XNC65R520F

8A, 650V N-Channel Super Junction Power MOSFET

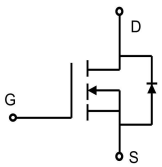
1.Features

- V_{DS} 650V
- I_D 8A
- $R_{DS(on)}$(at V_{GS}=10V I_D=4A) 0.52Ω(Max)

ITO-220

2.Mechanical Data

- Case:Molded Plastic,ITO-220;
- 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.Maximum Ratings and Electrical Characteristics

Electrical Characteristics (TJ=25℃ unless otherwise noted)

Characteristics		Symbol	Ratings	Unit
Drain-Source Voltage		V_{DS}	650	V
Gate-Source Voltage		V_{GS}	±30	V
Drain Current-Continuous	T_C=25°C	I_D	8	A
	T_C=100°C		5.1	
Drain Current – Pulsed(Note 1)		I_{DM}	32	A
Power Dissipation	T_C=25°C	P_D	44.6	W
Single Pulsed Avalanche Energy – Single Pulse(Note 2)		E_{AS}	160	mJ
Peak Diode Recovery dv/dt		dv/dt	15	V/ns
Maximum Junction Temperature		T_J	150	°C
Storage Temperature Range		T_{stg}	-55 to +150	°C

Thermal Characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	-	2.8	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	-	62.0	°C/W

Characteristics	Symbol	Test conditions	Min	TYP	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V,I_D=250μA	650	-	-	V
Drain-Source Leakage Current	I_{DSS}	V_{DS} =650V, V_{GS} =0V	-	-	1	uA
		V_{DS} =520V, V_{GS} =0V, T_j=125°C	-	10	-	uA
Gate-Source Leakage Current	I_{GSS}	V_{GS}= 30V	-	-	100	nA
Gate-Source Leakage Current	I_{GSS}	V_{GS}= -30V	-	-	-100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{GS}=$V_{DS,}$ I_D=250μA	2.5	3.5	4.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10V，I_D=4A	-	0.46	0.52	Ω
DYNAMIC PARAMETERS						
Input Capacitance	C_{iss}	V_{DS} =200V V_{GS}=0V f=1.0MHZ	-	509	-	pF
Output Capacitance	C_{oss}		-	27	-	
Reverse Transfer Capacitance	C_{rss}		-	1.6	-	
SWITCHING PARAMETERS						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=325V，V_{GS}= 10V R_G=25Ω; I_D=4A	-	13	-	ns
Turn-on Rise Time	t_r		-	25	-	
Turn-off Delay Time	$t_{d(off)}$		-	28	-	
Turn-off Fail Time	t_f		-	24	-	
Total Gate Charge	Q_g	V_{DS}=520V, I_D=10A V_{GS}=4V	-	16	-	nc
Gate-Source Charge	Q_{gs}		-	4.8	-	
Gate-Drain Charge	Q_{gd}		-	6.1	-	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS						
Continuous Source Current	I_S		-	-	8	A
Diode Forward Voltage	V_{SD}	I_F=4A,V_{GS}=0V	-	-	1.4	V
Reverse Recovery Time	T_{rr}	I_F=4A dI/dt=100A/μS	-	237	-	ns
Reverse Recovery Charge	Q_{rr}		-	2.1	-	nC

Notes:

1. Limited by maximum junction temperature, maximum duty cycle is 0.75
2.Tj=25°C,V_{DD}=85V,V_G=10V, R_G=25Ω

4.Rating And Characteristic Curves

Fig.1Typical Output Characteristics

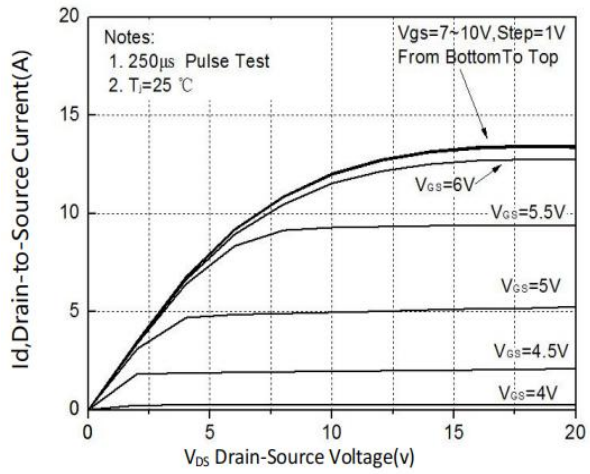


Fig.2 Typical Output Characteristics

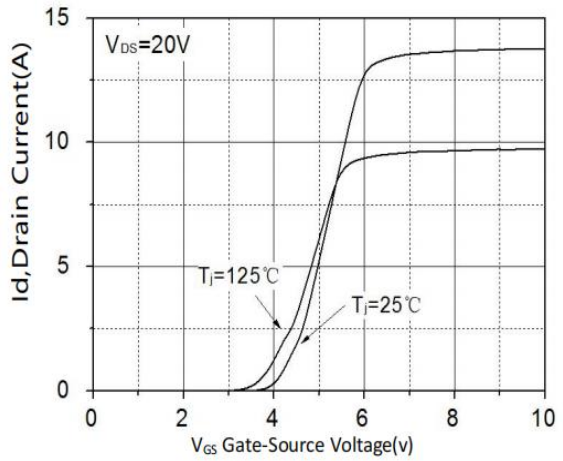


Fig.3 On-Resistance versus Drain Current

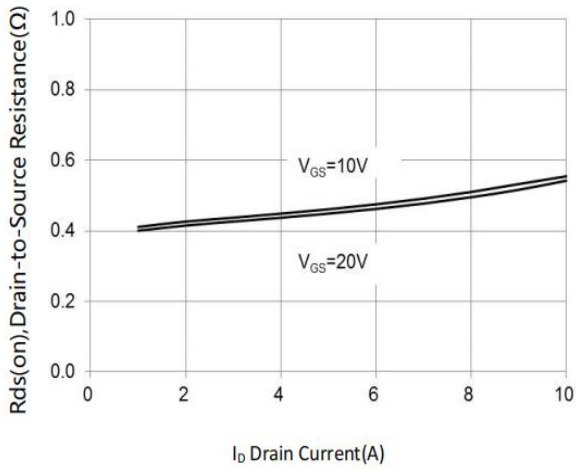


Fig.4 Diode forward voltage versus Current

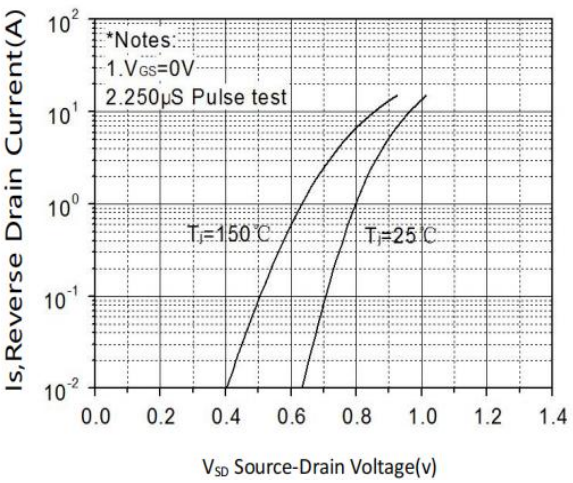


Fig.5 Typical Capacitance versus V_{DS}

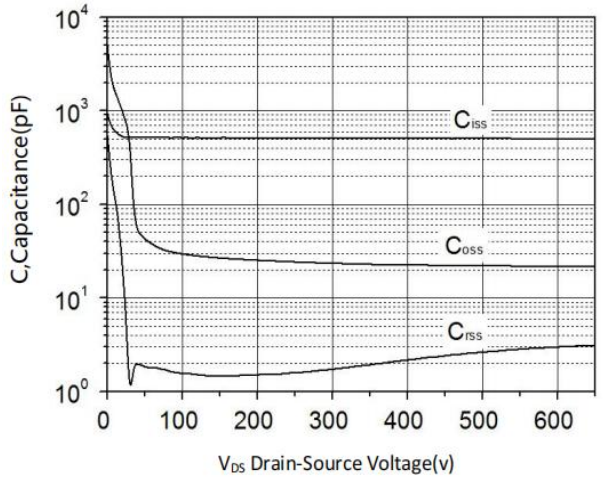


Fig.6 Typical Gate Charge versus V_{GS}

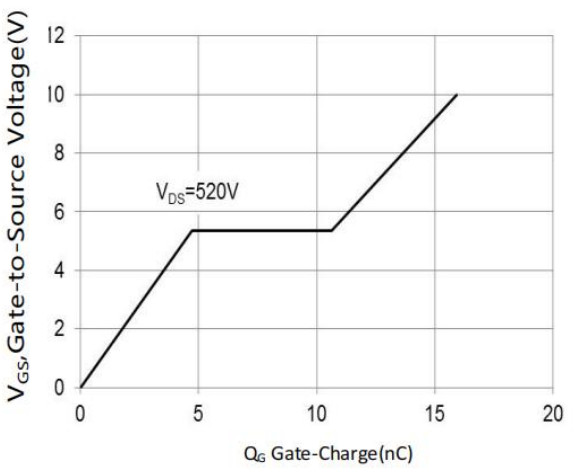


Fig.7 BV_{DSS} Variation with Temperature

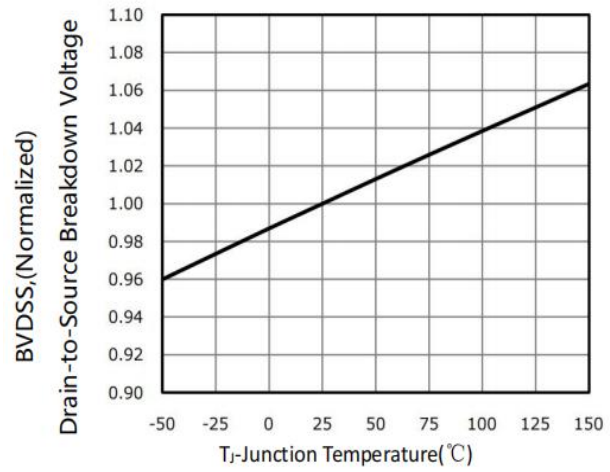


Fig.8 On-Resistance Variation with Temperature

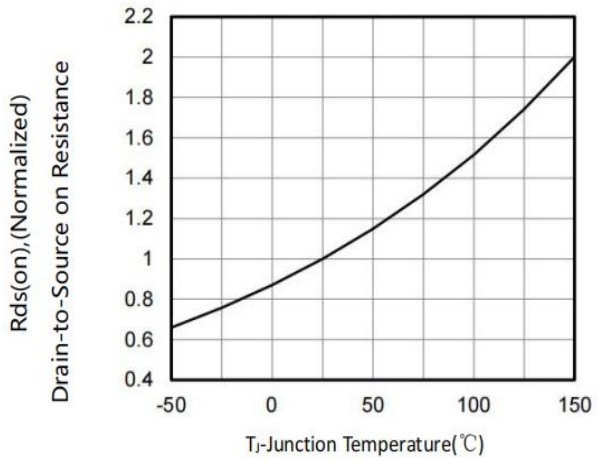


Fig.9 Maximum Safe Operating Area

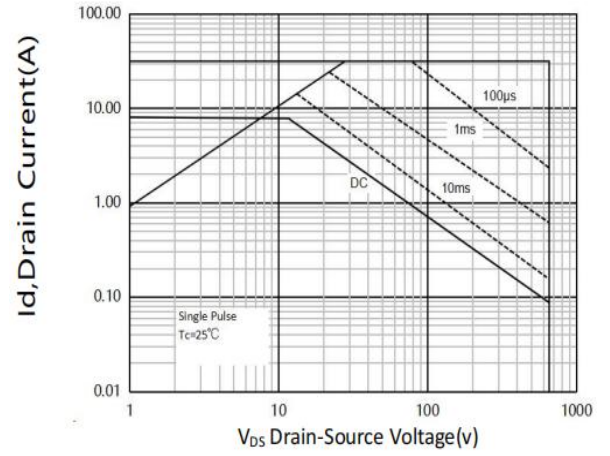
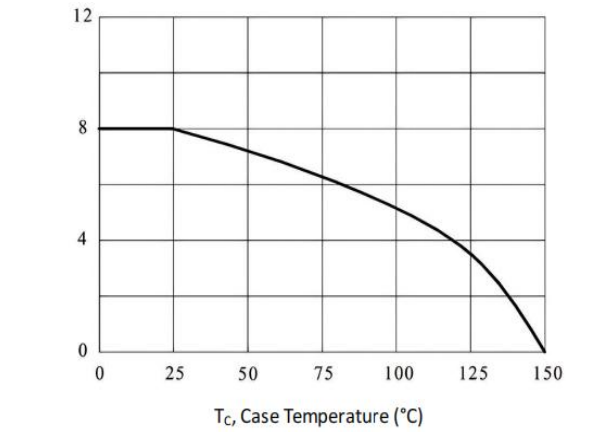
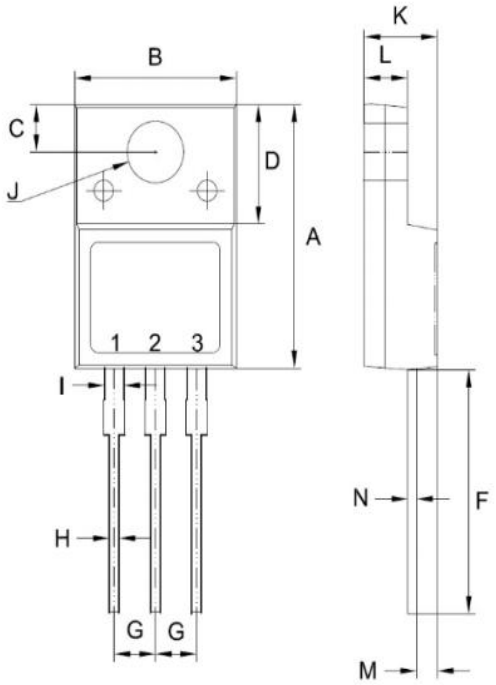


Fig.10 Maximum Continuous Drain Current versus Case Temperature

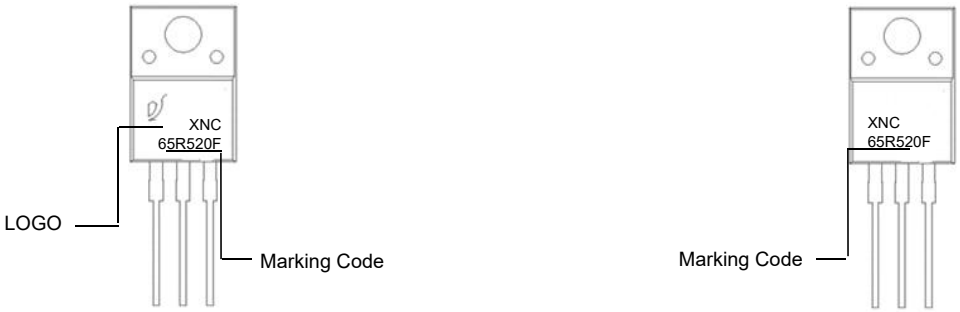


5.Dimensions



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.571	0.646	14.50	16.40
B	0.374	0.413	9.50	10.50
C	0.098	0.140	2.50	3.55
D	0.248	0.287	6.30	7.30
F	0.488	0.551	12.40	14.00
G	0.093	0.108	2.35	2.75
H	0.012	0.037	0.30	0.95
I	0.035	0.059	0.90	1.50
J	0.114	0.150	2.90	3.80
K	0.167	0.198	4.24	5.02
L	0.091	0.115	2.30	2.92
N	0.016	0.025	0.40	0.63

6. Part Marking System



7. Package Information

Package	Packing Type	Quantity(pcs)
ITO-220	Tube	50

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