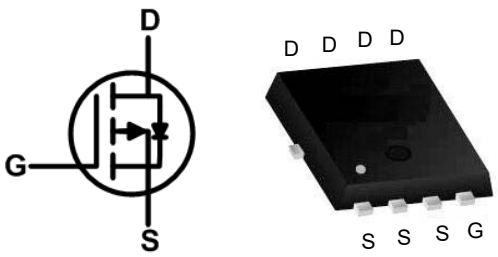
## P-Channel Enhancement Mode Power MOSFET

### Features

$V_{DS}$= -30V
$I_D$= -70A
$R_{DS(ON)}$≤ 7.2mΩ($V_{GS}$=10V)

### Pin Configurations

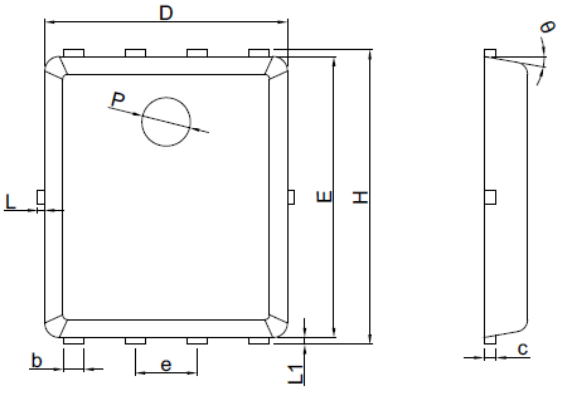


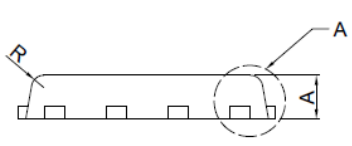

### General Description

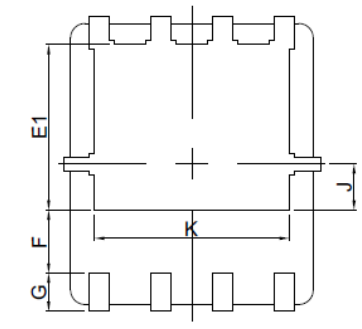
The TPM0730N5X is the high cell density trenched P-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.
The TPM0730N5X meet the RoHS and Green Product requirement, 100% EAS guaranteed with full function reliability approved.

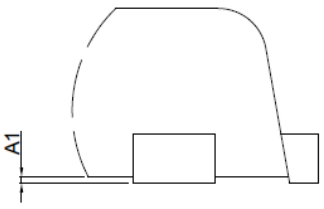
### Package Information

PDFN5X6-8L




DETAIL "A"

| SYMBOL | MIN | NOM | MAX |
|---|---|---|---|
| A | 0.80 | 0.90 | 1.00 |
| $A_1$ | 0.00 | 0.03 | 0.05 |
| b | 0.35 | 0.42 | 0.49 |
| c | | 0.254REF | |
| D | 4.90 | 5.00 | 5.10 |
| F | | 1.40REF | |
| E | 5.70 | 5.80 | 5.90 |
| e | | 1.27BSC | |
| H | 5.95 | 6.08 | 6.20 |
| L1 | 0.10 | 0.14 | 0.18 |
| G | | 0.60REF | |
| K | | 4.00REF | |
| L | —— | —— | 0.15 |
| J | | 0.95BSC | |
| P | | 1.00REF | |
| E1 | | 3.40REF | |
| θ | 6° | 10° | 14° |
| R | | 0.25REF | |

## Absolute Maximum Ratings (@TA=25°C unless otherwise noted)

| Parameter | | Symbol | Ratings | Unit |
|---|---|---|---|---|
| Drain-Source Voltage | | $V_{DSS}$ | -30 | V |
| Gate Source Voltage | | $V_{GSS}$ | ±20 | V |
| Drain Current (Continuous) *AC | TA=25°C | $I_D$ | -70 | A |
| | TA=100°C | | -50 | |
| Drain Current (Pulse) *B | | $I_{DM}$ | -200 | A |
| Power Dissipation | TA=25°C | $P_D$ | 90 | W |
| | TA=100°C | | 54 | |
| Operating Temperature/ Storage Temperature | | $T_J/T_{STG}$ | -55~150 | °C |
| Single Pulse Avalanche Energy | | $E_{AS}$ | 80 | mJ |
| Thermal Resistance ,Junction-to-Ambient | | $R_{\theta JA}$ | 50 | °C/W |

## Electrical Characteristics (@TA=25°C unless otherwise noted)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Static | | | | | | |
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS}$=0V，$I_D$=-250uA | -30 | -- | -- | V |
| Zero Gate Voltage Drain Current | $I_{DSS}$ | $V_{DS}$=-24V，$V_{GS}$=0V | -- | -- | -1 | uA |
| Gate Threshold Voltage | $V_{GS(TH)}$ | $V_{DS}$=$V_{GS}$，$I_{DS}$=-250uA | -1.2 | -- | -2.5 | V |
| Gate Leakage Current | $I_{GSS}$ | $V_{GS}$=±20V，$V_{DS}$=0V | -- | -- | ±100 | nA |
| Drain-Source On-state Resistance | $R_{DS(on)}$ | $V_{GS}$=-10V，$I_D$=-20A | -- | -- | 7.2 | mΩ |
| | | $V_{GS}$=-4.5V，$I_D$=-15A | -- | -- | 12 | mΩ |
| Diode Forward Voltage | $V_{SD}$ | $I_{SD}$=-1A，$V_{GS}$=0V | -- | -- | -1.2 | V |
| Switching | | | | | | |
| Total Gate Charge | $Q_g$ | $V_{GS}$=-10V，$V_{DD}$=-15V，$I_D$=-18A | -- | 60 | -- | nC |
| Gate- Source Charge | $Q_{gs}$ | | -- | 9 | -- | nC |
| Gate- Drain Charge | $Q_{gd}$ | | -- | 15 | -- | nC |
| Tum-on Delay Time | $t_{d(on)}$ | $V_{GS}$=-10V，$V_{DD}$=-15V，$I_D$=-20A，$R_{GEN}$=3.3Ω | -- | 17 | -- | ns |
| Turn-on Rise Time | $t_r$ | | -- | 40 | -- | ns |
| Turn-off Delay Time | $t_{d(off)}$ | | -- | 55 | -- | ns |
| Turn-off Fall Time | $t_f$ | | -- | 13 | -- | ns |
| Dynamic | | | | | | |
| Input Capacitance | Ciss | $V_{GS}$=0V，$V_{DS}$=-25V，f=1MHZ | -- | 3450 | -- | pF |
| Output Capacitance | Coss | | -- | 255 | -- | pF |
| Reverse Transfer Capacitance | Crss | | -- | 140 | -- | pF |

A: 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 TA=25C. The value in any given application depends on the user's specific board design.

B: Repetitive rating, pulse width limited by junction temperature .

C: The current rating is based on the t< 10s junction to ambient thermal resistance rating.

## TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

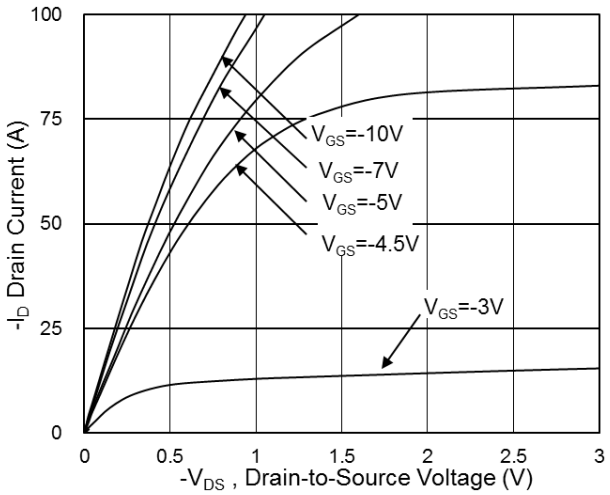



**Fig.1 Typical Output Characteristics**

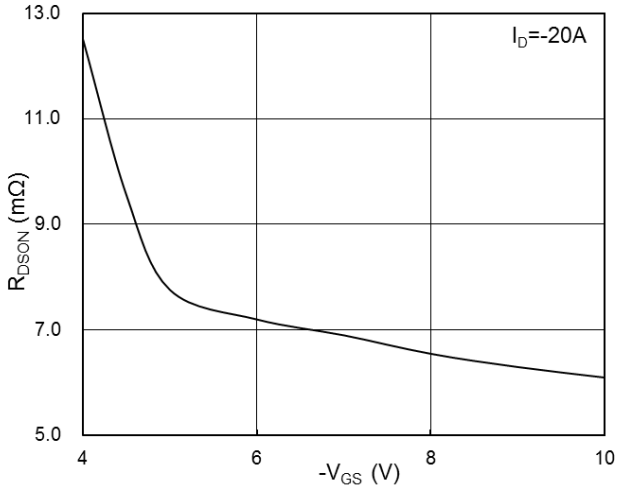



**Fig.2 On-Resistance vs. Gate-Source Voltage**

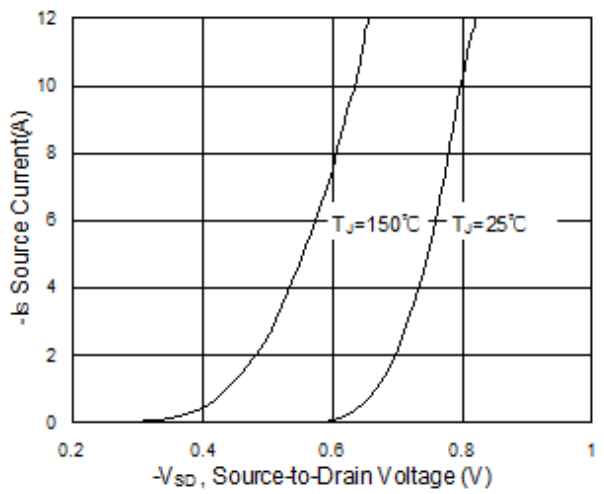



**Fig.3 Forward Characteristics of Reverse**

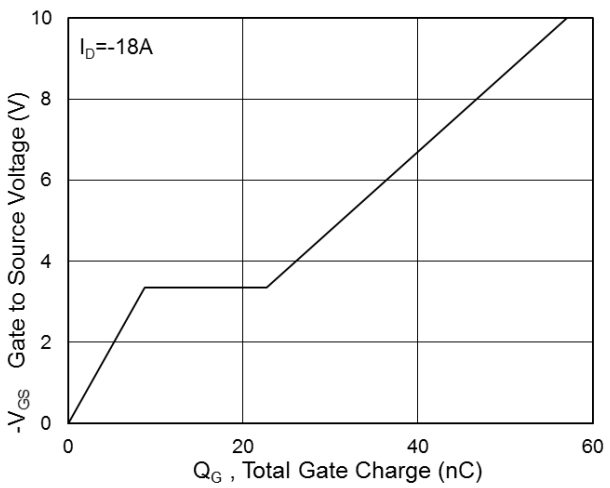



**Fig.4 Gate-Charge Characteristics**

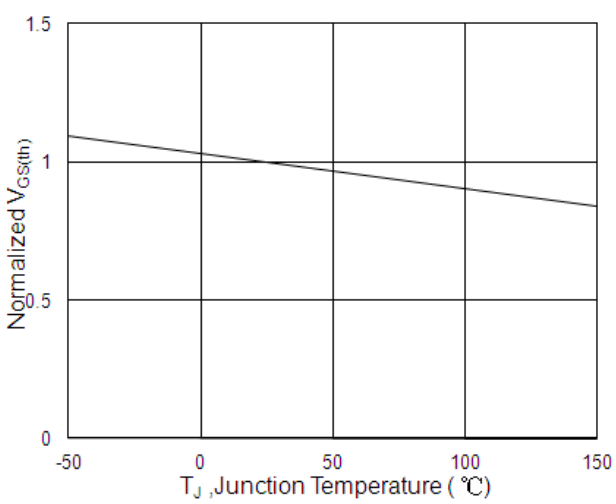



**Fig.5 Normalized $-V_{GS(th)}$ vs. $T_J$**

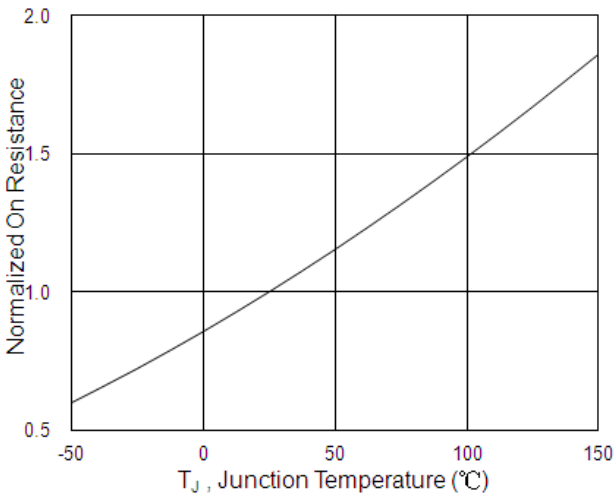



**Fig.6 Normalized $R_{DSON}$ vs. $T_J$**

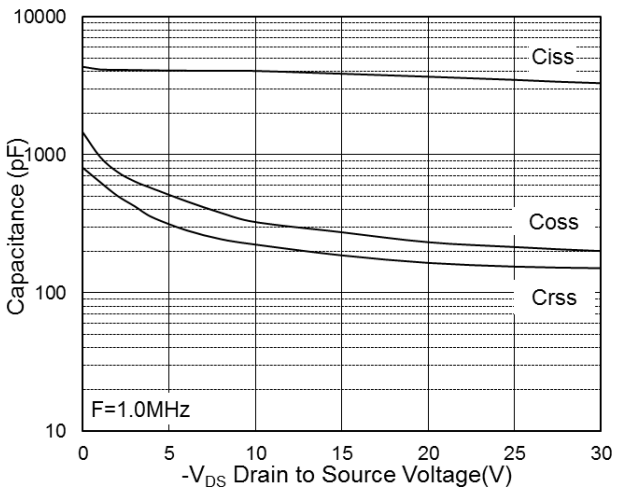



Fig.7 Capacitance

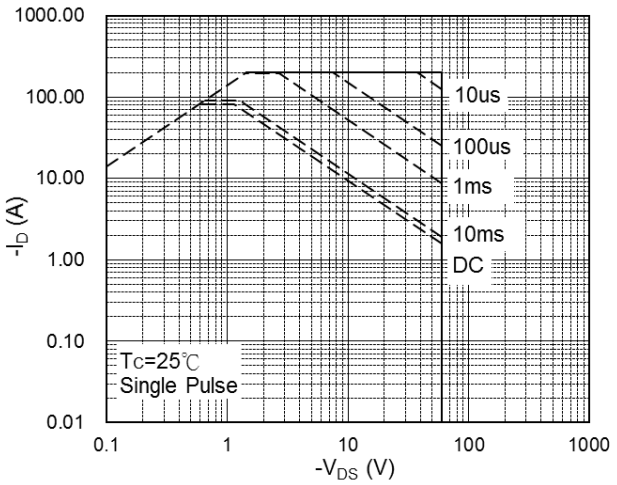



Fig.8 Safe Operating Area

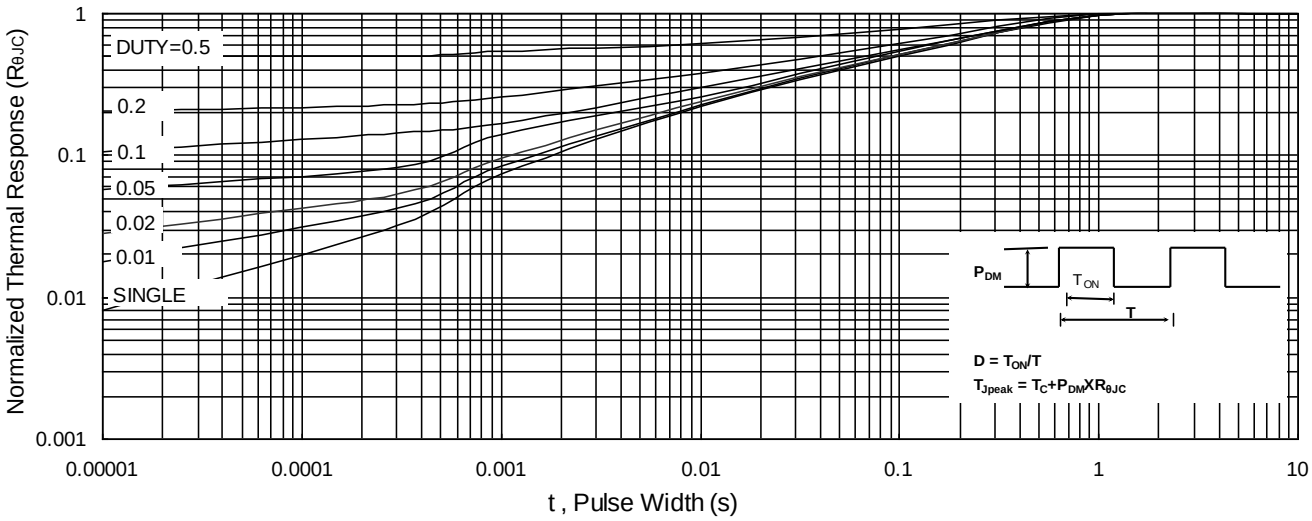



Fig.9 Normalized Maximum Transient Thermal Impedance

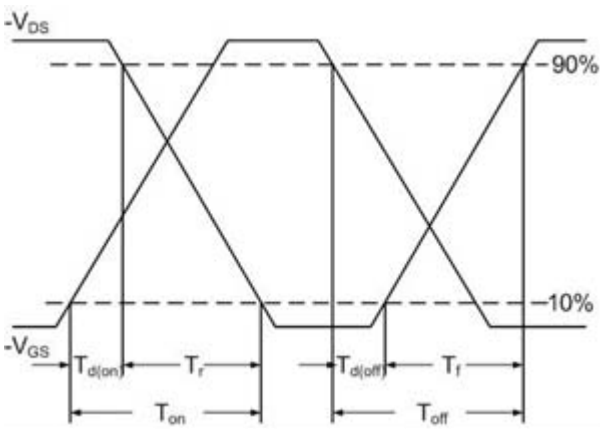



Fig.10 Switching Time Waveform

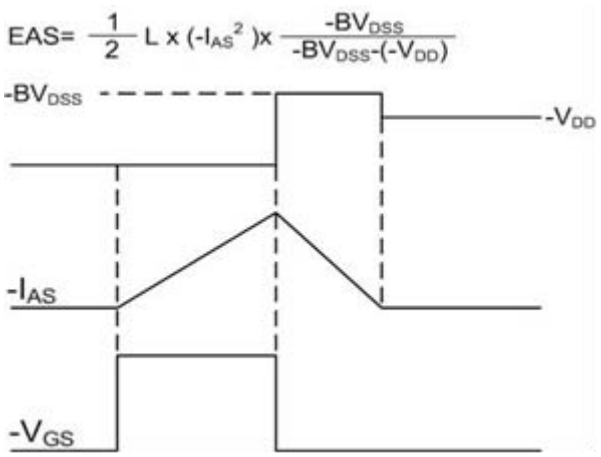



Fig.11 Unclamped Inductive Switching Waveform

# X-ON Electronics

Largest Supplier of Electrical and Electronic Components

***Click to view similar products for*** MOSFET ***category:***

***Click to view products by*** Shenzhen JingYang ***manufacturer:***

Other Similar products are found below :

IRFD120 JANTX2N5237 BUK455-60A/B MIC4420CM-TR VN1206L NDP4060 SI4482DY IPS70R2K0CEAKMA1 SQD23N06-31L-GE3 TK16J60W,S1VQ(O 2SK2614(TE16L1,Q) DMN1017UCP3-7 DMN1053UCP4-7 SQJ469EP-T1-GE3 NTE2384 DMC2700UDMQ-7 DMN2080UCB4-7 DMN61D9UWQ-13 US6M2GTR DMN31D5UDJ-7 DMP22D4UFO-7B DMN1006UCA6-7 DMN16M9UCA6-7 STF5N65M6 IRF40H233XTMA1 STU5N65M6 DMN6022SSD-13 DMN13M9UCA6-7 DMTH10H4M6SPS-13 DMN2990UFB-7B IPB80P04P405ATMA2 2N7002W-G MCAC30N06Y-TP MCQ7328-TP NTMC083NP10M5L NVMFS2D3P04M8LT1G BXP7N65D BXP4N65F AOL1454G WMJ80N60C4 BXP2N20L BXP2N65D BXT1150N10J BXT1700P06M TSM60NB380CP ROG RQ7L055BGTCR DMNH15H110SK3-13 SLF10N65ABV2 BSO203SP BSO211P