

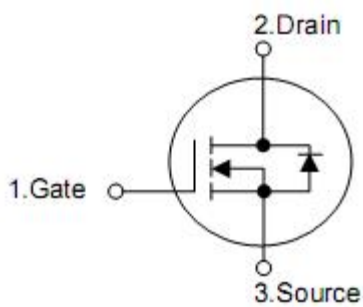
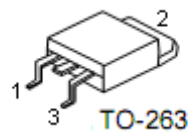
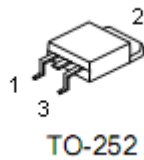
## 1. Features

- n RDS(ON)= 7mΩ 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	Function
1	Gate
2	Drain
3	Source

#### 4. Ordering Information

Part Number	Package	Brand
KND3306B	TO-252	KIA
KNB3306B	TO-263	KIA

#### 5. Absolute maximum ratings

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

Parameter	Symbol	Rating		Units	
		TO-252	TO-263		
Drain-source voltage	V <sub>DSS</sub>	68		V	
Gate-source voltage	V <sub>GSS</sub>	±25		V	
Continuous Drain Current	I <sub>D</sub> <sup>3</sup>	T <sub>C</sub> =25 °C	80*	80	A
		T <sub>C</sub> =100 °C	60*	60	
Pulsed Drain Current	I <sub>DP</sub> <sup>4</sup>	280			
Avalanche Current	I <sub>AS</sub> <sup>5</sup>	20			
Avalanche Energy	E <sub>AS</sub> <sup>5</sup>	400		mJ	
Maximum Power Dissipation	P <sub>D</sub>	T <sub>C</sub> =25 °C	84.5	156	W
		T <sub>C</sub> =100 °C	41	80	
Junction & Storage Temperature Range	T <sub>L</sub> , T <sub>STG</sub>	-55~+150		°C	

\*Drain current limited by maximum junction temperature.

#### 6. Thermal characteristics

Symbol	Parameter	Typical		Unit
		TO-252	TO-263	
R <sub>θJC</sub>	Thermal Resistance, Junction-to-Case	1.48	0.8	°C /W
R <sub>θJA</sub>	Thermal Resistance, Junction-to-Ambient	62.5		

## 7. Electrical characteristics

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	68	-	-	V
Zero gate voltage drain current	I <sub>DSS</sub>	V <sub>DS</sub> =48V, V <sub>GS</sub> =0V T <sub>J</sub> =125 °C			1	μA
					100	μA
Gate-body leakage current	I <sub>GSS</sub>	V <sub>GS</sub> =±25V, V <sub>DS</sub> =0V			±100	nA
Gate threshold voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	2	3	4	V
Drain-source on resistance	R <sub>DS(on)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =40A (TO-263)		7	8.0	mΩ
		V <sub>GS</sub> =10V, I <sub>D</sub> =40A (TO-252)		7.5	8.5	mΩ
Diode Characteristics						
Diode Forward Voltage	V <sub>SD</sub> <sup>1</sup>	V <sub>GS</sub> =0V, I <sub>SD</sub> =20A		0.85	1.3	V
Diode Continuous Forwardcurrent	I <sub>S</sub> <sup>3</sup>				80	A
Reverse recovery time	t <sub>rr</sub>	I <sub>F</sub> =30A, di/dt=100A/μs		33		ns
Reverse recovery charge	Q <sub>rr</sub>			61		nC
Dynamic Characteristics <sup>2</sup>						
Gate Repacitance	R <sub>G</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =0A Frequency=1MHz		1.2		Ω
Input capacitance	C <sub>iss</sub>	V <sub>DS</sub> =25V, V <sub>GS</sub> =0V, f=1MHz		3080		pF
Output capacitance	C <sub>oss</sub>			400		
Reverse transfer capacitance	C <sub>rss</sub>			195		
Turn-on delay time	t <sub>d(on)</sub>	V <sub>DD</sub> =30V, I <sub>D</sub> =30A, R <sub>G</sub> =6.8Ω, V <sub>GS</sub> =10V		14		ns
Rise time	t <sub>r</sub>			13		
Turn-off delay time	t <sub>d(off)</sub>			20		
Fall time	t <sub>f</sub>			7.5		
Gate Charge Characteristics <sup>2</sup>						
Total gate charge	Q <sub>g</sub>	V <sub>DS</sub> =30V, I <sub>D</sub> =30A, V <sub>GS</sub> =10V,		104		nC
Gate-source charge	Q <sub>gs</sub>			16		
Gate-drain charge	Q <sub>gd</sub>			22		

Note:

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

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

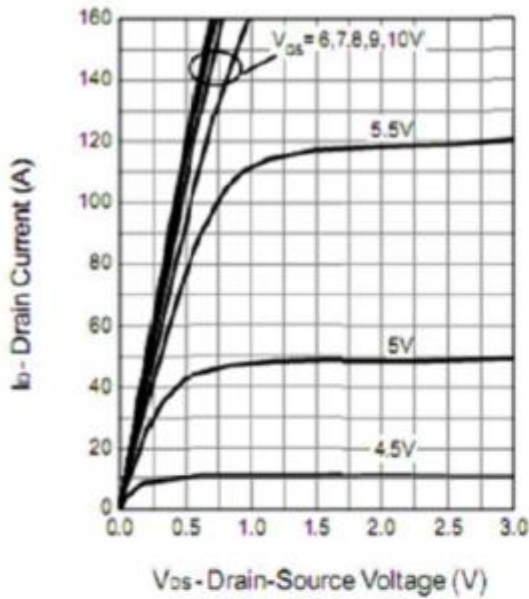
3: Calculated continuous current based on maximum allowable junction temperature. Package limitation current is 55A.

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

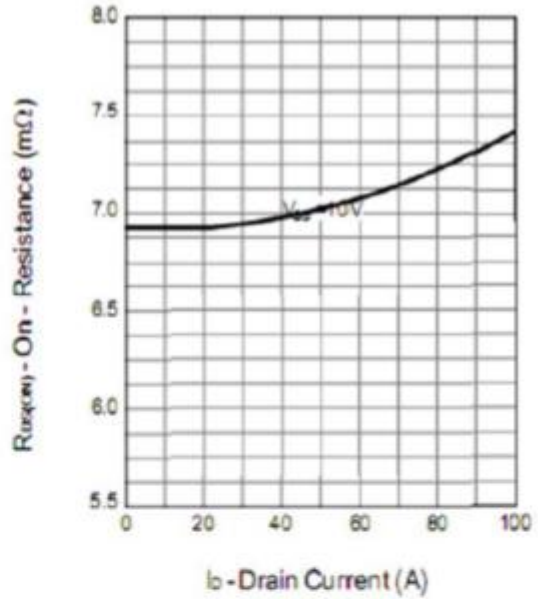
5: Starting T<sub>J</sub>=25 °C, L=0.5mH, I<sub>AS</sub>=40A.

**8. Typical Characteristics**

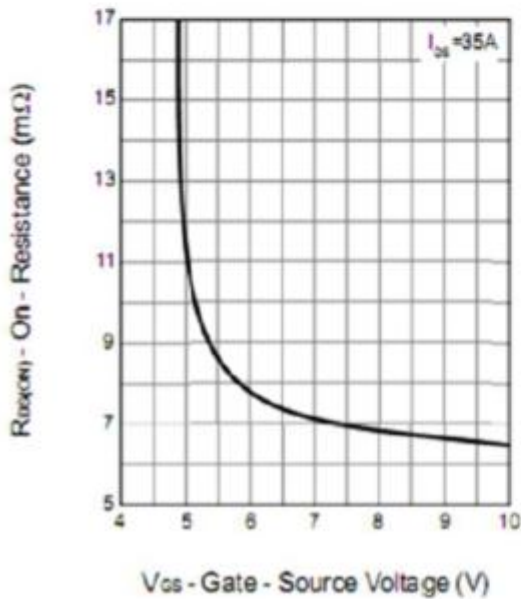
**Output Characteristics**



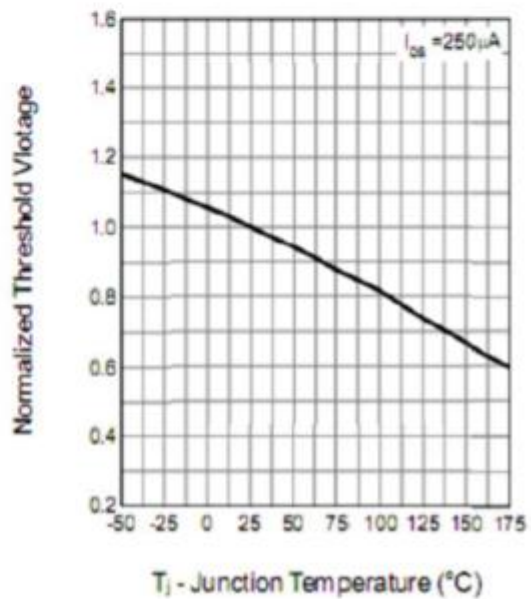
**Drain-Source On Resistance**



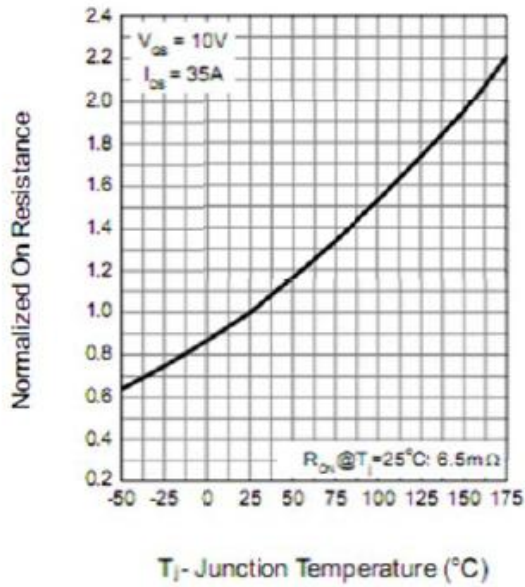
**Drain-Source On Resistance**



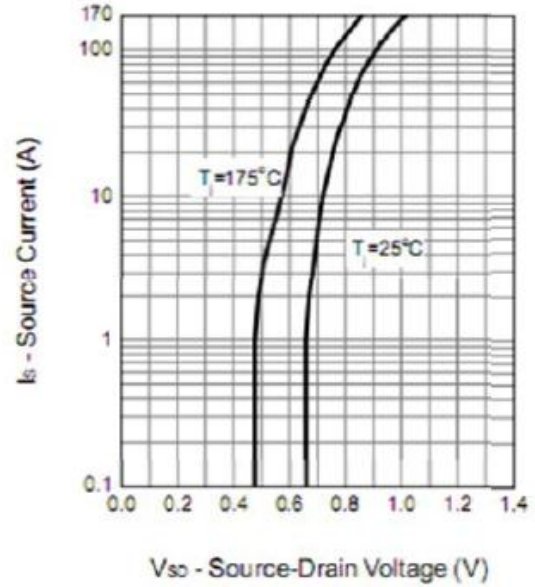
**Gate Threshold Voltage**



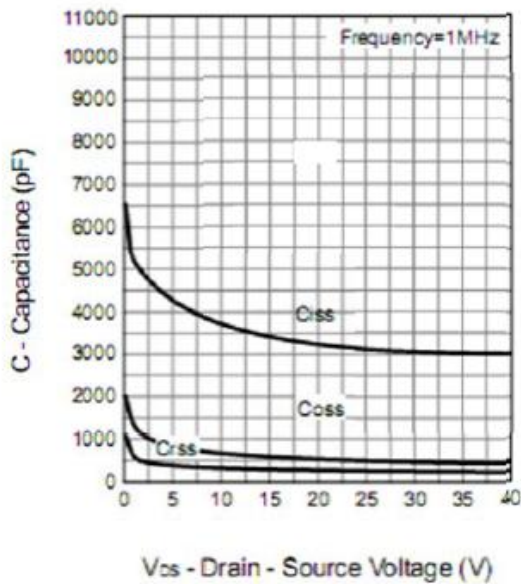
**Drain-Source On Resistance**



**Source-Drain Diode Forward**



**Capacitance**



**Gate Charge**

