

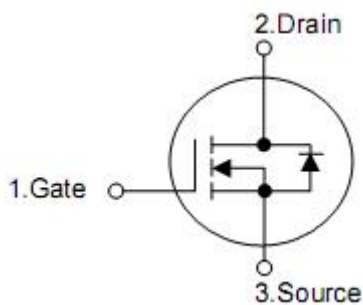
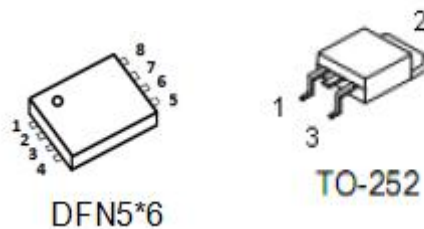
1. Features

KNX3403B 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

- 85A, 30V, $R_{DS(on)}$ typ. = $4.5m\Omega$ (typ.)@ $V_{GS} = 10 V$
- Low gate charge
- Low Crss
- Fast switching
- Improved dv/dt capability

3. Pin configuration



Pin DFN5*6	Pin TO-252	Function
4	1	Gate
5,6,7,8	2	Drain
1,2,3	3	Source

4. Ordering Information

Part Number	Package	Brand
KND3403B	TO-252	KIA
KNY3403B	DFN5*6	KIA

5. Absolute maximum ratings

($T_C = 25^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source Voltage	30	V
I_D	Drain Current -Continuous ($T_C = 25^\circ\text{C}$)	85	A
	-Continuous ($T_C = 100^\circ\text{C}$)	61	A
I_{DM}	Drain Current -Pulsed	340	A
V_{GSS}	Gate-Source Voltage	± 20	V
E_{AS}	Single Pulsed Avalanche Energy (Note 1)	156	mJ
P_D	Power Dissipation ($T_C = 25^\circ\text{C}$)	71	W
	-Derate above 25°C	0.47	W/ $^\circ\text{C}$
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

6. Thermal Characteristics

Symbol	Parameter	Value	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	2.1	$^\circ\text{C} / \text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	62	$^\circ\text{C} / \text{W}$

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 μA	30	--	--	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} = 30 V, V _{GS} = 0 V	--	--	1	μA
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 μA	0.8	1.3	2.5	V
R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} = 10 V, I _D = 20 A	--	4.5	5.5	mΩ
		V _{GS} = 4.5V, I _D = 15 A	--	5.5	7.2	mΩ
R _G	Gate Resistance	f = 1.0 MHz	--	5.0	--	Ω
Dynamic Characteristics						
C _{iss}	Input Capacitance	V _{DS} = 25 V, V _{GS} = 0 V, f = 1.0 MHz	--	2200	--	pF
C _{oss}	Output Capacitance		--	270	--	pF
Crss	Reverse Transfer Capacitance		--	205	--	pF
Switching Characteristics						
t _{d(on)}	Turn-On Delay Time	V _{DD} = 20 V, V _{GS} = 4.5V, I _D = 60 A, R _G = 1.8 Ω (Note 2,3)	--	11	--	ns
t _r	Turn-On Rise Time		--	87	--	ns
t _{d(off)}	Turn-Off Delay Time		--	140	--	ns
t _f	Turn-Off Fall Time		--	82	--	ns
Q _g	Total Gate Charge	V _{DD} = 24 V, I _D = 30A, V _{GS} = 10 V (Note 2,3)	--	47	--	nC
Q _{gs}	Gate-Source Charge		--	8.5	--	nC
Q _{gd}	Gate-Drain Charge		--	9.9	--	nC
Drain-Source Diode Characteristics and Maximum Ratings						
I _S	Continuous Source Current	Integral Reverse P-N Junction Diode in the MOSFET	--	--	85	A
I _{SM}	Pulsed Source Current		--	--	340	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 = 30 A, dI _F / dt = 100 A/μs (Note 2)	--	15	--	ns
Q _{rr}	Reverse Recovery Charge		--	7.0	--	μC

Notes:

1. L = 0.5mH, V_{DD} = 15V, V_{GS} = 10V, R_G = 25Ω, Starting T_J = 25°C
2. Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%
3. Essentially independent of operating temperature

8. Typical Characteristics

Figure 1. Output Characteristics

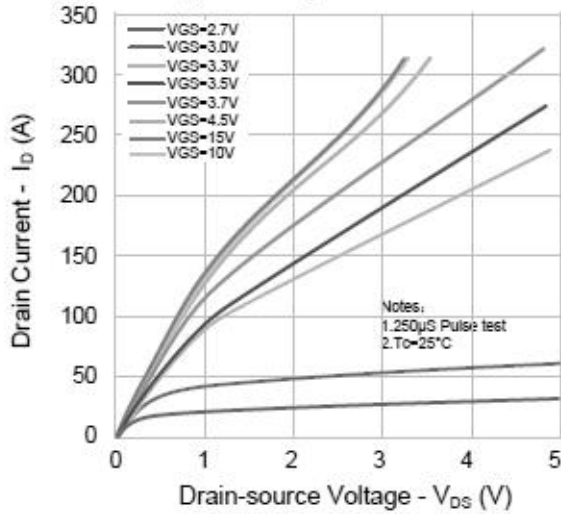


Figure 2. Transfer Characteristics

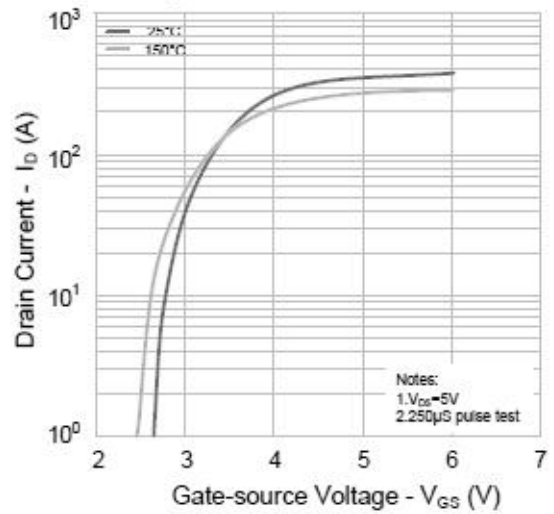


Figure 3. On-Resistance vs. Drain Current

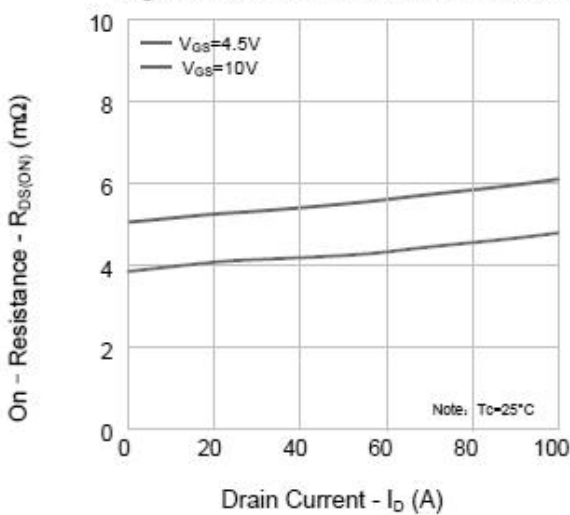


Figure 4. Body Diode Forward Voltage Variation vs. Source Current and Temperature

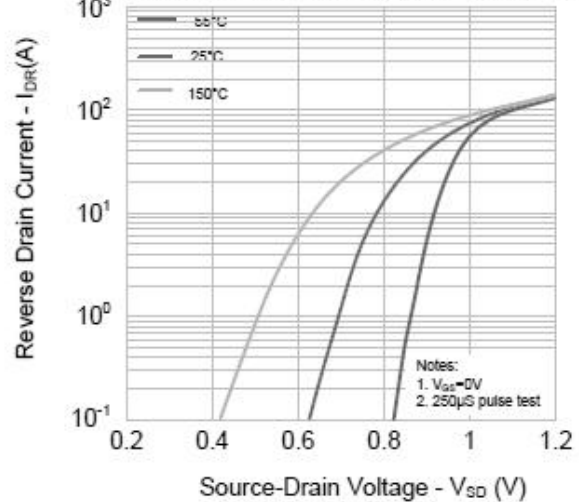


Figure 5. Capacitance Characteristics

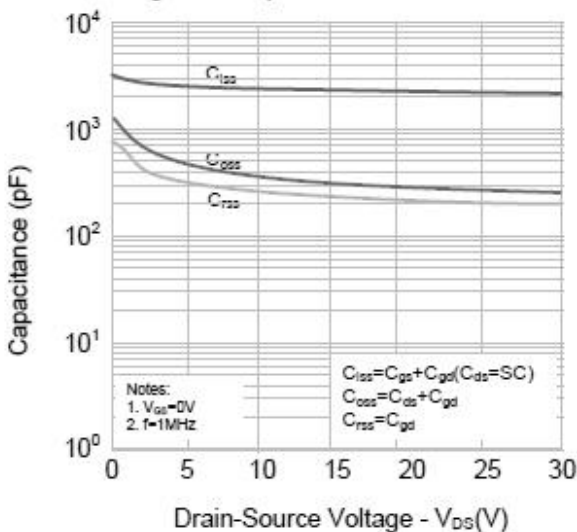


Figure 6. Gate Charge

