

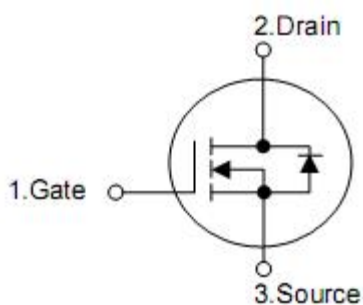
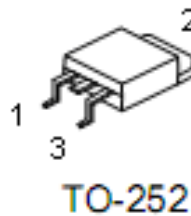
1. Features

- n RDS(ON)= 6.5mΩ(typ.)@ VGS=10V
- n Lead free and Green Device Available
- n Low Rds-on to Minimize Conductive Loss
- n High avalanche Current

2. Application

- n Power Supply
- n DC-DC Converters

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
KND3406A	TO-252	KIA
KNY3406A	DFN5*6	KIA

5. Absolute maximum ratings

(T_C= 25°C , unless otherwise specified)

Parameter	Symbol	Rating		Units
		DFN5*6	TO-252	
Drain-source voltage	V _{DSS}	60		V
Gate-source voltage	V _{GSS}	±25		V
Continuous Drain Current	I _D ³	80*		A
		60*		
Pulsed Drain Current	I _{DP} ⁴	280		
Avalanche Current	I _{AS} ⁵	20		
Avalanche Energy	E _{AS} ⁵	225		mJ
Maximum Power Dissipation	P _D	40	84.5	W
		19.4	41	
Junction & Storage Temperature Range	T _L , T _{STG}	-55~+150		°C

*Drain current limited by maximum junction temperature.

6. Thermal characteristics

Symbol	Parameter	Typical		Unit
		DFN5*6	TO-252	
R _{θJC}	Thermal Resistance, Junction-to-Case	0.32	1.48	°C /W
R _{θJA}	Thermal Resistance, Junction-to-Ambient	-	62.5	

7. Electrical characteristics

(T_J=25°C, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =250μA	60	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =48V, V _{GS} =0V T _J =125 °C	-	-	1	μA
			-	-	100	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±25V, V _{DS} =0V	-	-	±100	nA
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.6	3.0	V
Drain-source on resistance	R _{DS(on)}	V _{GS} =10V, I _D =30A	-	6.5	8.5	mΩ
Diode Characteristics						
Diode Forward Voltage	V _{SD} ¹	V _{GS} =0V, I _{SD} =20A	-	0.85	1.3	V
Diode Continuous Forwardcurrent	I _S ³		-	-	80	A
Reverse recovery time	t _{rr}	I _F =30A, di/dt=100A/μs	-	33	-	ns
Reverse recovery charge	Q _{rr}		-	61	-	nC
Dynamic Characteristics ²						
Gate Repacitance	R _G	V _{GS} =0V, V _{DS} =0A Frequency=1MHz	-	2.0	-	Ω
Input capacitance	C _{iSS}	V _{DS} =25V, V _{GS} =0V, f=1MHz	-	6050	-	pF
Output capacitance	C _{oss}		-	170	-	
Reverse transfer capacitance	C _{rSS}		-	100	-	
Turn-on delay time	t _{d(on)}	V _{DD} =30V, I _D =30A, R _G =6.8Ω, V _{GS} =10V	-	14	-	ns
Rise time	t _r		-	13	-	
Turn-off delay time	t _{d(off)}		-	20	-	
Fall time	t _f		-	7.5	-	
Gate Charge Characteristics ²						
Total gate charge	Q _g	V _{DS} =30V, I _D =30A, V _{GS} =10V,	-	104	-	nC
Gate-source charge	Q _{gs}		-	16	-	
Gate-drain charge	Q _{gd}		-	22	-	

Note:

1: Pulse test; pulse width ≦ 300us, duty cycle ≦ 2%.

2: Guaranteed by design, not subject to production testing.

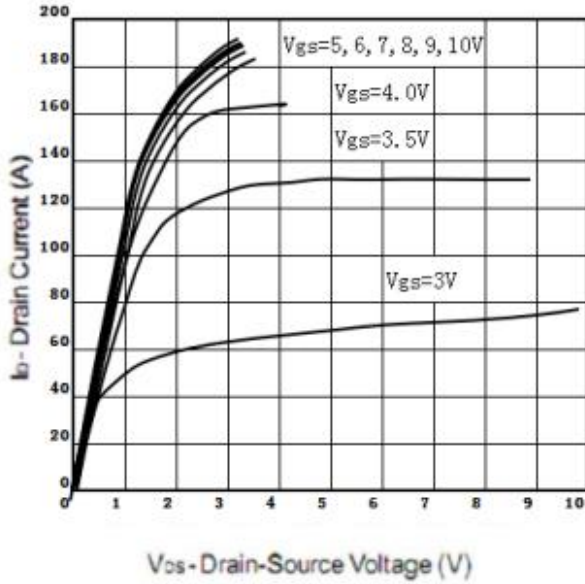
3: Calculated continuous current based on maximum allowable junction temperature. Package limitation current is 55A.

4: Repetitive rating, pulse width limited by max junction temperature.

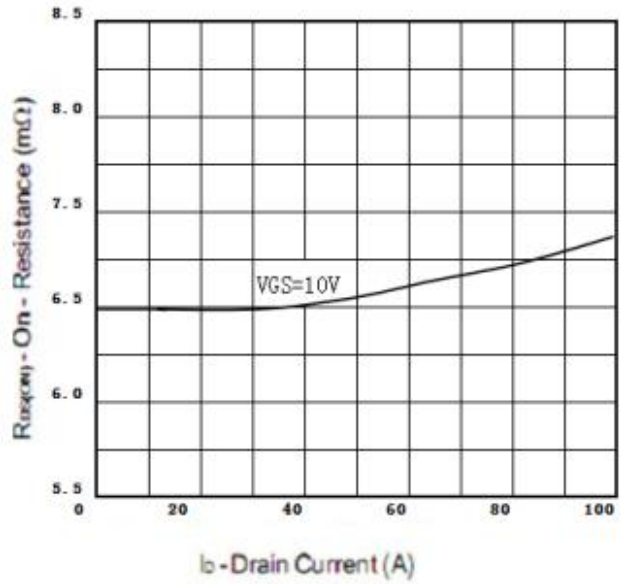
5: Starting T_J=25 °C, L=0.5mH, I_{AS}=30A.

8. Typical Characteristics

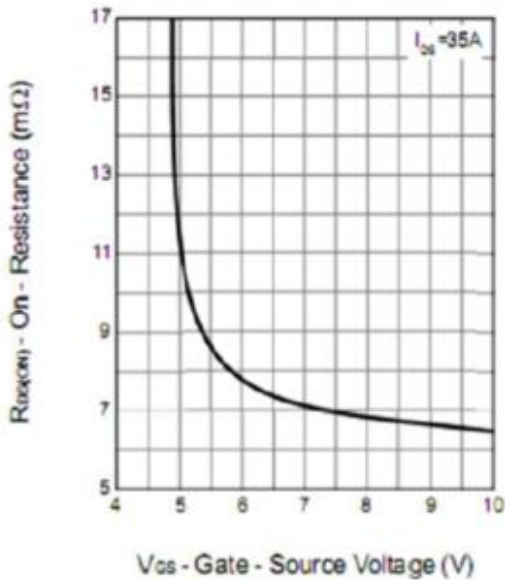
Output Characteristics



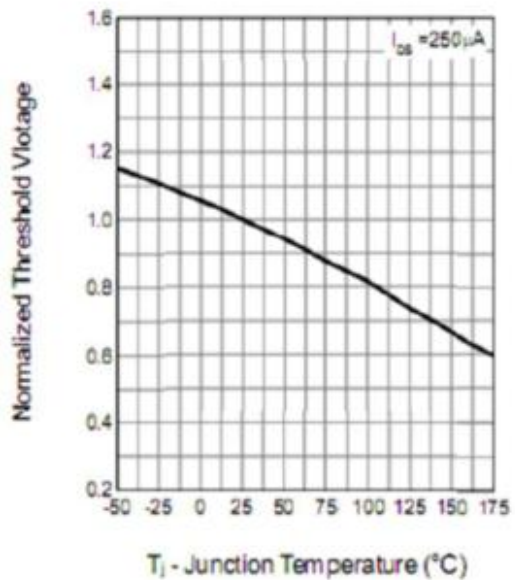
Drain-Source On Resistance



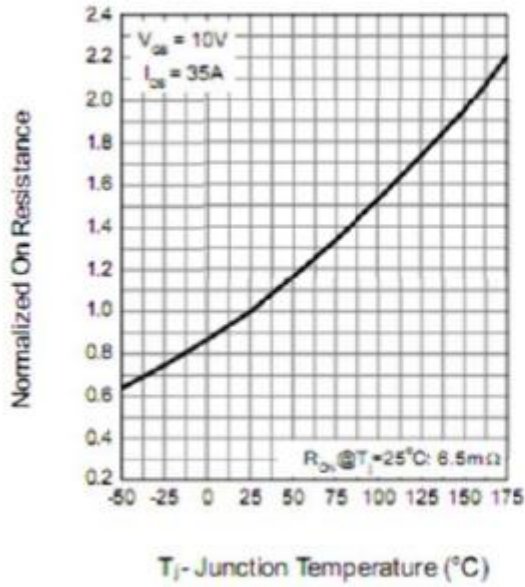
Drain-Source On Resistance



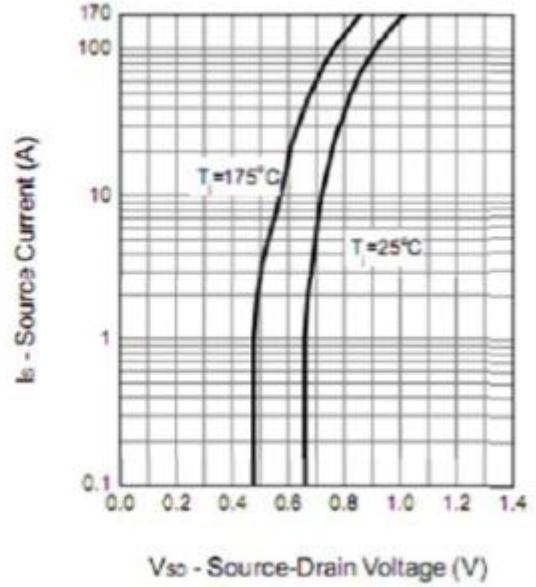
Gate Threshold Voltage



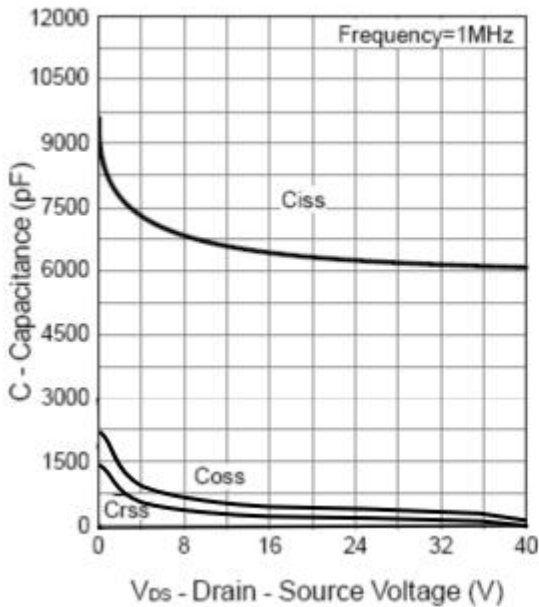
Drain-Source On Resistance



Source-Drain Diode Forward



Capacitance



Gate Charge

