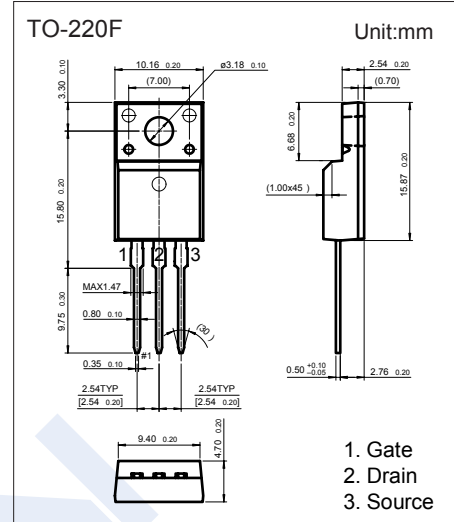
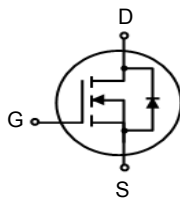


N-Channel MOSFET

KX12N65F

■ Features

- $V_{DS} (V) = 650V$
- $I_D = 12 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 850m\Omega (V_{GS} = 10V)$
- High ruggedness



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	650	V
Gate-Source Voltage	V_{GS}	± 30	
Continuous Drain Current	I_D	$T_c=25^\circ C$	12
		$T_c=100^\circ C$	7.6
Pulsed Drain Current (Note.1)	I_{DM}	48	A
Power Dissipation	P_D	54	W
Derating Factor above 25oC		0.43	W/°C
Single pulsed Avalanche Energy (Note.2)	E_{AS}	790	mJ
Repetitive Avalanche Energy (Note.1)	E_{AR}	104	
Peak diode Recovery dv/dt (Note.3)	dv/dt	4.5	V/ns
Thermal Resistance.Junction- to-Ambient	R_{thJA}	45.3	°C/W
Thermal Resistance.Junction- to-Case	R_{thJC}	2.3	
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{stg}	-55 to 150	

Note.1: Repetitive rating : pulse width limited by junction temperature.

Note.2: $L = 11mH$, $I_{AS} = 12A$, $V_{DD} = 50V$, $R_G=25\Omega$, Starting $T_J = 25^\circ C$

Note.3: $I_{SD} \leq 12.0A$, $di/dt = 100A/us$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25^\circ C$

N-Channel MOSFET

KX12N65F

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μA, V _{GS} =0V	650			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =650V, V _{GS} =0V			1	uA
		V _{DS} =520V, V _{GS} =0V, T _J =125°C			50	
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 =250 μA	2		4	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =6A			850	mΩ
Forward Transconductance	g _{FS}	V _{DS} =20V, I _D =6A	7			S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, f=1MHz		1450		pF
Output Capacitance	C _{oss}			160		
Reverse Transfer Capacitance	C _{rss}			35		
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =520V, I _D =12A (Note.1)		28	50	nC
Gate Source Charge	Q _{gs}			9		
Gate Drain Charge	Q _{gd}			9		
Turn-On DelayTime	t _{d(on)}	V _{DS} =325V, I _D =12A, R _{GEN} =25 Ω (Note.1)		23	60	ns
Turn-On Rise Time	t _r			38	80	
Turn-Off DelayTime	t _{d(off)}			63	130	
Turn-Off Fall Time	t _f			36	80	
Body Diode Reverse Recovery Time	t _{rr}	I _F =12A, di/dt=100A/μs		456		uC
Body Diode Reverse Recovery Charge	Q _{rr}			6.2		
Maximum Body-Diode Continuous Current	I _S	Integral reverse p-n Junction diode in the MOSFET			12	A
Pulsed source current	I _{SM}				48	
Diode Forward Voltage	V _{SD}	I _S =12A, V _{GS} =0V			1.5	V

Note.1: Pulse Width ≤ 300us, duty cycle ≤ 2%

N-Channel MOSFET KX12N65F

■ Typical Characteristics

Fig. 1. On-state characteristics

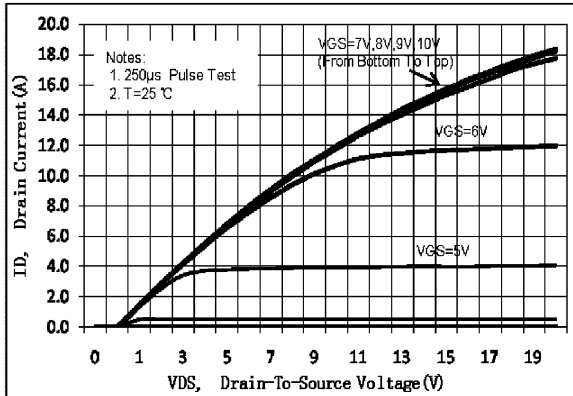


Fig. 3. Gate charge characteristics

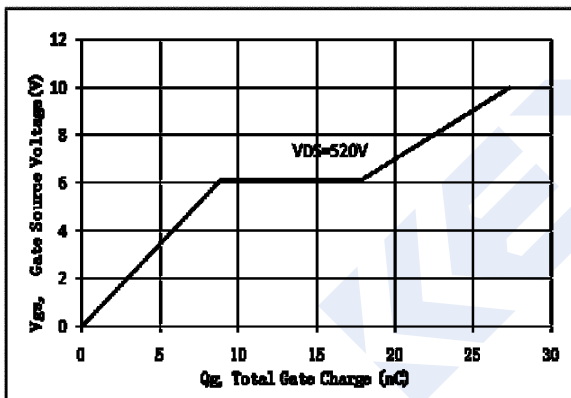


Fig 5. Breakdown Voltage Variation vs. Junction Temperature

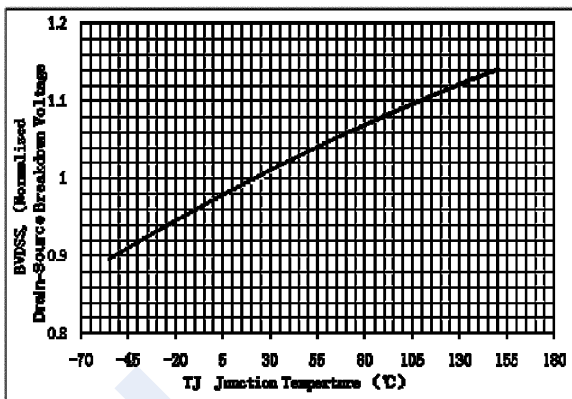


Fig. 2. On-resistance variation vs. drain current and gate voltage

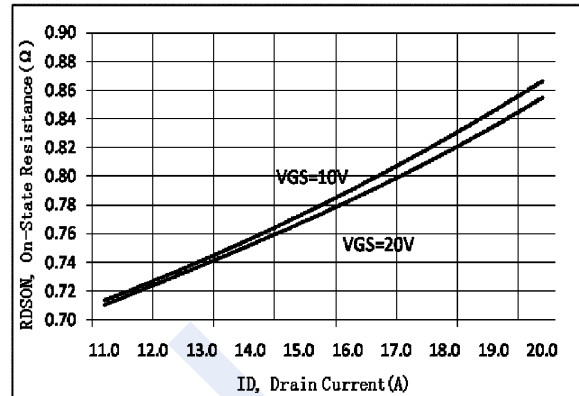


Fig. 4. On state current vs. diode forward voltage

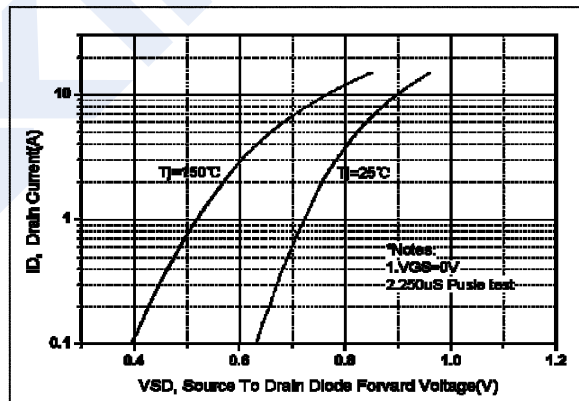
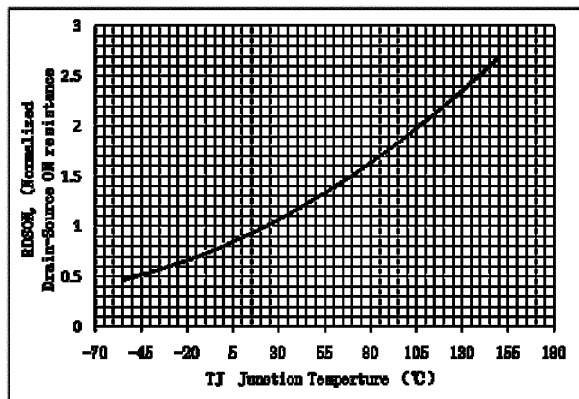


Fig. 6. On resistance variation vs. junction temperature



N-Channel MOSFET KX12N65F

■ Typical Characteristics

Fig. 7. Maximum safe operating area

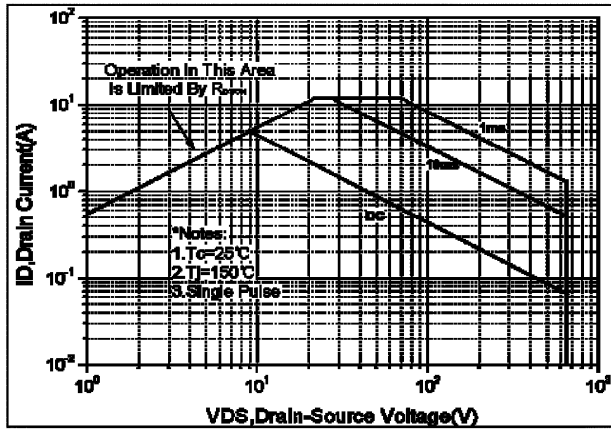


Fig. 8. Transient thermal response curve

