



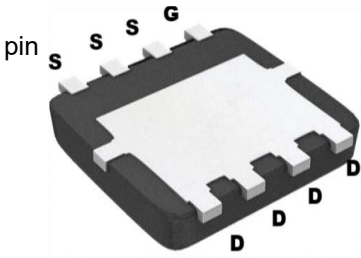
XNM30N03D3

30V N-Channel MOSFET

1.Features

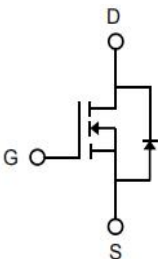
- V_{DS} 30V
- I_D (at $V_{GS}=10V$) 30A
- $R_{DS(ON)}$ (at $V_{GS}=10V$) 12m Ω (Typ)
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) 14m Ω (Typ)

PDFN3*3



2.Mechanical Data

- Case:Molded Plastic,PDFN3*3;
- Epoxy:UL 94V-0 rate flame retardant
- Terminals:Plated Leads Solderable per MIL-STD-750,Method-2026.
- Marking: marked on body.
- Mounting Position : Any.



1. Gate
2. Drain
3. Source

3.Absolute Maximum Ratings

Electrical Characteristics ($T_A=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current-Continuous	I_D	30	A
		18	
Pulsed Drain Current	I_{DM}	120	A
Power Dissipation	P_D	25	W
Junction Temperature	T_J	-55~+150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~+150	$^{\circ}C$
Thermal Resistance from Junction to Case	$R_{\theta JC}$	3.8	$^{\circ}C/W$
Junction-to-Ambient Thermal Resistance	$R_{\theta JA}$	62	$^{\circ}C/W$

**4. Electrical Characteristics**

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	

Off Characteristics

Drain-source breakdown voltage	B_{VDSS}	$I_D = 250\mu A$	30	-		V
Gate-source leakage current	I_{DSS}	$V_{DS}=30V$	-	-	1	μA
Gate threshold voltage	I_{GSS}	$V_{GS} = \pm 20V$	-	-	± 100	nA

On Characteristics

Drain-to-Source Leakage Current	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.6	1	1.5	V
Drain-to-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 10A$	-	12	15	m Ω
		$V_{GS} = 4.5V, I_D = 5A$	-	14	20	m Ω

Dynamic Parameters

Forward Transconductance	g_{FS}	$V_{DS}=10V, I_D=3A$	-	6	-	S
Input Capacitance	C_{ISS}	$V_{DS} = 15V, V_{GS}=0V$ $f=1.0MHz$	-	620	-	pF
Output Capacitance	C_{OSS}		-	85	-	
Reverse Transfer Capacitance	C_{RSS}		-	60	-	

Switching Parameters

Gate resistance	R_g	$V_{GS}=0V, V_{DS}=0V, F=1MHz$	-	2	-	Ω
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=15V, V_{GS}=10V$ $R_g=2.6\Omega, R_g=3\Omega$	-	2.6	-	nS
Turn-on Rise Time	t_r		-	8.5	-	
Turn-off Delay Time	$t_{d(off)}$		-	18	-	
Turn-off Fall Time	t_f		-	5	-	
Total Gate Charge	Q_g	$V_{DS}=15V, I_D=3A$ $V_{GS}=4.5V$	-	7.1	-	
Gate-Source Charge	Q_{gs}		-	1.4	-	
Gate-Drain Charge	Q_{gd}		-	1.5	-	

Drain-Source Diode Characteristics

Forward Voltage	V_{SD}	$V_{GS} = 0V, I_{SD} = 1A$	-	-	1	V
-----------------	----------	----------------------------	---	---	---	---

Notes:

1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature



5. Rating And Characteristic Curves

Fig. 1 Continuous Drain Current vs. T_C

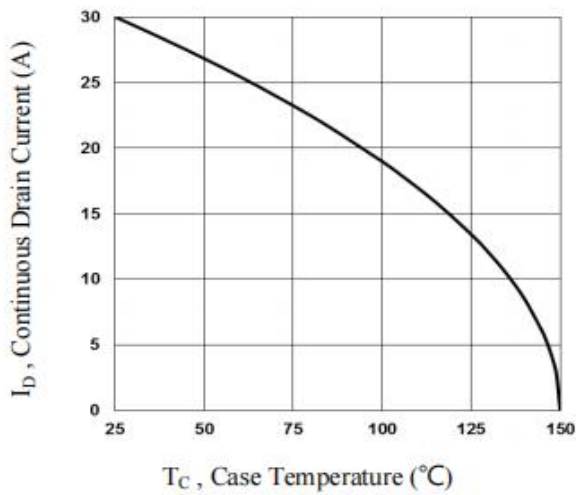


Fig 2 Normalized $R_{DS(on)}$ vs. T_J

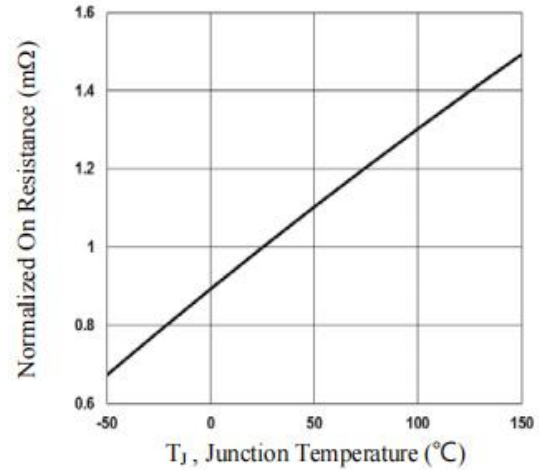


Fig.3 Normalized V_{th} vs. T_J

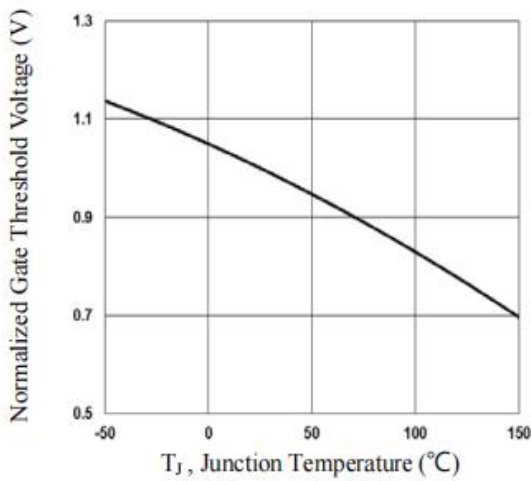


Fig.4 Gate Charge Waveform

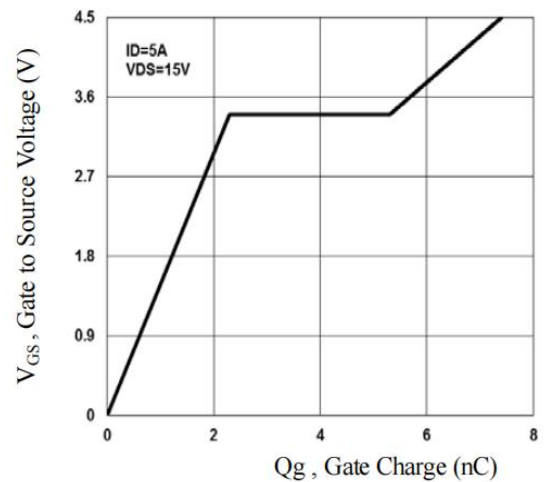


Fig.5 Normalized Transient Response

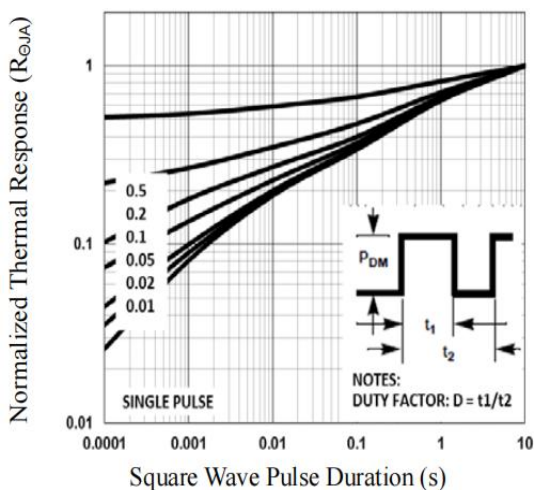


Fig.6 Maximum Safe Operation Area

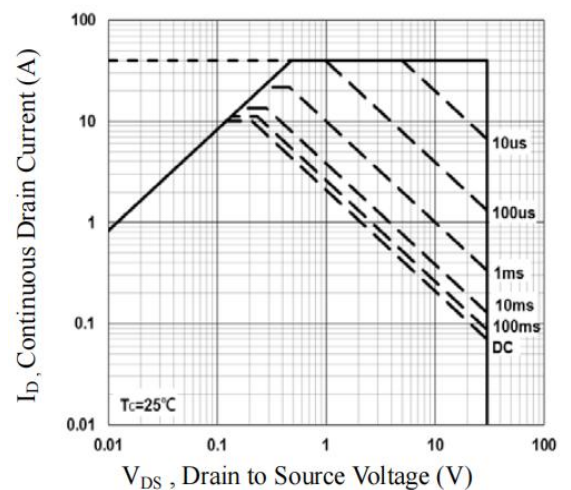




Fig. 7 Switching Time Waveform

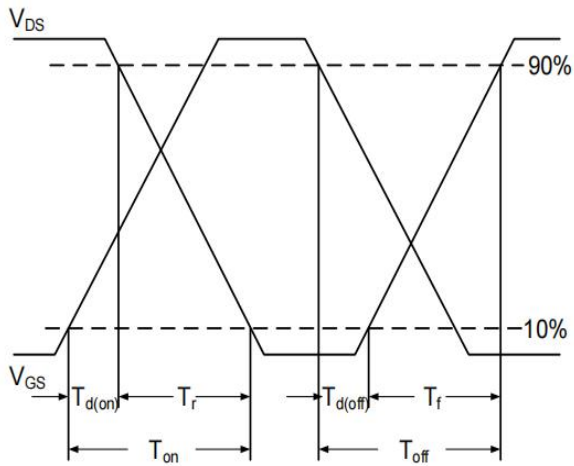
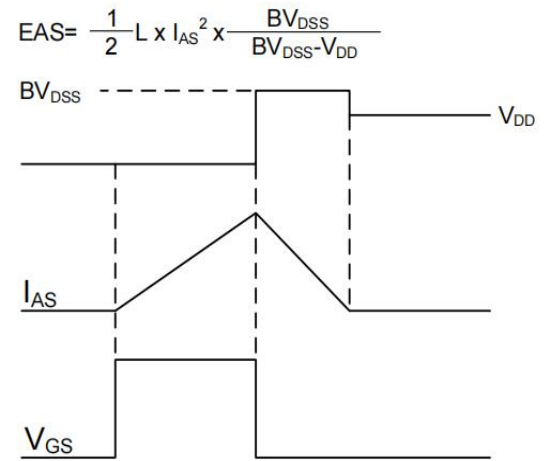


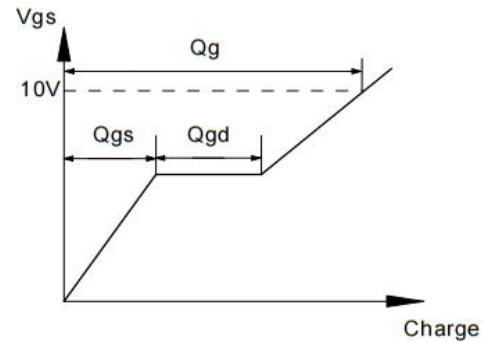
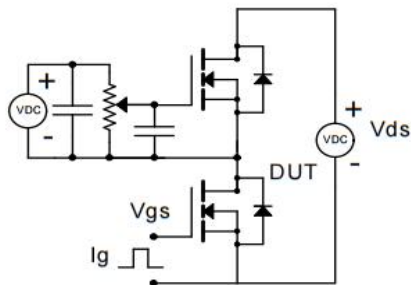
Fig 8 EAS Waveform



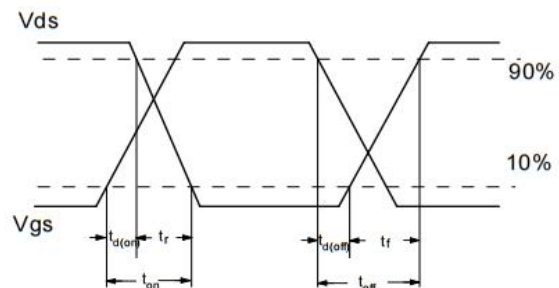
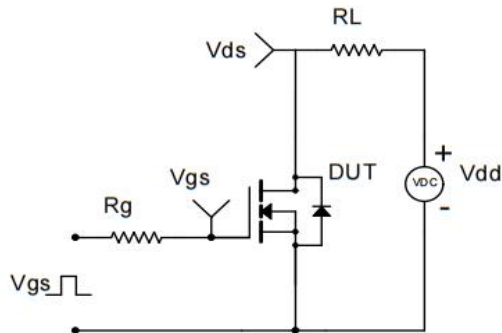


6. Test Circuits

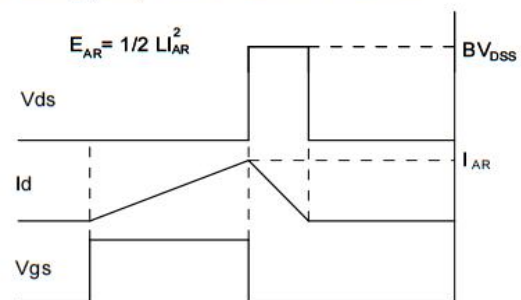
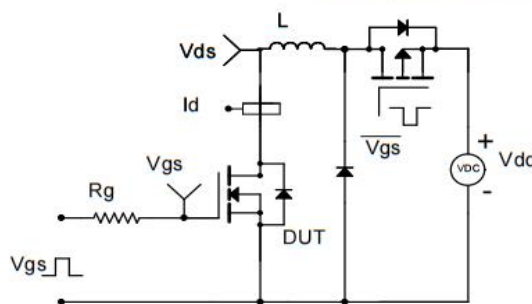
Gate Charge Test Circuit & Waveform



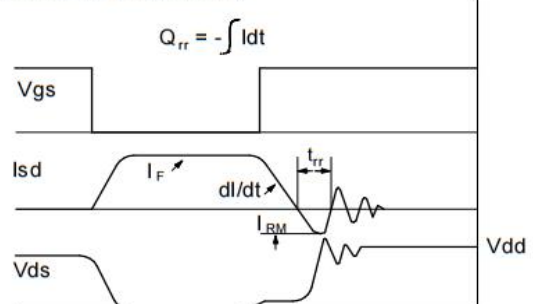
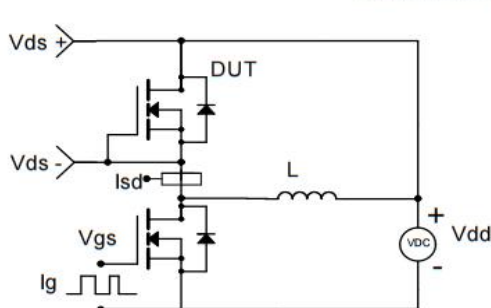
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



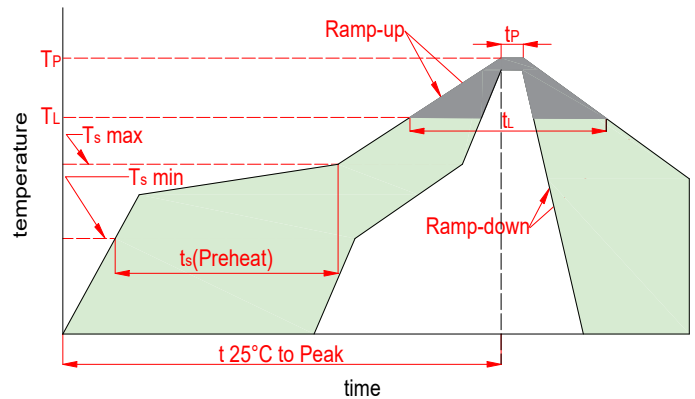
Diode Recovery Test Circuit & Waveforms



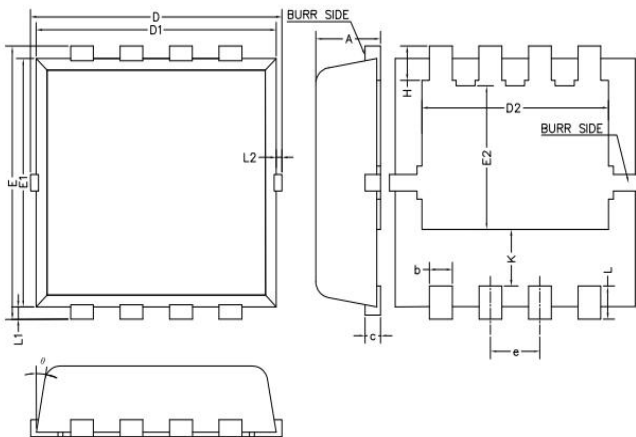


7.Rating And Characteristic Curves

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℃

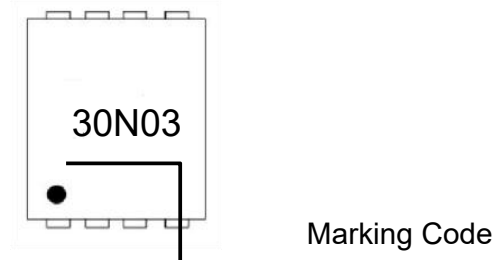
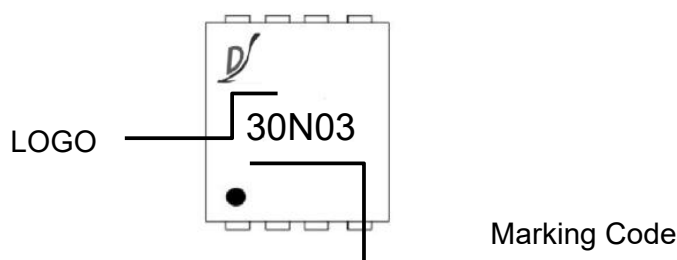


8.Package Drawing



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.028	0.035	0.7	0.9
b	0.010	0.014	0.25	0.35
c	0.004	0.008	0.1	0.2
D	0.118	0.134	3	3.4
D1	0.118	0.126	3	3.2
D2	0.093	0.104	2.35	2.65
e	0.022	0.030	0.55	0.75
E	0.122	0.138	3.1	3.5
E1	0.114	0.122	2.9	3.1
E2	0.061	0.077	1.55	1.95
K	0.023	0.031	0.59	0.79
L	0.012	0.022	0.3	0.55

9. Part Marking System



10. Package Information

Part Number	Package	Quantity(pcs)
XNM30N03D3	PDFN3*3	5000



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.