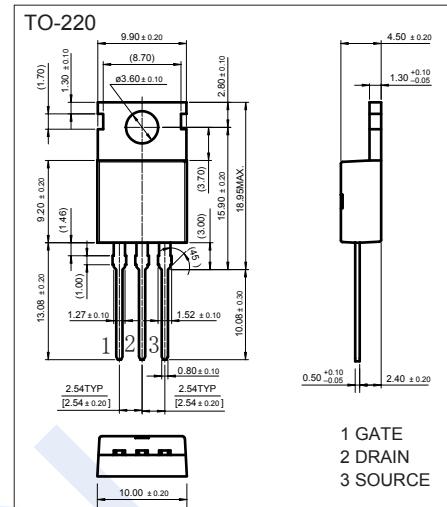
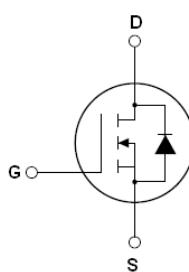


## N-Channel MOSFET

### KX90N06

#### ■ Features

- $V_{DS} (V) = 70V$
- $I_D = 80 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 7.2m\Omega (V_{GS} = 10V)$
- Ultra Low On-Resistance



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	70	V
Gate-Source Voltage	$V_{GS}$	$\pm 25$	
Continuous Drain Current	$I_D$	80	A
		56	
Pulsed Drain Current	$I_{DM}$	320	
Power Dissipation	$P_D$	100	W
Derating Factor		0.66	$W/^\circ C$
Single Pulse Avalanche Energy	$E_{AS}$	360	mJ
Peak Diode Recovery Voltage	$dv/dt$	30	V/ns
Thermal Resistance.Junction- to-Case	$R_{thJC}$	1.5	$^\circ C/W$
Junction Temperature	$T_J$	150	
Storage Temperature Range	$T_{stg}$	-55 to 150	$^\circ C$

## N-Channel MOSFET

### KX90N06

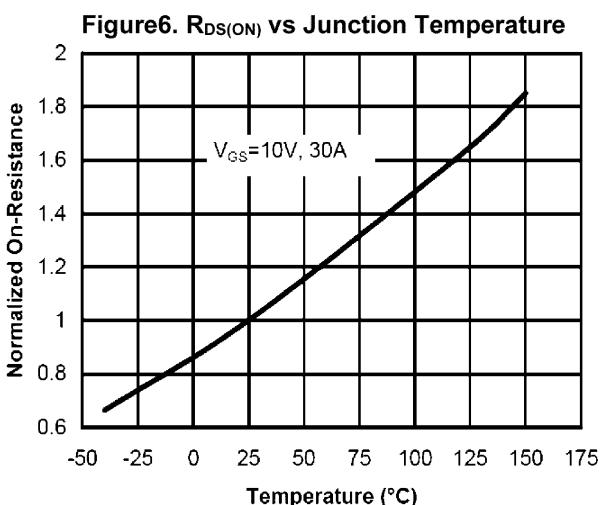
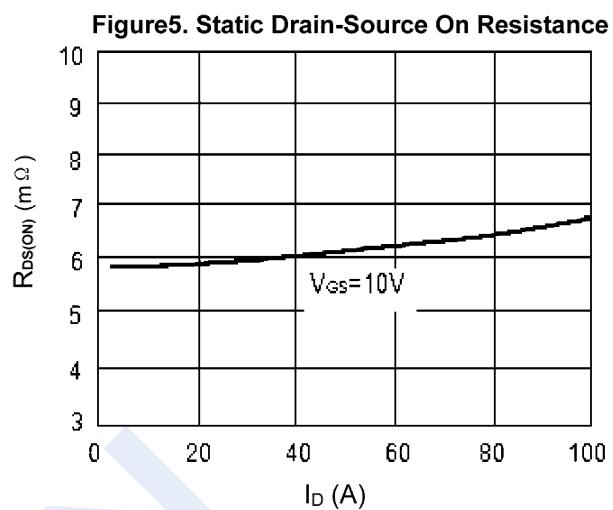
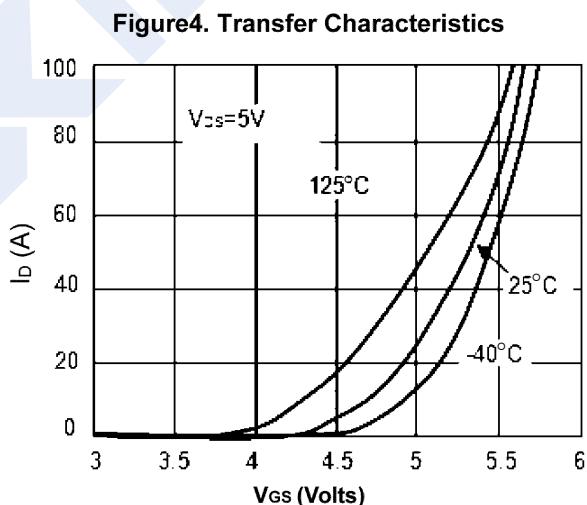
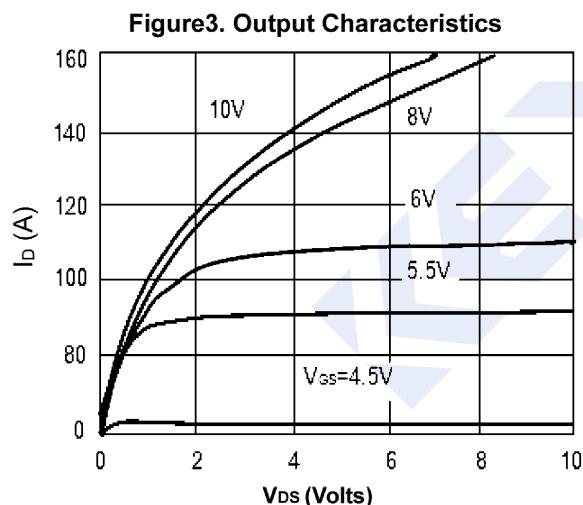
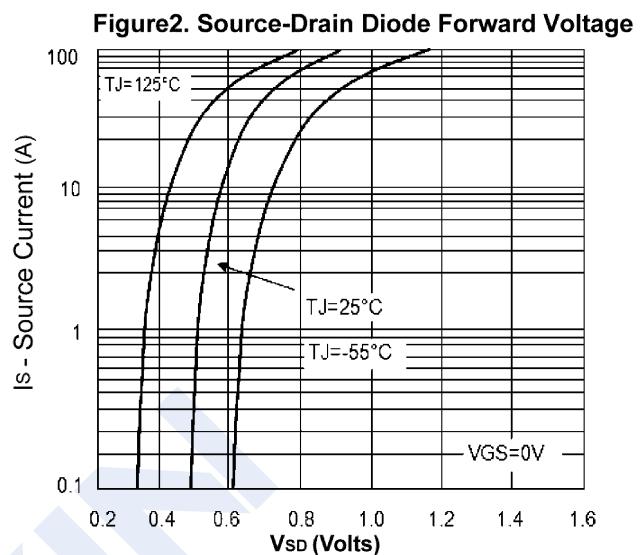
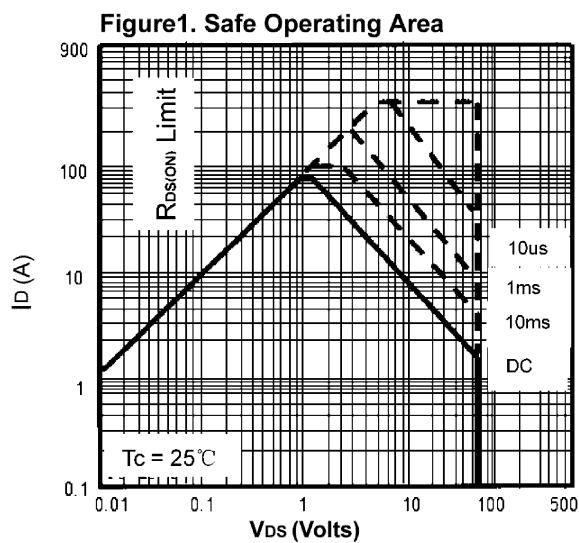
■ Electrical Characteristics  $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{DSS}$	$I_D=250 \mu\text{A}, V_{GS}=0\text{V}$	70			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=68\text{V}, V_{GS}=0\text{V}, T_c = 25^\circ\text{C}$			1	$\mu\text{A}$
		$V_{DS}=68\text{V}, V_{GS}=0\text{V}, T_c = 125^\circ\text{C}$			10	
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS}=0\text{V}, V_{GS}=\pm 25\text{V}$			$\pm 100$	nA
Gate Threshold Voltage	$V_{GS(\text{th})}$	$V_{DS}=V_{GS}, I_D=250 \mu\text{A}$	2		4	V
Static Drain-Source On-Resistance	$R_{DS(\text{on})}$	$V_{GS}=10\text{V}, I_D=40\text{A}$		5.9	7.2	$\text{m}\Omega$
Forward Transconductance	$g_{FS}$	$V_{DS}=10\text{V}, I_D=40\text{A}$		28		S
Input Capacitance	$C_{iss}$	$V_{GS}=0\text{V}, V_{DS}=25\text{V}, f=1\text{MHz}$		3187		$\text{pF}$
Output Capacitance	$C_{oss}$			396		
Reverse Transfer Capacitance	$C_{rss}$			184		
Total Gate Charge	$Q_g$	$V_{GS}=10\text{V}, V_{DS}=50\text{V}, I_D=40\text{A}$		82		$\text{nC}$
Gate Source Charge	$Q_{gs}$			16.2		
Gate Drain Charge	$Q_{gd}$			36.7		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=30\text{V}, I_D=2\text{A}, R_L=15\Omega$ $V_{GS}=10\text{V}, R_G=2.5\Omega$		11		$\text{ns}$
Turn-On Rise Time	$t_r$			13		
Turn-Off Delay Time	$t_{d(off)}$			22		
Turn-Off Fall Time	$t_f$			27		
Body Diode Reverse Recovery Time	$t_{rr}$	$I_F=75\text{A}, dI/dt=100\text{A}/\mu\text{s}, T_J = 25^\circ\text{C}$		40		$\text{nC}$
Body Diode Reverse Recovery Charge	$Q_{rr}$			81		
Maximum Body-Diode Continuous Current	$I_S$			80		$\text{A}$
Pulsed Source-Drain Current	$I_{SM}$			320		
Diode Forward Voltage	$V_{SD}$	$I_S=40\text{A}, V_{GS}=0\text{V}, T_J = 25^\circ\text{C}$		0.69	0.95	V

## N-Channel MOSFET

### KX90N06

#### ■ Typical Characteristics



## N-Channel MOSFET

### KX90N06

#### ■ Typical Characteristics

Figure7.  $BV_{DSS}$  vs Junction Temperature

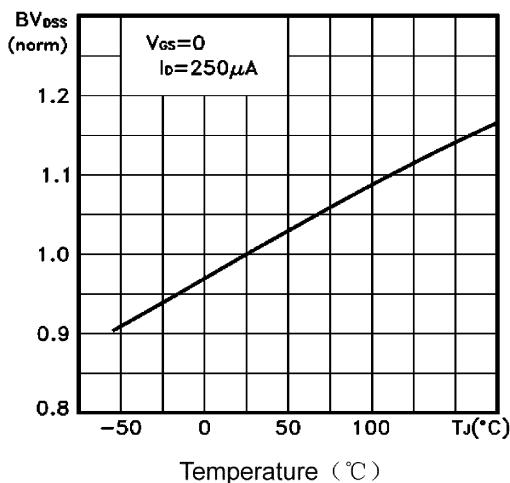


Figure8.  $V_{GS(\text{th})}$  vs Junction Temperature

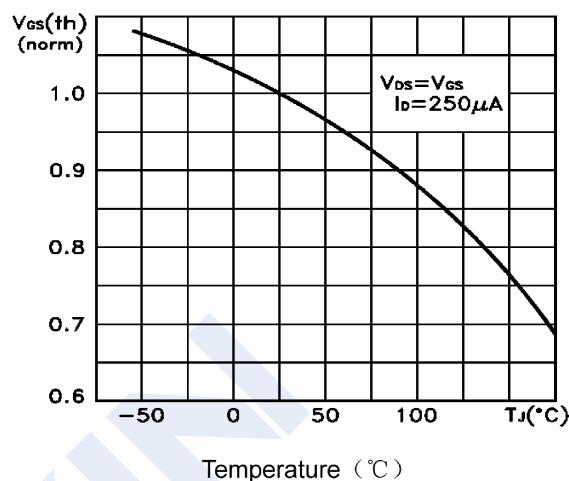


Figure9. Gate Charge Waveforms

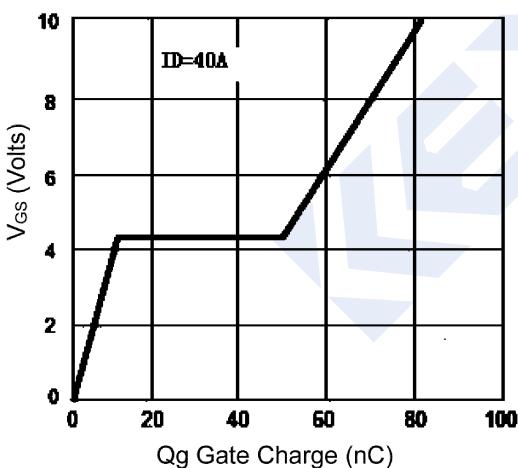


Figure10. Capacitance

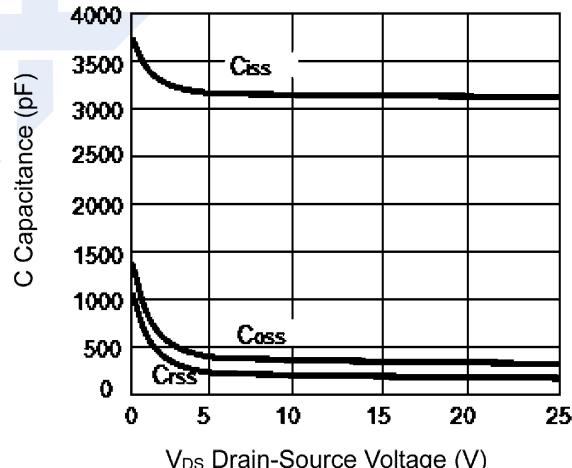


Figure11. Normalized Maximum Transient Thermal Impedance

