

1. Description

The KNX3302A uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching applications.

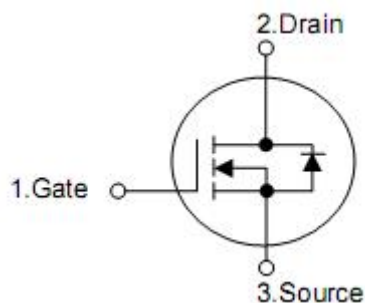
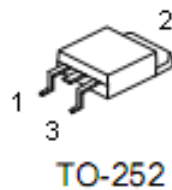
2. Features

- n $R_{DS(on)}=3.8m\Omega(\text{typ.}) @ V_{GS}=4.5V$
- n $V_{DS}=20V \quad I_D=85A$

3. Applications

- n Battery protection
- n Load switch
- n Uninterruptible power supply

4. Symbol



Pin	Function
1	Gate
2	Drain
3	Source

5. Ordering Information

Part Number	Package	Brand
KND3302A	TO-252	KIA

6. Absolute maximum ratings

Parameter	Symbol	Rating	Units
Drain-source voltage	V_{DS}	20	V
Gate-source voltage	V_{GS}	± 12	V
Continuous drain current, V_{GS} @10V	I_D	$T_C=25^\circ\text{C}$	85
		$T_C=100^\circ\text{C}$	59
Pulsed drain current	I_{DM}	340	A
Single pulse avalanche energy ^(Note5)	E_{AS}	338	mJ
Maximum power dissipation	P_D	87	W
Operation junction and temperature range	T_J, T_{STG}	-55 to150	$^\circ\text{C}$

7. Thermal characteristics

Parameter	Symbol	Typ	Max	Unit
Thermal resistance,Junction-case	$R_{\theta JC}$	--	1.43	$^\circ\text{C/W}$

8. Electrical characteristics

(T_A=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	20	-	-	V
Drain-source on-State resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =25A	-	3.8	5.5	mΩ
		V _{GS} =2.5V, I _D =20A	-	5.0	7.5	
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.4	0.65	1.1	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =16V, V _{GS} =0V	-	-	1	μA
Gate- Body Leakage current	I _{GSS}	V _{GS} =±12V, V _{DS} =0V	-	-	±100	nA
Forward transconductance	g _{fs}	V _{DS} =10V, I _D =20A	-	20	-	S
Total gate charge	Q _g	V _{DS} =10V, V _{GS} =10V I _D =20A	-	28	-	nC
Gate-source charge	Q _{gs}		-	6.5	-	
Gate-drain charge	Q _{gd}		-	6.4	-	
Turn-on delay time	t _{d(on)}	V _{DS} =10V, I _D =20A, R _G =3Ω, V _{GS} =4.5V	-	6.5	-	ns
Rise time	t _r		-	17.2	-	
Turn-off delay time	t _{d(off)}		-	29.5	-	
Fall time	t _f		-	16.7	-	
Input capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f=1MHz	-	3850	-	pF
Output capacitance	C _{oss}		-	500	-	
Reverse transfer capacitance	C _{rss}		-	480	-	
Diode Forward Current ^(Note2)	I _S		-	-	85	A
Diode Forward voltage ^(Note3)	V _{SD}	V _{GS} =0V, I _S =10A	-	-	1.3	V
Body diode reverse recovery time	t _{rr}	I _F =20A, T _J =25 °C dI/dt=100A/μs ^(Note3)	-	25	-	ns
Body diode reverse recovery charge	Q _{rr}		-	24	-	nC

Note:

- 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
5. E_{AS} condition : T_j=25 °C, V_{DD}=20V, V_{GS}=4.5V, L=0.5mH, I_d=26A

9. Test circuits

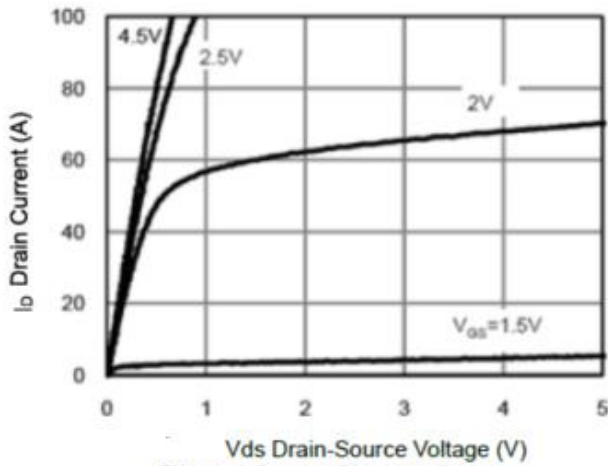


Figure 1 Output Characteristics

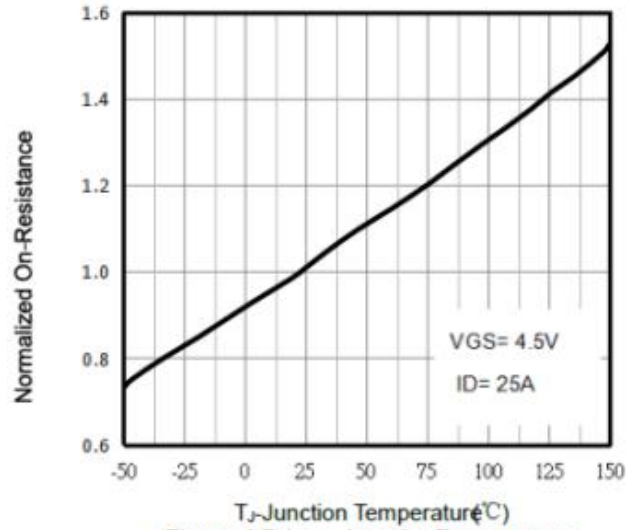


Figure 4 Rds(on)-Junction Temperature

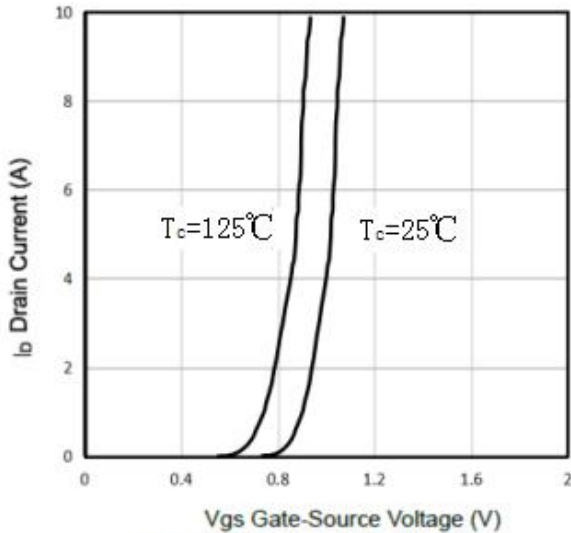


Figure 2 Transfer Characteristics

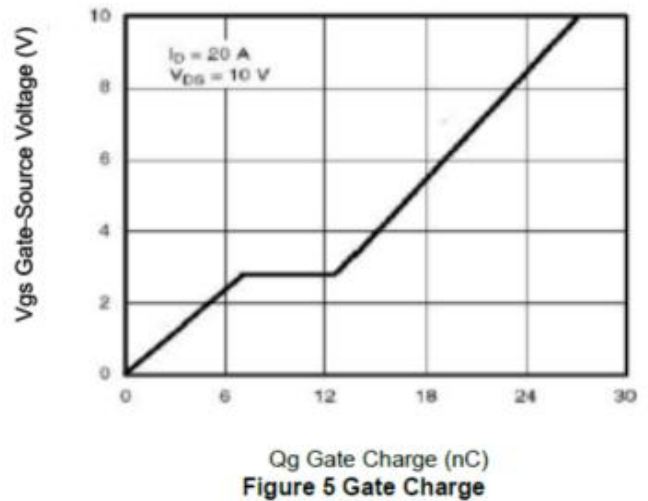


Figure 5 Gate Charge

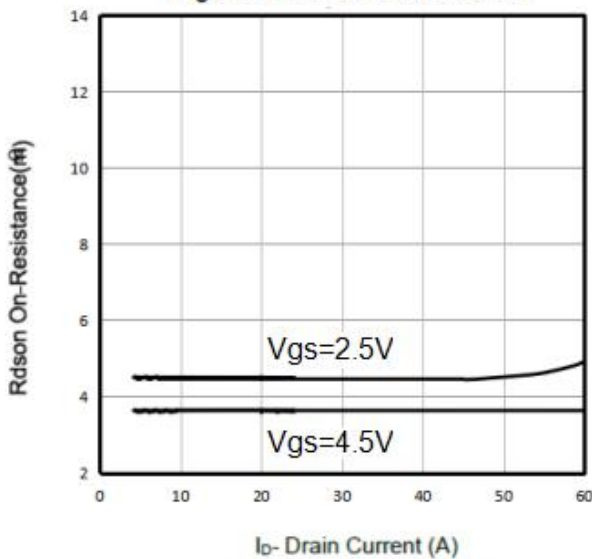


Figure 3 Rds(on)- Drain Current

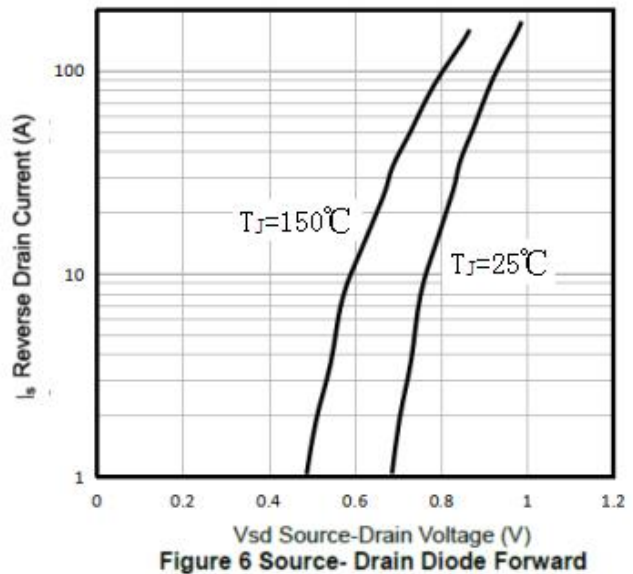


Figure 6 Source- Drain Diode Forward

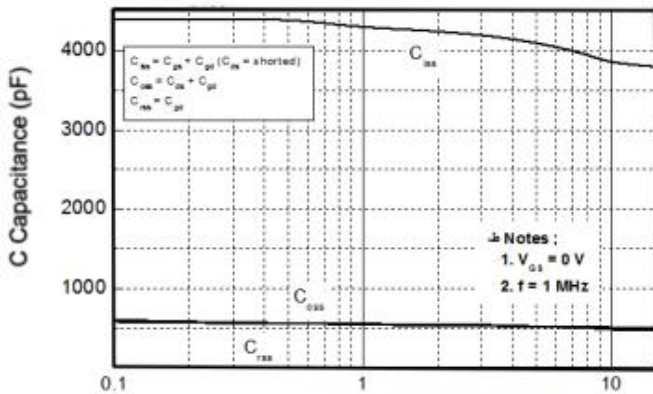


Figure 7 Capacitance vs Vds

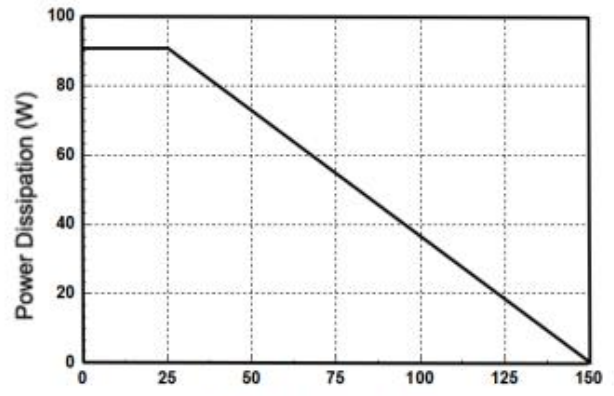


Figure 9 Power De-rating

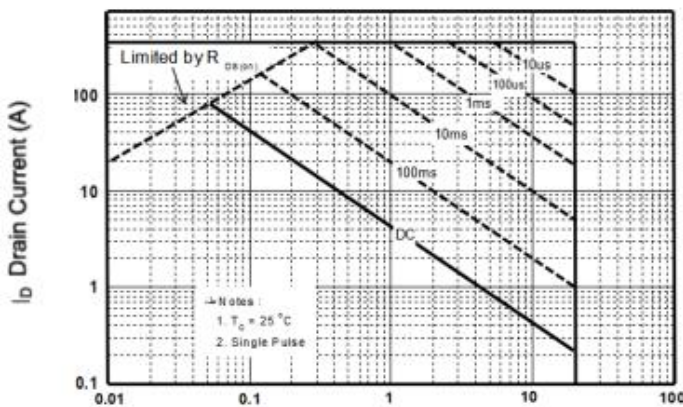


Figure 8 Safe Operation Area

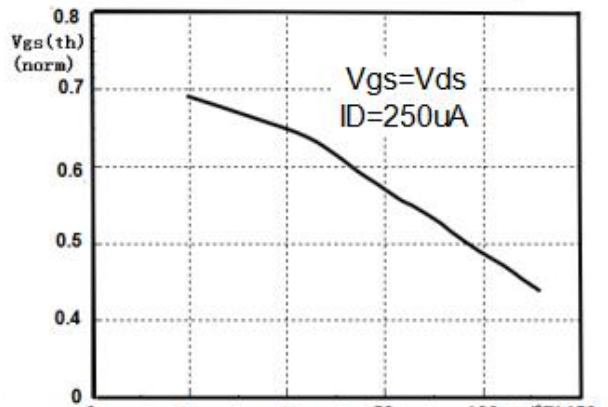


Figure 10 $V_{GS(th)}$ vs Junction Temperature

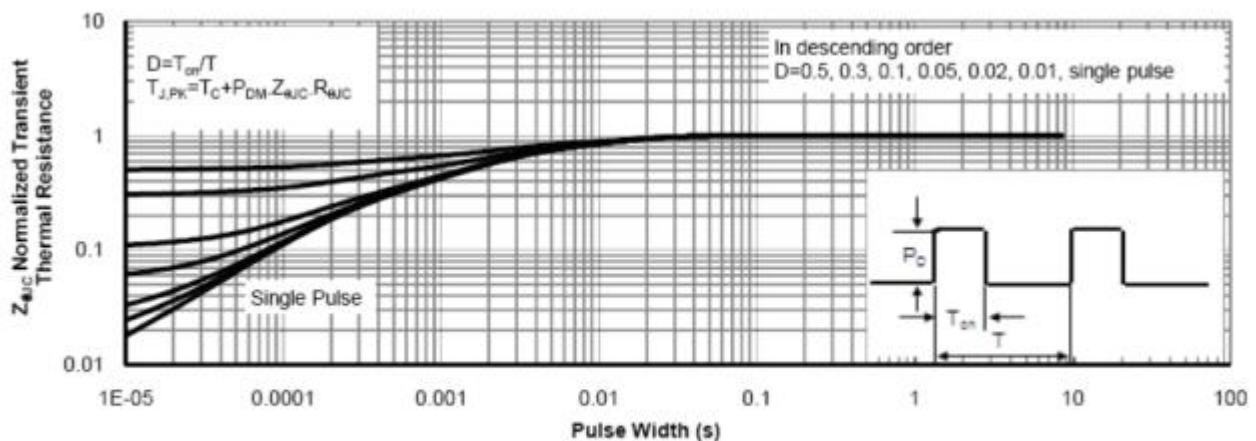


Figure 11 Normalized Maximum Transient Thermal Impedance

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [MOSFET](#) category:

Click to view products by [KIA](#) manufacturer:

Other Similar products are found below :

[614233C](#) [648584F](#) [MCH3443-TL-E](#) [MCH6422-TL-E](#) [FDPF9N50NZ](#) [FW216A-TL-2W](#) [FW231A-TL-E](#) [APT5010JVR](#) [NTNS3A92PZT5G](#)
[IRF100S201](#) [JANTX2N5237](#) [2SK2464-TL-E](#) [2SK3818-DL-E](#) [FCA20N60_F109](#) [FDZ595PZ](#) [STD6600NT4G](#) [FSS804-TL-E](#) [2SJ277-DL-E](#)
[2SK1691-DL-E](#) [2SK2545\(Q,T\)](#) [D2294UK](#) [405094E](#) [423220D](#) [MCH6646-TL-E](#) [TPCC8103,L1Q\(CM](#) [367-8430-0972-503](#) [VN1206L](#)
[424134F](#) [026935X](#) [051075F](#) [SBVS138LT1G](#) [614234A](#) [715780A](#) [NTNS3166NZT5G](#) [751625C](#) [873612G](#) [IRF7380TRHR](#)
[IPS70R2K0CEAKMA1](#) [RJK60S3DPP-E0#T2](#) [RJK60S5DPK-M0#T0](#) [APT5010JVFR](#) [APT12031JFLL](#) [APT12040JVR](#) [DMN3404LQ-7](#)
[NTE6400](#) [JANTX2N6796U](#) [JANTX2N6784U](#) [JANTXV2N5416U4](#) [SQM110N05-06L-GE3](#) [SIHF35N60E-GE3](#)