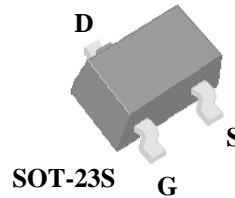
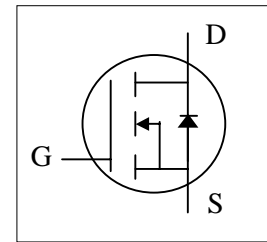


- ▼ Capable of 1.8V Gate Drive
- ▼ Lower Gate Charge
- ▼ Fast Switching Performance
- ▼ RoHS Compliant & Halogen-Free



| | |
|--------------|--------------|
| BV_{DSS} | 30V |
| $R_{DS(ON)}$ | 35m Ω |
| I_D | 4.5A |



Description

XP3N035 series are innovated design and silicon process technology to achieve the lowest possible on-resistance and fast switching performance. It provides the designer with an extreme efficient device for use in a wide range of power applications.

The SOT-23S package is widely preferred for commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

Absolute Maximum Ratings @ $T_j=25^\circ\text{C}$ (unless otherwise specified)

| Symbol | Parameter | Rating | Units |
|------------------------------|---|------------|------------------|
| V_{DS} | Drain-Source Voltage | 30 | V |
| V_{GS} | Gate-Source Voltage | ± 8 | V |
| $I_D @ T_A=25^\circ\text{C}$ | Drain Current ³ , V_{GS} @ 10V | 4.5 | A |
| $I_D @ T_A=70^\circ\text{C}$ | Drain Current ³ , V_{GS} @ 10V | 3.5 | A |
| I_{DM} | Pulsed Drain Current ¹ | 20 | A |
| $P_D @ T_A=25^\circ\text{C}$ | Total Power Dissipation | 1.25 | W |
| T_{STG} | Storage Temperature Range | -55 to 150 | $^\circ\text{C}$ |
| T_J | Operating Junction Temperature Range | -55 to 150 | $^\circ\text{C}$ |

Thermal Data

| Symbol | Parameter | Value | Unit |
|--------|---|-------|---------------------------|
| Rthj-a | Maximum Thermal Resistance, Junction-ambient ³ | 100 | $^\circ\text{C}/\text{W}$ |

Electrical Characteristics @T_j=25°C(unless otherwise specified)

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Units |
|---------------------|--|--|------|------|------|-------|
| BV _{DSS} | Drain-Source Breakdown Voltage | V _{GS} =0V, I _D =250uA | 30 | - | - | V |
| R _{DS(ON)} | Static Drain-Source On-Resistance ² | V _{GS} =4.5V, I _D =4.5A | - | - | 35 | mΩ |
| | | V _{GS} =2.5V, I _D =2.6A | - | - | 50 | mΩ |
| | | V _{GS} =1.8V, I _D =1A | - | - | 80 | mΩ |
| V _{GS(th)} | Gate Threshold Voltage | V _{DS} =V _{GS} , I _D =250uA | 0.3 | - | 1.2 | V |
| g _{fs} | Forward Transconductance | V _{DS} =5V, I _D =5A | - | 24 | - | S |
| I _{DSS} | Drain-Source Leakage Current | V _{DS} =24V, V _{GS} =0V | - | - | 10 | uA |
| I _{GSS} | Gate-Source Leakage | V _{GS} =±8V, V _{DS} =0V | - | - | ±100 | nA |
| Q _g | Total Gate Charge | I _D =5A | - | 9 | 14.4 | nC |
| Q _{gs} | Gate-Source Charge | V _{DS} =15V | - | 1.3 | - | nC |
| Q _{gd} | Gate-Drain ("Miller") Charge | V _{GS} =4.5V | - | 2 | - | nC |
| t _{d(on)} | Turn-on Delay Time | V _{DS} =15V | - | 5 | - | ns |
| t _r | Rise Time | I _D =1A | - | 20 | - | ns |
| t _{d(off)} | Turn-off Delay Time | R _G =3.3Ω | - | 17 | - | ns |
| t _f | Fall Time | V _{GS} =5V | - | 19 | - | ns |
| C _{iss} | Input Capacitance | V _{GS} =0V | - | 800 | 1330 | pF |
| C _{oss} | Output Capacitance | V _{DS} =15V | - | 75 | - | pF |
| C _{rss} | Reverse Transfer Capacitance | f=1.0MHz | - | 55 | - | pF |

Source-Drain Diode

| Symbol | Parameter | Test Conditions | Min. | Typ. | Max. | Units |
|-----------------|---------------------------------|---|------|------|------|-------|
| V _{SD} | Forward On Voltage ² | I _S =1A, V _{GS} =0V | - | - | 1.2 | V |

Notes:

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse test
- 3.Surface mounted on 1 in² copper pad of FR4 board, t ≤ 10sec ; 300°C/W when mounted on min. copper pad.

THIS PRODUCT IS SENSITIVE TO ELECTROSTATIC DISCHARGE, PLEASE HANDLE WITH CAUTION.

USE OF THIS PRODUCT AS A CRITICAL COMPONENT IN LIFE SUPPORT OR OTHER SIMILAR SYSTEMS IS NOT AUTHORIZED.

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XSEMI RESERVES THE RIGHT TO MAKE CHANGES WITHOUT FURTHER NOTICE TO ANY PRODUCTS HEREIN TO IMPROVE RELIABILITY, FUNCTION OR DESIGN.

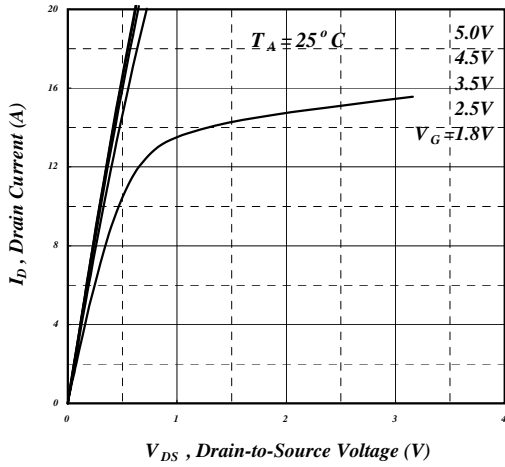


Fig 1. Typical Output Characteristics

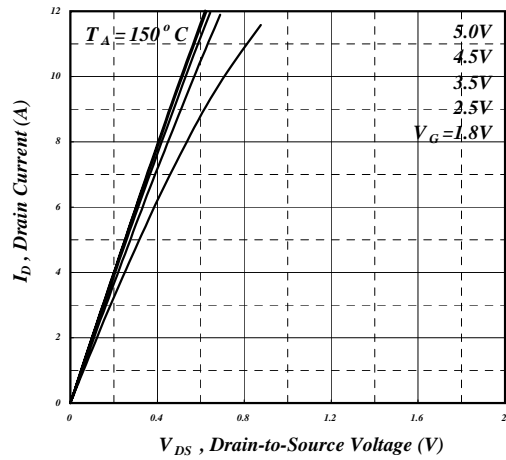


Fig 2. Typical Output Characteristics

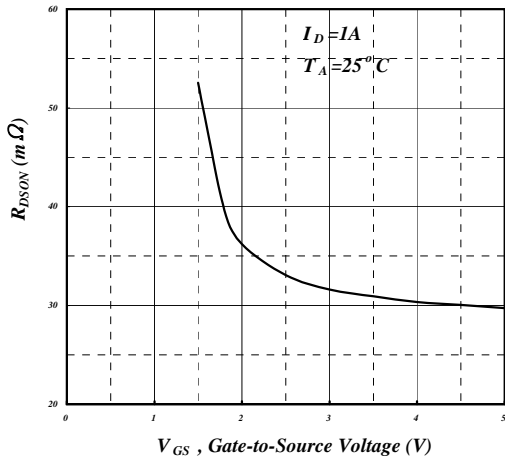


Fig 3. On-Resistance v.s. Gate Voltage

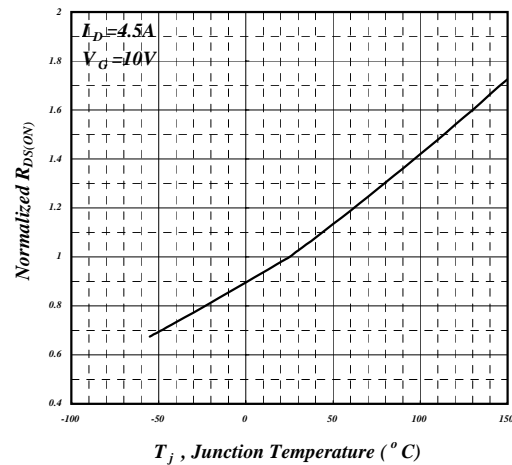


Fig 4. Normalized On-Resistance v.s. Junction Temperature

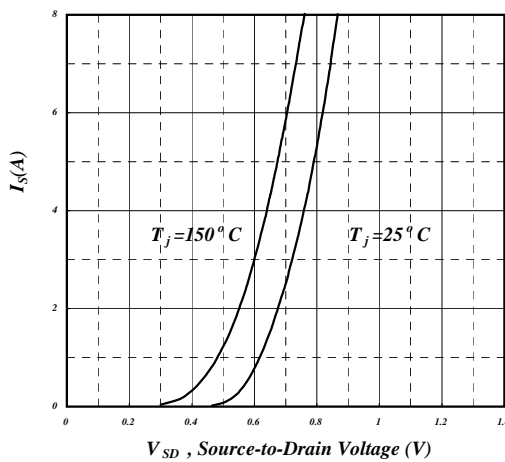


Fig 5. Forward Characteristic of Reverse Diode

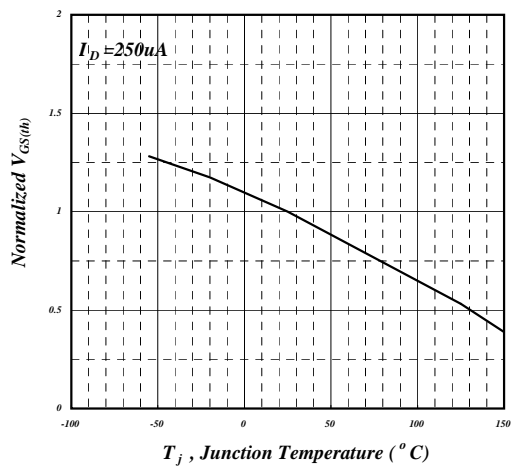


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

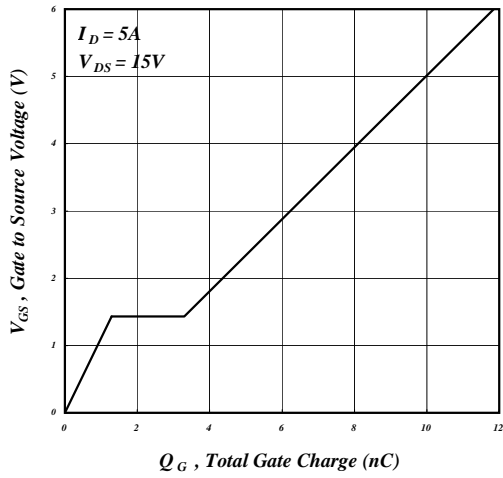


Fig 7. Gate Charge Characteristics

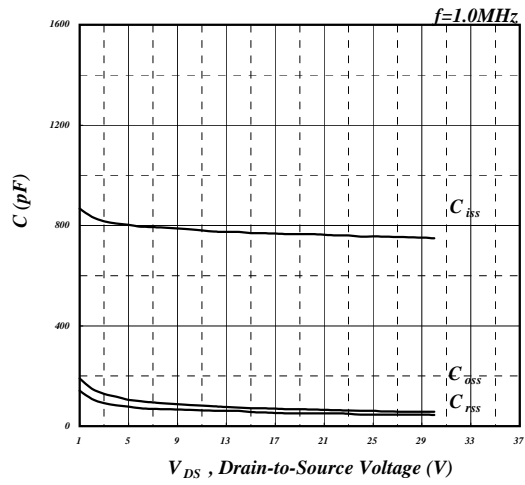


Fig 8. Typical Capacitance Characteristics

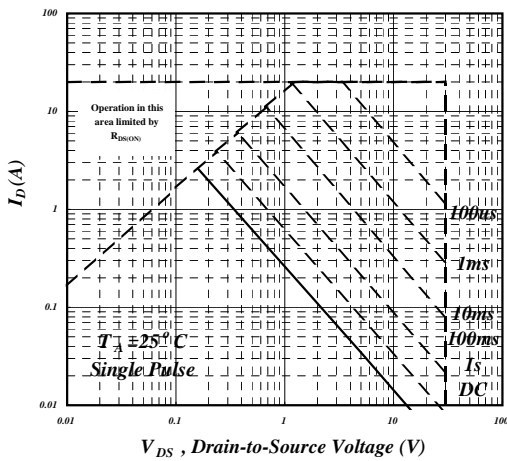


Fig 9. Maximum Safe Operating Area

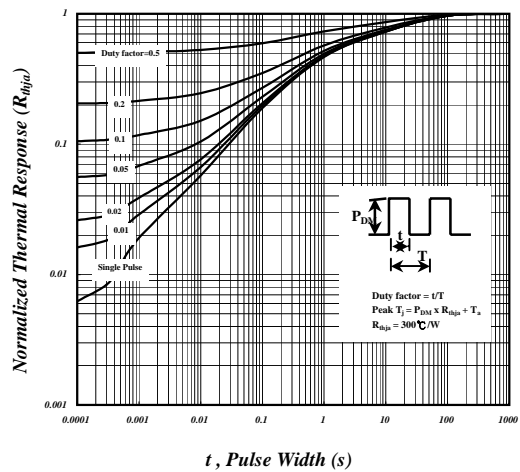


Fig 10. Effective Transient Thermal Impedance

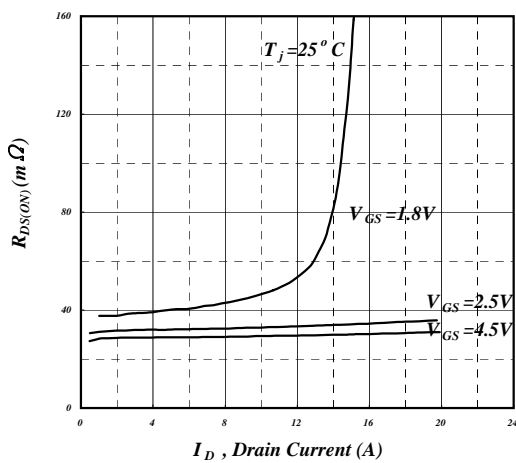


Fig 11. Typ. Drain-Source on State Resistance

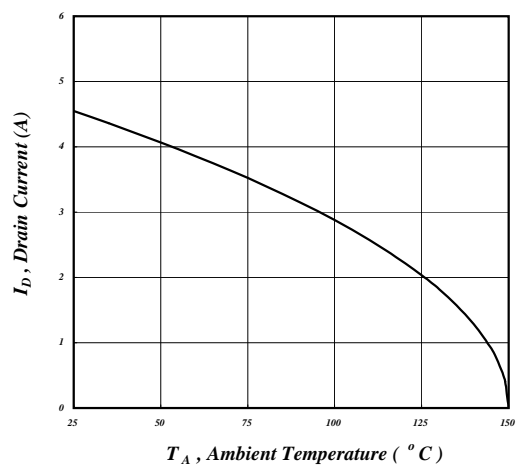
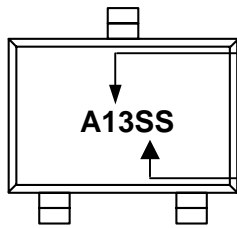


Fig 12. Drain Current v.s. Ambient Temperature

MARKING INFORMATION



Part Number : A13

Date Code : SS

SS:2004,2008,2012,2016,2020,2024...

SS:2003,2007,2011,2015,2019,2023...

SS:2002,2006,2010,2014,2018,2022...

SS:2001,2005,2009,2013,2017,2021...