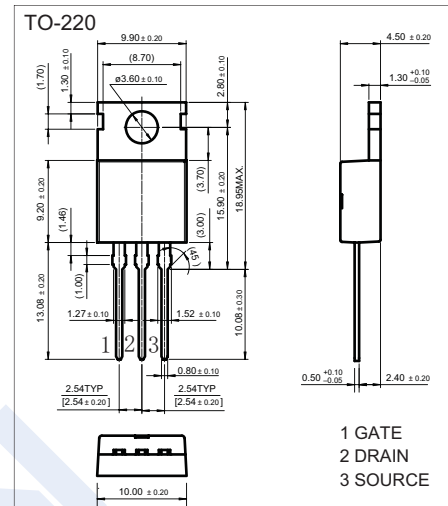
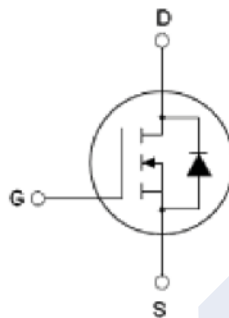


N-Channel MOSFET

KX4N60

■ Features

- $V_{DS} = 600V$
- $I_D = 4.0 A$
- $R_{ds(on)} < 2.5\Omega (V_{GS}=10V)$
- Low gate charge
- Low C_{rss} (typical 14pF)
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- RoHS product

■ Absolute Maximum Ratings ($T_c = 25^\circ C$)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	600	V
Gate-Source Voltage	V_{GS}	± 30	
Continuous Drain Current	I_D	4	A
		2.5	
Pulsed Drain Current (Note 1)	I_{DM}	16	
Avalanche Current (Note 1)	I_{AR}	4	
Single Pulse Avalanche Energy (Note 2)	E_{AS}	240	mJ
Repetitive Avalanche energy, t_{AR} limited by T_{jmax} (Note 1)	E_{AR}	10	
Peak Diode Recovery dv/dt (Note 3)	dv/dt	5.5	V/ns
Power Dissipation ($T_c = 25^\circ C$)	P_D	100	W
Derate above $25^\circ C$		0.8	W/ $^\circ C$
Thermal Resistance, Junction- to-Case	R_{thJC}	1.25	$^\circ C/W$
Thermal Resistance, Junction- to-Ambient	R_{thJA}	62.5	
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

Note 1: Pulse width limited by maximum junction temperature

Note 2: $L=25mH$, $I_{AS}=4.0A$, $V_{DD}=50V$, $R_G=25\Omega$, Starting $T_J=25^\circ C$

Note 3: $I_{SD} \leq 4.0A$, $di/dt \leq 200A/\mu s$, $V_{DD} \leq BV_{DSS}$, Starting $T_J=25^\circ C$

N-Channel MOSFET

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■ Electrical Characteristics ($T_A = 25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DS}	$I_D=250\mu\text{A}$, $V_{GS}=0\text{V}$	600			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=600\text{V}$, $V_{GS}=0\text{V}$, $T_c=25^\circ\text{C}$			10	μA
		$V_{DS}=480\text{V}$, $V_{GS}=0\text{V}$, $T_c=125^\circ\text{C}$			100	
Gate-Body Leakage Current	I_{GSS}	$V_{DS}=0\text{V}$, $V_{GS}=\pm 30\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$	2		4	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}$, $I_D=2\text{A}$			2.5	Ω
Forward Transconductance	g_{FS}	$V_{DS}=40\text{V}$, $I_D=2\text{A}$ (Note 4)		4.7		S
Input Capacitance	C_{iss}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1\text{MHz}$		710	920	pF
Output Capacitance	C_{oss}			65	85	
Reverse Transfer Capacitance	C_{rss}			14	19	
Total Gate Charge	Q_g	$V_{DS}=480\text{V}$, $I_D=4\text{A}$, $V_{GS}=10\text{V}$ (Note 4,5)		27	30	nC
Gate Source Charge	Q_{gs}			3.6		
Gate Drain Charge	Q_{gd}			13.1		
Turn-On DelayTime	$t_{d(on)}$	$V_{DS}=300\text{V}$, $I_D=4\text{A}$, $R_G=25\Omega$ (Note 4,5)		20	50	ns
Turn-On Rise Time	t_r			55	120	
Turn-Off DelayTime	$t_{d(off)}$			70	150	
Turn-Off Fall Time	t_f			55	120	
Body-Diode Continuous Current	I_S				4	A
Body-Diode Pulsed Current	I_{SM}				16	
Diode Forward Voltage (Note 1)	V_{SD}	$I_{SD}=4\text{A}$, $V_{GS}=0\text{V}$			1.4	V
Reverse Recovery Time (Note 1)	t_{rr}	$V_{GS}=0\text{V}$, $I_S=4.0\text{A}$ $dI_F/dt=100\text{A}/\mu\text{s}$ (note 4)		330		nS
Reverse Recovery Charge (Note 1)	Q_{rr}			2.67		nC

Note 4: Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

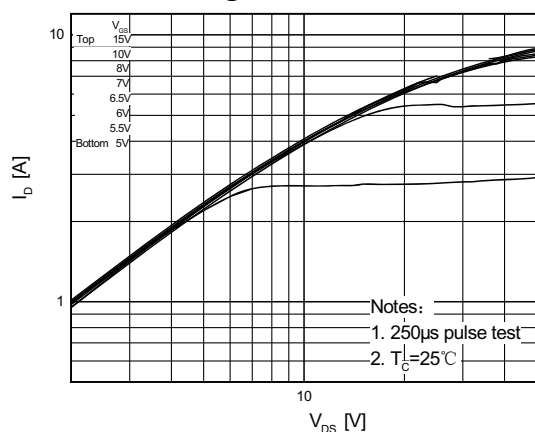
Note 5: Essentially independent of operating temperature.

N-Channel MOSFET

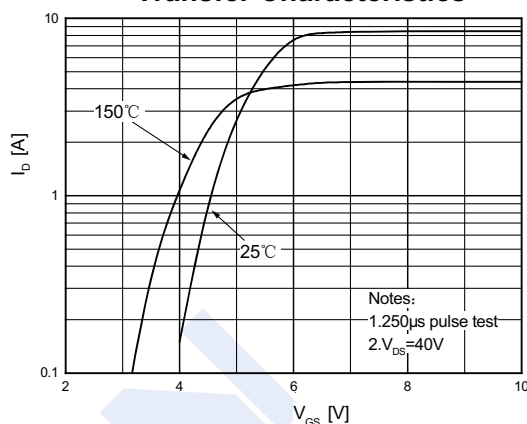
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■ Electrical Characteristics (curves)

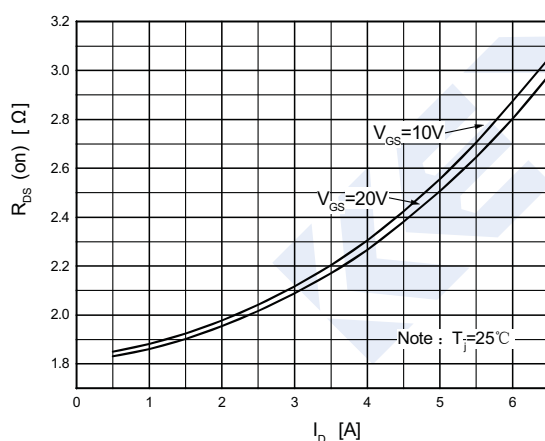
On-Region Characteristics



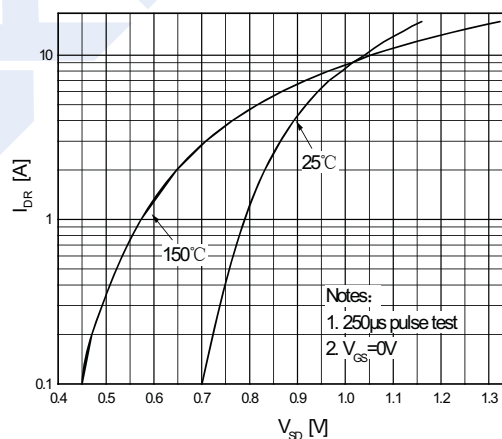
Transfer Characteristics



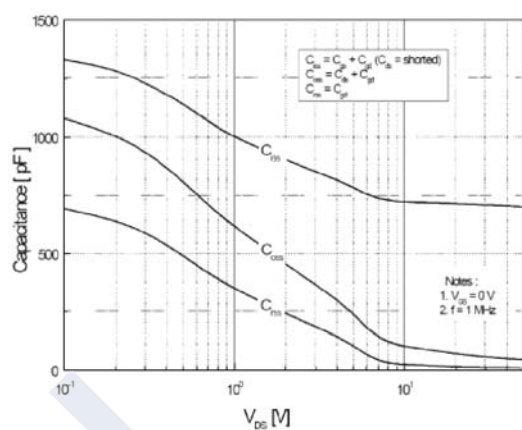
On-Resistance Variation vs. Drain Current and Gate Voltage



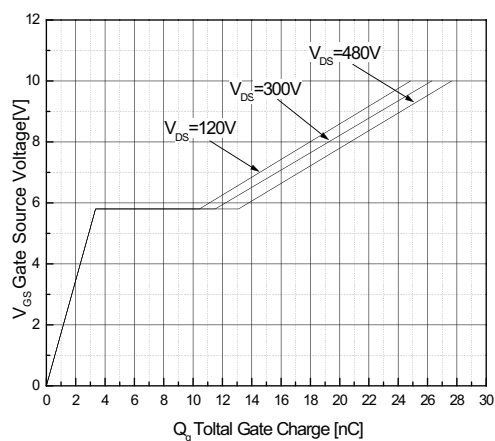
Body Diode Forward Voltage Variation vs. Source Current and Temperature



Capacitance Characteristics

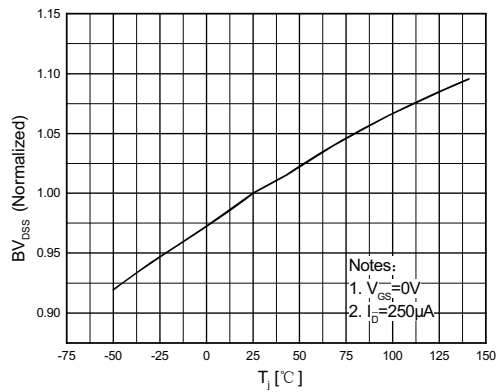
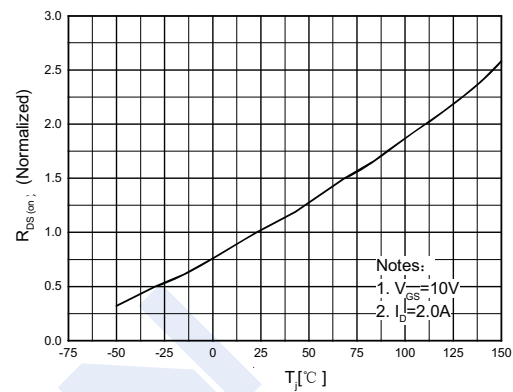


Gate Charge Characteristics

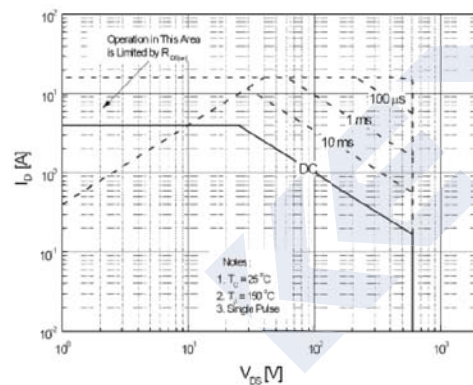
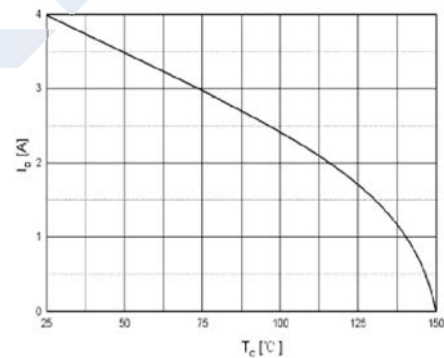


N-Channel MOSFET

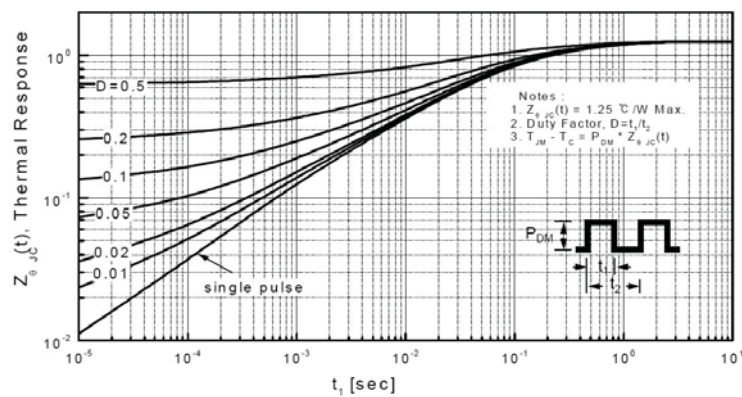
KX4N60

Breakdown Voltage Variation
vs. TemperatureOn-Resistance Variation
vs. Temperature

Maximum Safe Operating Area

Maximum Drain Current
vs. Case Temperature

Transient Thermal Response Curve



Transient Thermal Response Curve