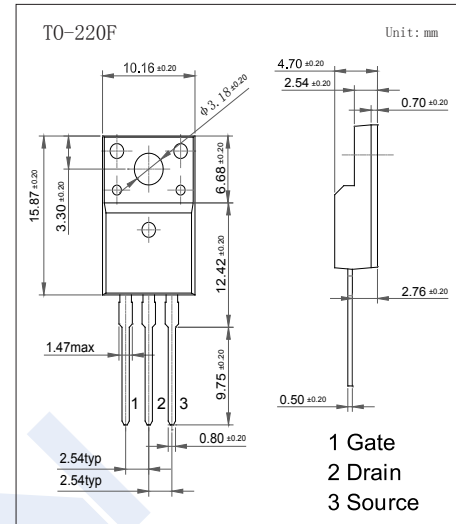
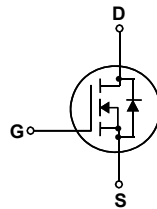


## N-Channel MOSFET

### KX8N60CF

#### ■ Features

- $V_{DS} (V) = 600V$
- $I_D = 7.5 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 1.2 \Omega (V_{GS} = 10V)$
- Fast switching
- Improved dv/dt capability



#### ■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	600	V
Gate-Source Voltage	$V_{GS}$	$\pm 30$	
Continuous Drain Current	$I_D$	$T_c=25^\circ C$	7.5
		$T_c=100^\circ C$	
Pulsed Drain Current	$I_{DM}$	30	A
Avalanche Current	$I_{AR}$	7.5	
Power Dissipation	$P_D$	48	W
Derate above $25^\circ C$		0.38	$W/^\circ C$
Single Pulsed Avalanche Energy (Note.1)	$E_{AS}$	230	mJ
Repetitive Avalanche Energy	$E_{AR}$	14.7	
Peak Diode Recovery dv/dt (Note.2)	dv/dt	4.5	V/ns
Thermal Resistance.Junction- to-Ambient	$R_{thJA}$	62.5	$^\circ C/W$
Thermal Resistance.Junction- to-Case	$R_{thJC}$	0.85	
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	$T_L$	300	$^\circ C$
Junction Temperature	$T_J$	150	
Storage Temperature Range	$T_{stg}$	-55 to 150	

Note.1:  $L = 7.3mH$ ,  $I_{AS} = 7.5A$ ,  $V_{DD} = 50V$ ,  $R_G = 25\Omega$ , Starting  $T_J = 25^\circ C$

Note.2:  $I_{SD} \leq 7.5A$ ,  $di/dt \leq 200A/us$ ,  $V_{DD} \leq BVDSS$ , Starting  $T_J = 25^\circ C$

## N-Channel MOSFET

### KX8N60CF

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V <sub>DSS</sub>	I <sub>D</sub> =250 μ A, V <sub>GS</sub> =0V	600			V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =600V, V <sub>GS</sub> =0V			1	μA
		V <sub>DS</sub> =480V, V <sub>GS</sub> =0V, T <sub>C</sub> =125°C			10	
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±30V			±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250 μ A	2		4	V
Static Drain-Source On-Resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =3.75A			1.2	Ω
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =40V, I <sub>D</sub> =3.75A (Note.1)		8.7		S
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =25V, f=1MHz		1000		pF
Output Capacitance	C <sub>oss</sub>			110		
Reverse Transfer Capacitance	C <sub>rss</sub>			12		
Total Gate Charge	Q <sub>g</sub>	V <sub>GS</sub> =10V, V <sub>DS</sub> =480V, I <sub>D</sub> =7.5A (Note.1)		29		nC
Gate Source Charge	Q <sub>gs</sub>			4.7		
Gate Drain Charge	Q <sub>gd</sub>			12.5		
Turn-On DelayTime	t <sub>d(on)</sub>	V <sub>DS</sub> =300V, I <sub>D</sub> =7.5A, R <sub>G</sub> =25 Ω (Note.1)		20		ns
Turn-On Rise Time	t <sub>r</sub>			50		
Turn-Off DelayTime	t <sub>d(off)</sub>			80		
Turn-Off Fall Time	t <sub>f</sub>			70		
Body Diode Reverse Recovery Time	t <sub>rr</sub>	I <sub>S</sub> = 7.5A, V <sub>GS</sub> =0, di/dt= 100A/μ s (Note.1)		350		μC
Body Diode Reverse Recovery Charge	Q <sub>rr</sub>			3.3		
Maximum Body-Diode Continuous Current	I <sub>S</sub>				7.5	A
Pulsed Drain-Source Diode Forward Current	I <sub>SM</sub>				30	
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =7.5A, V <sub>GS</sub> =0V			1.4	V

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

# N-Channel MOSFET KX8N60CF

## Typical Characteristics

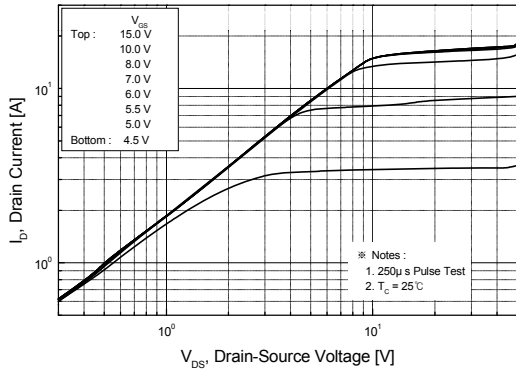


Figure 1. On-Region Characteristics

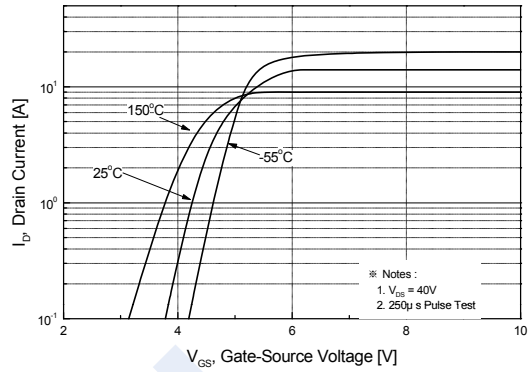


Figure 2. Transfer Characteristics

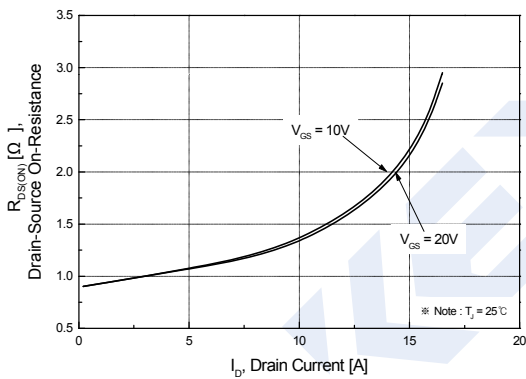


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

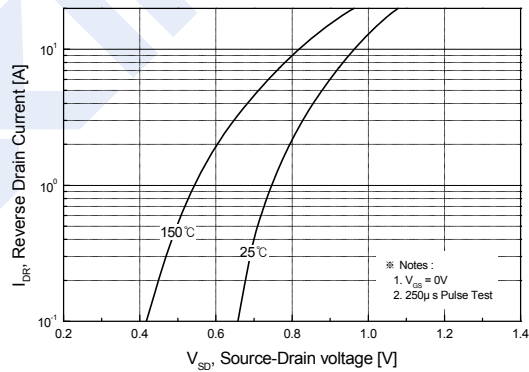


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

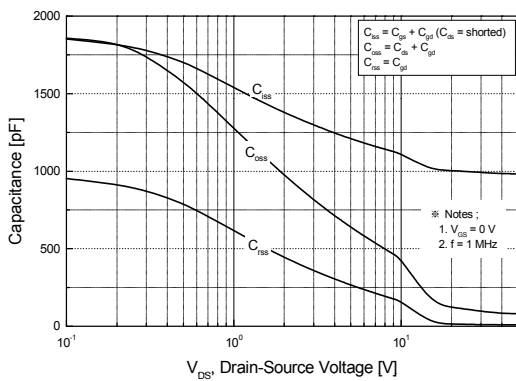


Figure 5. Capacitance Characteristics

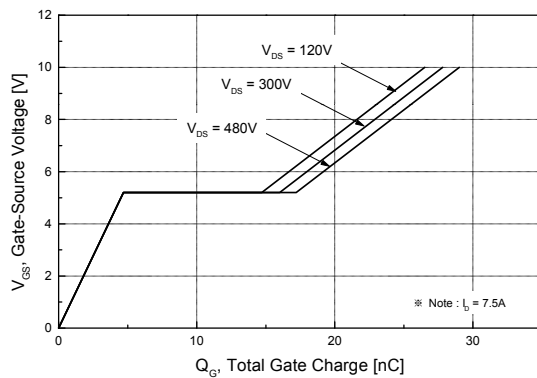


Figure 6. Gate Charge Characteristics

## N-Channel MOSFET KX8N60CF

■ Typical Characteristics

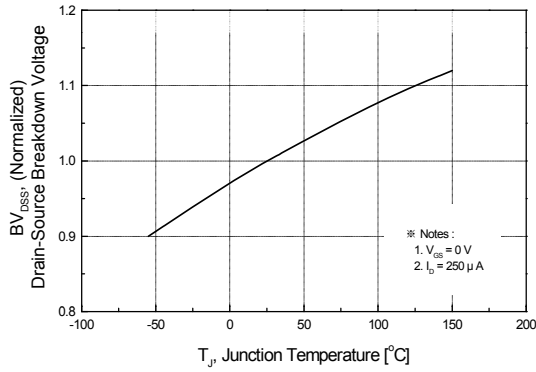


Figure 7. Breakdown Voltage Variation vs Temperature

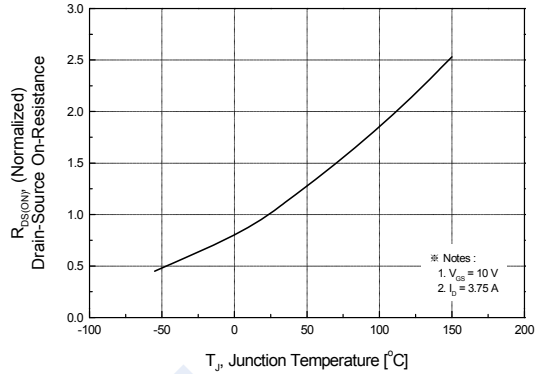


Figure 8. On-Resistance Variation vs Temperature

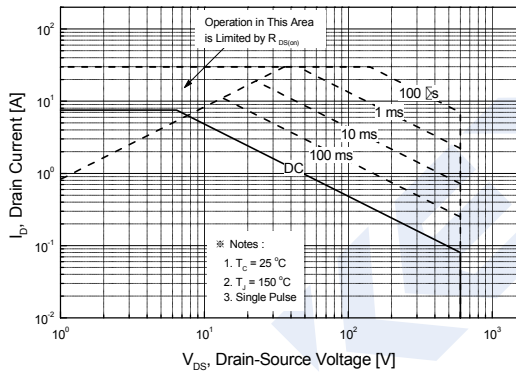


Figure 9. Maximum Safe Operating Area for KX8N60CF

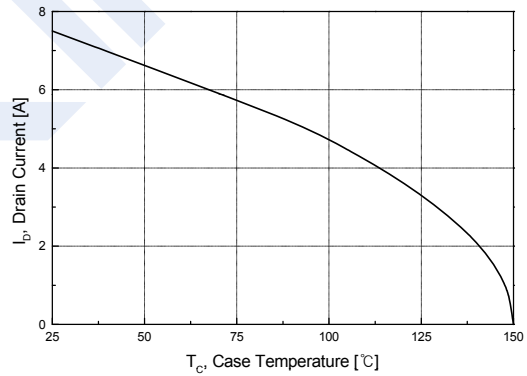


Figure 10. Maximum Drain Current vs Case Temperature

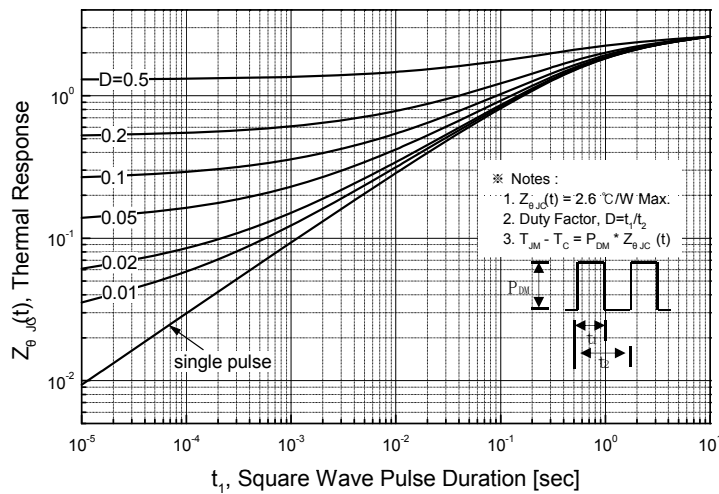


Figure 11. Transient Thermal Response Curve for KX8N60CF