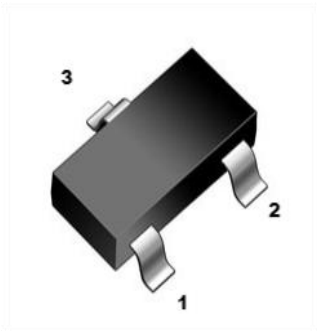
XN3400

30V N-Channel MOSFET

1. Features

SOT-23

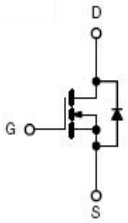


- TrenchFET Power MOSFET
- Excellent RDS(on) and Low Gate Charge

2. Mechanical Data

- Case:Molded Plastic,SOT-23 .
- Epoxy:UL 94V-0 rate flame retardant
- Terminals:Plated Leads Solderable perMIL-STD-750,Method-2026.
- Marking: R0
- Mounting Position : Any.

1 Gate
2 Source
3 Drain



3. Maximum Ratings and Electrical Characteristics

Rating at 25℃ ambient temperature unless otherwise specified.

Parameter	Symbol	Value	UNIT
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current	I_D	5.8	A
Drain Current-Pulsed[1]	I_{DM}	30	A
Power Dissipation	P_D	1.4	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	125	℃/W
Junction and Storage Temperature Range	T_J,T_{STG}	-55~ +150	℃

4. Electrical Characteristics

Rating at 25℃ 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	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =30V,V_{GS} = 0V			1	μA
Gate-source leakage current	I_{GSS}	V_{GS} =±12V, V_{DS} = 0V			±100	nA
On characteristics						
Drain-source on-resistance[2]	$R_{DS(on)}$	V_{GS} =10V, I_D =4A		22	35	mΩ
		V_{GS} =4.5V, I_D =3A		25	40	mΩ
		V_{GS} =2.5V, I_D =2A		35	52	mΩ
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.5	0.7	1.2	V
Dynamic Characteristics[3]						
Input capacitance	C_{iss}	V_{DS} =15V,V_{GS} =0V,f =1MHz		690		pF
Output capacitance	C_{oss}			45		pF
Reverse transfer capacitance	C_{rss}			36		pF
Gate resistance	R_g	V_{DS} =0V,V_{GS} =0V,f =1MHz		1.5		Ω
Switching Characteristics[3]						
Turn-on delay time	$t_{d(on)}$	V_{GS}=10V,V_{DS}=15V, R_L=2.6Ω,R_{GS}=3Ω		2.6		ns
Turn-on rise time	t_r			8.5		ns
Turn-off delay time	$t_{d(off)}$			18		ns
Turn-off fall time	t_f			5		ns
Source-drain diode characteristics and maximum ratings						
Diode forward voltage[2]	V_{SD}	I_S=1A,V_{GS}=0V		0.72	1.3	V

Note :

1. Repetitive Rati

2. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.

3. Guaranteed by design, not subject to production testing.

5. Rating And Characteristic Curves

Fig1：Continuous Drain Current vs. TC

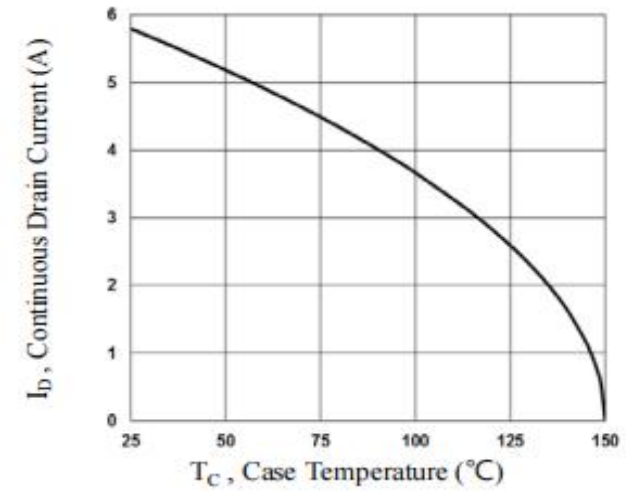


Fig2：Normalized RDSON vs. TJ

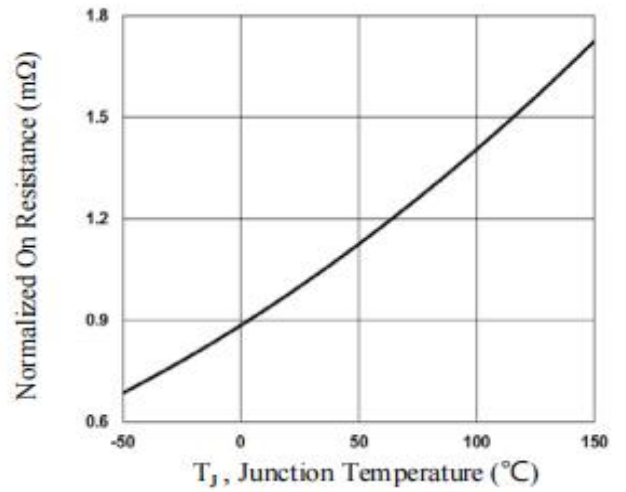


Fig.3 Normalized Vth vs. TJ

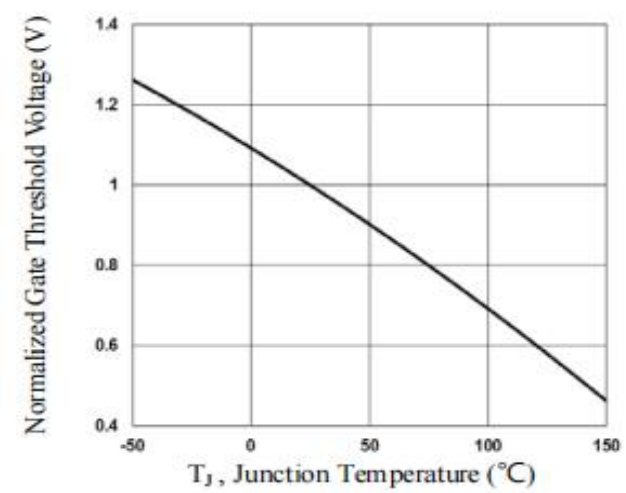


Fig.4 Gate Charge Waveform

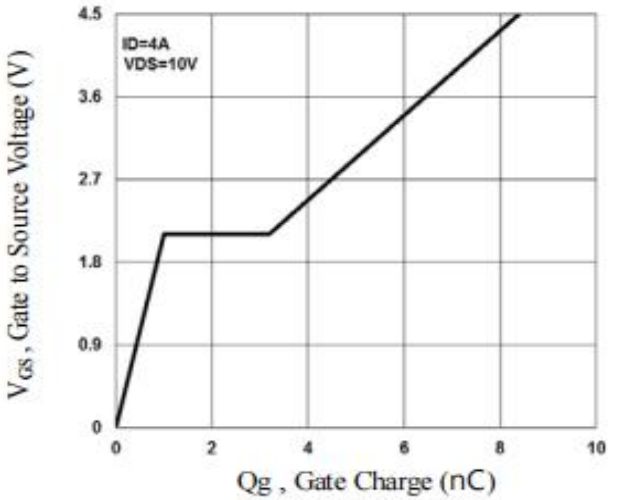


Fig.5 Normalized Transient Impedance

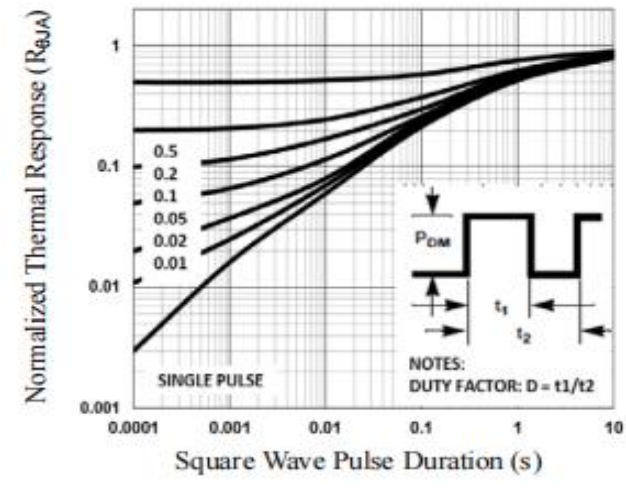
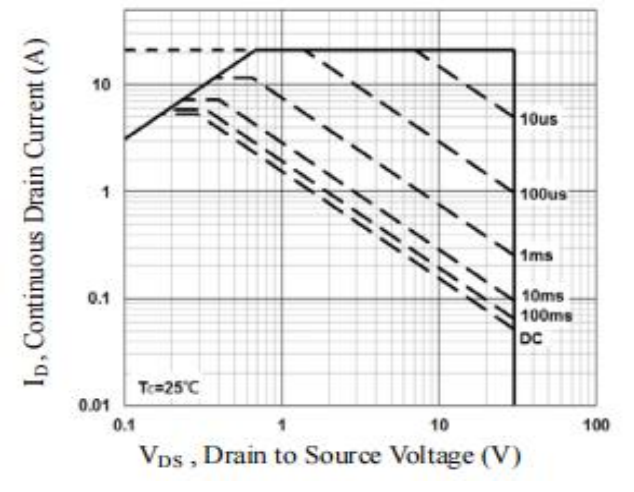
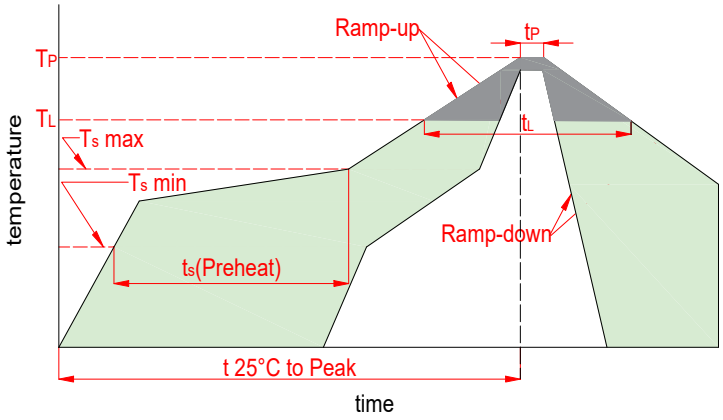


Fig.6 Maximum Safe Operation Area

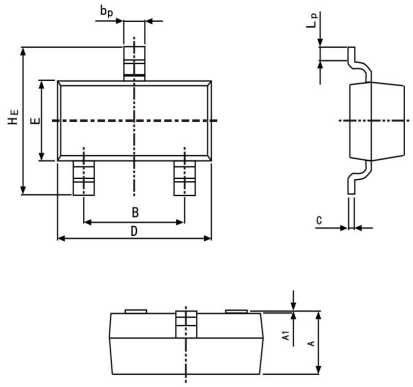


6. Soldering Parameters



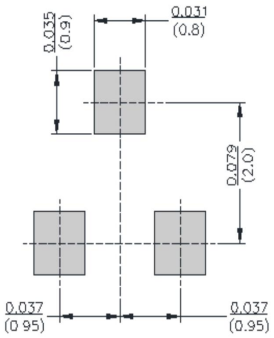
Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s(min))	150℃
	Temp. max(T_s(min))	200℃
	Time(min to max)(t_s)	60~120s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3℃/s max
T_S(max) to T_L-Ramp-up Rate		3℃/s max
Reflow	Temp.(T_L)(Liquidus)	217℃
	Temp.(t_L)(Liquidus)	60~150s
Peak Temp.(T_P)		$260^{+0/-5}$℃
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

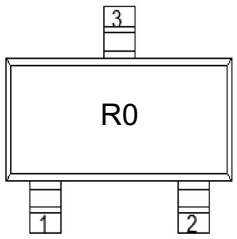


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.035	0.045	0.90	1.15
B	0.070	0.081	1.78	2.05
bp	0.012	0.020	0.30	0.51
C	0.003	0.007	0.08	0.18
D	0.110	0.118	2.80	3.00
E	0.047	0.055	1.20	1.40
HE	0.087	0.110	2.20	2.80
A1	0.000	0.004	0.00	0.10
LP	0.008	0.020	0.20	0.50

Mounting PAD Layout



8. Part Marking System



9. Package Information

Package	Part Number	Tape Width(mm)	Quantity(pcs)
SOT-23	XN3400	8	3000

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.