

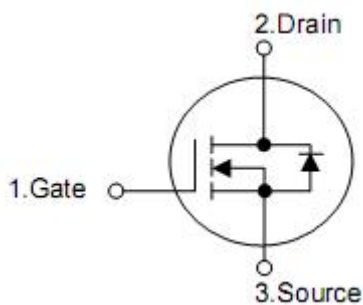
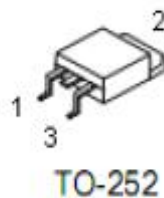
1. Features

KNX3403C is an N-channel enhancement mode power Mosfet field effect transistor which is produced using KIA's LVMosfet technology. The improved process and cell structure have been especially tailored to minimize on-state resistance, provide superior switching performance. This device is widely used in UPS, Power Management for Inverter Systems.

2. Features

- 80A, 30V, $R_{DS(on)}$ (typ.)= 5.0m Ω @ $V_{GS} = 10 V$
- Low gate charge
- Low Crss
- Fast switching
- Improved dv/dt capability

3. Pin configuration



Pin	Function
1	Gate
2	Drain
3	Source

4. Ordering Information

Part Number	Package	Brand
KND3403C	TO-252	KIA

5. Absolute maximum ratings

(T_C = 25°C , unless otherwise noted)

Symbol	Parameter	Value	Units
V _{DSS}	Drain-Source Voltage	30	V
I _D	Drain Current -Continuous (T _C = 25 °C) -Continuous (T _C = 100 °C)	80	A
		57	A
I _{DM}	Drain Current -Pulsed	320	A
V _{GSS}	Gate-Source Voltage	±20	V
E _{AS}	Single Pulsed Avalanche Energy (Note 1)	110.25	mJ
P _D	Power Dissipation (T _C = 25 °C) -Derate above 25 °C	65	W
		0.47	W/°C
T _J , T _{STG}	Operating and Storage Temperature Range	-55 to +150	°C

6. Thermal Characteristics

Symbol	Parameter	Value	Units
R _{θJC}	Thermal Resistance, Junction-to-Case	0.52	°C /W
R _{θJA}	Thermal Resistance, Junction-to-Ambient	62	°C /W

7. Electrical characteristics

(T_C = 25°C , unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
B _{VDS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _D = 250 uA	30	--	--	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} = 30 V, V _{GS} = 0 V	--	--	1	uA
I _{GSS}	Gate- Source Leakage Current	V _{GS} = ±20 V, V _{DS} = 0 V	--	--	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250 uA	0.8	1.3	2.5	V
R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} = 10 V, I _D = 20 A	--	5.0	6.2	mΩ
		V _{GS} = 4.5V, I _D = 10 A	--	7.5	9.0	mΩ
R _G	Gate Resistance	f = 1.0 MHz, V _{DS} = 0 V, V _{GS} = 0 V,	--	1.5	--	Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} = 25 V, V _{GS} = 0 V, f = 1.0 MHz	--	2500	--	pF
C _{oss}	Output Capacitance		--	1250	--	pF
Cr _{ss}	Reverse Transfer Capacitance		--	1100	--	pF
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} = 15 V, V _{GS} = 4.5V, I _D = 1 A, R _G = 3Ω (Note 2,3)	--	7	--	ns
t _r	Turn-On Rise Time		--	3.6	--	ns
t _{d(off)}	Turn-Off Delay Time		--	36.8	--	ns
t _f	Turn-Off Fall Time		--	22.5	--	ns
Q _g	Total Gate Charge	V _{DS} = 25V, I _D = 14A , V _{GS} = 10V (Note 2,3)	--	38.9	--	nC
Q _{gs}	Gate-Source Charge		--	4.48	--	nC
Q _{gd}	Gate-Drain Charge		--	10.78	--	nC
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Continuous Source Current	Integral Reverse P-N Junction Diode in the MOSFET	--	--	80	A
I _{SM}	Pulsed Source Current		--	--	320	A
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} = 0 V, I _S = 20 A	--	--	1.4	V
t _{rr}	Reverse Recovery Time	V _{GS} = 0 V, I _S = 20 A, dI _F / dt = 100 A/us (Note 2)	--	12.8	--	ns
Q _{rr}	Reverse Recovery Charge		--	3.3	--	nC

Notes:

- L = 0.5mH, V_{DD} = 25V, V_{GS} = 10V, R_G = 25Ω, Starting T_J = 25°C
- Pulse Test : Pulse width ≤ 300us, Duty cycle ≤ 2%
- Essentially independent of operating temperature

8. Typical Characteristics

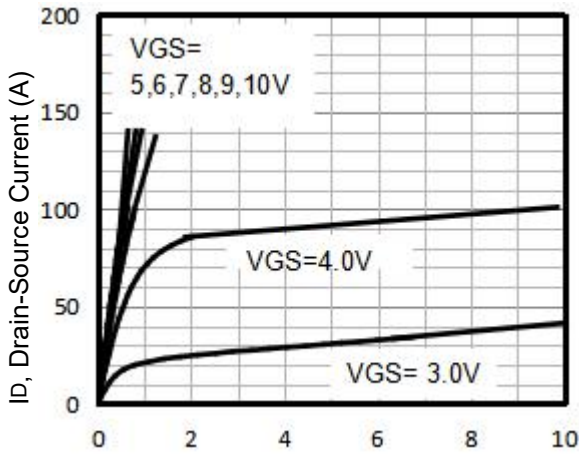


Fig1. Typical Output Characteristics

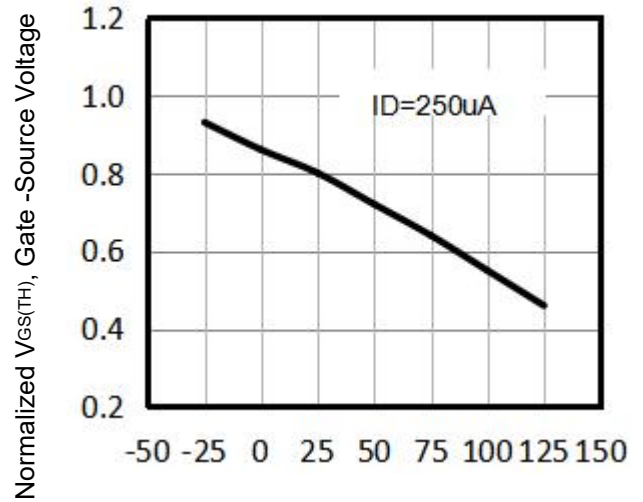


Fig2. Normalized Threshold Voltage Vs. Temperature

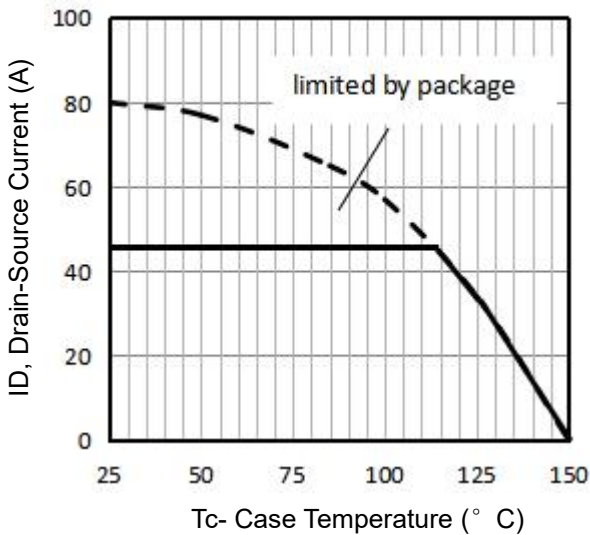


Fig3. Typical Transfer Characteristics

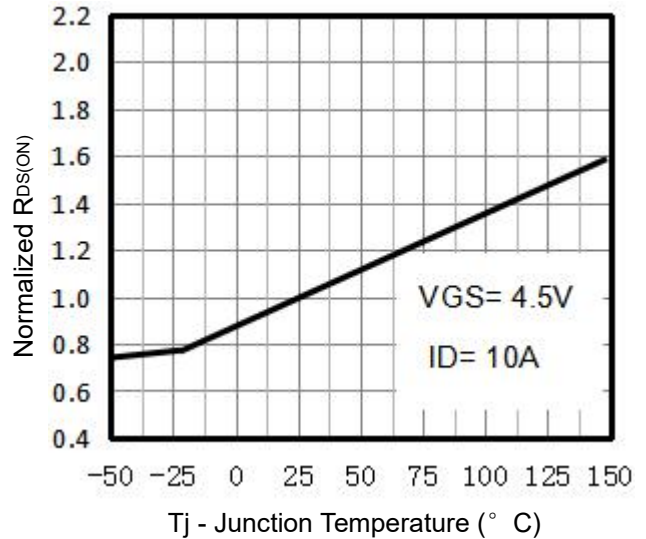


Fig4. Normalized Threshold Voltage Vs. Temperature

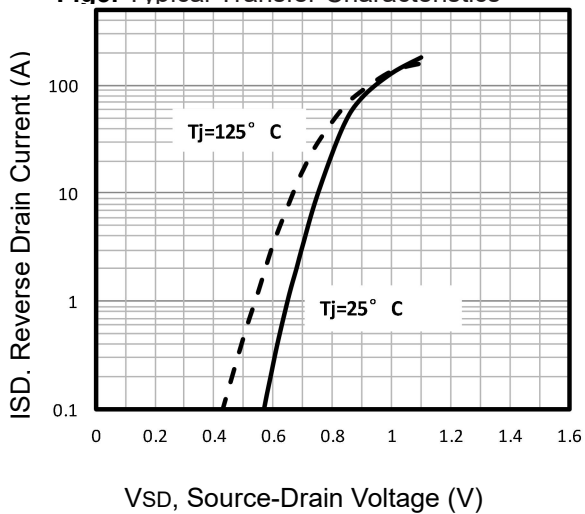


Fig5. Typical Source-Drain Diode Forward

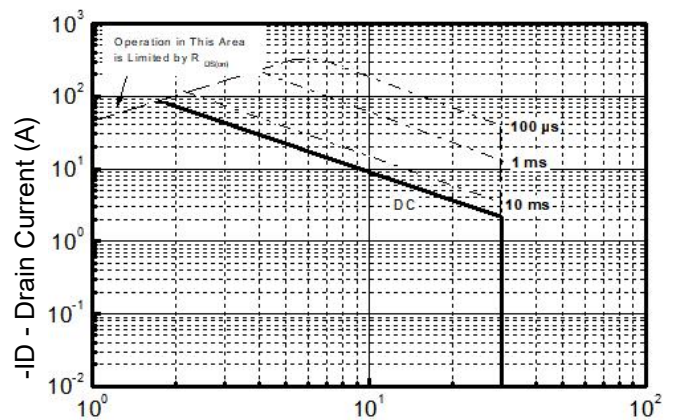


Fig6. Maximum Safe Operating Area

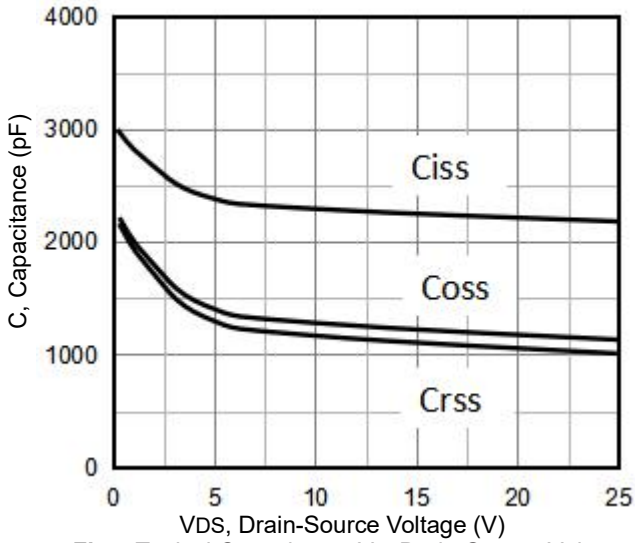


Fig7. Typical Capacitance Vs. Drain-Source Voltage

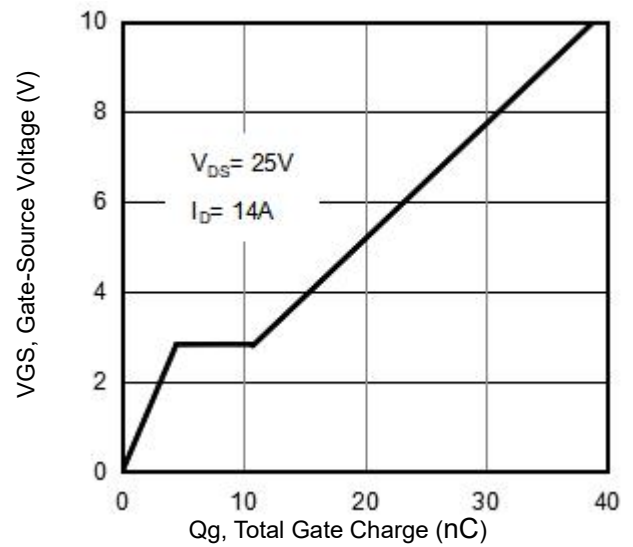


Fig8. Typical Gate Charge Vs. Gate-Source Voltage

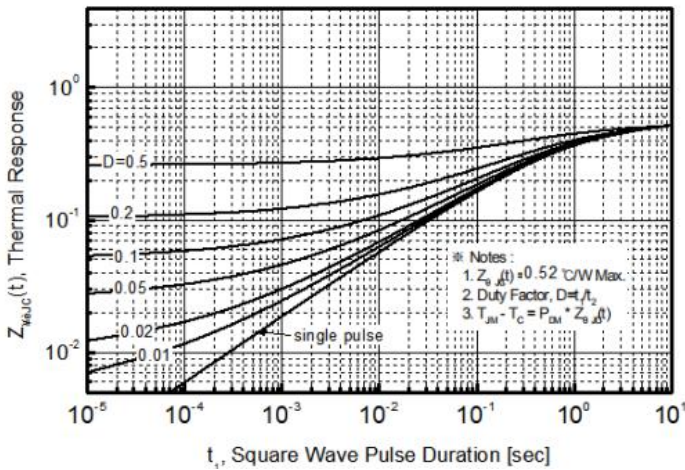


Fig9. Transient Thermal Response Curve

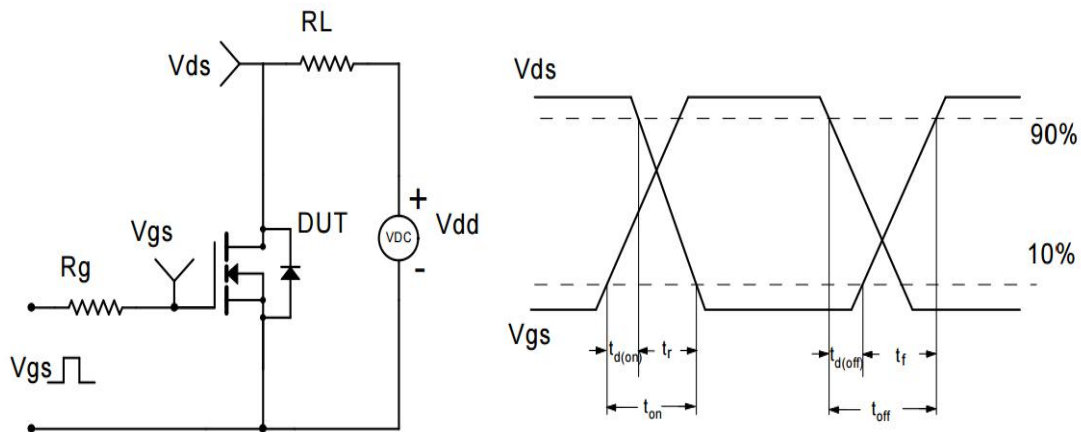


Fig10. Switching Time Test Circuit and waveforms

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