

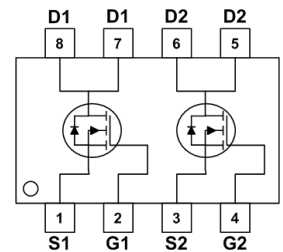
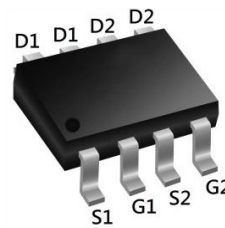
- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent Cdv/dt effect decline
- ★ Advanced high cell density Trench technology


Product Summary

| BVDSS | RDSON | ID |
|-------|-------|------|
| 20V | 13mΩ | 8.0A |

Dual SOP8 Pin Configuration
Description

The XXW9928 uses advanced trench technology and design to provide excellent RDS(ON) with low gate charge. It can be used in a wide variety of applications.


Absolute Maximum Rating (T_A=25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------------------------------|------------|------|
| Drain-Source Voltage | V _{DS} | 20 | V |
| Gate-Source Voltage | V _{GS} | ±12 | V |
| Continuous Drain Current | I _D | 8 | A |
| | T _A = 25°C | | |
| Pulsed Drain Current ¹ | I _{DM} | 28 | A |
| Power Dissipation | P _D | 2.25 | W |
| | T _A = 25°C | | |
| Operating Junction and Storage Temperature Range | T _J , T _{STG} | -55 to 150 | °C |

Thermal Characteristics

| Parameter | Symbol | Value | Unit |
|--|------------------|-------|------|
| Thermal Resistance from Junction to Ambient ² | R _{θJA} | 80 | °C/W |

Electrical Characteristics (T_J=25°C unless otherwise noted)

| Parameter | Symbol | Test Condition | Min. | Typ. | Max. | Unit |
|---|---------------------------|---|------|------|------|------|
| Static Characteristics | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | V _{GS} = 0V, I _D = 250μA | 20 | - | - | V |
| Gate Leakage Current | I_{GSS} | V _{GS} = ±12V, V _{DS} = 0V | - | - | ±100 | nA |
| Drain Cut-off Current | I_{DSS} | V _{DS} = 20V, V _{GS} = 0V | - | - | 1 | μA |
| Gate Threshold Voltage | V_{GS(th)} | V _{GS} = V _{DS} , I _D = 250μA | 0.45 | 0.7 | 1 | V |
| Drain-Source On-State Resistance ³ | R_{DS(on)} | V _{GS} = 4.5V, I _D = 5A | - | 13 | 20 | mΩ |
| | | V _{GS} = 2.5V, I _D = 4.7A | - | 18 | 30 | |
| | | V _{GS} = 1.8V, I _D = 4.3A | - | 28 | 57 | |
| Dynamic Characteristics⁴ | | | | | | |
| Input Capacitance | C_{iss} | V _{GS} = 0V, V _{DS} = 10V, f = 1MHz | - | 700 | - | pF |
| Output Capacitance | C_{oss} | | - | 120 | - | |
| Reverse Transfer Capacitance | C_{rss} | | - | 105 | - | |
| Switching Characteristics⁴ | | | | | | |
| Total Gate Charge | Q_g | V _{GS} = 4.5V, V _{DS} = 10V, I _D = 5A | - | 10.5 | - | nC |
| Gate-Source Charge | Q_{gs} | | - | 2 | - | |
| Gate-Drain Charge | Q_{gd} | | - | 2.5 | - | |
| Turn-On Time | t_{d(on)} | V _{GS} = 5V, V _{DD} = 10V, I _D = 5A, R _G = 3Ω, | - | 10 | - | ns |
| Rise Time | t_r | | - | 20 | - | |
| Turn-Off Time | t_{d(off)} | | - | 32 | - | |
| Fall Time | t_f | | - | 12 | - | |
| Source-Drain Diode Characteristics | | | | | | |
| Body Diode Voltage ³ | V_{SD} | I _S = 4A, V _{GS} = 0V | - | - | 1.2 | V |
| Continuous Source Current | I_S | | - | - | 8 | A |

Notes:

1. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)} = 150°C.
2. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
3. Pulse Test: Pulse width ≤ 300μs, duty cycle ≤ 2%.
4. This value is guaranteed by design hence it is not included in the production test.

Typical Characteristics

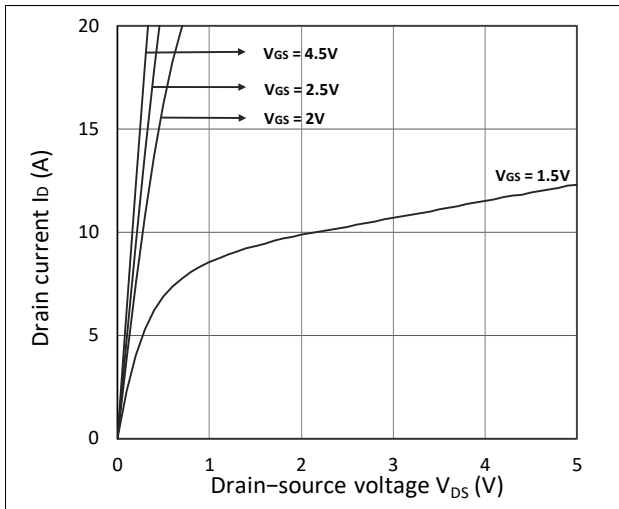


Figure 1. Output Characteristics

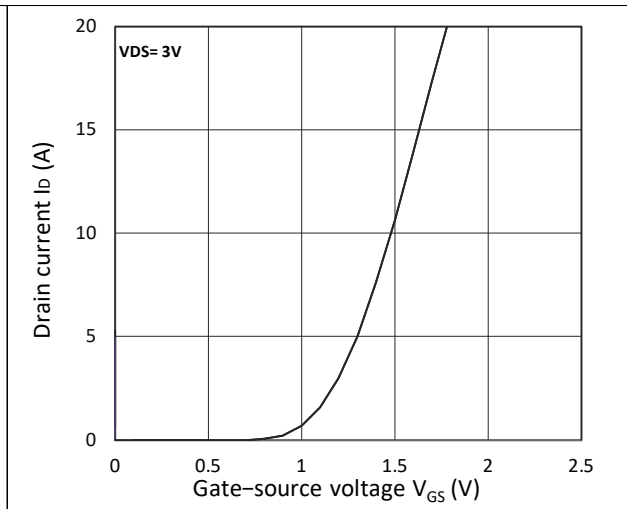


Figure 2. Transfer Characteristics

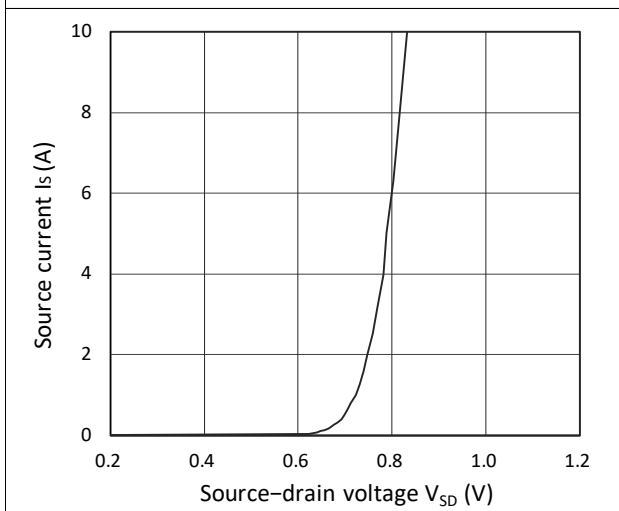
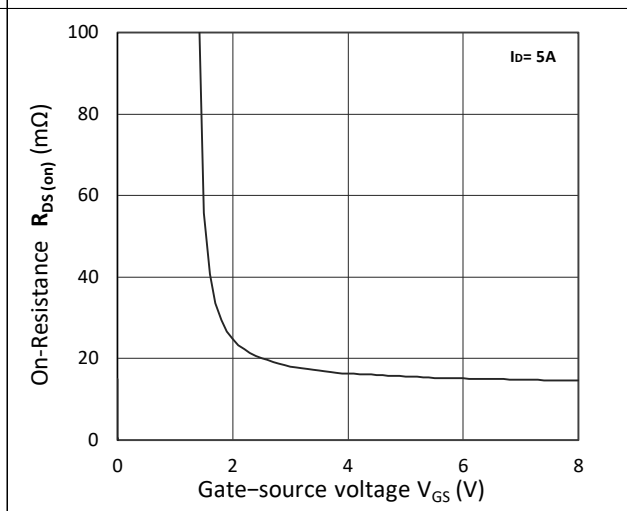
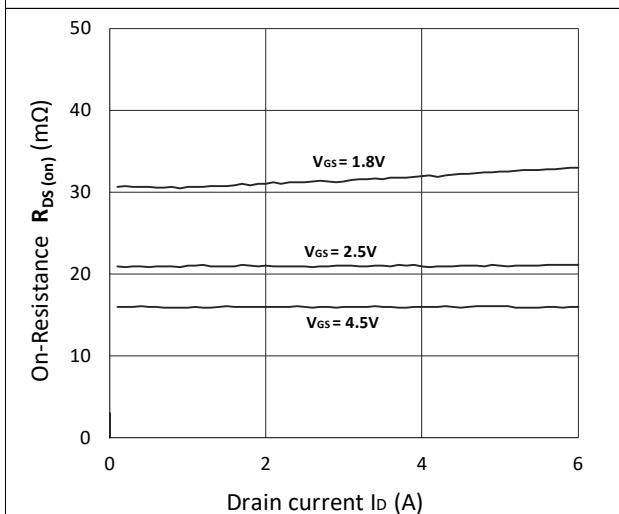
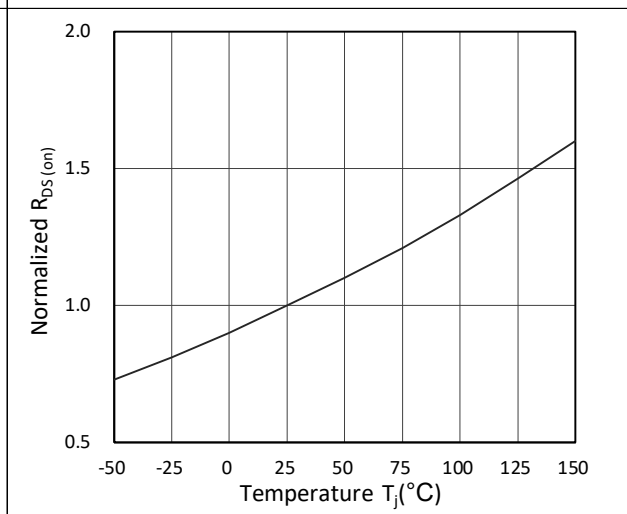
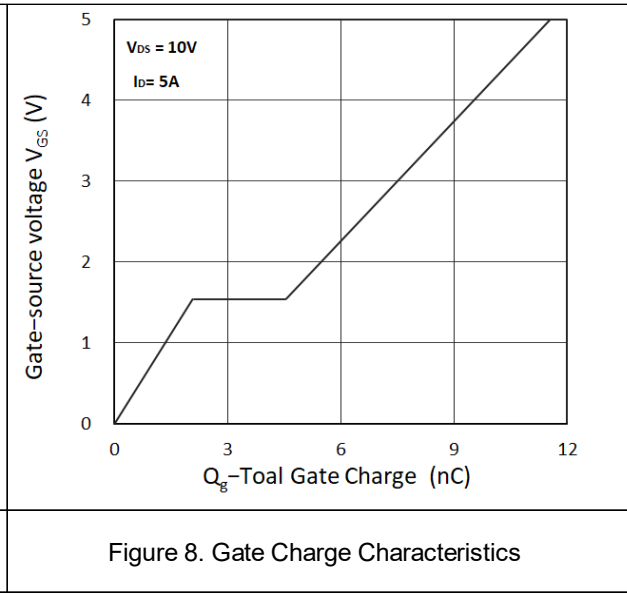
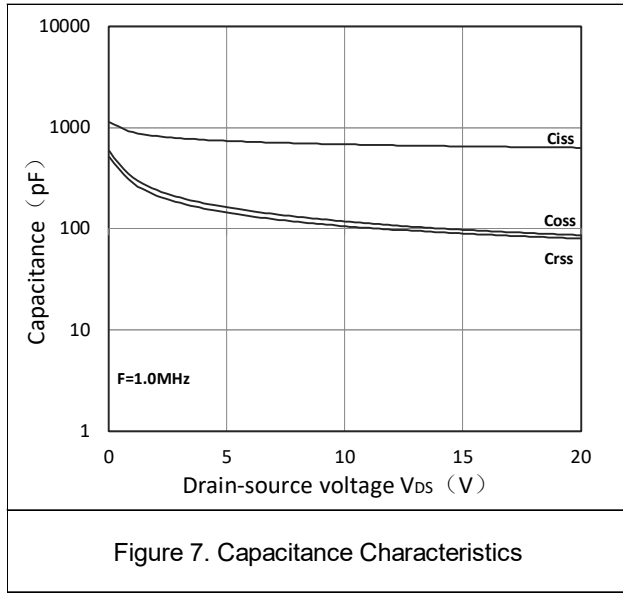
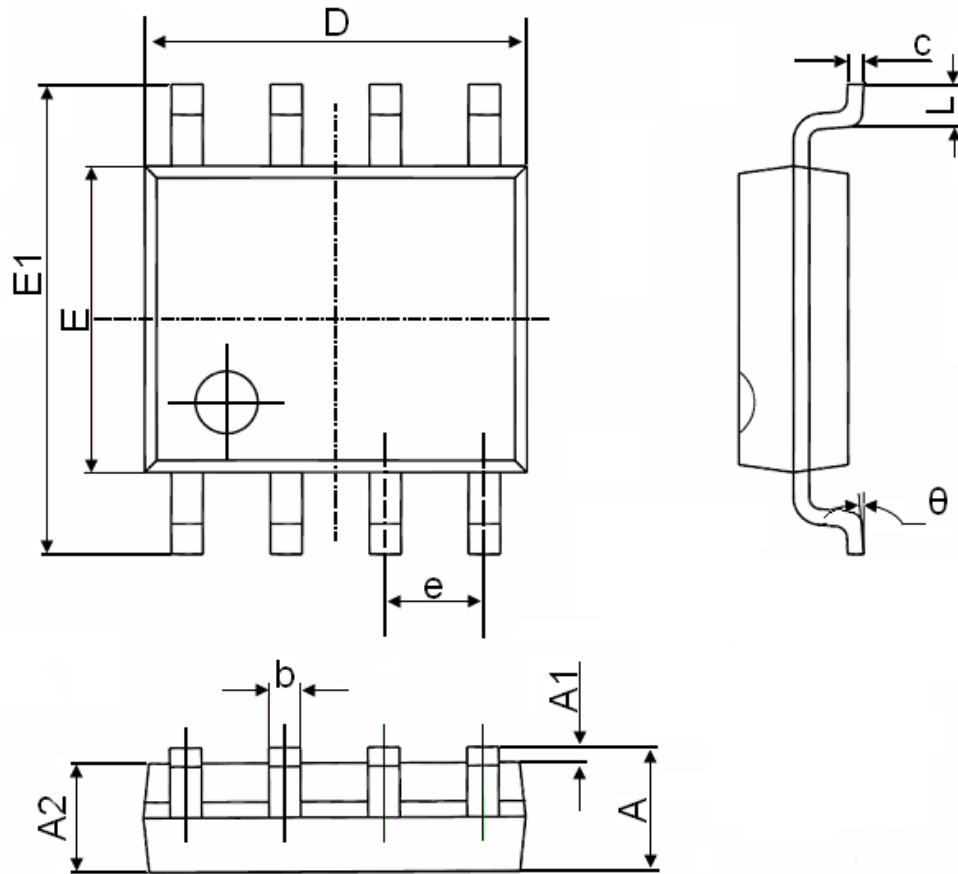


Figure 3. Forward Characteristics of Reverse


 Figure 4. $R_{DS(ON)}$ vs. V_{GS}

 Figure 5. $R_{DS(ON)}$ vs. I_D

 Figure 6. Normalized $R_{DS(ON)}$ vs. Temperature



Package Mechanical Data-SOP-8


| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.350 | 1.750 | 0.053 | 0.069 |
| A1 | 0.100 | 0.250 | 0.004 | 0.010 |
| A2 | 1.350 | 1.550 | 0.053 | 0.061 |
| b | 0.330 | 0.510 | 0.013 | 0.020 |
| c | 0.170 | 0.250 | 0.006 | 0.010 |
| D | 4.700 | 5.100 | 0.185 | 0.200 |
| E | 3.800 | 4.000 | 0.150 | 0.157 |
| E1 | 5.800 | 6.200 | 0.228 | 0.244 |
| e | 1.270(BSC) | | 0.050(BSC) | |
| L | 0.400 | 1.270 | 0.016 | 0.050 |
| θ | 0° | 8° | 0° | 8° |