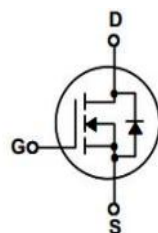
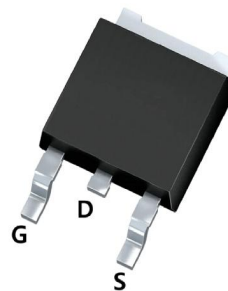




1.Features

- $R_{DS(ON)} \leq 90m\Omega$ @ $V_{GS}=10V$ $I_D=50A$
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Advanced SGT process
- Lead free product is acquired

TO-252



1. Gate
2. Drain
3. Source

2.Mechanical Data

- Case:Molded Plastic,TO-252;
- Epoxy:UL 94V-0 rate flame retardant
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking: marked on body.
- Mounting Position : Any.

3.Maximum Ratings and Electrical Characteristics

Rating at 25°C Cambient temperature unless otherwise specified

Characteristics		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	100	V
Drain Current Continuous	$T_C=25^{\circ}C$	I_D	16	A
	$T_C=100^{\circ}C$		10	
Drain Current Pulsed(Note 1)		I_{DM}	64	A
Single Pulsed Avalanche Energy		E_{AS}	5.5	mJ
Gate-Source Voltage		V_{GS}	± 20	V
Power Dissipation($T_C=25^{\circ}C$)		P_D	44.6	W
Maximum Junction Temperature		T_J	150	$^{\circ}C$
Storage Temperature Range		T_{stg}	-55 to +175	$^{\circ}C$
Thermal Resistance, Junction-to-Case		$R_{\theta JC}$	4	$^{\circ}C/W$
Thermal Resistance, Junction-to-Ambient		$R_{\theta JA}$	4	$^{\circ}C/W$



Characteristics	Symbol	Test conditions	Min	TYP	Max	Unit
Off Characteristics						
Drain -Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0V,I _D =250μA	100	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 100V,V _{GS} = 0V	-	-	1	uA
Gate-Source Leakage Current	I _{GSS}	V _{GS} = 20V	-	-	100	nA
Gate-Source Leakage Current		V _{GS} = -20V	-	-	-100	nA
On Characteristics						
Gate Threshold Voltage	V _{GS (th)}	V _{GS} = V _{DS} , I _D =250μA	1	1.8	2.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V, I _D =8A	-	78	90	mΩ
		V _{GS} =4.5V, I _D =3A	-	100	136	mΩ
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DB} =50V	-	339	-	pF
Output Capacitance	C _{oss}	V _{GS} =0V	-	105	-	
Reverse Transfer Capacitance	C _{rss}	f=1.0MHZ	-	11	-	
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =50V, V _{GS} =10V R _G =2Ω; I _D =10A	-	16	-	ns
Turn-on Rise Time	t _r		-	4	-	
Turn-off Delay Time	t _{d(off)}		-	13	-	
Turn-off Fail Time	t _f		-	3	-	
Total Gate Charge	Q _g	V _{DS} =50V, V _{GS} =10A I _D =10A	-	6.6	-	nC
Gate-Source Charge	Q _{gs}		-	1.6	-	
Gate-Drain Charge	Q _{gd}		-	2	-	
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	I _S =16A,V _{GS} =0V	-	-	1.4	V
Continuous Source Current	I _S		-	-	16	A
Reverse Recovery Time	trr	IF=10A, di/dt=100A/μs	-	35	-	ns
Reverse Recovery Charge	Qrr		-	48	-	nC

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$
3. Essentially independent of operating temperature



4. Rating And Characteristic Curves

Fig.1 Output Characteristics

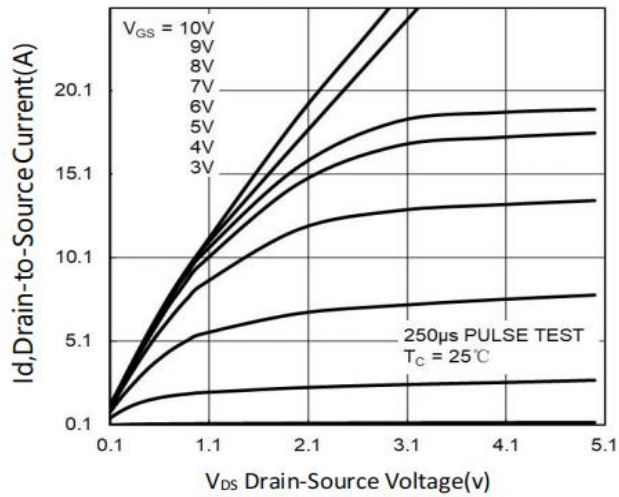


Fig.2 Transfer Characteristics

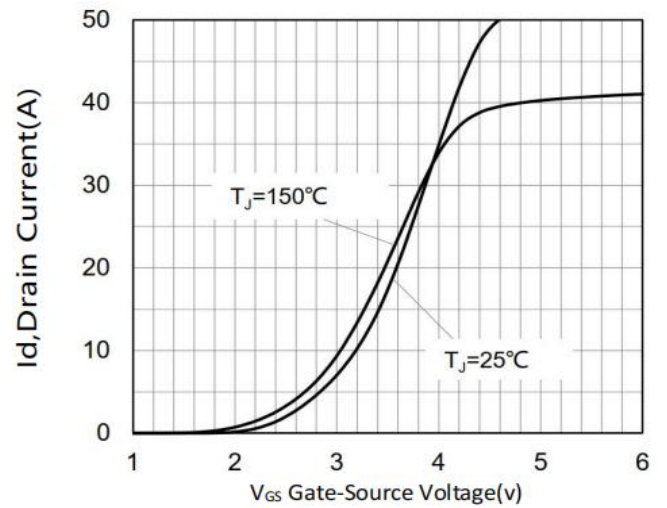


Fig.3 On-Resistance versus Drain Current

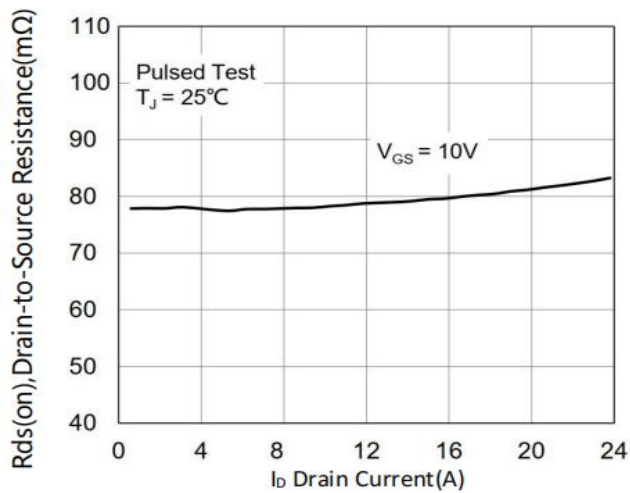


Fig.4 Diode forward voltage versus Current

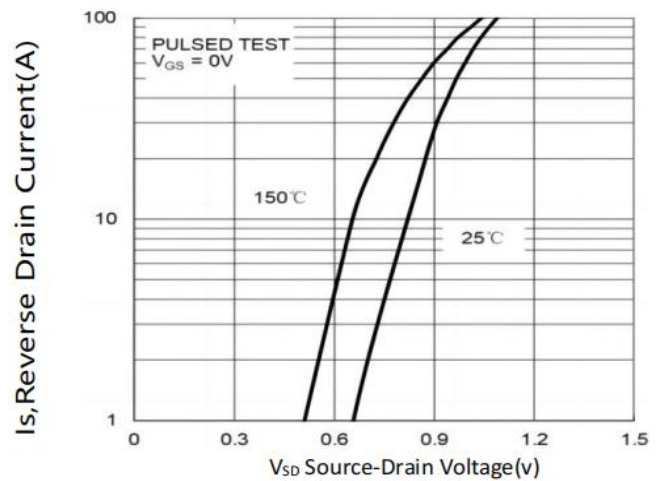


Fig.5 Typical Capacitance versus VDS

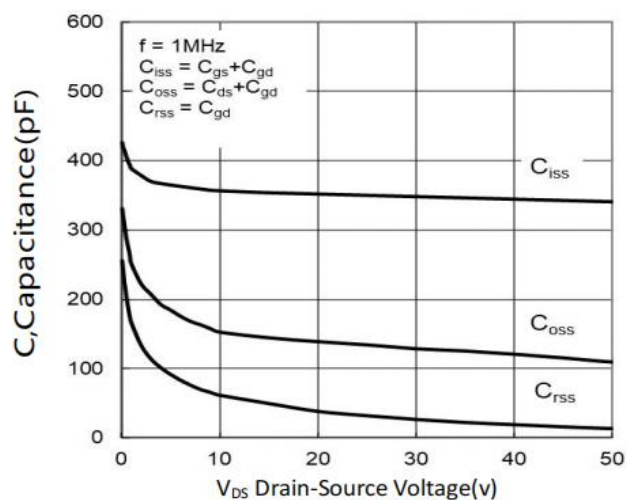


Fig.6 Typical Gate Charge versus VGS

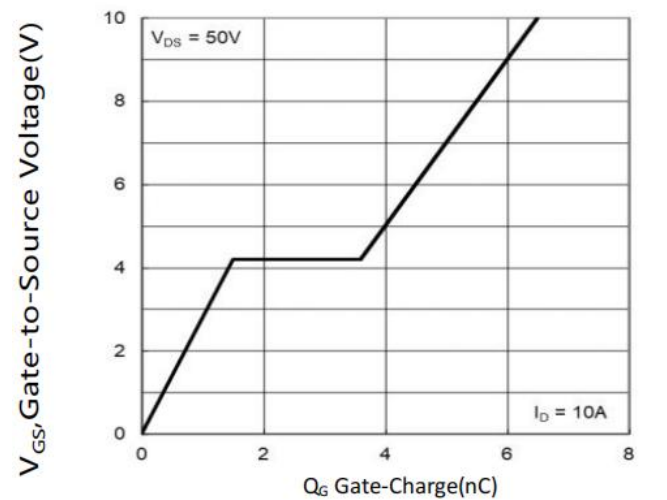




Fig.7 BV_{DSS} Variation with Temperature

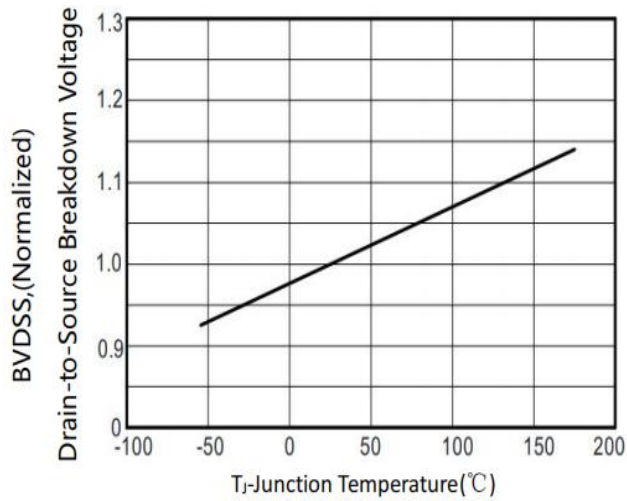


Fig.8 On-Resistance Variation with Temperature

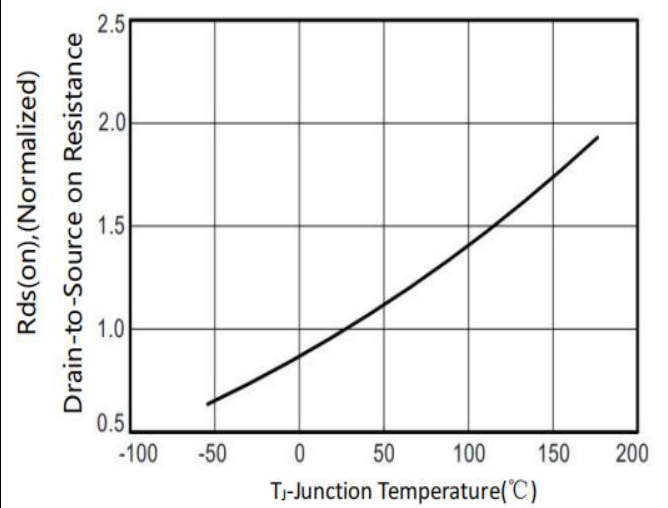


Fig.9 Maximum Safe Operating Area

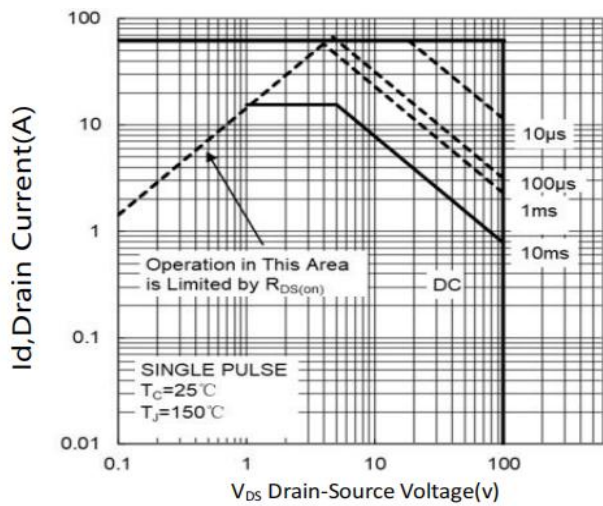
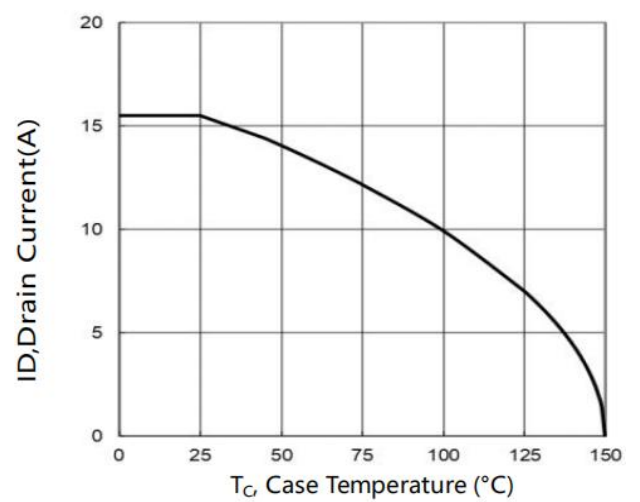
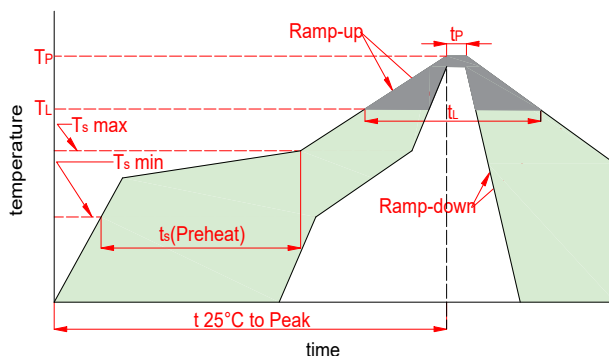


Fig.10. Drain Current versus Case Temperature



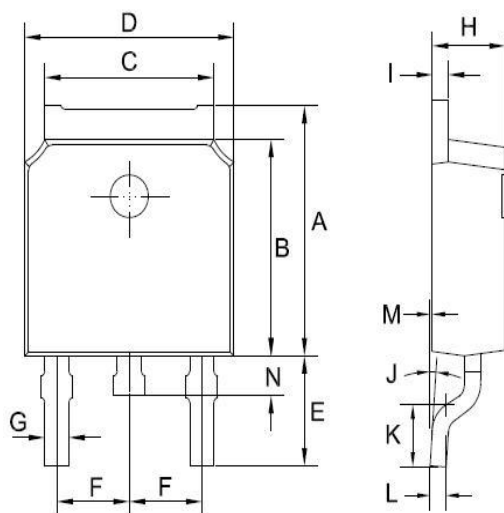


5. Soldering Parameters



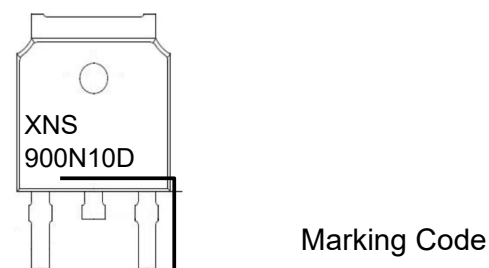
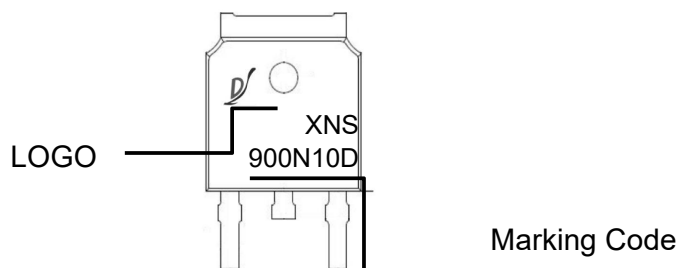
Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s (min))	150°C
	Temp. max(T_s (min))	200°C
	Time(min to max)(t_s)	60~180s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3°C/s max
T_s (max) to T_L -Ramp-up Rate		3°C/s max
Reflow	Temp.(T_L)(Liquidus)	217°C
	Temp.(t_L)(Liquidus)	60~150s
Peak Temp.(T_P)		260 ^{+0/-5} °C
Time within actual peak Temp.(t_p)		30s max
Ramp-down Rate		6°C/s max
Time 25°C to peak Tempe.(T_p)		8 minutes max
Do not exceed		260°C

6.Dimensions



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.270	0.285	6.85	7.25
B	0.232	0.248	5.90	6.30
C	0.202	0.218	5.13	5.53
D	0.252	0.268	6.40	6.80
E	0.114	0.130	2.90	3.30
F	0.086	0.094	2.19	2.39
G	0.018	0.033	0.45	0.85
H	0.087	0.094	2.20	2.40
I	0.016	0.024	0.41	0.61
J	0°	8°	0°	8°
K	0.057	0.073	1.45	1.85
L	0.016	0.024	0.41	0.61
M	0.000	0.005	0.00	0.12
N	0.024	0.039	0.60	1.00

7. Part Marking System

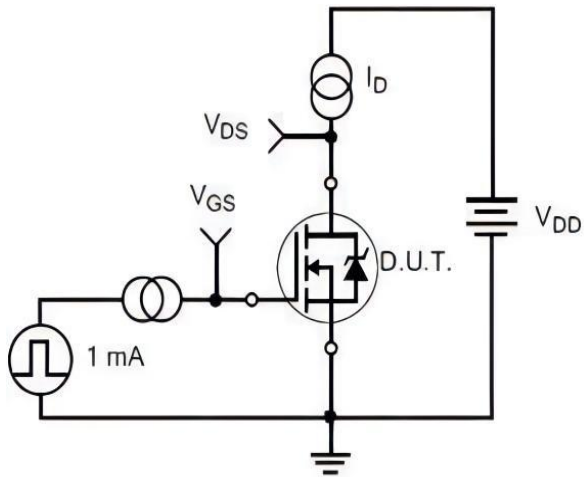


8. Package Information

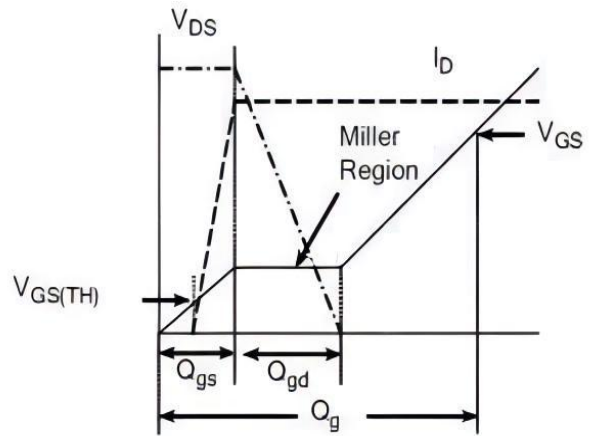
Package	Part Number	Marking Code
TO-252	2500	XNS900N10D



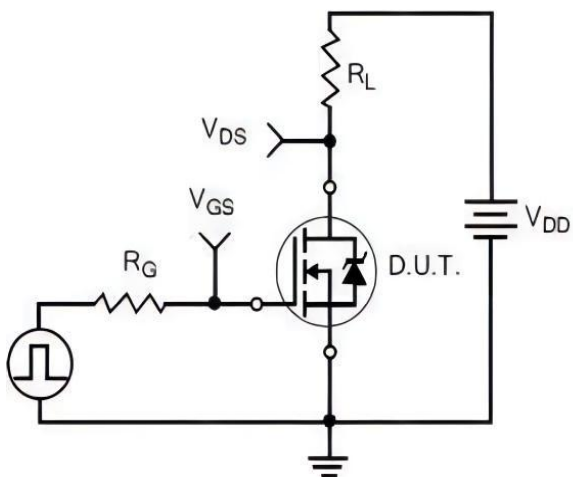
9. Test circuits



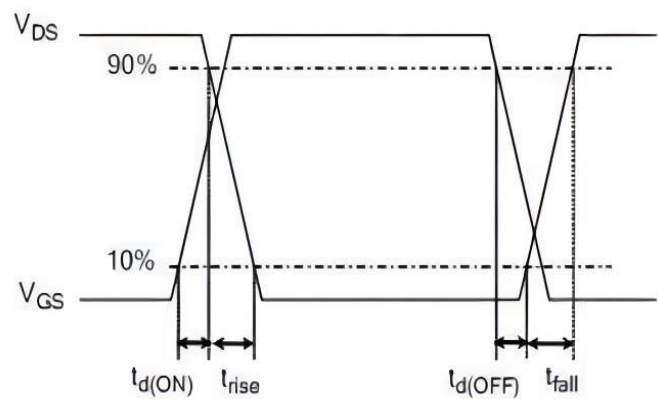
Gate Charge Test Circuit



Gate Charge Waveform



Resistive Switching Test Circuit



Resistive Switching Waveforms



Timing diagram showing the relationship between the drain voltage V_{DSS} and the gate voltage V_{GS} during a switching event. The gate voltage V_{GS} is a rectangular pulse with duration t_p . The drain voltage V_{DSS} is high during the pulse and drops to zero during the transition. The transition time t_{AV} is indicated as the time from the start of the V_{GS} pulse to the end of the V_{DSS} pulse. The peak current I_{AS} is shown as the maximum current during the transition. The energy dissipation E_{AS} is given by the formula $E_{AS} = \frac{I_{AS}^2 L}{2}$.

7 of 8



Important Notice and Disclaimer

- Reproducing and modifying information of the document is prohibited without from XINNUO.
- XINNUO reserves the right to make changes to this document and its products and specifications.
- XINNUO disclaims any and all liability arising out of the application or use of any product including damages incidentally and consequentially occurred.
- XINNUO does not assume any and all implied warranties, including warranties of fitness for particular purpose, non-infringement and merchantability.
- Applications shown on the here in document are examples of standard use and operation. Customers are responsible in comprehending the suitable use in particular applications. XINNUO makes no representation or warranty that such applications will be suitable for the specified use without further testing or modification.
- The products shown her are not designed and authorized for equipments requiring high level of reliability or relating to human life and for any applications concerning life-saving or life-sustaining, such as medical instruments, transportation equipment, aerospace machinery et cetera. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify XINNUO for any damages resulting from such improper use or sale.
- Since XINNUO uses lot number as the tracking base, please provide the lot number for tracking when complaining.