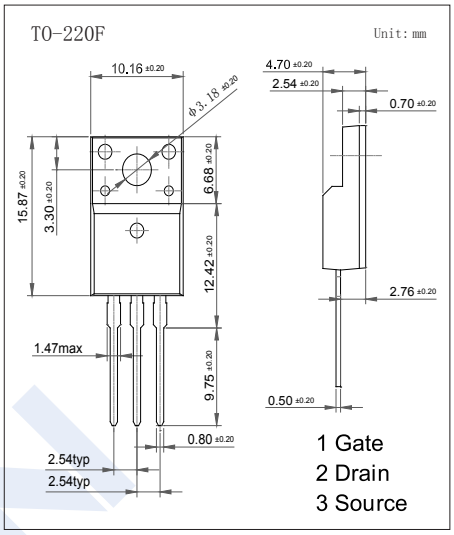
N-Channel Enhancement MOSFET

KX6N70F



■ Features

- $V_{DS\ (V)}$ = 700V
- I_D = 6.0A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 1.8Ω (V_{GS} = 10V)
- Low gate charge (typical 16nC)

■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	700	V
Gate-Source Voltage		V_{GS}	±30	
Continuous Drain Current	Tc=25℃	I_D	6.0	A
	Tc=100℃		3.6	
Pulsed Drain Current (Note.1)		I_{DM}	24	
Avalanche Current (Note.1)		I_{AR}	6.0	
Repetitive Avalanche Energy (Note.1)		E_{AR}	14.7	mJ
Single Pulsed Avalanche Energy (Note.2)		E_{AS}	150	
Power Dissipation	Tc=25℃	P_D	48	W
	Derate above 25℃		0.38	W/℃
Peak Diode Recovery dv/dt (Note.3)		dv/dt	4.5	V/ns
Thermal Resistance.Junction- to-Ambient		R_{thJA}	62.5	℃/W
Thermal Resistance.Junction- to-Case		R_{thJC}	2.6	
Maximum lead Temperature for soldering purpose, 1/8 from case for 5 seconds		TL	300	℃
Junction Temperature		TJ	150	
Storage Temperature Range		Tstg	-55 to 150	

Note.1: Repetitive Rating :Pulse width limited by maximum junction temperature

Note.2: L=8mH,I_{AS}=6.0A,V_{DD}=50V,R_G=25Ω,Starting T_J=25℃

Note.3; I_{SD}≤6.0A,di/dt≤200A/us,V_{DD}≤BV_{DSS},Starting T_J=25℃

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	700			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=700V, V_{GS}=0V			1	μA
		V_{DS}=560V, V_{GS}=0V, Tc=125℃			10	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±30V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS} , I_D=250μA	2.0		4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=3.0A		1.8	2.3	Ω
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, f=1MHz		650		pF
Output Capacitance	C_{oss}			95		
Reverse Transfer Capacitance	C_{rss}			10		
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=560V, I_D=6.0A (Note.1)		16		nC
Gate Source Charge	Q_{gs}			4.5		
Gate Drain Charge	Q_{gd}			5.0		
Turn-On DelayTime	$t_{d(on)}$	I_D=6.0A, V_{DS}=350V, ,R_{GEN}=25Ω (Note.1)		30		ns
Turn-On Rise Time	t_r			40		
Turn-Off DelayTime	$t_{d(off)}$			80		
Turn-Off Fall Time	t_f			40		
Body Diode Reverse Recovery Time	t_{rr}	I_S= 6.0A, dI/dt= 100A/μs V_{GS}=0V (Note.1)		280		
Body Diode Reverse Recovery Charge	Q_{rr}			2.0		uC
Maximum Body-Diode Continuous Current	I_S	Maximum Continuous Drain-Source Diode Forward Current			6.0	A
Maximum Pullsed Drain-Source Current	I_{SM}	Maximum Pulsed Drain-Source Diode Forward Current			24	
Diode Forward Voltage	V_{SD}	I_S=6.0A,V_{GS}=0			1.4	V

Note.1: Pulse Test:Pulse width≤300us,Duty cycle≤2%

N-Channel Enhancement MOSFET

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■ Typical Characterisitics

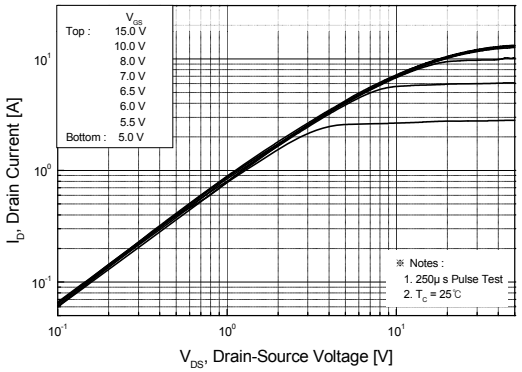


Figure 1. On-Region Characteristics

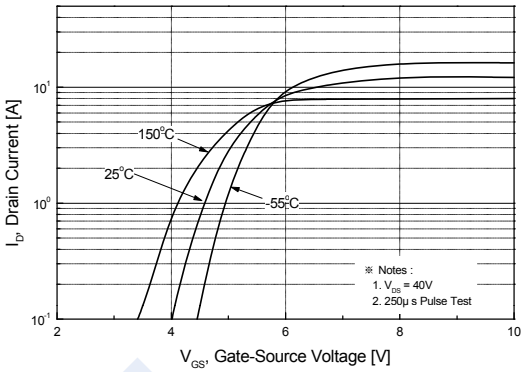


Figure 2. Transfer Characteristics

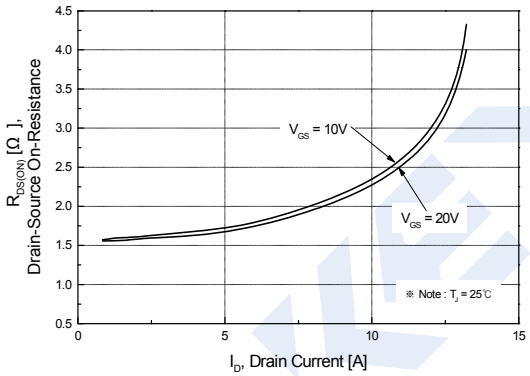


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

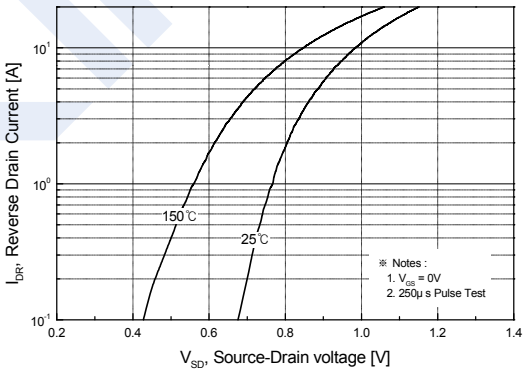


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

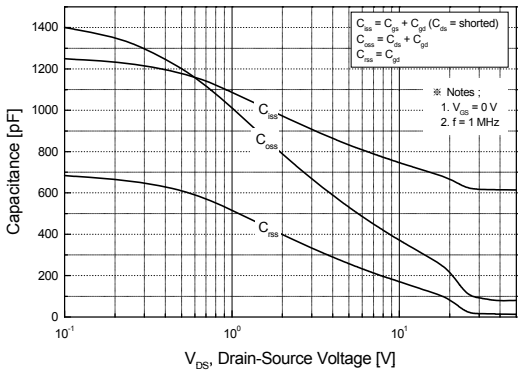


Figure 5. Capacitance Characteristics

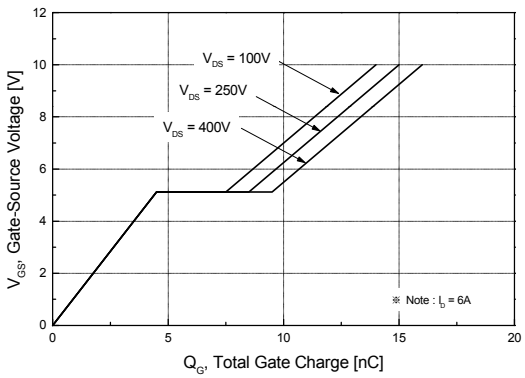


Figure 6. Gate Charge Characteristics

N-Channel Enhancement MOSFET

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■ Typical Characterisitics

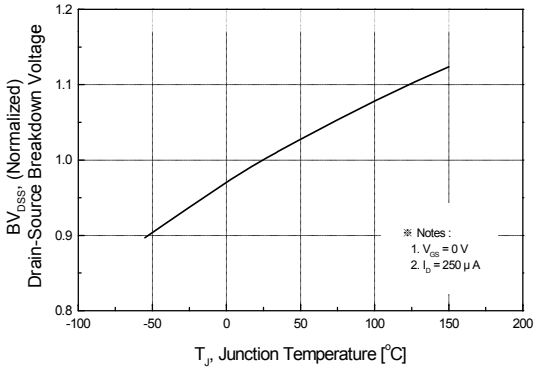


Figure 7. Breakdown Voltage Variation vs Temperature

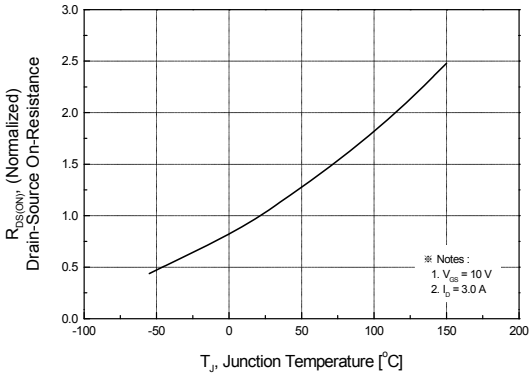


Figure 8. On-Resistance Variation vs Temperature

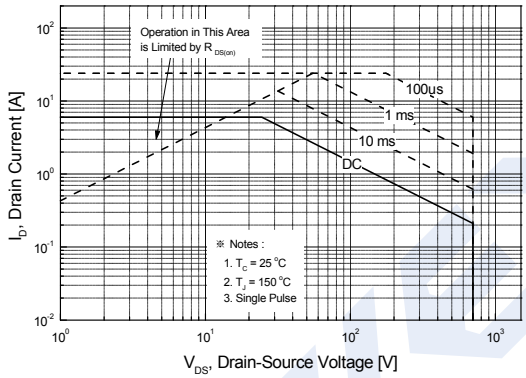


Figure 9. Maximum Safe Operating Area for KX6N70F

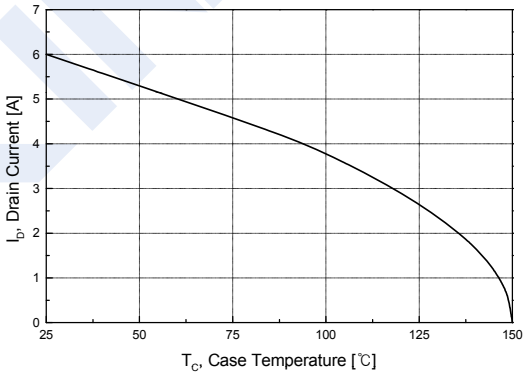


Figure 10. Maximum Drain Current vs Case Temperature

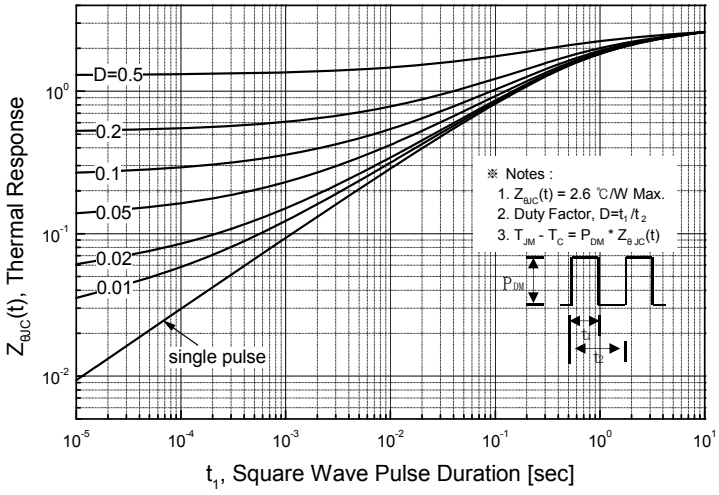


Figure 11. Transient Thermal Response Curve for KX6N70F