

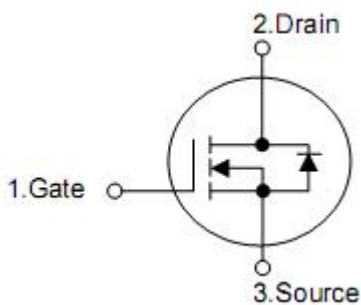
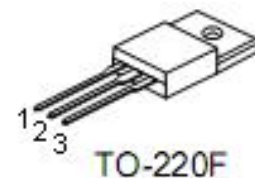
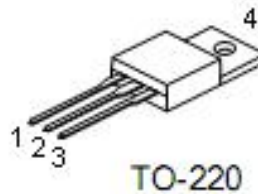
## 1. Product Features

- RoHS Compliant
- $R_{DS(ON),typ.}=9.6\Omega@V_{GS}=10V$
- Low Gate Charge Minimize Switching Loss
- Fast Recovery Body Diode

## 2. Applications

- Adaptor
- Charger
- SMPS Standby Power

## 3. Pin configuration



Pin	Function
1	Gate
2	Drain
3	Source
4	Drain

## 4. Ordering Information

Part Number	Package	Brand
KND41100A	TO-252	KIA
KNP41100A	TO-220	KIA
KNF41100A	TO-220F	KIA

## 5. Absolute maximum ratings

(T<sub>c</sub>= 25 °C , unless otherwise specified)

Symbol	Parameter	Ratings	Unit
V <sub>DSS</sub>	Drain-to-Source Voltage T <sub>J</sub> =25 °C	1000	V
V <sub>GSS</sub>	Gate-to-Source Voltage	±30	
I <sub>D</sub>	Continuous Drain Current @ T <sub>c</sub> =25 °C	2.0	A
I <sub>DM</sub>	Pulsed Drain Current at V <sub>GS</sub> =10V Limited by T <sub>Jmax</sub>	8.0	
E <sub>AS</sub>	Single Pulse Avalanche Energy(V <sub>DD</sub> =50V)	80	mJ
P <sub>D</sub>	Maximum Power Dissipation	60	W
T <sub>Jmax</sub>	Max. Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	

## 6. Thermal characteristics

Symbol	Parameter	Ratings	Unit
R <sub>θJC</sub>	Thermal Resistance, Junction-to-Case	2.08	°C /W
R <sub>θJA</sub>	Thermal Resistance, Junction-to-Ambient	75	

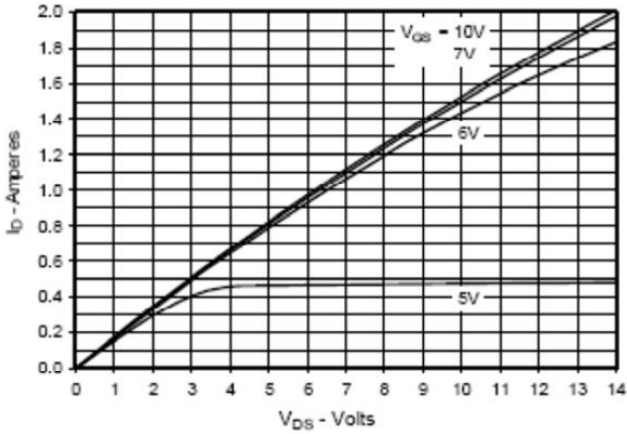
## 7. Electrical characteristics

(T<sub>J</sub>=25°C, unless otherwise specified)

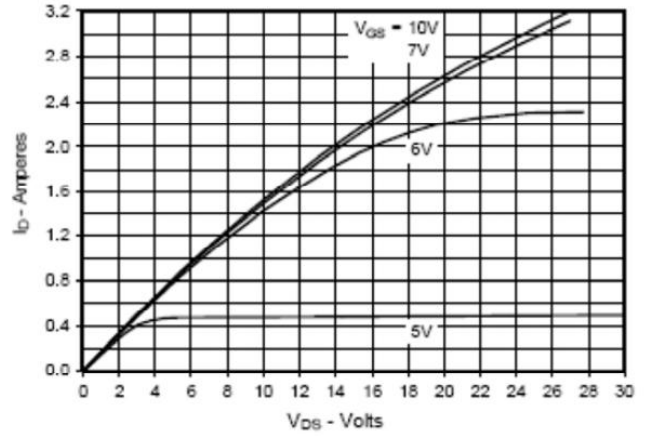
Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
BV <sub>DSS</sub>	Drain-to-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =250uA	1000	--	--	V
I <sub>DSS</sub>	Drain-to-Source Leakage Current	V <sub>DS</sub> =1000V, V <sub>GS</sub> =0V	--	--	1	uA
I <sub>GSS</sub>	Gate-to-Source Leakage Current	V <sub>GS</sub> =±30V, V <sub>DS</sub> =0V	-100	--	100	nA
R <sub>DS(ON)</sub>	Drain-to-Source ON Resistance	V <sub>GS</sub> =10V, I <sub>D</sub> =1.0A		9.6	12	Ω
V <sub>GS(TH)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250uA	2.0	--	4.0	V
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V, V <sub>DS</sub> =25V, f=1.0MHZ	--	370	--	pF
C <sub>rss</sub>	Reverse Transfer Capacitance		--	4.0	--	
C <sub>oss</sub>	Output Capacitance		--	40	--	
Q <sub>g</sub>	Total Gate Charge	V <sub>DD</sub> =500V, I <sub>D</sub> =2.0A, V <sub>GS</sub> =10V	--	15	--	nC
Q <sub>gs</sub>	Gate-to-Source Charge		--	2.1	--	
Q <sub>gd</sub>	Gate-to-Drain (Miller) Charge		--	6.0	--	
t <sub>d(ON)</sub>	Turn-on Delay Time	V <sub>DD</sub> =500V, I <sub>D</sub> =2.0A, R <sub>G</sub> =12Ω V <sub>GS</sub> = 10V (Resistive Load)	--	8.0	--	nS
t <sub>rise</sub>	Rise Time		--	6.0	--	
t <sub>d(OFF)</sub>	Turn-Off Delay Time		--	36	--	
t <sub>fall</sub>	Fall Time		--	15	--	
I <sub>SD</sub>	Continuous Source Current		--	--	2	A
V <sub>SD</sub>	Forward Voltage	I <sub>S</sub> =2.0A, V <sub>GS</sub> =0V	--	-	1.5	V
t <sub>rr</sub>	Reverse recovery time	V <sub>GS</sub> =0V, I <sub>F</sub> =2.0A, diF/dt=-100A/μs	--	320	--	ns
Q <sub>rr</sub>	Reverse recovery charge		--	1.0	--	uC

**8. Test circuits and waveforms**

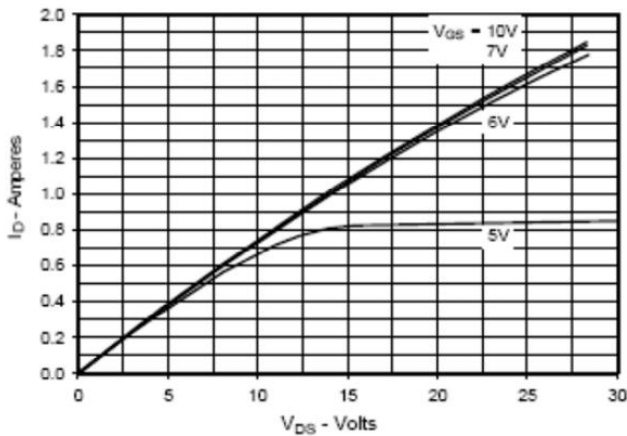
**Fig. 1. Output Characteristics @ 25°C**



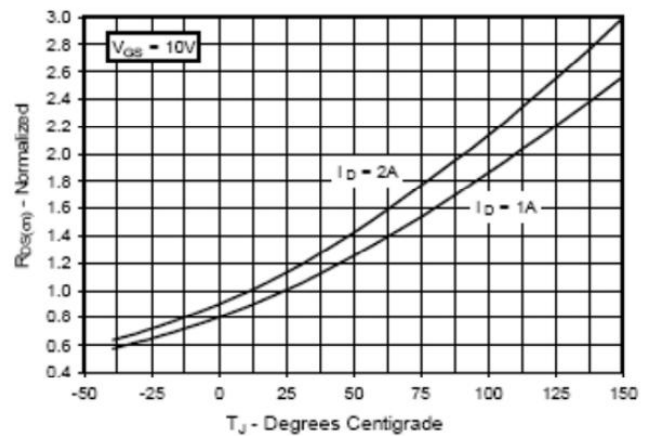
**Fig. 2. Extended Output Characteristics @ 25°C**



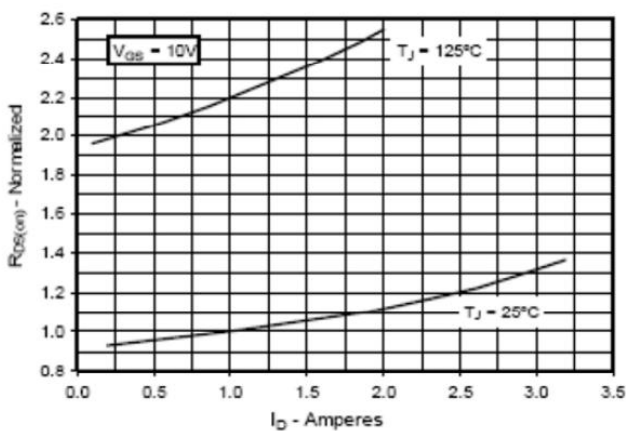
**Fig. 3. Output Characteristics @ 125°C**



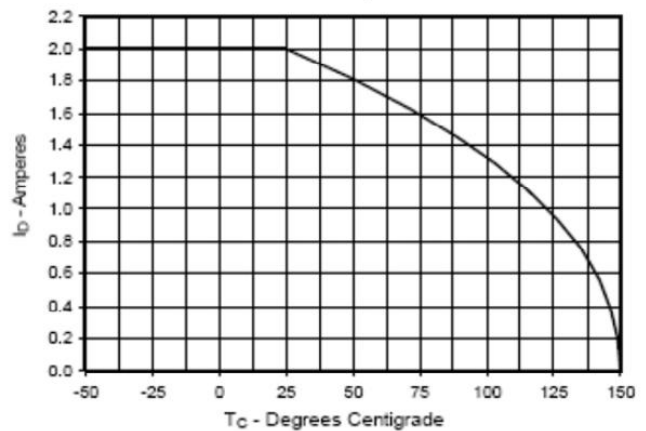
**Fig. 4.  $R_{DS(on)}$  Normalized to  $I_D = 1A$  Value vs. Junction Temperature**



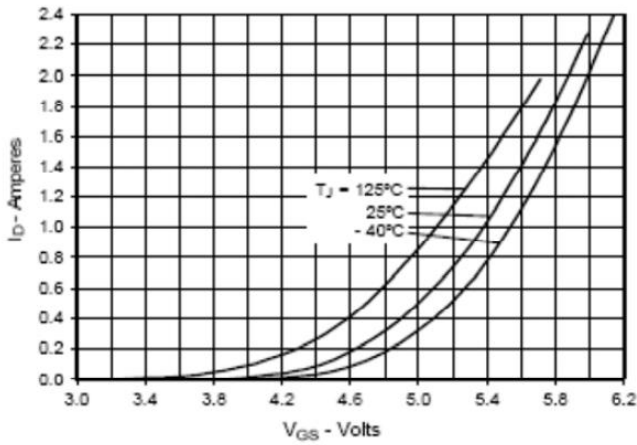
**Fig. 5.  $R_{DS(on)}$  Normalized to  $I_D = 1A$  Value vs. Drain Current**



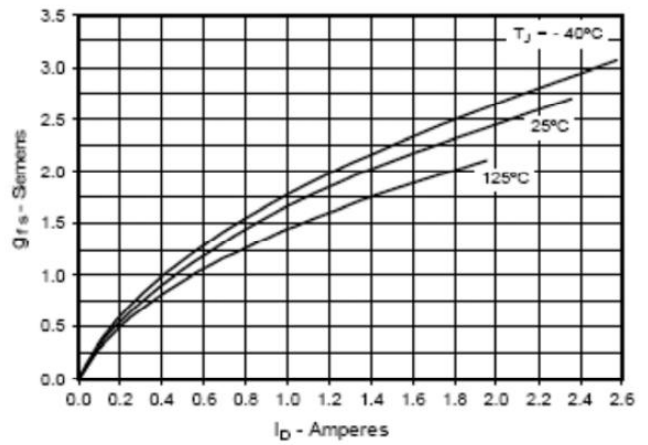
**Fig. 6. Maximum Drain Current vs. Case Temperature**



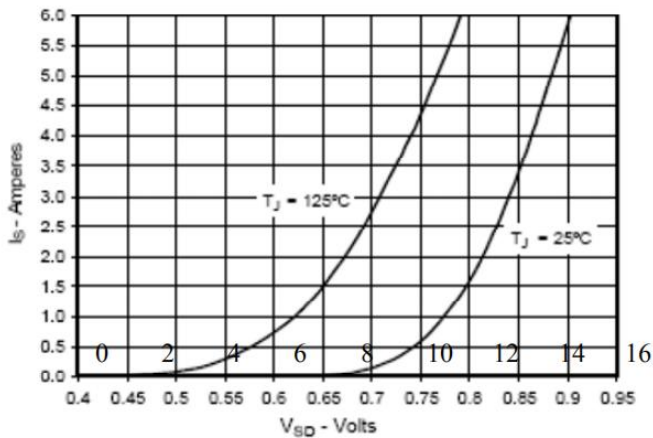
**Fig. 7. Input Admittance**



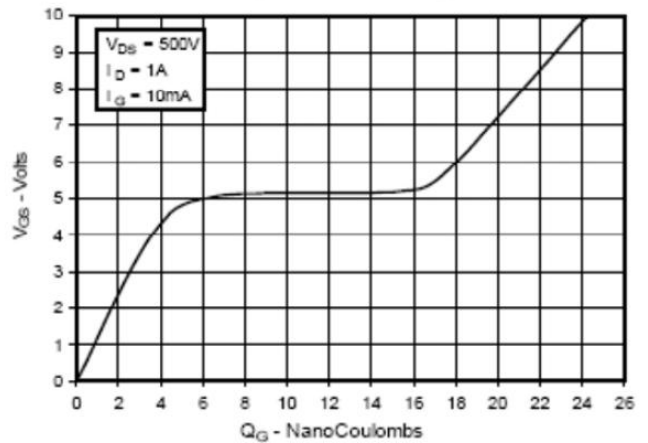
**Fig. 8. Transconductance**



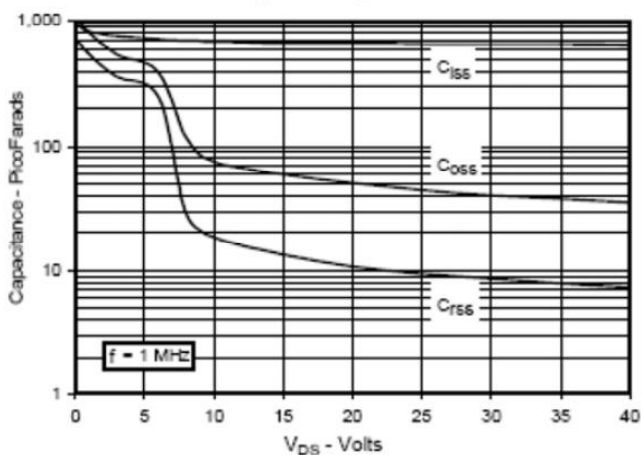
**Fig. 9. Forward Voltage Drop of Intrinsic Diode**



**Fig. 10. Gate Charge**



**Fig. 11. Capacitance**



**Fig. 12. Maximum Transient Thermal Impedance**

