

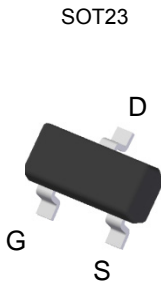
**General Features**

- $V_{DS} = 20V, I_D = 6A$
- $R_{DS(ON)} < 23m\Omega @ V_{GS}=2.5V$
- $R_{DS(ON)} < 35m\Omega @ V_{GS}=4.5V$

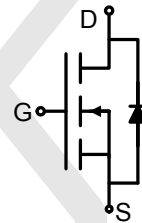
**Application**

- Load/Power Switching
- Interfacing Switching
- Battery Management for Ultra Small Portable
- Logic Level Shift

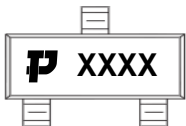
**Package and Pin Configuration**



**Circuit diagram**



**Marking:**



“P” is TECHPUBLIC LOGO  
“XXXX” Marking ID (Please see the last page for details)

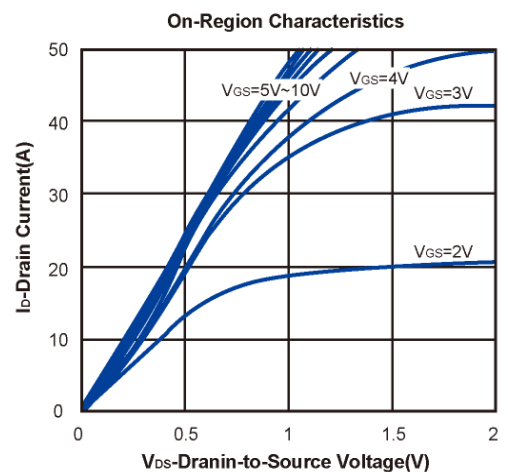
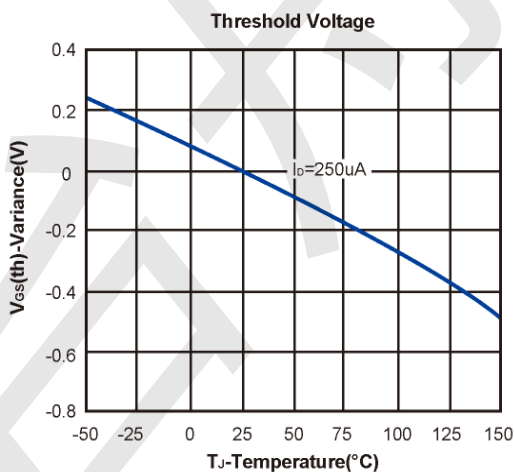
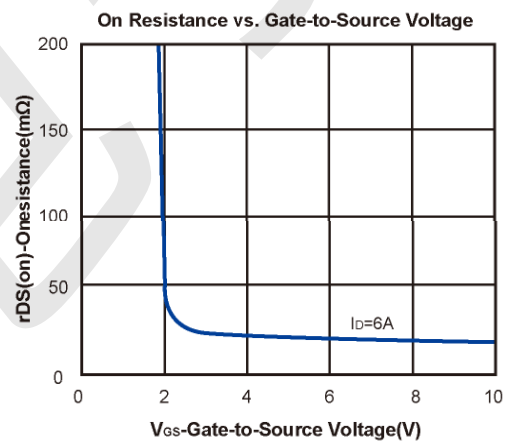
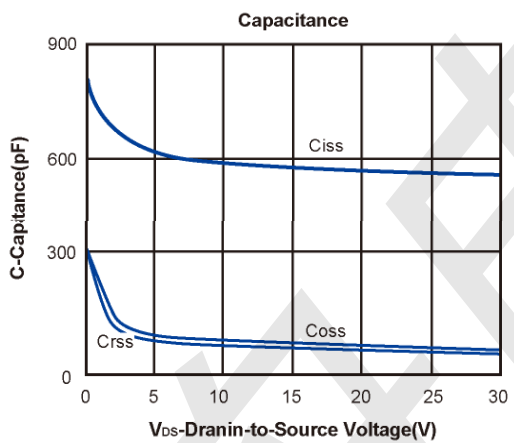
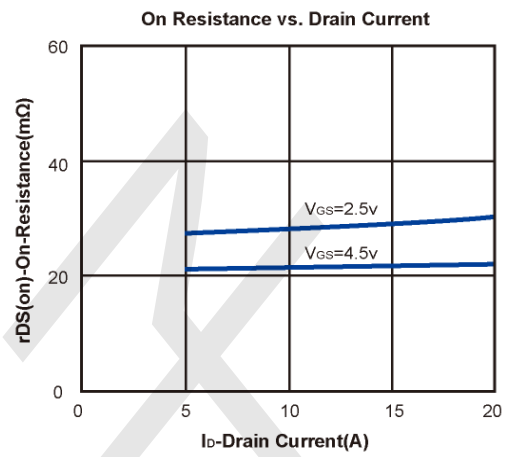
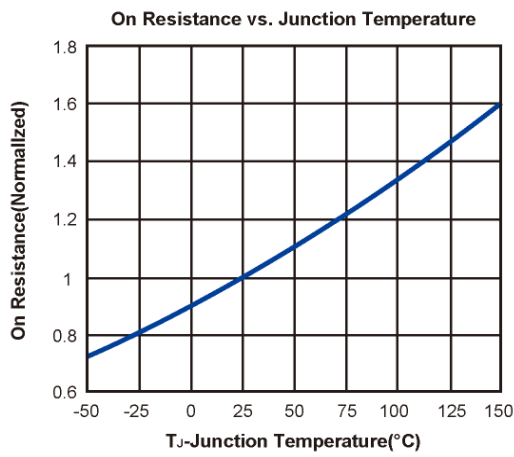
**Absolute Maximum Ratings ( $T_A=25^\circ C$  unless otherwise noted)**

| Parameter   | Symbol          | Value      | Unit         |
|---|-----------------|------------|--------------|
| Drain-Source Voltage  | $V_{DS}$        | 20         | V            |
| Gate-Source Voltage   | $V_{GS}$        | $\pm 12$   |              |
| Continuous Drain Current                                    | $I_D$           | 6          | A            |
| Continuous Source-Drain Current(Diode Conduction)           | $I_S$           | 0.6        |              |
| Power Dissipation   | $P_D$           | 1.25       | W            |
| Thermal Resistance from Junction to Ambient ( $t \leq 5s$ ) | $R_{\theta JA}$ | 312.5      | $^\circ C/W$ |
| Operating Junction  | $T_J$           | 150        | $^\circ C$   |
| Storage Temperature   | $T_{STG}$       | -55 ~ +150 |              |

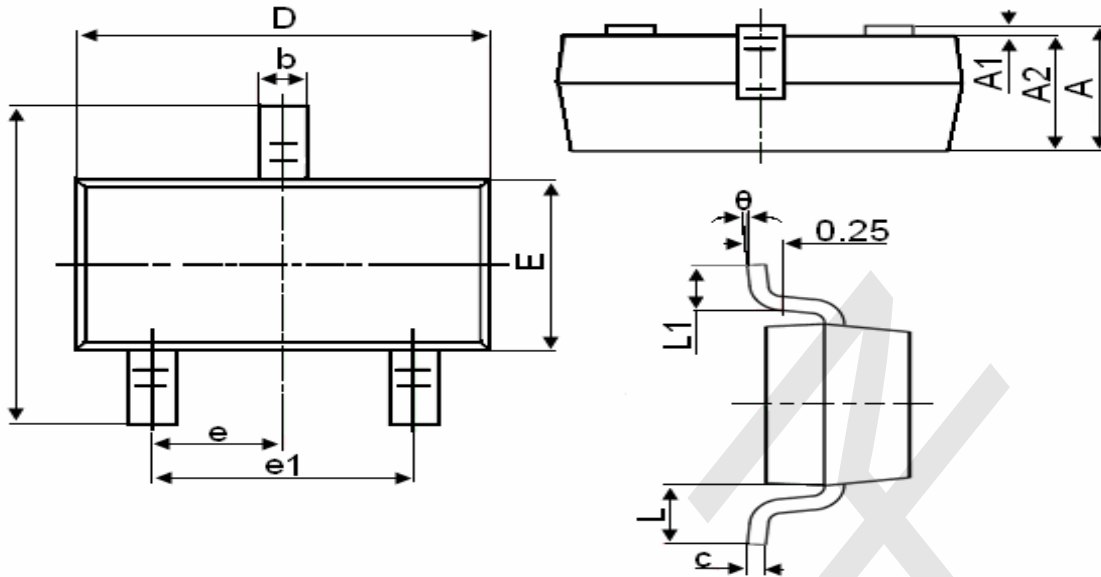
**Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted)**

| Parameter                                 | Symbol               | Test Condition  | Min  | Typ   | Max   | Units |
|---|----------------------|---|------|-------|-------|-------|
| <b>Static</b>                             |                      |   |      |       |       |       |
| Drain-source breakdown voltage            | V <sub>(BR)DSS</sub> | V <sub>GS</sub> = 0V, I <sub>D</sub> = 10μA   | 20   |       |       | V     |
| Gate-threshold voltage                    | V <sub>GS(th)</sub>  | V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 50μA   | 0.40 |       | 1     |       |
| Gate-body leakage                         | I <sub>GSS</sub>     | V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±8V   |      |       | ±100  | nA    |
| Zero gate voltage drain current           | I <sub>DSS</sub>     | V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V   |      |       | 1     | μA    |
| Drain-source on-resistance <sup>a</sup>   | r <sub>DS(on)</sub>  | V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 6A   |      | 0.021 | 0.023 | Ω     |
|   |                      | V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 5.2A   |      | 0.028 | 0.035 |       |
| Forward transconductance <sup>a</sup>     | g <sub>fs</sub>      | V <sub>DS</sub> = 5V, I <sub>D</sub> = 3.6A   |      | 8     |       | S     |
| Diode forward voltage                     | V <sub>SD</sub>      | I <sub>S</sub> = 0.94A, V <sub>GS</sub> = 0V  |      | 0.74  | 1.2   | V     |
| <b>Dynamic</b>                            |                      |   |      |       |       |       |
| Total gate charge                         | Q <sub>g</sub>       | V <sub>DS</sub> = 10V, V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 3.6A  |      | 7.7   | 10    | nC    |
| Gate-source charge                        | Q <sub>gs</sub>      |   |      | 0.32  |       |       |
| Gate-drain charge                         | Q <sub>gd</sub>      |   |      | 2.1   |       |       |
| Input capacitance <sup>b</sup>            | C <sub>iss</sub>     | V <sub>DS</sub> = 10V, V <sub>GS</sub> = 0V, f = 1MHz   |      | 574   |       | pF    |
| Output capacitance <sup>b</sup>           | C <sub>oss</sub>     |   |      | 70    |       |       |
| Reverse transfer capacitance <sup>b</sup> | C <sub>rss</sub>     |   |      | 60    |       |       |
| <b>Switching<sup>b</sup></b>              |                      |   |      |       |       |       |
| Turn-on delay time                        | t <sub>d(on)</sub>   | V <sub>DD</sub> = 10V,<br>R <sub>L</sub> = 5.5Ω, I <sub>D</sub> ≈ 3.6A,<br>V <sub>GEN</sub> = 4.5V, R <sub>g</sub> = 6Ω |      | 78.7  |       | ns    |
| Rise time                                 | t <sub>r</sub>       |   |      | 128   |       |       |
| Turn-off delay time                       | t <sub>d(off)</sub>  |   |      | 453   |       |       |
| Fall time                                 | t <sub>f</sub>       |   |      | 80.9  |       |       |

Typical Electrical and Thermal Characteristics



Package Outline Dimensions (SOT-23)



| Symbol   | Dimensions in Millimeters |       |
|----------|---------------------------|-------|
|          | MIN.                      | MAX.  |
| A        | 0.900                     | 1.150 |
| A1       | 0.000                     | 0.100 |
| A2       | 0.900                     | 1.050 |
| b        | 0.300                     | 0.500 |
| c        | 0.080                     | 0.150 |
| D        | 2.800                     | 3.000 |
| E        | 1.200                     | 1.400 |
| E1       | 2.250                     | 2.550 |
| e        | 0.950TYP                  |       |
| e1       | 1.800                     | 2.000 |
| L        | 0.550REF                  |       |
| L1       | 0.300                     | 0.500 |
| $\theta$ | 0°                        | 8°    |

Marking:



“P” is TECHPUBLIC LOGO  
 “V6” is Part number, fixed  
 “xx” is internal code

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [MOSFET](#) category:*

*Click to view products by [TECH PUBLIC](#) manufacturer:*

Other Similar products are found below :

[614233C](#) [648584F](#) [MCH3443-TL-E](#) [MCH6422-TL-E](#) [NTNS3A92PZT5G](#) [IRFD120](#) [IRFF430](#) [JANTX2N5237](#) [2N7000](#) [AOD464](#)  
[2SK2267\(Q\)](#) [2SK2545\(Q,T\)](#) [405094E](#) [423220D](#) [MIC4420CM-TR](#) [VN1206L](#) [614234A](#) [715780A](#) [SSM6J414TU,LF\(T](#) [751625C](#)  
[IPS70R2K0CEAKMA1](#) [BSF024N03LT3 G](#) [PSMN4R2-30MLD](#) [TK31J60W5,S1VQ\(O](#) [2SK2614\(TE16L1,Q\)](#) [DMN1017UCP3-7](#)  
[EFC2J004NUZTDG](#) [FCAB21350L1](#) [P85W28HP2F-7071](#) [DMN1053UCP4-7](#) [NTE2384](#) [NTE2969](#) [NTE6400A](#) [DMC2700UDMQ-7](#)  
[DMN2080UCB4-7](#) [DMN61D9UWQ-13](#) [US6M2GTR](#) [DMN31D5UDJ-7](#) [SSM6P54TU,LF](#) [DMP22D4UFO-7B](#) [IPS60R3K4CEAKMA1](#)  
[DMN1006UCA6-7](#) [DMN16M9UCA6-7](#) [STF5N65M6](#) [IRF40H233XTMA1](#) [IPSA70R950CEAKMA1](#) [IPSA70R2K0CEAKMA1](#) [STU5N65M6](#)  
[C3M0021120D](#) [DMN6022SSD-13](#)