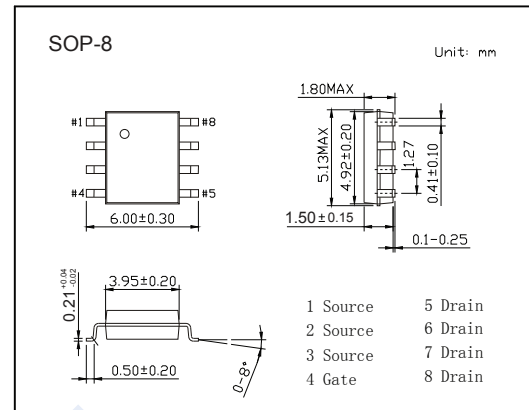
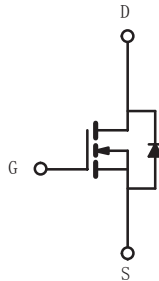


N-Channel MOSFET

KX4N15DY

■ Features

- $V_{DS} = 150V, I_D = 5.2A$
- $R_{DS(ON)} < 44m\Omega$ @ $V_{GS} = 10V$
- High density cell design for ultra low $R_{DS(on)}$
- Fully characterized avalanche voltage and current
- Low gate to drain charge to reduce switching losses

■ Absolute Maximum Ratings ($T_A = 25^\circ C$, unless otherwise specified)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	150	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	5.2	A
		3.7	
Pulsed Drain Current (Note 1)	I_{DM}	42	
Power Dissipation	P_D	3.5	W
Thermal Resistance, Junction- to-Case (Note 2)	R_{thJC}	35.7	$^\circ C/W$
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

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
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	I _D =250μA, V _{GS} =0V	150			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =150V, V _{GS} =0V			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	2.5		4.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D = 5.2A			44	mΩ
Forward Transconductance	g _{fs}	V _{GS} =10V, I _D = 5.2A	12			S
Dynamic Characteristics (Note4)						
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, f=1MHz		1700		pF
Output Capacitance	C _{oss}			190		
Reverse Transfer Capacitance	C _{rss}			90		
Switching Characteristics (Note 4)						
Turn-On DelayTime	t _{d(on)}	V _{DD} =75V, I _D = 3.1A, V _{GS} = 10V, R _{GEN} = 6.5Ω		15		ns
Turn-On Rise Time	t _r			13		
Turn-Off DelayTime	t _{d(off)}			26		
Turn-Off Fall Time	t _f			14		
Total Gate Charge	Q _g	V _{DS} =75V, I _D =3.1A, V _{GS} =10V		35.8		nC
Gate Source Charge	Q _{gs}			7.5		
Gate Drain Charge	Q _{gd}			13		
Drain-Source Diode Characteristics						
Diode Forward Current (Note 2)	I _S				8	A
Diode Forward Voltage (Note 3)	V _{SD}	I _S =3.1A,V _{GS} =0V			1.2	V
Reverse Recovery Time	t _{rr}	T _J = 25°C, I _F = 3.1A, di/dt = 100A/μs		140		nC

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

2. Surface Mounted on FR4 Board, $t \leq 10$ sec.3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

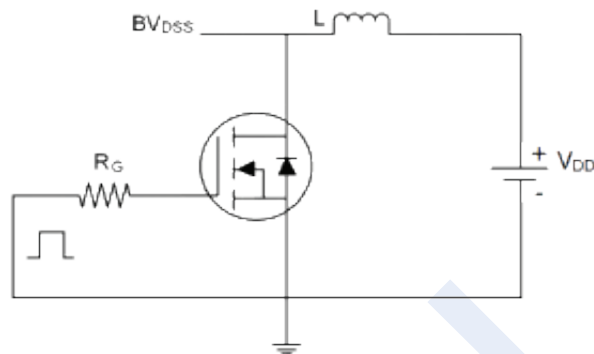
4. Guaranteed by design, not subject to production

N-Channel MOSFET

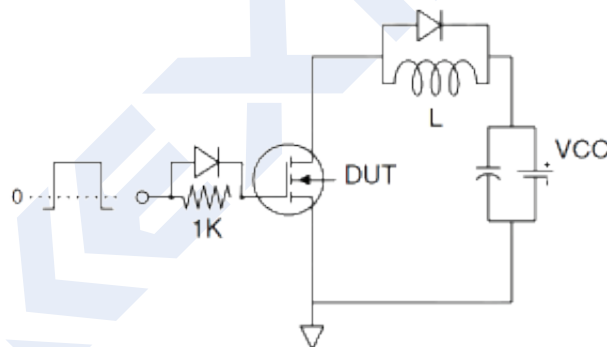
KX4N15DY

■ Test Circuit

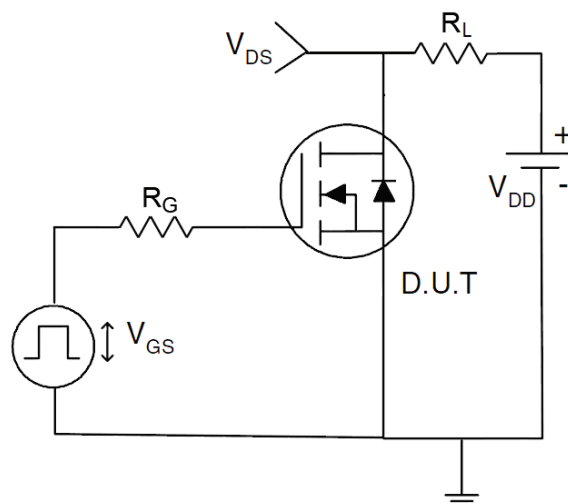
1) E_{AS} test Circuit



2) Gate charge test Circuit



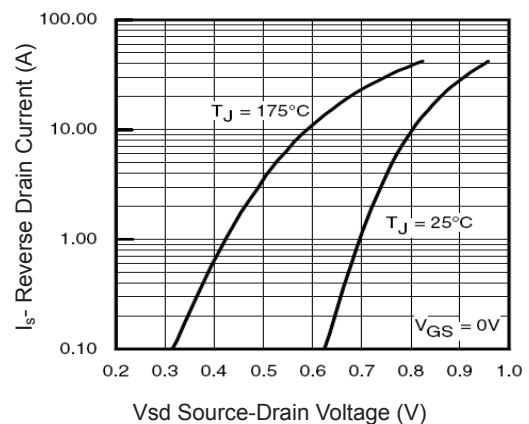
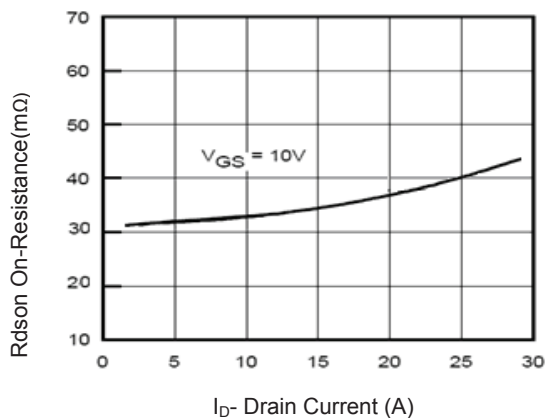
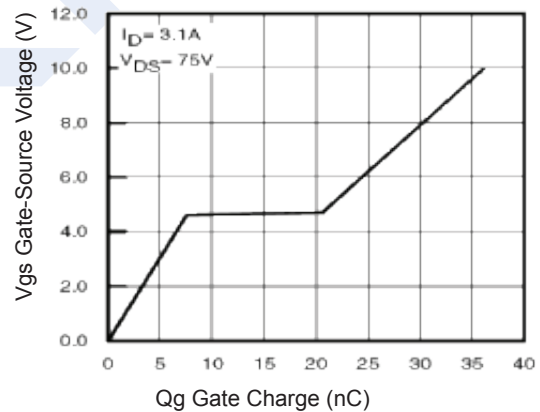
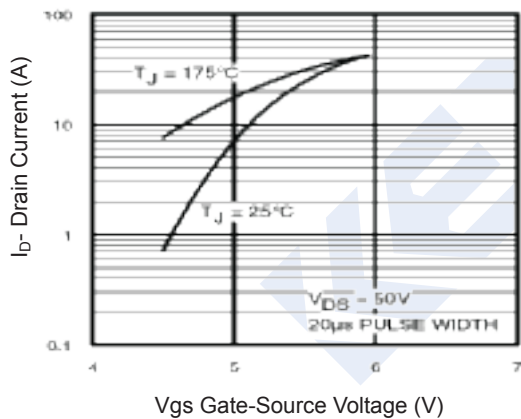
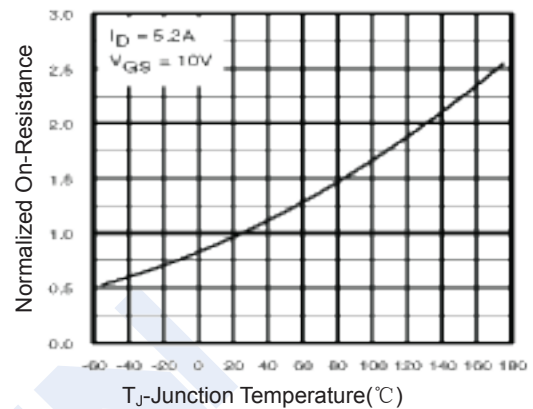
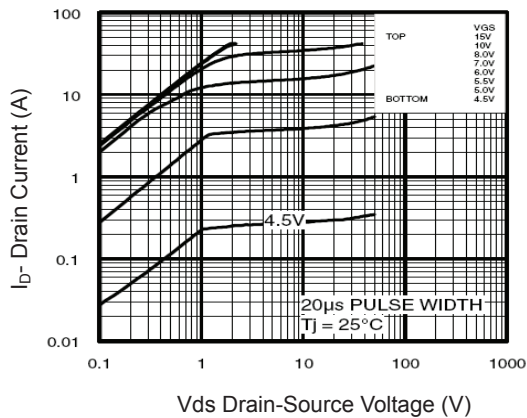
3) Switch Time Test Circuit



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■ Typical Characteristics Thermal Characteristics



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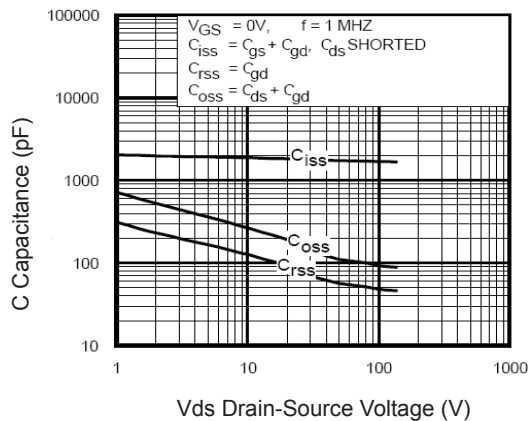


Figure 7 Capacitance vs Vds

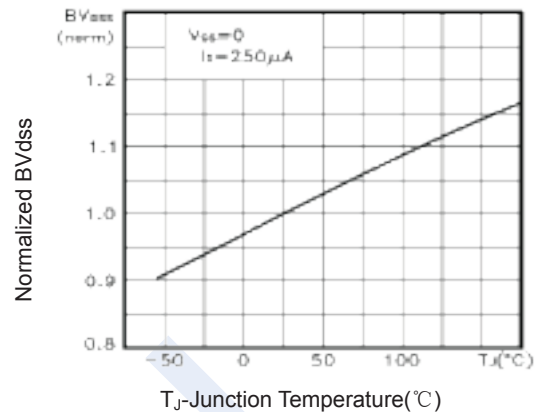
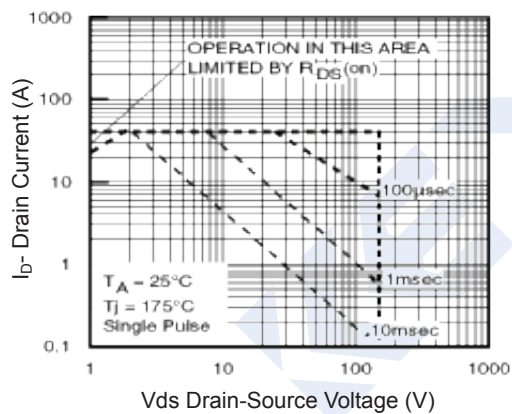
Figure 9 BV_{DSS} vs Junction Temperature

Figure 8 Safe Operation Area

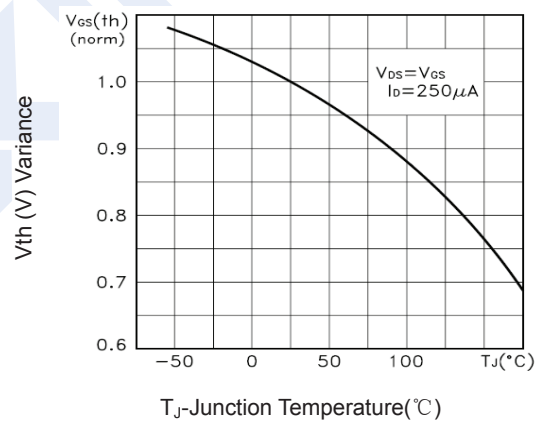
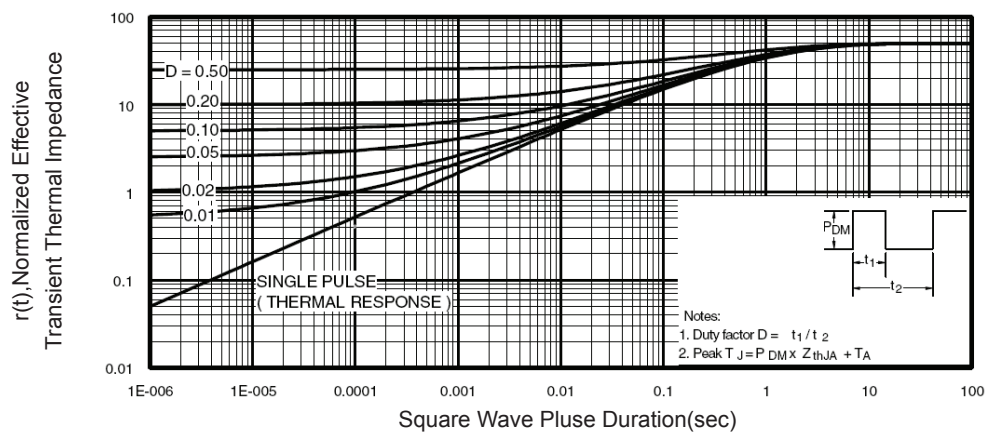
Figure 10 $V_{GS(th)}$ vs Junction Temperature

Figure 11 Normalized Maximum Transient Thermal Impedance