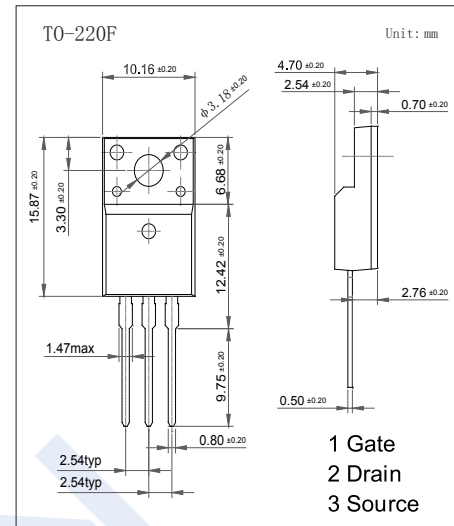
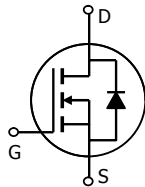


N-Channel MOSFET KX6N80F

■ Features

- $V_{DS} (V) = 800V$
- $I_D = 7 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 1.9 \Omega (V_{GS} = 10V)$
- Low Gate Charge (Typ. 27 nC)
- Fast switching
- 100% Avalanche Tested



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	800	V
Gate-Source Voltage	V_{GS}	± 30	
Continuous Drain Current	I_D	$T_c=25^\circ C$	7
		$T_c=100^\circ C$	4.2
Pulsed Drain Current (Note.1)	I_{DM}	28	A
Power Dissipation	P_D	$T_c=25^\circ C$	56
- Derate above $25^\circ C$		0.44	W/ $^\circ C$
Single Pulsed Avalanche Energy (Note.2)	E_{AS}	650	mJ
Repetitive Avalanche Energy (Note.1)	E_{AR}	16.7	
Peak Diode Recovery dv/dt (Note.3)	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}	2.25	
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

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

Note.2: $L = 25mH$, $I_{AS} = 7A$, $V_{DD} = 50V$, $R_G = 25 \Omega$, Starting $T_J = 25^\circ C$

Note.3: $I_{SD} \leq 7A$, $di/dt \leq 200A/\mu s$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25^\circ C$

N-Channel MOSFET

KX6N80F

■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μ A, V _{GS} =0V	800			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =800V, V _{GS} =0V			10	uA
		V _{DS} =640V, V _{GS} =0V, T _C =125°C			100	
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 μ A	3		5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =3.5A			1.9	Ω
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, f=1MHz		1300		pF
Output Capacitance	C _{oss}			120		
Reverse Transfer Capacitance	C _{rss}			10		
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =640V, I _D =7A (Note.1)		27		nC
Gate Source Charge	Q _{gs}			8		
Gate Drain Charge	Q _{gd}			11		
Turn-On DelayTime	t _{d(on)}	V _{DS} =400V, I _D =7A, R _G =25 Ω (Note.1)		40		ns
Turn-On Rise Time	t _r			100		
Turn-Off DelayTime	t _{d(off)}			50		
Turn-Off Fall Time	t _f			60		
Body Diode Reverse Recovery Time	t _{rr}	I _F =7A, di/dt=100A/μ s, V _{GS} =0 (Note.1)		650		uC
Body Diode Reverse Recovery Charge	Q _{rr}			7		
Maximum Body-Diode Continuous Current	I _S				7	A
Pulsed Drain-Source Diode Forward Current	I _{SM}				28	
Diode Forward Voltage	V _{SD}	I _S =7A, V _{GS} =0V			1.5	V

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

N-Channel MOSFET KX6N80F

Typical Characteristics

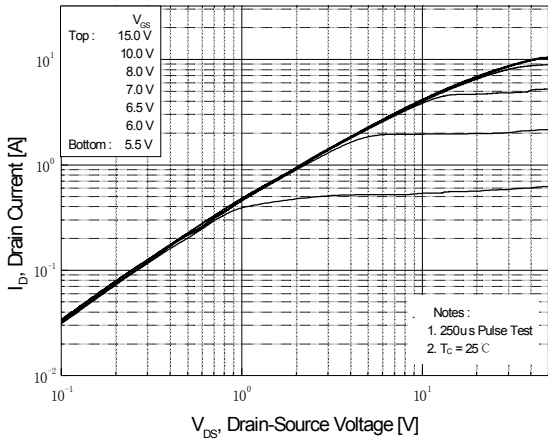


Figure 1. On-Region Characteristics

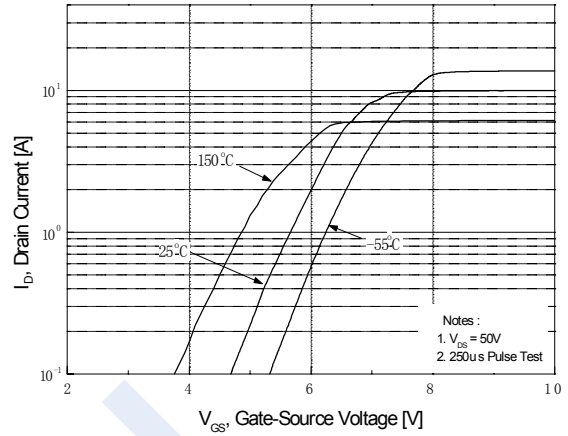


Figure 2. Transfer Characteristics

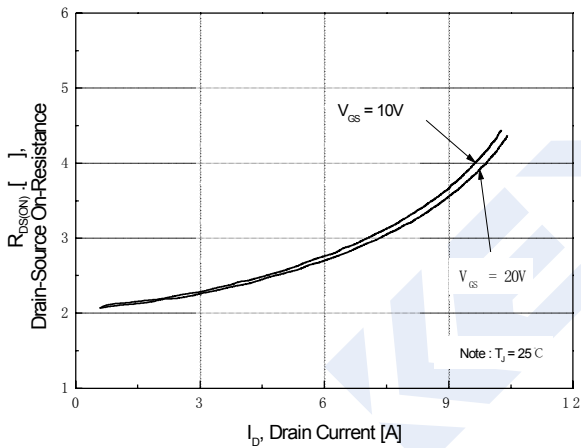


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

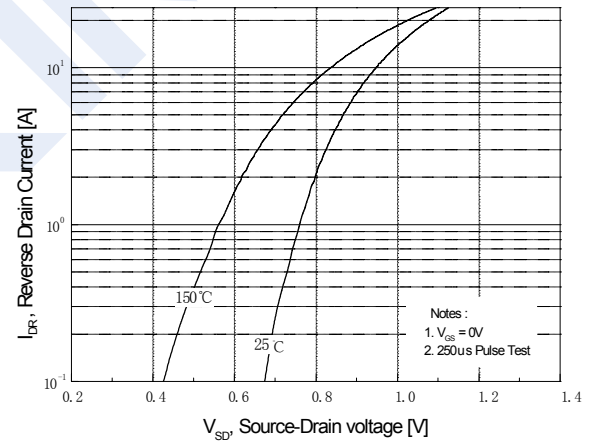


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

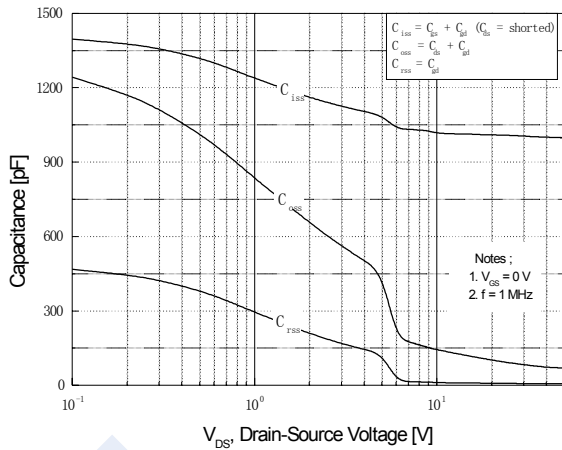


Figure 5. Capacitance Characteristics

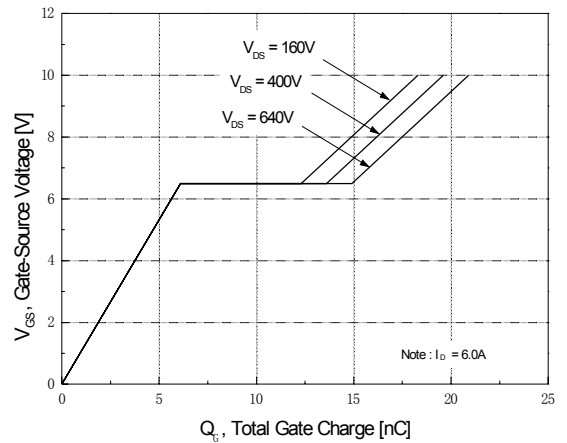


Figure 6. Gate Charge Characteristics

N-Channel MOSFET KX6N80F

■ Typical Characteristics

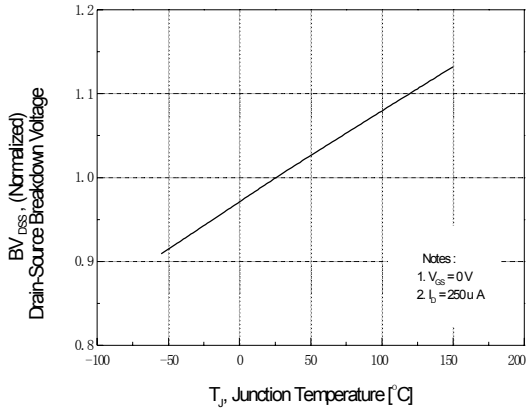


Figure 7. Breakdown Voltage Variation vs Temperature

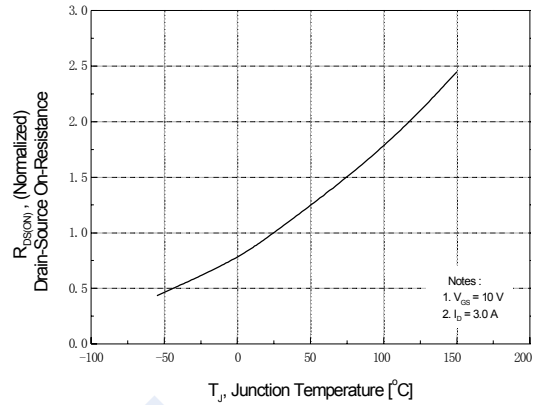


Figure 8. On-Resistance Variation vs Temperature

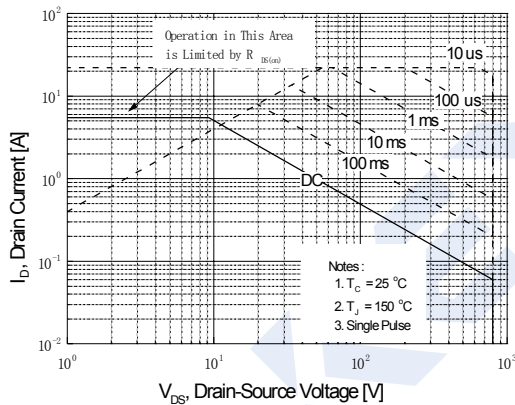


Figure 9. Maximum Safe Operating Area for KX6N80F

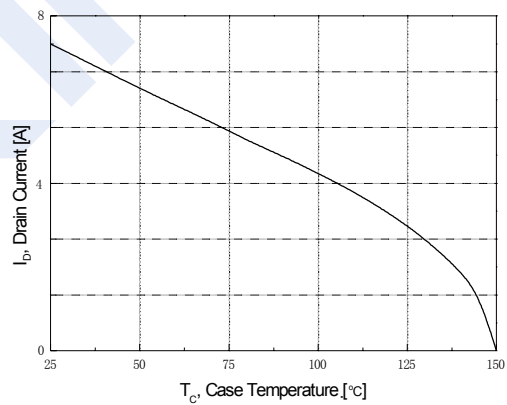


Figure 10. Maximum Drain Current vs Case Temperature

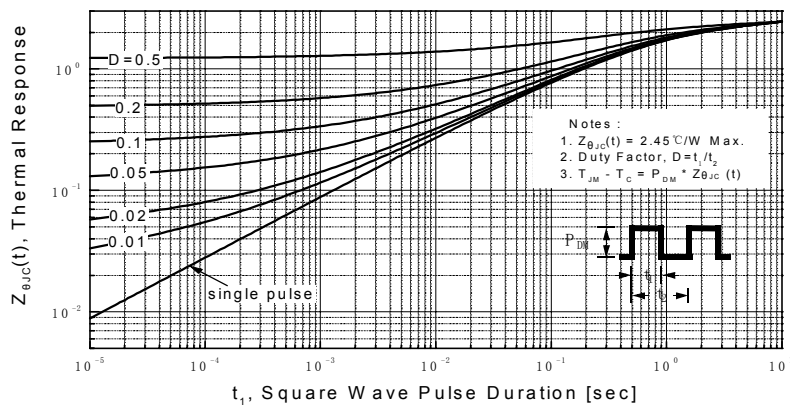
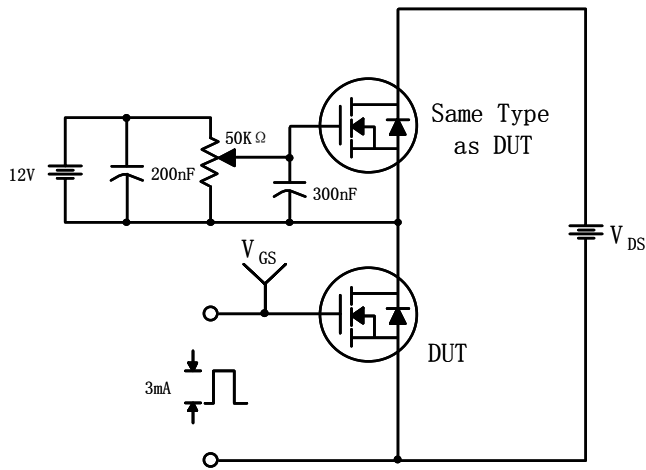


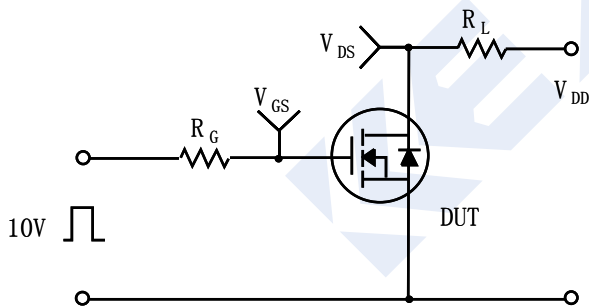
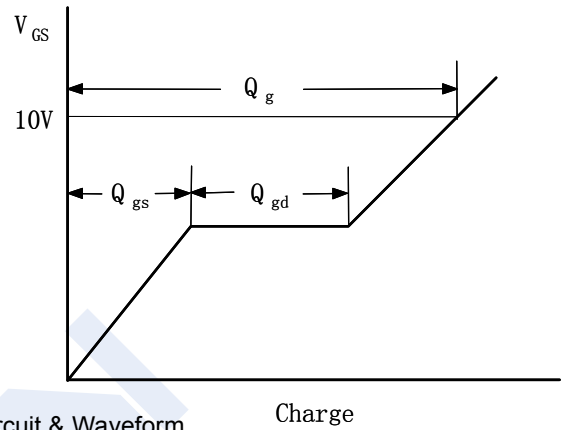
Figure 11. Transient Thermal Response Curve for KX6N80F

N-Channel MOSFET KX6N80F

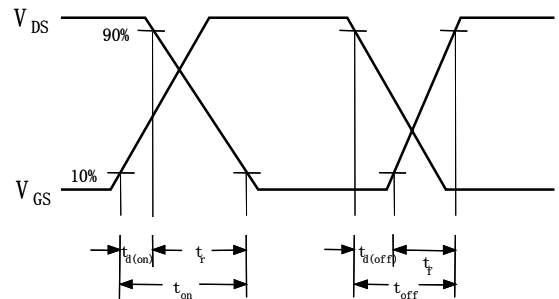
■ Typical Characteristics



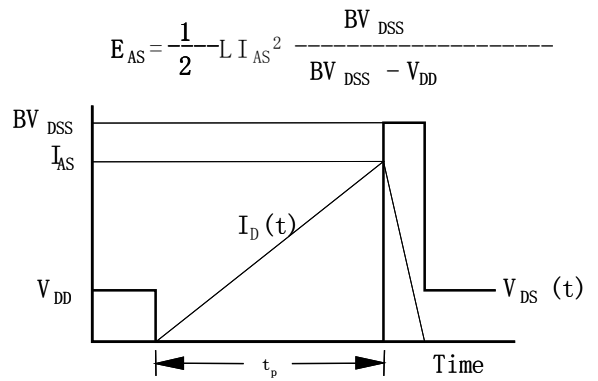
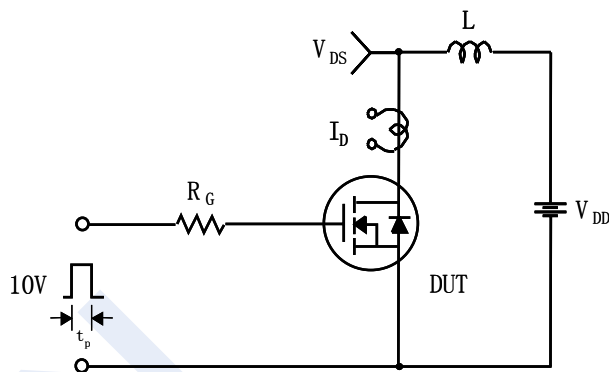
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching Test Circuit & Waveforms



N-Channel MOSFET KX6N80F

■ Typical Characteristics

Peak Diode Recovery dv/dt Test Circuit & Waveforms

