

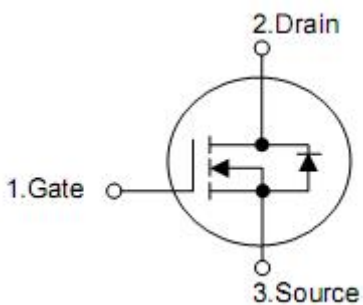
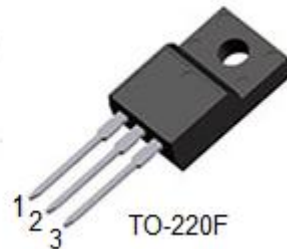
1. Features

- n RoHS Compliant
- n $R_{DS(ON),typ.}=2.0\Omega@V_{GS}=10V$
- n Low Gate Charge Minimize Switching Loss
- n Fast Recovery Body Diode

2. Applications

- n Adaptor
- n Charger
- n SMPS Standby Power

3. Pin configuration



Pin	Function
1	Gate
2	Drain
3	Source

4. Ordering Information

Part Number	Package	Brand
KND45100A	TO-252	KIA
KNP45100A	TO-220	KIA
KNF45100A	TO-220F	KIA

5. Absolute maximum ratings

(T_c= 25 °C , unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-to-Source Voltage T _J =25 °C	V _{DSS}	1000	V
Gate-to-Source Voltage	V _{GSS}	±30	
Continuous Drain Current @ T _c =25 °C	I _D	6.0	A
Pulsed Drain Current at V _{GS} =10V Limited by T _{Jmax}	I _{DM}	24	
Single Pulse Avalanche Energy(V _{DD} =50V)	EAS	500	mJ
Maximum Power Dissipation	P _D	65	W
Max. Junction Temperature	T _{Jmax}	150	°C
Storage Temperature Range	T _{STG}	-55 to 150	

6. Thermal characteristics

Parameter	Symbol	Ratings	Unit
Thermal Resistance, Junction-to-Case	R _{θJC}	1.92	°C /W
Thermal Resistance, Junction-to-Ambient	R _{θJA}	100	

7. Electrical characteristics

(T_J=25°C, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Drain-to-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =250uA	1000	--	--	V
Drain-to-Source Leakage Current	I _{DSS}	V _{DS} =1000V, V _{GS} =0V	--	--	1	uA
Gate-to-Source Leakage Current	I _{GSS}	V _{GS} =±30V, V _{DS} =0V	-100	--	100	nA
Drain-to-Source ON Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =3.0A		2.0	2.3	Ω
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250uA	3.0	--	5.0	V
Input Capacitance	C _{iSS}	V _{GS} =0V, V _{DS} =25V, f=1.0MHZ	--	1600	--	pF
Reverse Transfer Capacitance	C _{rSS}		--	20	--	
Output Capacitance	C _{oSS}		--	130	--	
Total Gate Charge	Q _g	V _{DD} =500V, I _D =3.0A, V _{GS} =10V	--	35	--	nC
Gate-to-Source Charge	Q _{gs}		--	10	--	
Gate-to-Drain (Miller) Charge	Q _{gd}		--	10	--	
Turn-on Delay Time	t _{d(ON)}	V _{DD} =500V, I _D =3.0A, R _G =4.7Ω V _{GS} = 10V (Resistive Load)	--	22	--	nS
Rise Time	t _{rise}		--	45	--	
Turn-Off Delay Time	t _{d(OFF)}		--	45	--	
Fall Time	t _{fall}		--	50	--	
Continuous Source Current	I _{SD}		--	--	6	A
Forward Voltage	V _{SD}	I _S =6.0A, V _{GS} =0V	--	-	1.5	V
Reverse recovery time	t _{rr}	V _{GS} =0V, I _F =6.0A, diF/dt=-100A/μs	--	220	--	ns
Reverse recovery charge	Q _{rr}		--	1.0	--	uC

8. Test circuits and waveforms

Figure 1. Maximum Transient Thermal Impedance

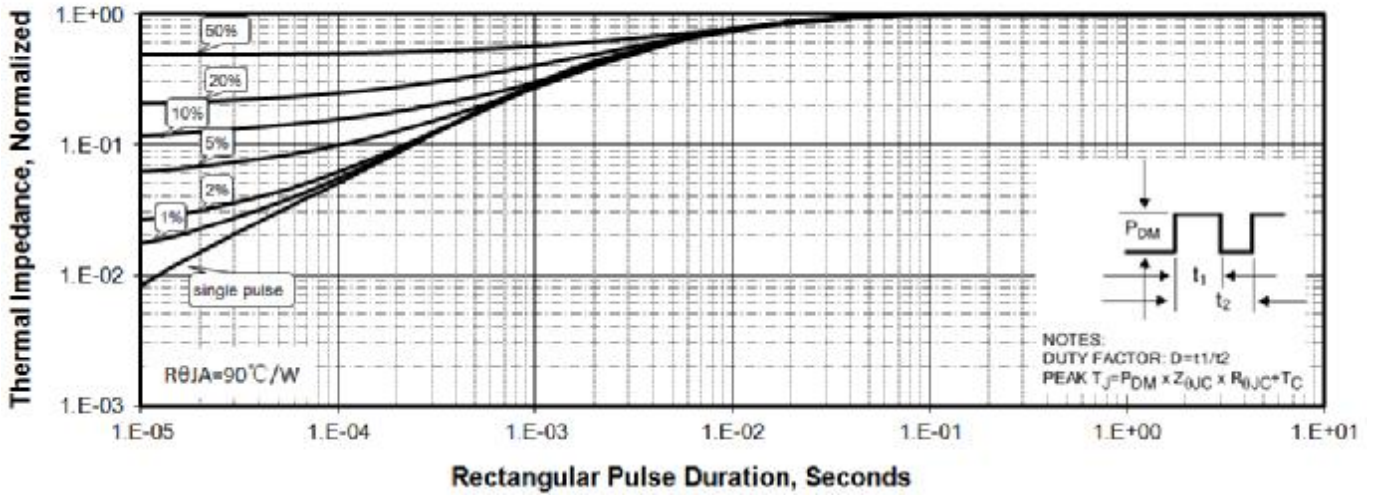


Figure 2 . Max. Power Dissipation vs Case Temperature

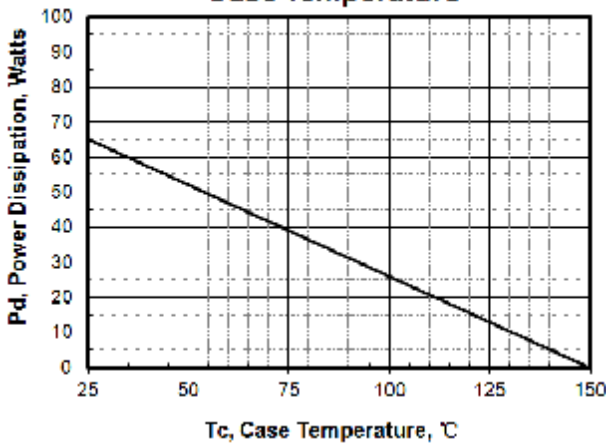


Figure 3 .Maximum Continuous Drain Current vs Tc

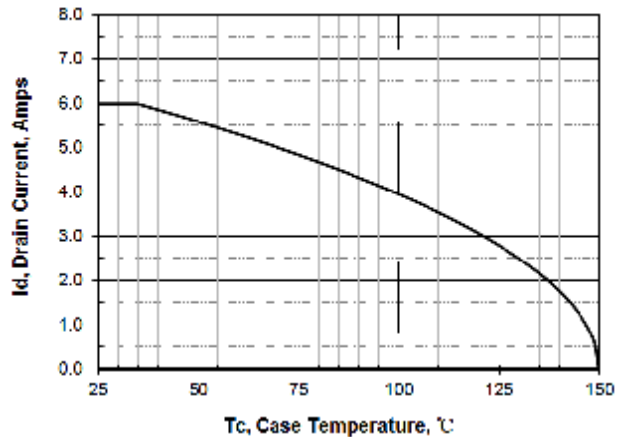


Figure 4. Output Characteristics

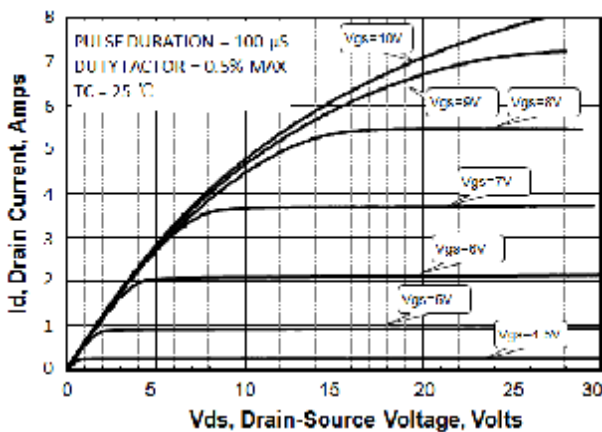


Figure 5. Rdson vs Gate Voltage

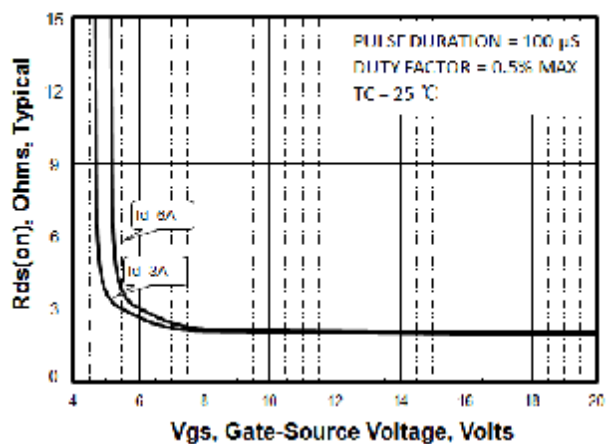


Figure 6. Peak Current Capability

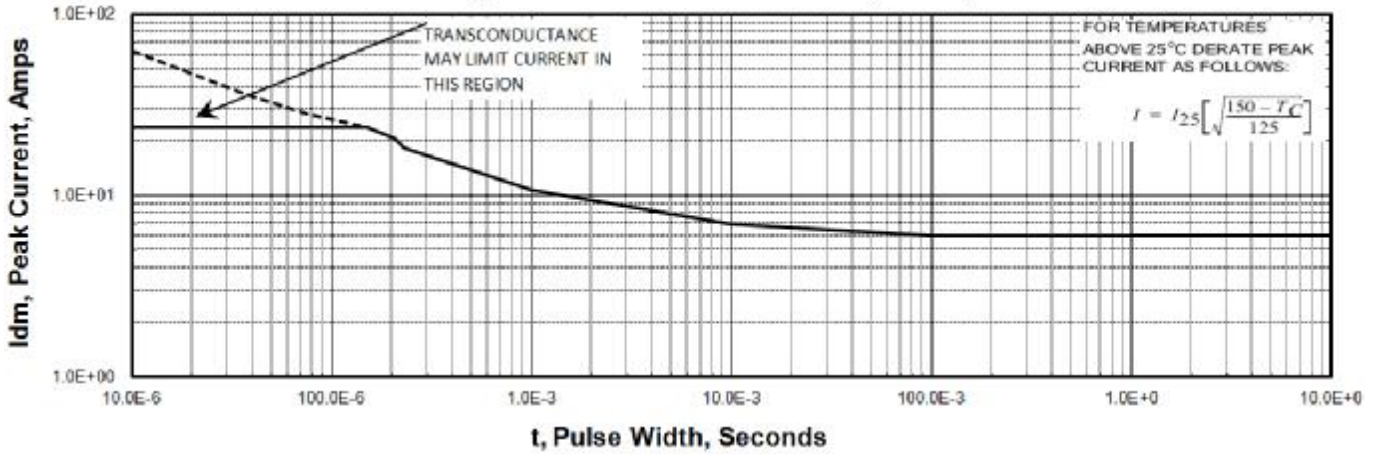


Figure 7. Transfer Characteristics

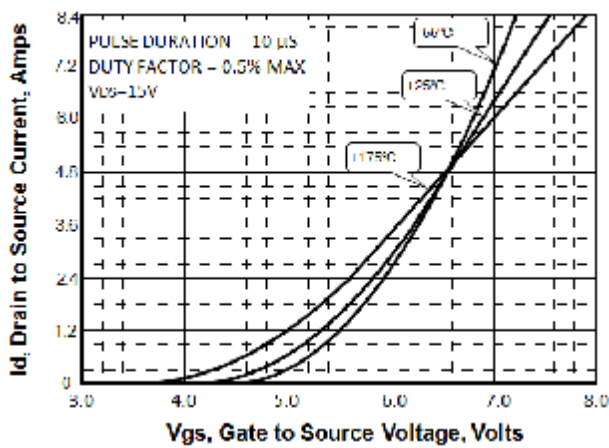


Figure 8. Unclamped Inductive Switching Capability

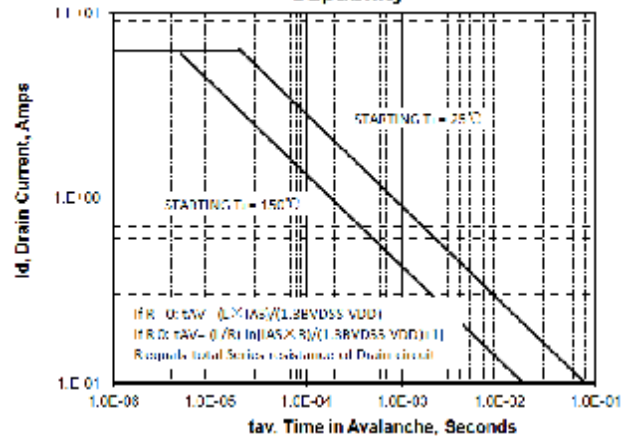


Figure 9. Drain to Source ON Resistance vs Drain Current

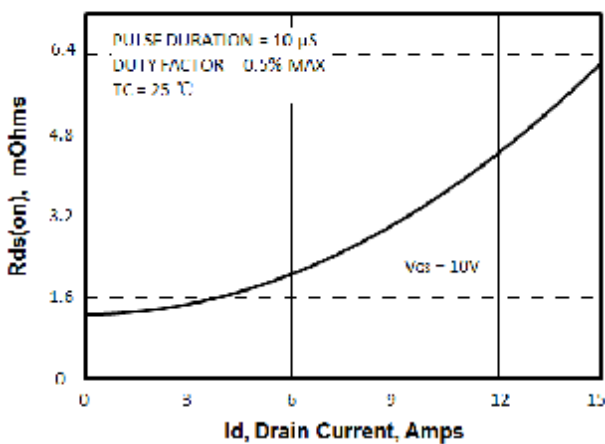


Figure 10. Rds(on) vs Junction Temperature

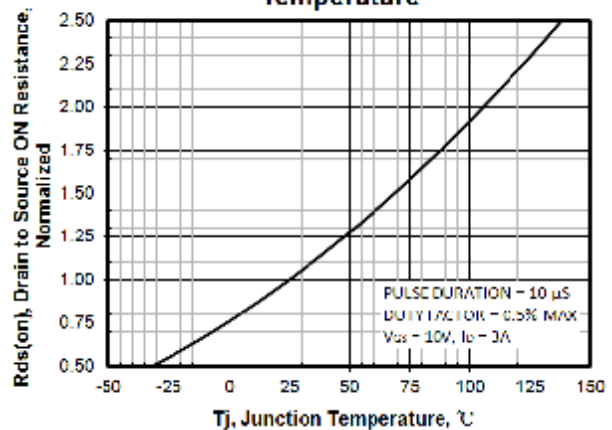


Figure 11. Breakdown Voltage vs Temperature

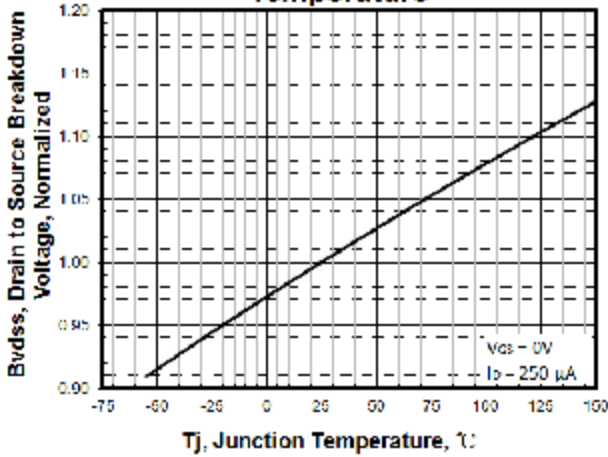


Figure 12. Threshold Voltage vs Temperature

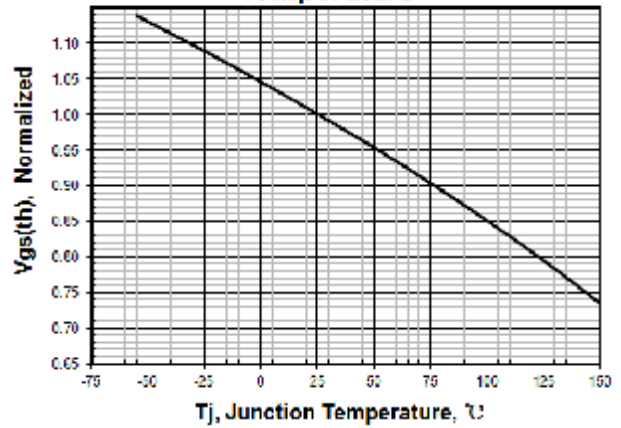


Figure 13. Maximum Safe Operating Area (TO-220F)

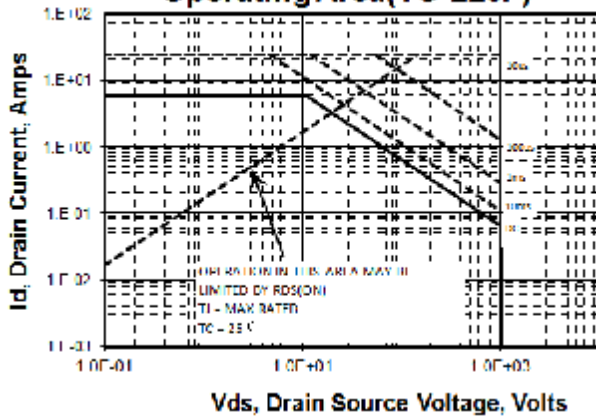


Figure 14. Capacitance vs Vds

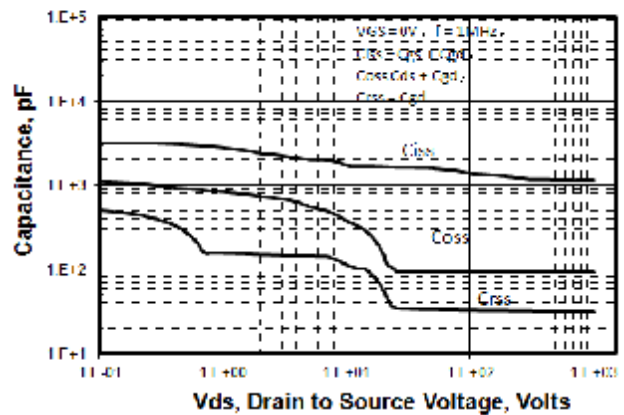


Figure 15. Typical Gate Charge

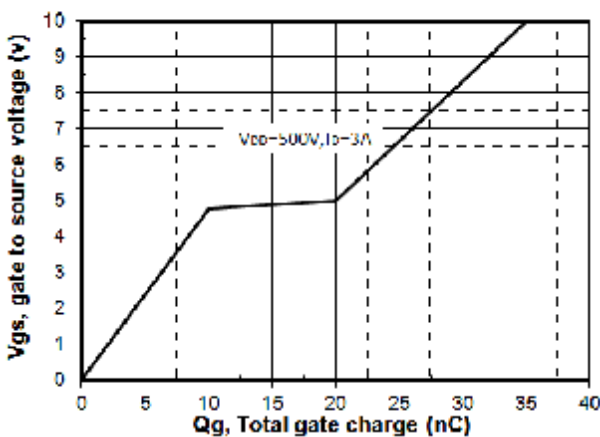


Figure 16. Body Diode Transfer Characteristics

