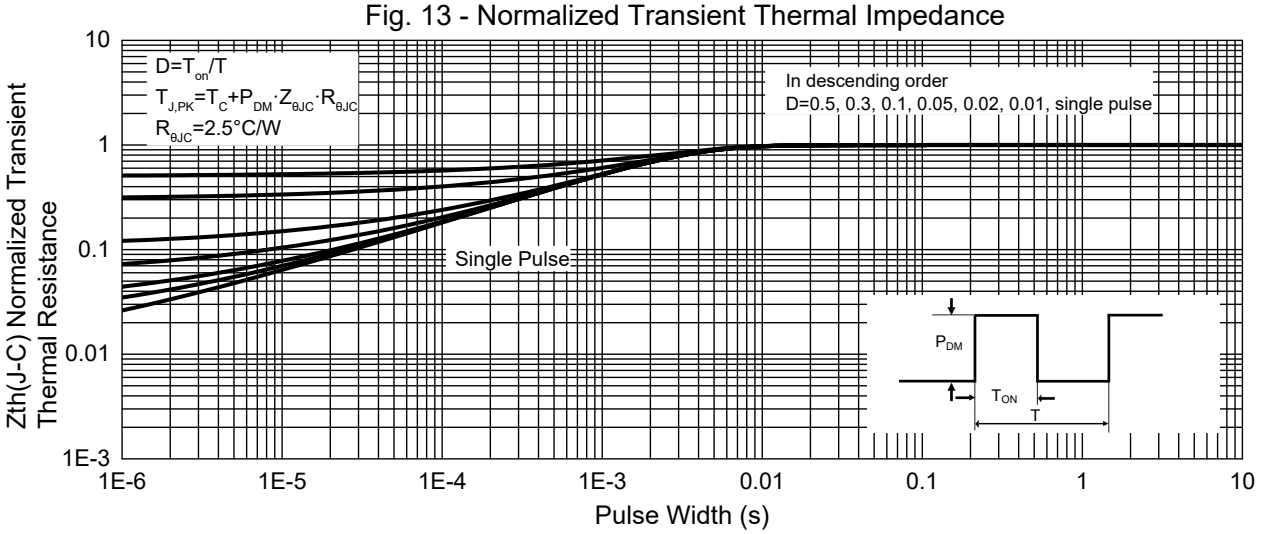



Fig. 13 - Normalized Transient Thermal Impedance



## Ordering Information

| Device | Packing |
|---|---|
| Part Number-TP | Tape&Reel: 5Kpcs/Reel |

# X-ON Electronics

Largest Supplier of Electrical and Electronic Components

***Click to view similar products for*** Micro Commercial Components (MCC) ***manufacturer:***

Other Similar products are found below :

6A05-TP SDB157-TP SM4003PL-TP 1N4002T&R 1N4733A-TP 1N5352B-TP 3SMAJ5950B-TP ESDSLC5V0LB-TP SMAJ30CA-TP DL4148-TP SK14-TP SMCJ1.5KE10CA-TP SI3134K-TP US1MFL-TP MD120A16D1-BP BZT52B12-TP 5.0SMLJ36CAHE3-TP SD24C-TP BZX584B5V6-TP FR207GP-TP MBRD20150CTH-TP SL54AFL-TP MMSZ4685-TP BAS70-06-TP BC847BS-TP SMBJ5347B-TP GS1G-TP 3SMAJ5932B-TP BC807-25-TP SS14-TP GBJ3508-BP 1.5KE36A-BP SS16HE3-LTP 5.0SMLJ26CA-TP BZX584B10-TP BAR43C-TP BAV3004W-TP MBR16100FCT-BP 5KP36CA-AP SMA6J5.0CA-TP MB16S-TP BZX84C15-TP MMSZ5234B-TP UFM12PL-TP SMAZ9V1-TP GBJ2506-BP 1.5KE300CA-TP SMBj7.0CA-TP 5KP48A-TP SMF28CA-TP