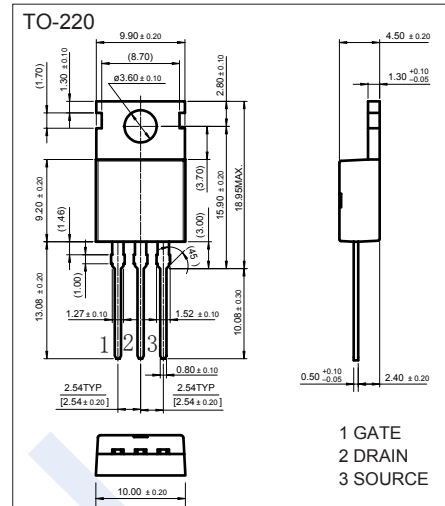
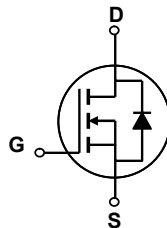


N-Channel MOSFET

KX3N80

■ Features

- $V_{DS} (V) = 800V$
- $I_D = 3 A$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 5 \Omega$ ($V_{GS} = 10V$)
- Low gate charge (typical 15 nC)
- Low C_{rss} (typical 7.0 pF)
- Fast switching



■ 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	3	A
		1.9	
Pulsed Drain Current	I_{DM}	12	
Avalanche Current	I_{AR}	3	
Power Dissipation	P_D	75	W
Derate above $25^\circ C$		0.6	W/ $^\circ C$
Single Pulsed Avalanche Energy (Note.1)	E_{AS}	120	mJ
Repetitive Avalanche Energy	E_{AR}	12	
Peak Diode Recovery dv/dt (Note.2)	dv/dt	5	V/ns
Thermal Resistance.Junction- to-Ambient	R_{thJA}	62	$^\circ C/W$
Thermal Resistance.Junction- to-Case	R_{thJC}	1.67	
Thermal Resistance, Case-to-Sink	R_{thJCS}	0.5 (typ)	
Junction Temperature	T_J	150	$^\circ C$
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	T_L	300	
Storage Temperature Range	T_{stg}	-55 to 150	

Note.1: $L = 67mH$, $I_{AS} = 3A$, $V_{DD} = 50V$, $R_G = 25 \Omega$, Starting $T_J = 25^\circ C$

Note.2: $I_{SD} \leq 3A$, $di/dt \leq 200A/\mu s$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25^\circ C$

N-Channel MOSFET

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μA, V _{GS} =0V	800			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =800V, V _{GS} =0V			10	μA
		V _{DS} =640V, V _{GS} =0V, T _J =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 μA	2		4	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =1.5A			5	Ω
Forward Transconductance	g _{FS}	V _{DS} =50V, I _D =1.5A (Note.1)		3		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =25V, f=1MHz			690	pF
Output Capacitance	C _{oss}				75	
Reverse Transfer Capacitance	C _{rss}				9	
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =640V, I _D =3A (Note.1)			19	nC
Gate Source Charge	Q _{gs}			3.5		
Gate Drain Charge	Q _{gd}			7.7		
Turn-On DelayTime	t _{d(on)}	V _{DS} =400V, I _D =3A, R _G =25 Ω (Note.1)			40	ns
Turn-On Rise Time	t _r				90	
Turn-Off DelayTime	t _{d(off)}				70	
Turn-Off Fall Time	t _f				70	
Body Diode Reverse Recovery Time	t _{rr}	I _F = 3A, V _{GS} =0, di/dt= 100A/μs (Note.1)			810	μs
Body Diode Reverse Recovery Charge	Q _{rr}				6.1	
Maximum Body-Diode Continuous Current	I _S				3	A
Pulsed Drain-Source Diode Forward Current	I _{SM}				12	
Diode Forward Voltage	V _{SD}	I _S =3A, V _{GS} =0V			1.4	V

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

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■ Typical Characteristics

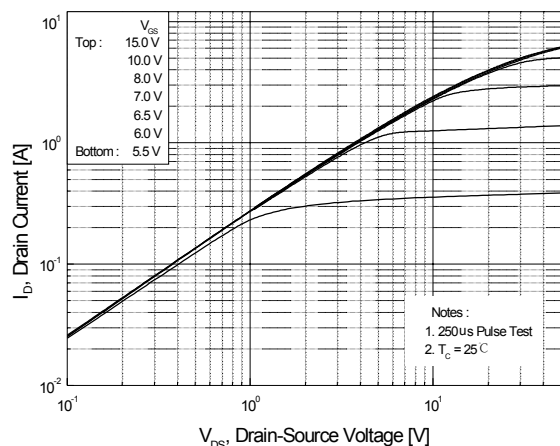


Figure 1. On-Region Characteristics

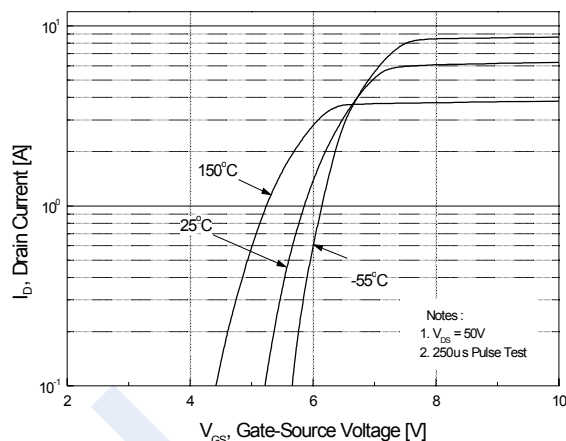


Figure 2. Transfer Characteristics

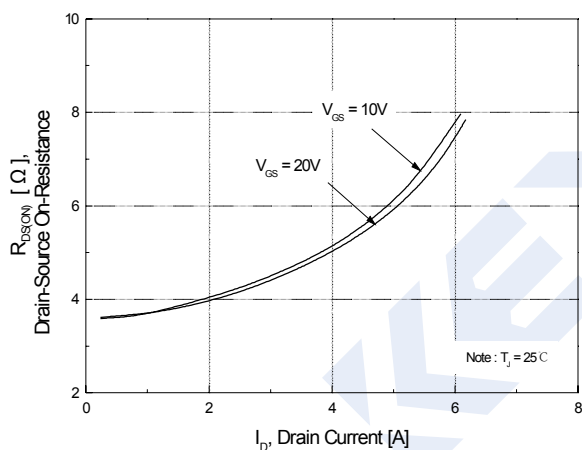


Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

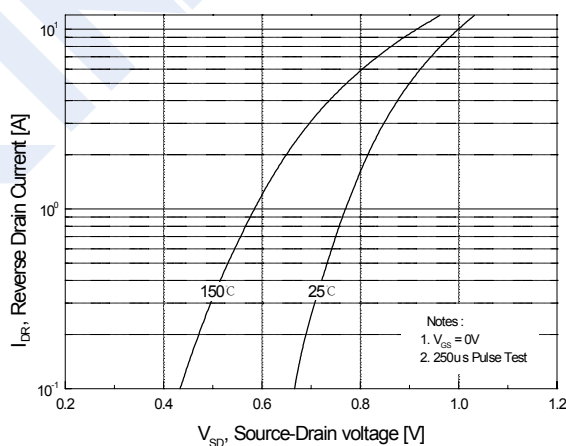


Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

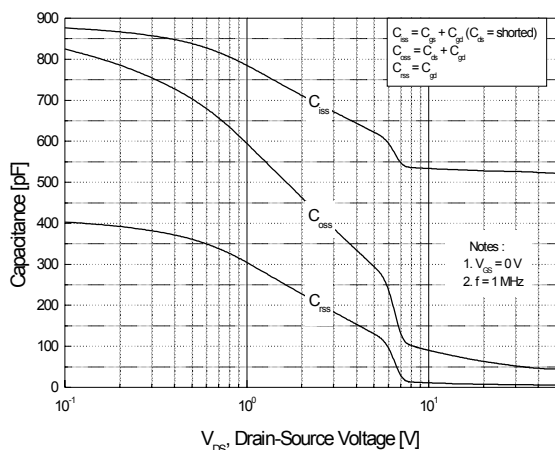


Figure 5. Capacitance Characteristics

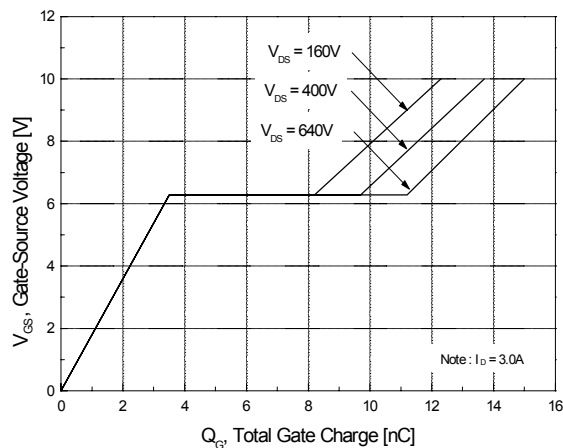


Figure 6. Gate Charge Characteristics

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Typical Characteristics

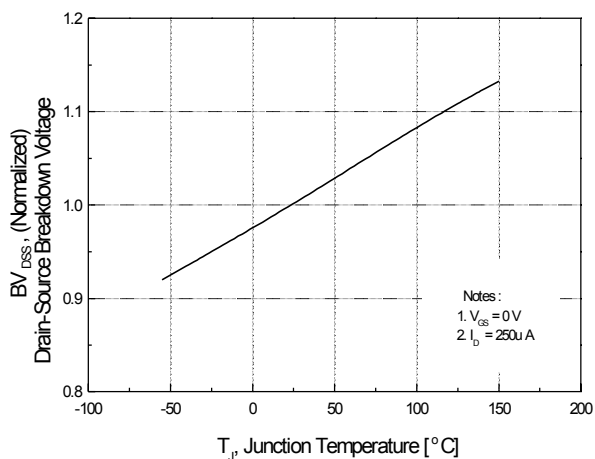


Figure 7. Breakdown Voltage Variation vs Temperature

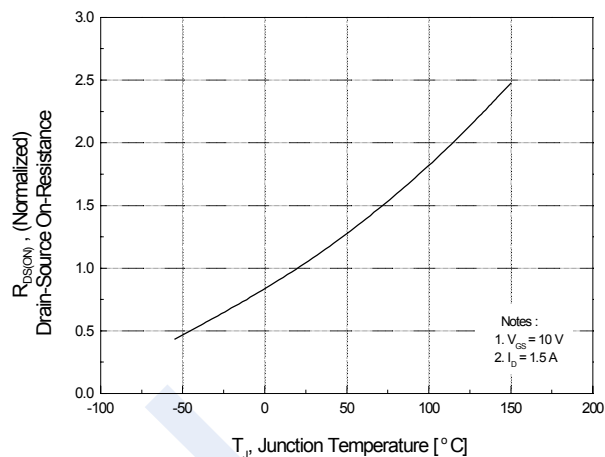


Figure 8. On-Resistance Variation vs Temperature

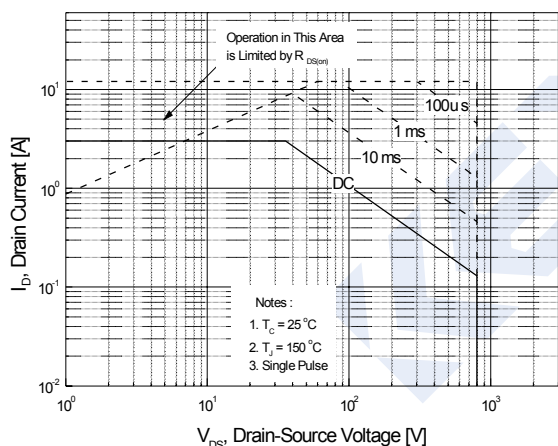


Figure 9. Maximum Safe Operating Area

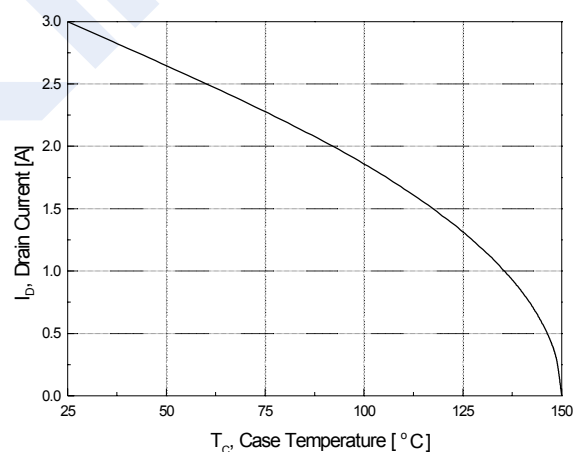


Figure 10. Maximum Drain Current vs Case Temperature

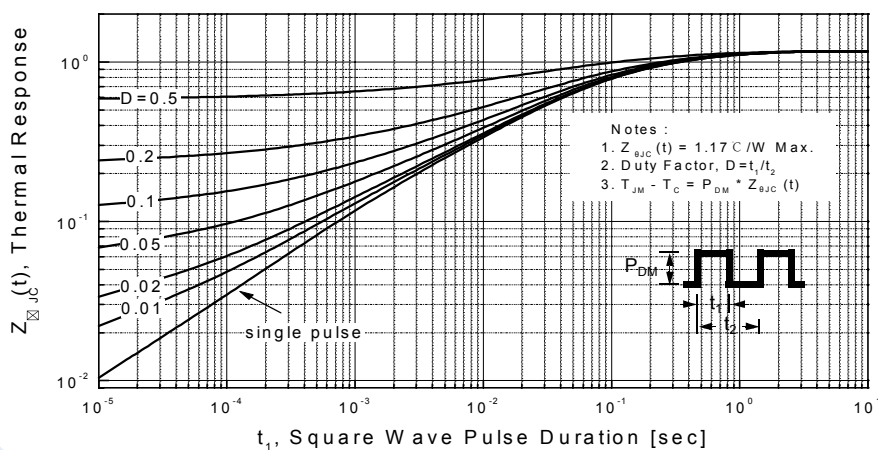


Figure 11. Transient Thermal Response Curve