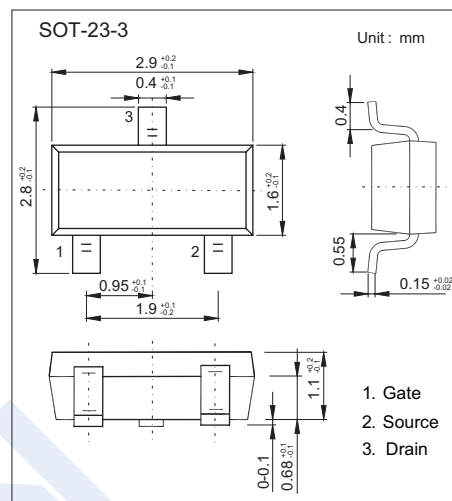
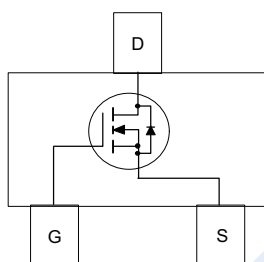


N-Channel MOSFET

KI3N10DS

■ Features

- $V_{DS}(V) = 100V$
- $I_D = 3A$
- $R_{DS(ON)} < 160\text{ m}\Omega$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 170\text{ m}\Omega$ ($V_{GS} = 4.5V$)

■ Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current	I_D	3	A
Pulsed Drain Current (Note 1)	I_{DM}	20	
Power Dissipation	P_D	1.5	W
Thermal Resistance Junction- to-Ambient (Note 2)	R_{thJA}	100	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to 150	

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■ Electrical Characteristics (TA = 25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250μA, V _{GS} =0V	100			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =100V, V _{GS} =0V			1	μA
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±100	nA
Gate Threshold Voltage (Note 3)	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1		2	V
Static Drain-Source On-Resistance (Note 3)	R _{DS(on)}	V _{GS} =10V, I _D =3A			160	mΩ
		V _{GS} =4.5V, I _D =3A			170	
Forward Transconductance (Note 3)	g _{FS}	V _{DS} =5V, I _D =3A		5		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =50V, f=1MHz (Note 4)		650		pF
Output Capacitance	C _{oss}			24		
Reverse Transfer Capacitance	C _{rss}			20		
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =50V, I _D =3A (Note 4)		20		nC
Gate Source Charge	Q _{gs}			2.1		
Gate Drain Charge	Q _{gd}			3.3		
Turn-On DelayTime	t _{d(on)}	V _{GS} =10V, V _{DD} =50V, R _L =19Ω, R _G =3Ω (Note 4)		6		ns
Turn-On Rise Time	t _r			4		
Turn-Off DelayTime	t _{d(off)}			20		
Turn-Off Fall Time	t _f			4		
Body-Diode Forward Current (Note 2)	I _S				3	A
Diode Forward Voltage (Note 3)	V _{SD}	I _S =3A, V _{GS} =0V			1.2	V

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production.

■ Marking

Marking	3N10
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N-Channel MOSFET

KI3N10DS

■ Typical Characteristics and Thermal Characteristics (Curves)

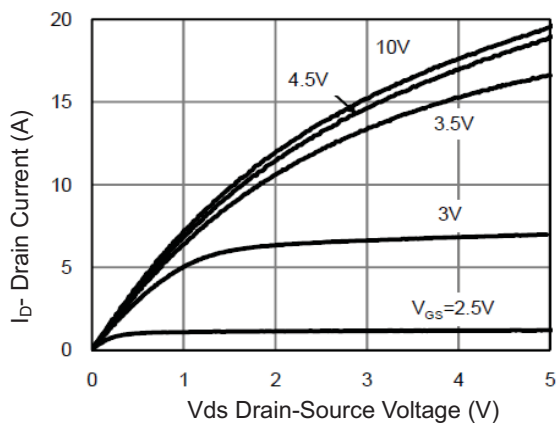


Figure 1 Output Characteristics

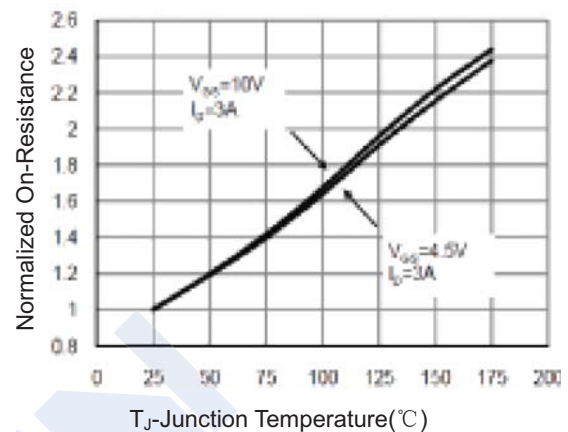


Figure 4 Rdson-Junction Temperature

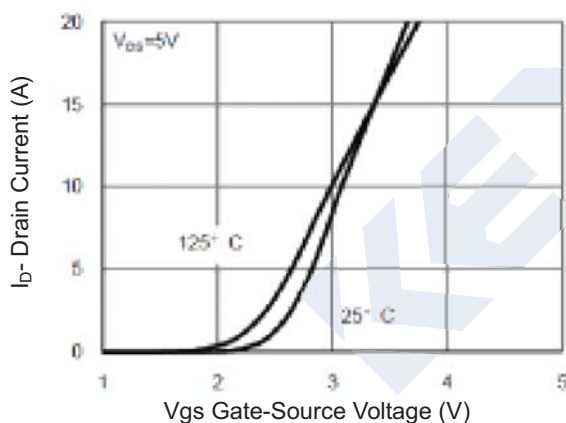


Figure 2 Transfer Characteristics

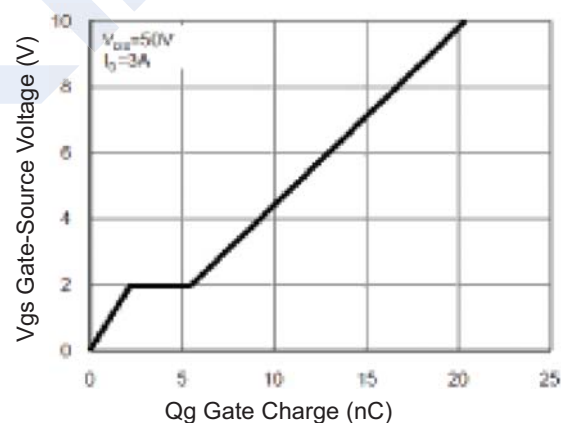


Figure 5 Gate Charge

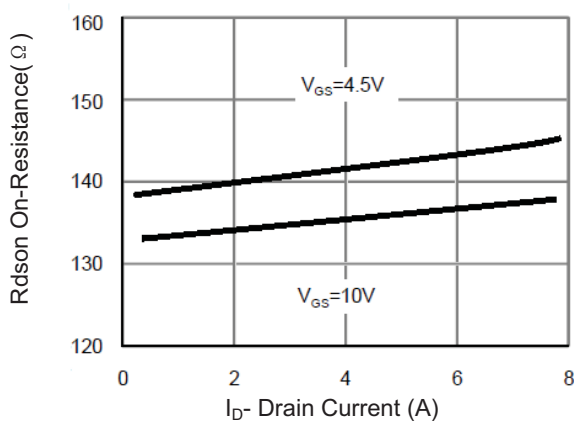


Figure 3 Rdson- Drain Current

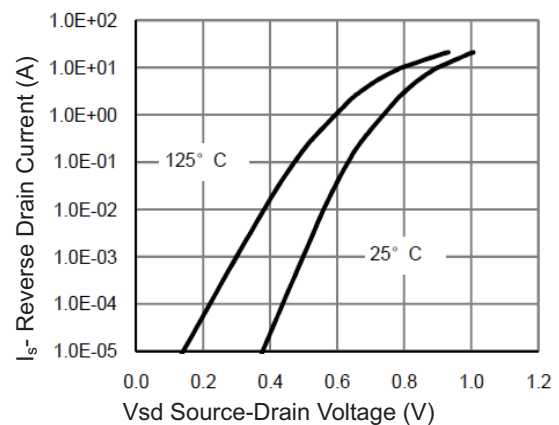


Figure 6 Source- Drain Diode Forward

N-Channel MOSFET

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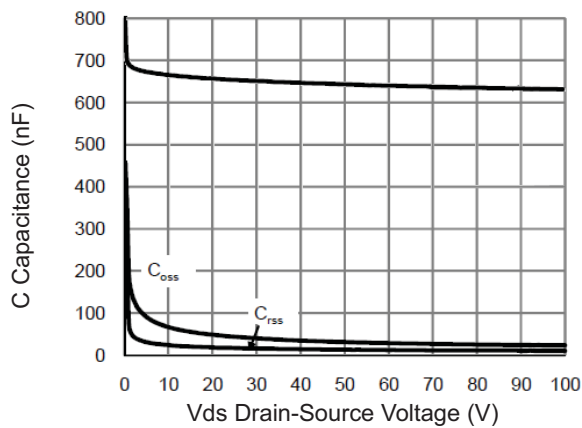


Figure 7 Capacitance vs Vds

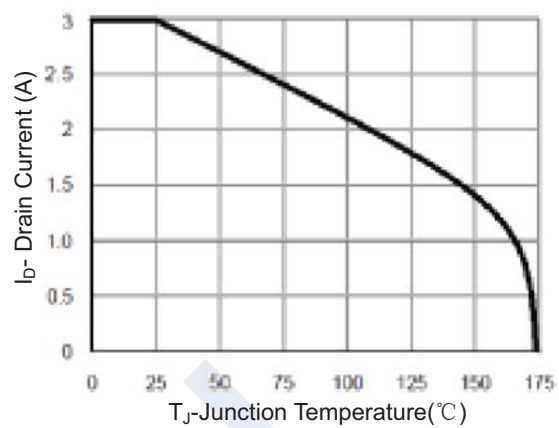
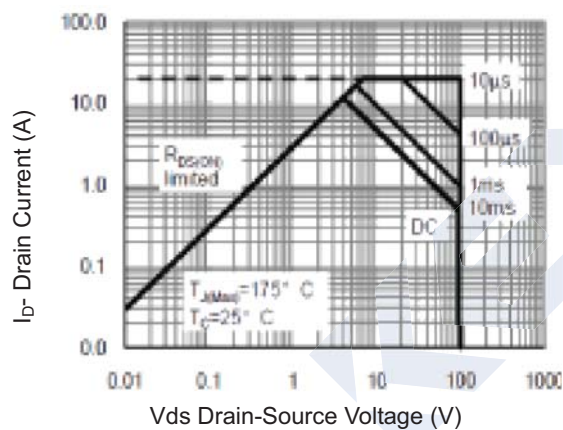
Figure 9 BV_{dss} vs Junction Temperature

Figure 8 Safe Operation Area

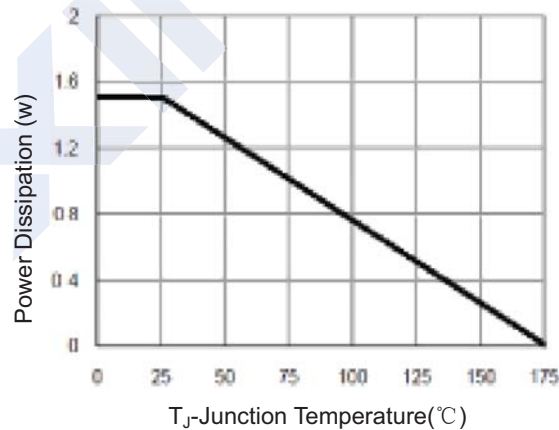


Figure 10 Power De-rating

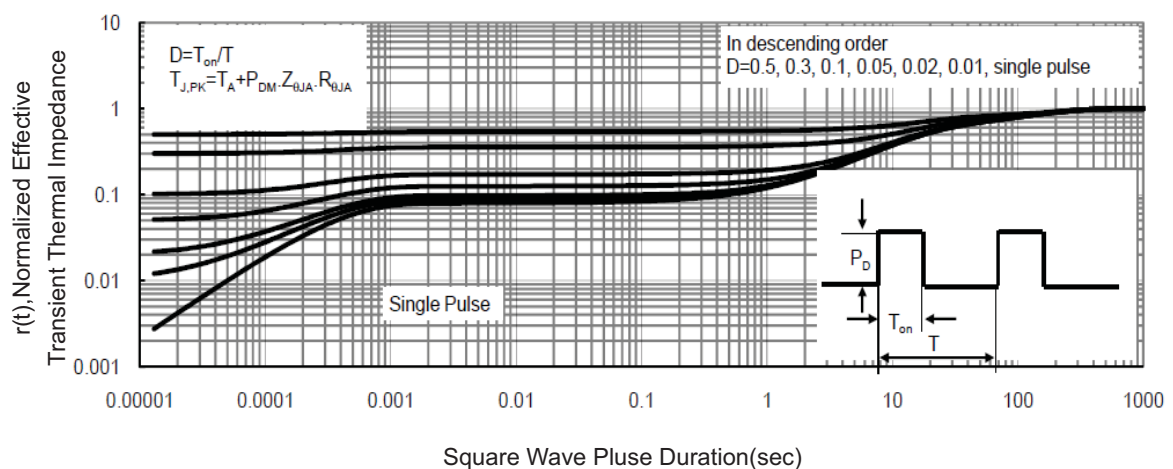


Figure 11 Normalized Maximum Transient Thermal Impedance