



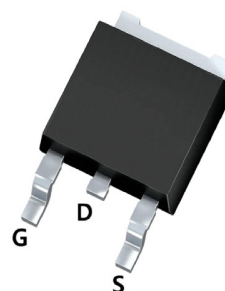
1. Features

- V_{DS} 60V
- I_D (at $V_{GS}=10V$) 50A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) 14m Ω (Typ)

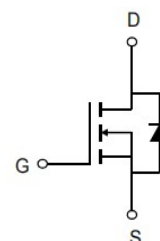
2. Mechanical Data

- Case:Molded Plastic,TO-252 .
- Epoxy:UL 94V-0 rate flame retardant
- Terminals:Plated Leads Solderable perMIL-STD-750,Method-2026.
- Marking:XNT180N06D
- Mounting Position : Any.

TO-252



- 1 Gate
- 2 Source
- 3 Drain



3. Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Parameter		Symbol	Value	UNIT
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C = 25^\circ\text{C}$	I_D	50	A
	$T_C = 100^\circ\text{C}$		30	
Drain Current-Pulsed		I_{DM}	200	A
Power Dissipation		P_{tot}	68	W
Single pulse avalanche energy		E_{AS}	300	mJ
Thermal Resistance from Junction to Lead		$R_{\theta JC}$	1.69	$^\circ\text{C/W}$
Thermal Resistance from Junction to Ambient		$R_{\theta JA}$	62	$^\circ\text{C/W}$
Junction and Storage Temperature Range		T_J, T_{STG}	-55~ +150	$^\circ\text{C}$

**4. Electrical Characteristics**

Rating at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-source breakdown voltage	V _(BR) DSS	V _{GS} = 0V, I _D =250μA	60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
Gate-source leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} =0V			±100	nA
On characteristics						
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =20A		14	18	mΩ
		V _{GS} =4.5V, I _D =10A		18.5	20	mΩ
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =-250μA	1	1.6	2.5	V
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f =1MHz		2780		pF
Output capacitance	C _{oss}			112		pF
Reverse transfer capacitance	C _{rss}			102		pF
Switching Characteristics						
Gate charge total	Q _g	V _{DS} = 30 V, I _D = 10 A, V _{GS} = 10 V		48		nC
Gate-Source Charge	Q _{gs}			7.7		nC
Gate-Drain Charge	Q _{gd}			11.2		nC
Turn-on delay time	t _{d(on)}	V _{DD} = 30 V, V _{GS} = 10V, I _D =1A, R _G = 3.3 Ω		15		nS
Turn-on rise time	t _r			105		nS
Turn-off delay time	t _{d(off)}			60		nS
Turn-off fall time	t _f			65		nS
Source-Drain Diode characteristics						
Body Diode Voltage	V _{SD}	I _{SD} =1A, V _{GS} =0V			1.4	V

Notes :

- 1.Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. $V_{DD} = 50V, L = 0.5mH$, Starting $T_J = 25^\circ C$
- 3.The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- 4.Essentially independent of operating temperature.



5. Rating And Characteristic Curves

Fig1: Continuous Drain Current vs. T_C

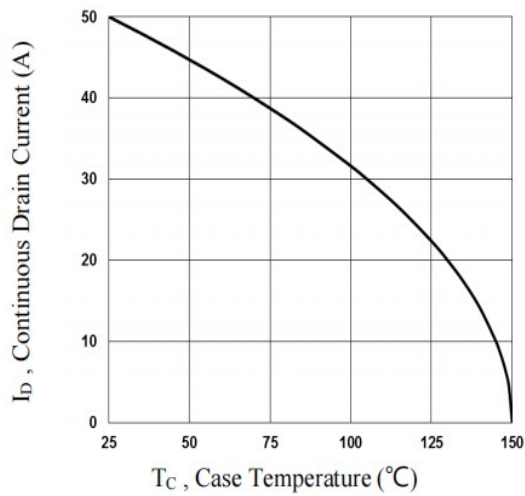


Fig2: Normalized $R_{DS(on)}$ vs. T_J

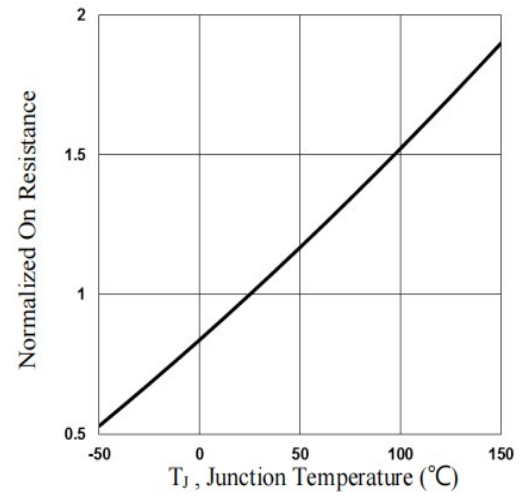


Fig.3 Normalized V_{th} vs. T_J

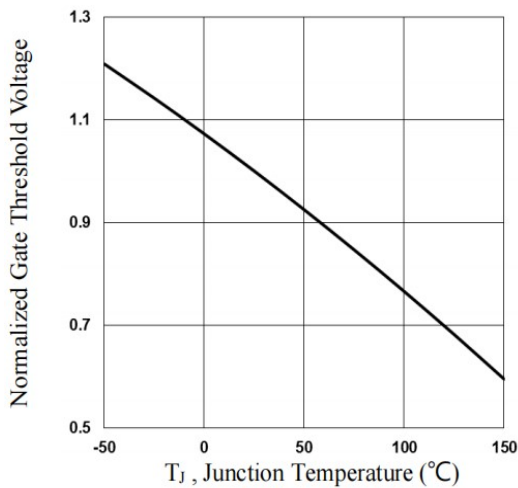


Fig.4 Gate Charge Waveform

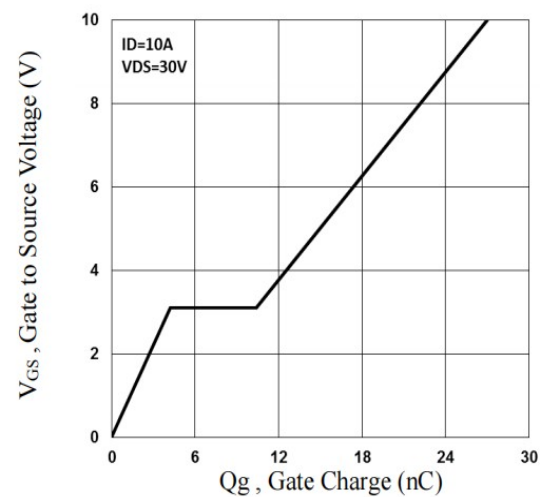


Fig.5 Normalized Transient Impedance

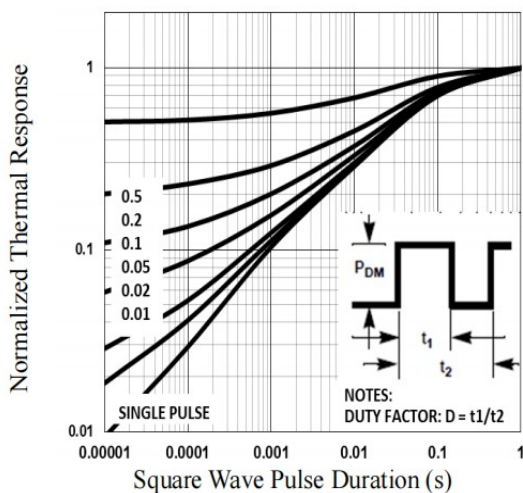


Fig.6 Maximum Safe Operation Area

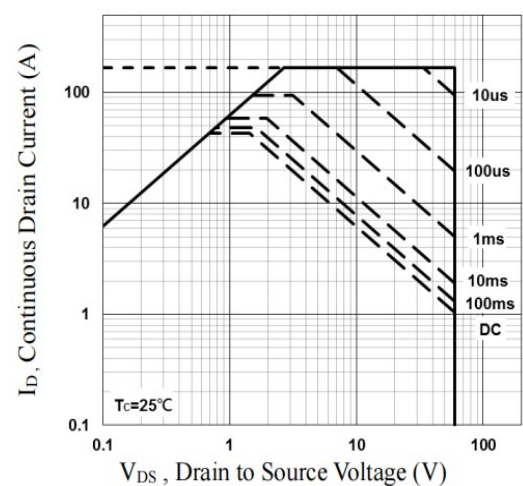




Fig. 7 Switching Time Waveform

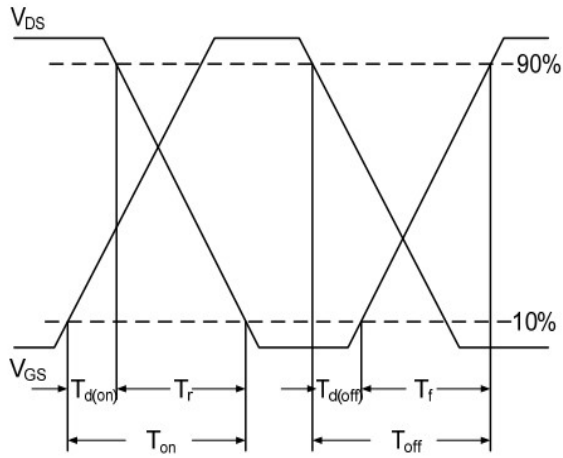
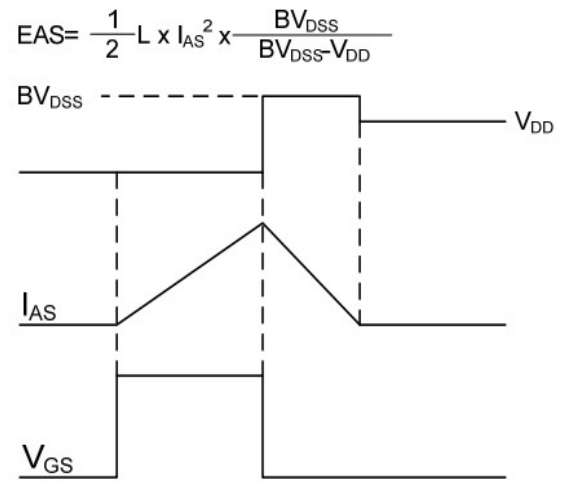
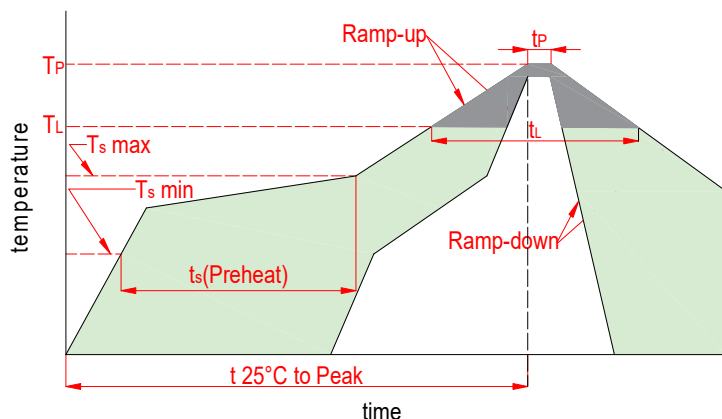


Fig.8 EAS Waveform



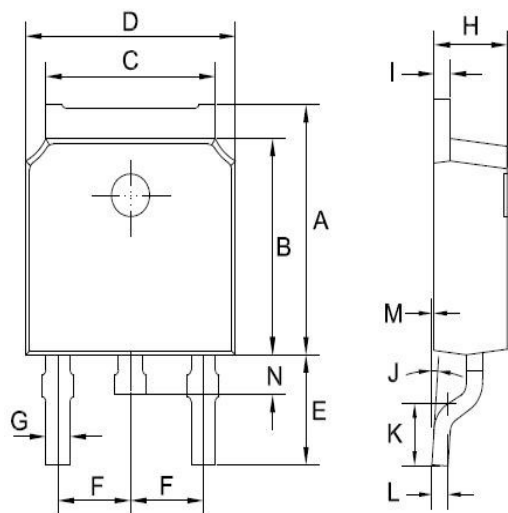


6. Soldering Parameters



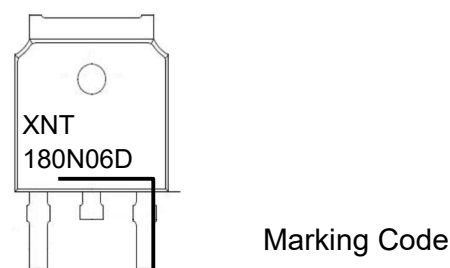
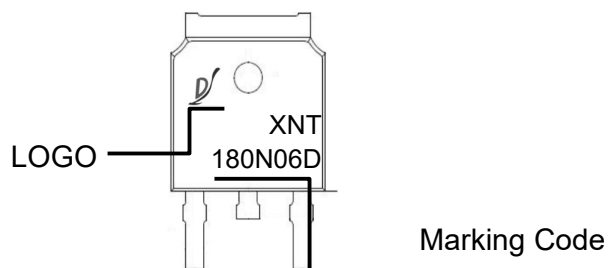
Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s (min))	150℃
	Temp. max(T_s (min))	200℃
	Time(min to max)(t_s)	60~180s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3℃/s max
T_s (max) to T_L -Ramp-up Rate		3℃/s max
Reflow	Temp.(T_L)(Liquidus)	217℃
	Temp.(t_L)(Liquidus)	60~150s
Peak Temp.(T_P)		260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

7. 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

8. Part Marking System



9. Package Information

Package	Part Number	Marking Code
TO-252	2500	XNT180N06D



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.