

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

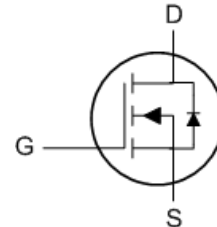
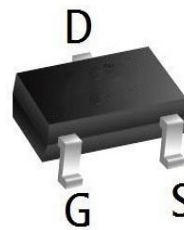

**Product Summary**

BVDSS	R <sub>DS(on)</sub>	I <sub>D</sub>
100V	91 mΩ	3A

**Description**

The XXW3N10 is the high cell density trenched N-ch MOSFETs, which provides excellent R<sub>DS(on)</sub> and efficiency for most of the small power switching and load switch applications.

The XXW3N10 meet the RoHS and Green Product requirement with full function reliability approved.

**SOT23 Pin Configuration**

**Absolute Maximum Rating (T<sub>A</sub>=25°C unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V <sub>DS</sub>	100	V
Gate-Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current	I <sub>D</sub>	3	A
Pulsed Drain Current <sup>1</sup>	I <sub>DM</sub>	13.2	A
Power Dissipation	P <sub>D</sub>	1.5	W
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to 150	°C

**Thermal Characteristics**

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient <sup>2</sup>	R <sub>θJA</sub>	83.3	°C/W

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

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	100	-	-	V
Gate-body Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 100V, V <sub>GS</sub> = 0V	-	-	1	μA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1	1.65	2.5	V
Drain-Source On-state Resistance <sup>3</sup>	R <sub>DS(on)</sub>	V <sub>GS</sub> = 10V, I <sub>D</sub> = 3A	-	91	130	mΩ
		V <sub>GS</sub> = 6V, I <sub>D</sub> = 2A	-	105	160	
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 1A	-	120	190	
<b>Dynamic Characteristics<sup>4</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 50V, f = 1MHz	-	200	-	pF
Output Capacitance	C <sub>oss</sub>		-	35	-	
Reverse Transfer Capacitance	C <sub>rss</sub>		-	2.5	-	
<b>Switching Characteristics<sup>4</sup></b>						
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> = 50V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 3A	-	4	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	0.6	-	
Gate-Drain Charge	Q <sub>gd</sub>		-	1.4	-	
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> = 50V, V <sub>GS</sub> = 10V, I <sub>D</sub> = 3A, R <sub>G</sub> = 3Ω	-	12.5	-	ns
Turn-on Rise Time	t <sub>r</sub>		-	19.5	-	
Turn-off Delay Time	t <sub>d(off)</sub>		-	20	-	
Turn-off Fall Time	t <sub>f</sub>		-	29	-	
<b>Source-Drain Diode characteristics</b>						
Body Diode Voltage <sup>3</sup>	V <sub>SD</sub>	I <sub>S</sub> = 3A, V <sub>GS</sub> = 0V	-	-	1.2	V
Continuous Source Current	I <sub>S</sub>		-	-	4.5	A

**Notes:**

1. Repetitive rating, pulse width limited by junction temperature T<sub>J(MAX)</sub>=150°C.
2. The data tested by surface mounted on a 1 inch<sup>2</sup> 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.

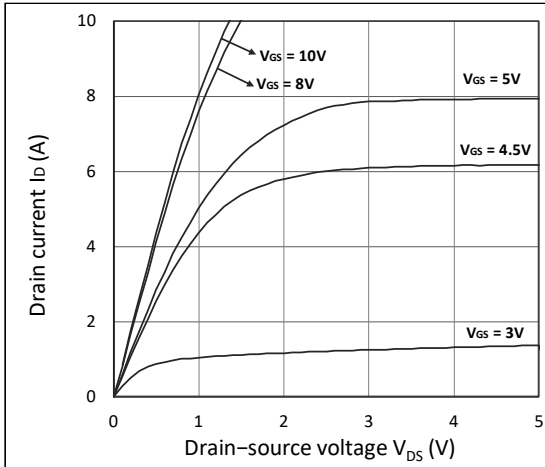
**Typical Characteristics**


Figure 1. Output Characteristics

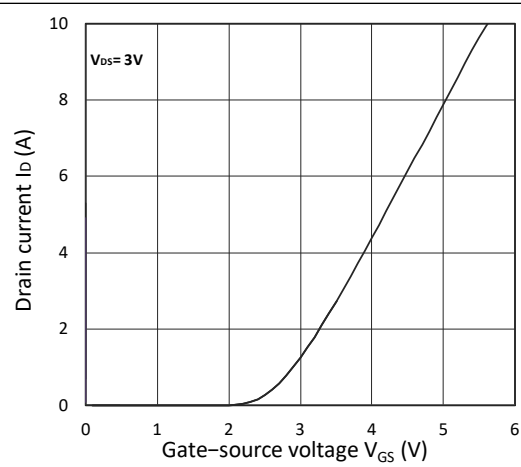


Figure 2. Transfer Characteristics

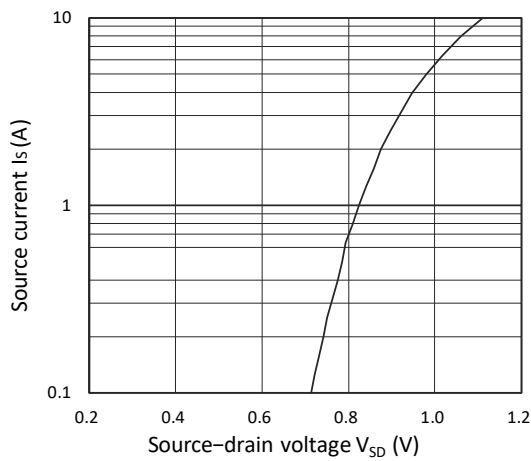
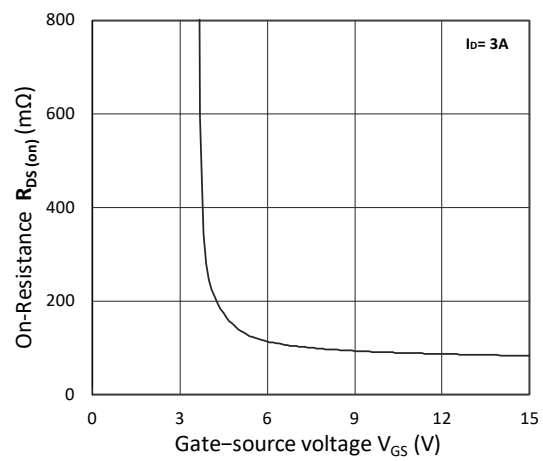
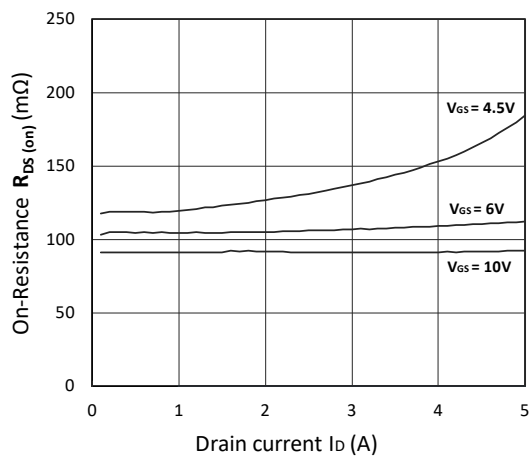
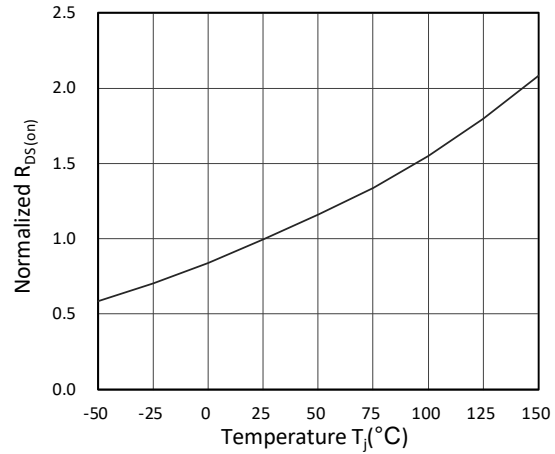


Figure 3. Forward Characteristics of Reverse


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

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

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

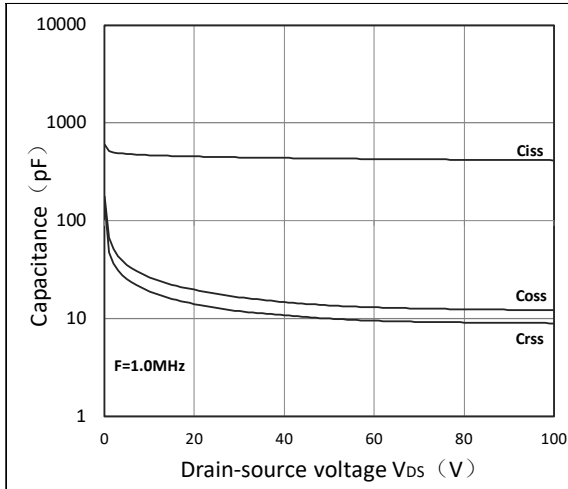


Figure 7. Capacitance Characteristics

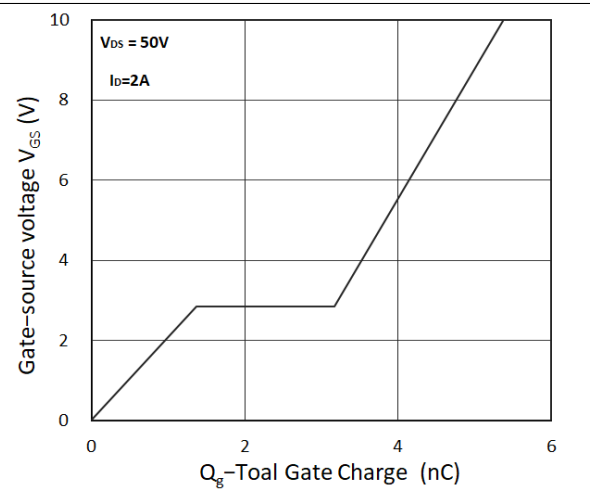
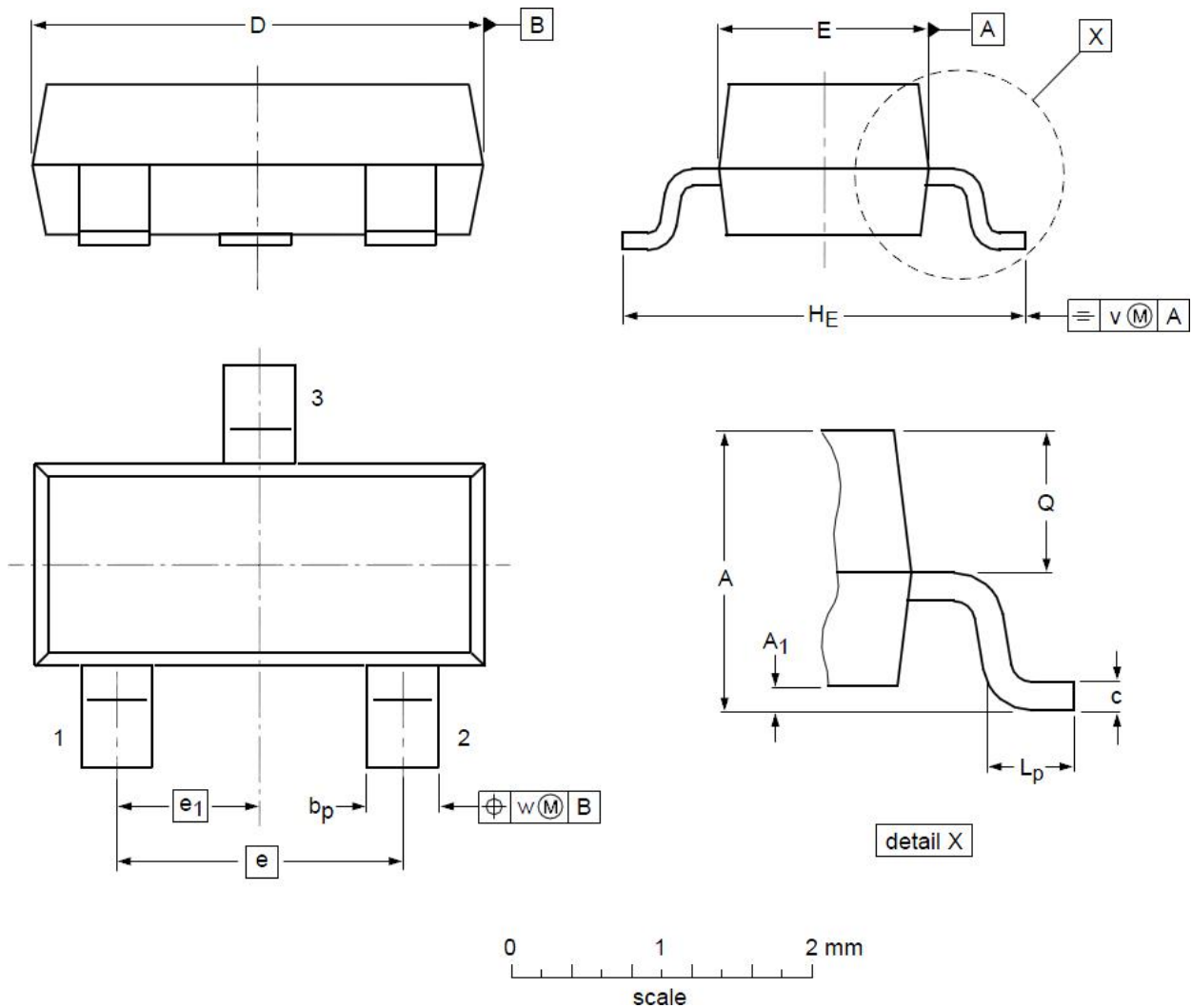


Figure 8. Gate Charge Characteristics

**SOT23 Mechanical Data**

**DIMENSIONS ( unit : mm )**

Symbol	Min	Typ	Max	Symbol	Min	Typ	Max
A	0.90	1.01	1.15	A <sub>1</sub>	0.01	0.05	0.10
b <sub>p</sub>	0.30	0.42	0.50	c	0.08	0.13	0.15
D	2.80	2.92	3.00	E	1.20	1.33	1.40
e	--	1.90	--	e <sub>1</sub>	--	0.95	--
H <sub>E</sub>	2.25	2.40	2.55	L <sub>p</sub>	0.30	0.42	0.50
Q	0.45	0.49	0.55	v	--	0.20	--
w	--	0.10	--				