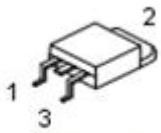
1. Features

- $R_{DS(on)}$=4.5mΩ@ V_{GS}=10V
- Lead free and Green Device Available
- Low Rds-on to Minimize Conductive Loss
- High avalanche Current

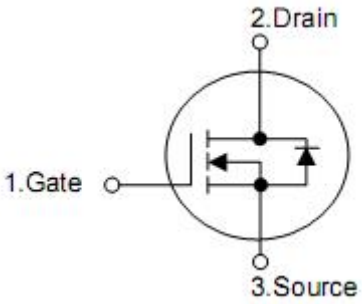
2. Application

- Load Switch
- SMPS

3. Pin configuration



TO-252



Pin	Function
1	Gate
2	Drain
3	Source

4. Ordering Information

Part Number	Package	Brand
KND3403A	TO-252	KIA

5. Absolute maximum ratings

TC=25 ºC unless otherwise specified

Parameter		Symbol	Ratings	Unit
Drain-to-Source Voltage		V_{DSS}	30	V
Gate-to-Source Voltage		V_{GSS}	±20	
Continuous Drain Current	T_C=25 ºC(Silicon limited)	I_D Vgs=10V	85	A
	T_C=100 ºC(Silicon limited)		61	
	T_C=25 ºC(Package limited)		50	
	T_C=25 ºC(Silicon limited)	I_D Vgs=4.5V	76	
	T_C=100 ºC(Silicon limited)		54	
	T_C=25 ºC(Package limited)		50	
Pulsed Drain Current Tested	T_C=25 ºC(Sillicon Limit)	I_{DM}	340	
Avalanche Current (L=0.5mH)		I_{AS}	25	A
Avalanche Energy (L=0.5mH)		E_{AS}	156	mJ
Maximum power Dissipation	T_C=25 ºC	P_D	71	W
	T_C=100 ºC		35	
Junction & Storage Temperature Range		T_J& T_{STG}	-55 to 175	ºC

6. Thermal characteristics

Parameter	Symbol	Ratings	Units
Thermal resistance, junction-ambient	$R_{\theta JA}$	2.1	ºC/W
Thermal resistance, Junction-case	$R_{\theta JC}$	106	

7. Electrical characteristics

(T_J=25°C,unless otherwise notes)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static characteristics						
Drain-source breakdown voltage	BV_{DSS}	V_{GS}=0V,I_D=250μA	30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V , V_{GS}=0V	-	-	1	μA
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	0.8	-	2.0	V
Gate leakage current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
Drain-source on-resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=30A	-	4.5	5.5	mΩ
		V_{GS}=4.5V,I_D=30A	-	5.5	7	
Forward Transconductance	gfs	V_{DS}=5V,I_D=90A	-	74	-	S
Dynamic characteristics						
Gate Resistance	R_G	V_{GS}=0V,V_{DS}=0V Frequency=1MHz	-	2.0	-	Ω
Input capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V, F=1MHz	-	3000	-	pF
Output capacitance	C_{oss}		-	330	-	pF
Reverse transfer capacitance	C_{rss}		-	285	-	pF
Turn-on delay time	$t_{d(on)}$	V_{DS}=15V,I_D=1A, V_{GS}=4.5V,R_G=3Ω	-	20	-	ns
Rise time	t_r		-	32	-	ns
Turn-off delay time	$t_{d(off)}$		-	60	-	ns
Fall time	t_f		-	33	-	ns
Gate Charge Characteristics						
Total gate charge	Q_g	V_{DS}=25V,I_D=14A , V_{GS}=4.5V	-	25	-	nC
Gate-source charge	Q_{gs}		-	3.2	-	nC
Gate-drain charge	Q_{gd}		-	12	-	nC
Diode characteristics						
Diode forward voltage	V_{SD}	V_{GS}=0V,I_{SD}=25A	-	0.82	1.3	V
Drain Continuous Forward current	I_S		-	-	50	A
Reverse recovery time	t_{rr}	IS=20A di/dt=100A/μs	-	14	-	ns
Reverse recovery charge	Q_{rr}		-	2.8	-	μC

8. Typical Characteristics

Figure 1. Typ. Output Characteristics

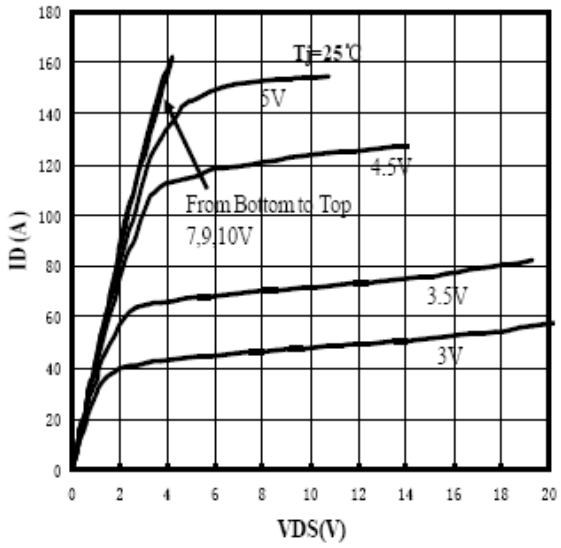


Figure 2. Typ. Output Characteristics

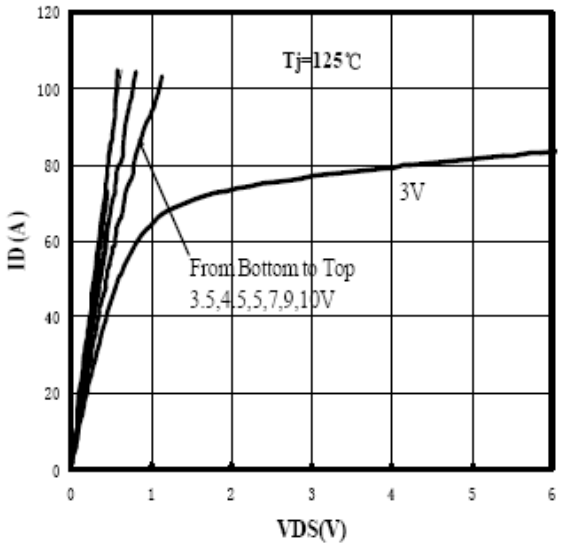


Figure 3. Transfer Characteristics

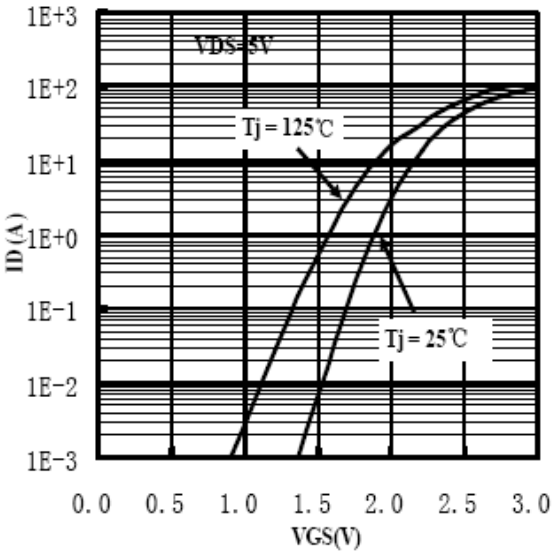


Figure 4. Gate Threshold Voltage Characteristics

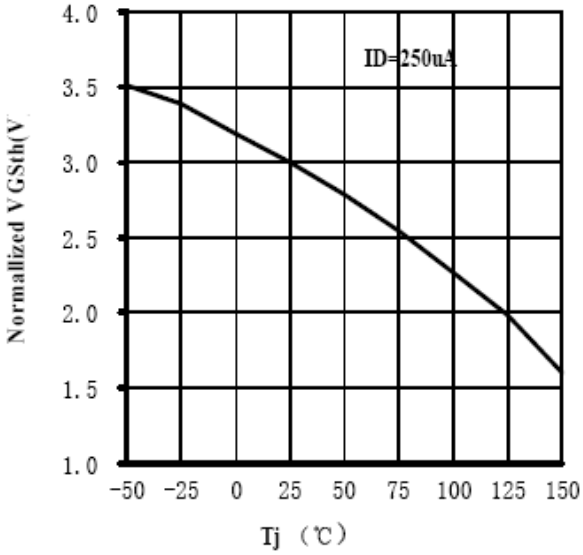


Figure 5. Rdson vs. Drain Current Characteristics

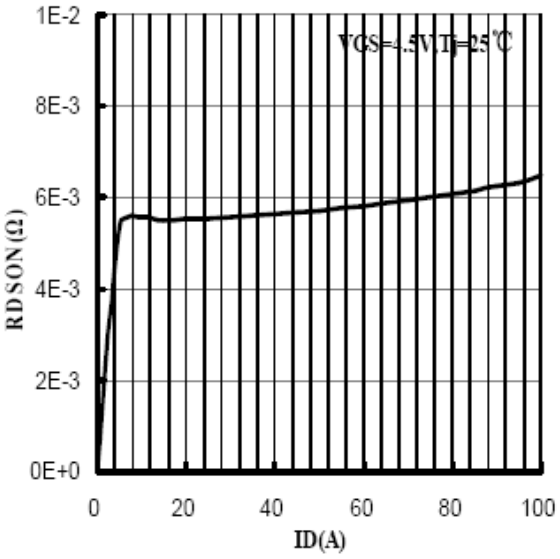


Figure 6. Rdson vs. Junction Tem Characteristics

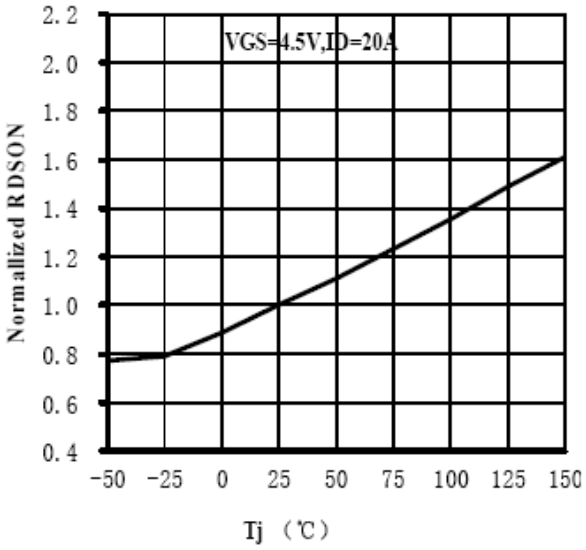


Figure 7. Rdson vs. VGS Characteristics

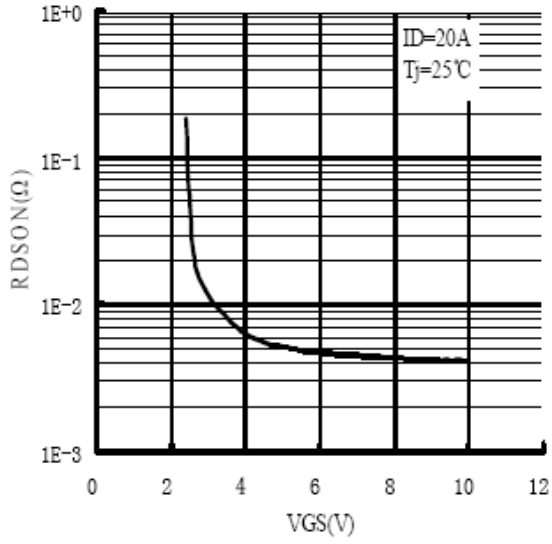


Figure 8. IS vs. VSD Characteristics

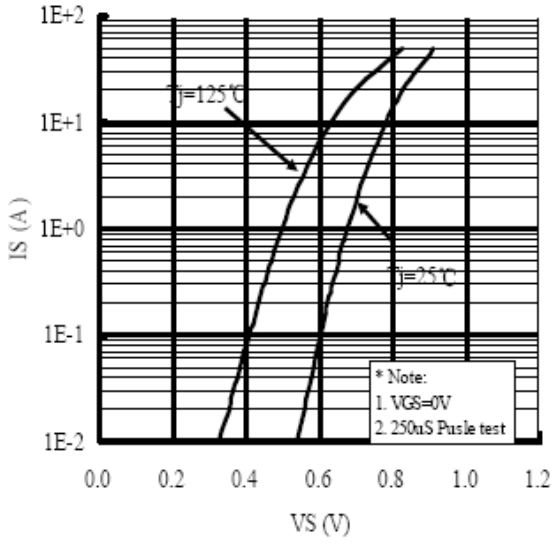


Figure 9. Gate Charge Characteristics

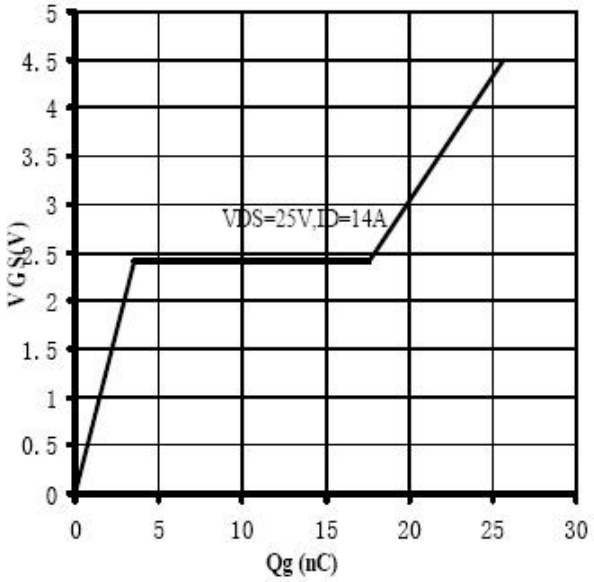


Figure 10. Capacitance Characteristics

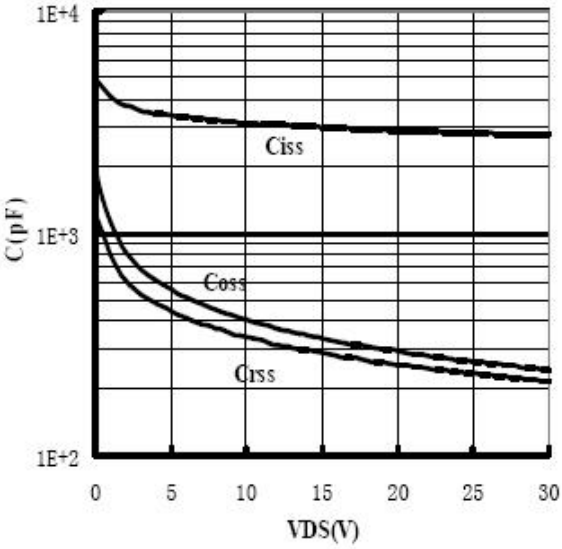
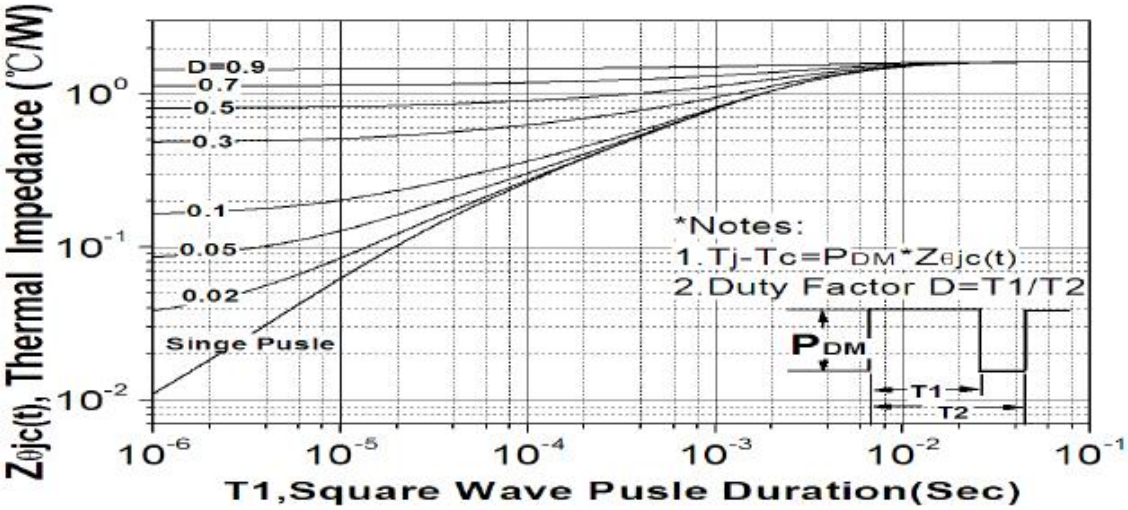
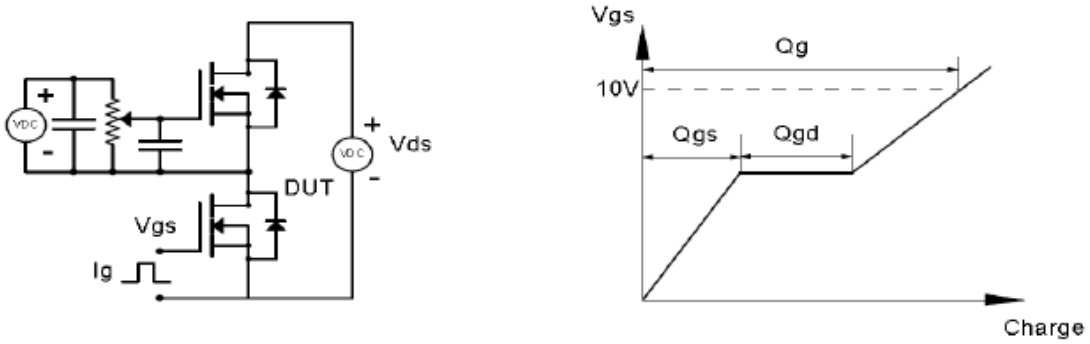


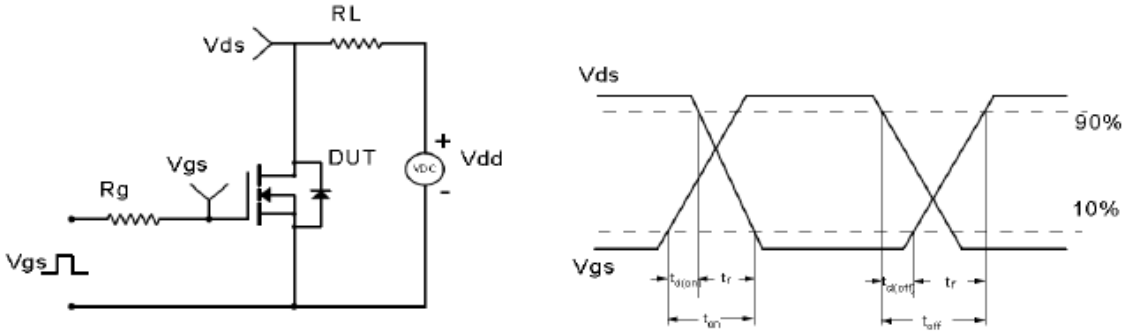
Figure 11. Thermal Resistance Characteristics



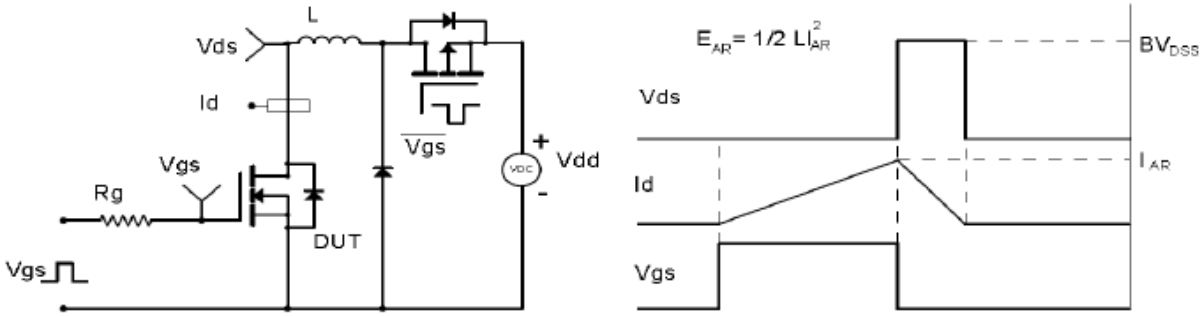
Gate Charge Test Circuit & Waveform



Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms



Diode Recovery Test Circuit & Waveforms