

1. Features

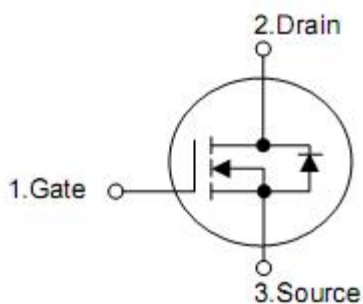
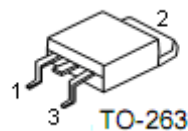
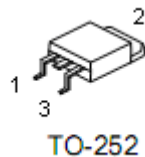
- n RDS(ON)= 7mΩ typ@ VGS=10V
- n Lead free and Green Device Available
- n Low Rds-on to Minimize Conductive Loss
- n High avalanche Current

2. Application

- n Power Supply
- n DC-DC Converters

3. Pin configuration

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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

($T_C = 25^\circ\text{C}$, unless otherwise specified)

Parameter	Symbol	Rating		Units	
		TO-252	TO-263		
Drain-source voltage	V_{DSS}	60		V	
Gate-source voltage	V_{GSS}	± 25		V	
Continuous Drain Current	I_D^3	$T_C = 25^\circ\text{C}$	80*	80	A
		$T_C = 100^\circ\text{C}$	60*	60	
Pulsed Drain Current	I_{DP}^4	$T_C = 25^\circ\text{C}$ 280			
Avalanche Current	I_{AS}^5	20			
Avalanche Energy	E_{AS}^5	400		mJ	
Maximum Power Dissipation	P_D	$T_C = 25^\circ\text{C}$	84.5	156	W
		$T_C = 100^\circ\text{C}$	41	80	
Junction & Storage Temperature Range	T_L, T_{STG}	-55~+150		$^\circ\text{C}$	

*Drain current limited by maximum junction temperature.

6. Thermal characteristics

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Symbol	Parameter	Typical		Unit
		TO-252	TO-263	
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	1.48	0.8	$^\circ\text{C} / \text{W}$
$R_{\theta JA}$	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	2	3	4	V
Drain-source on resistance	R _{DS(on)}	V _{GS} =10V, I _D =40A (TO-263)		7	8.0	mΩ
		V _{GS} =10V, I _D =40A (TO-252)		7.5	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 Characteristics²						
Gate Repacitance	R _G	V _{GS} =0V, V _{DS} =0A Frequency=1MHz		1.2		Ω
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz		3080		pF
Output capacitance	C _{oss}			400		
Reverse transfer capacitance	C _{rss}			195		
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 Characteristics²						
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.

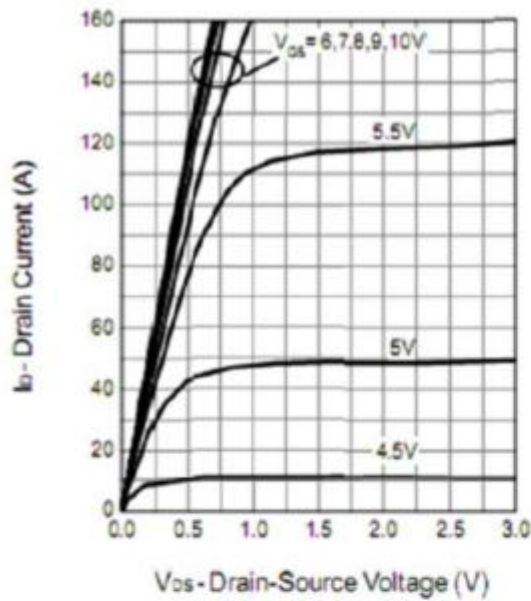
3: Calculated continuous current based on maximum allowable junction temperature. Package limitation current is 55A.

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

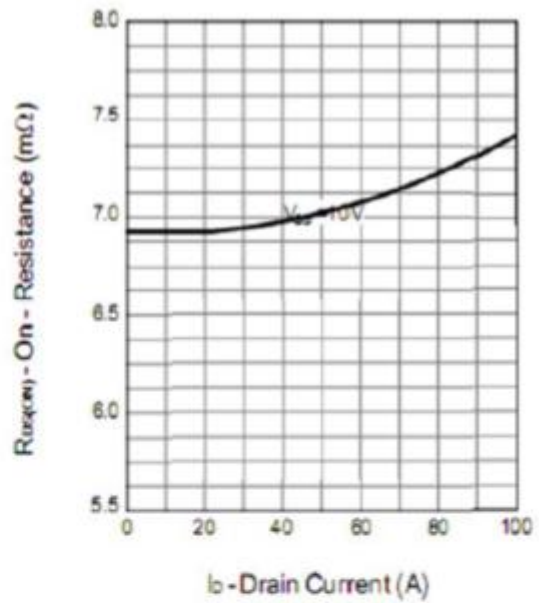
5: Starting T_J=25 °C, L=0.5mH, I_{AS}=40A.

8. Typical Characteristics

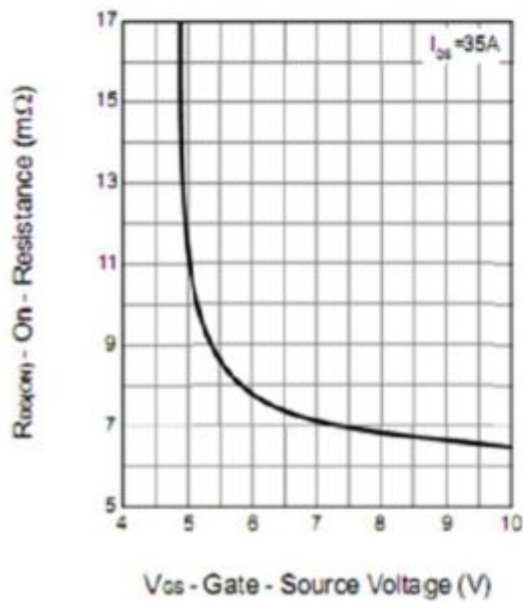
Output Characteristics



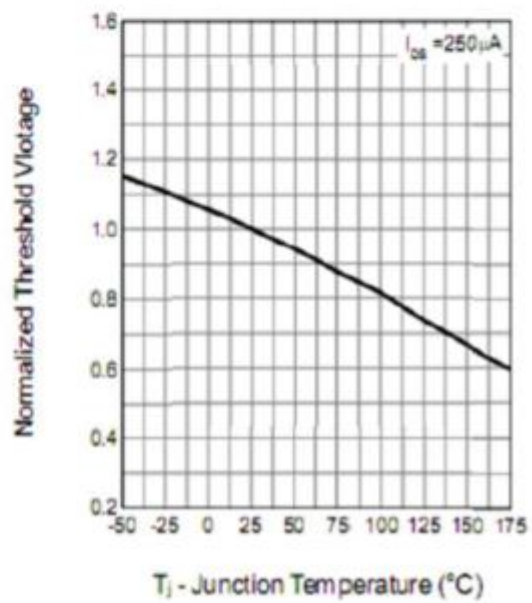
Drain-Source On Resistance



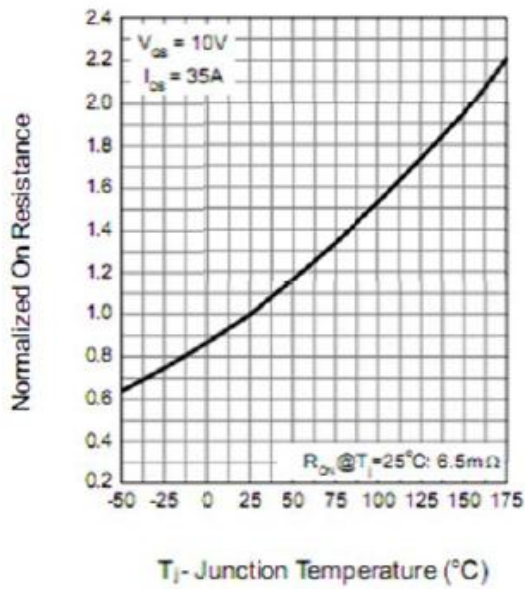
Drain-Source On Resistance



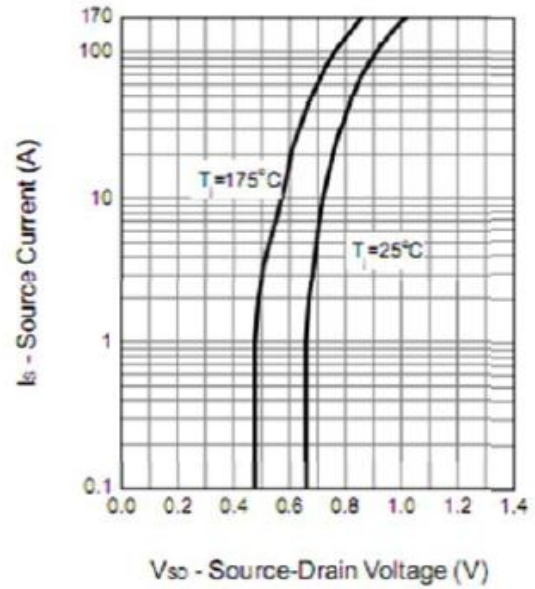
Gate Threshold Voltage



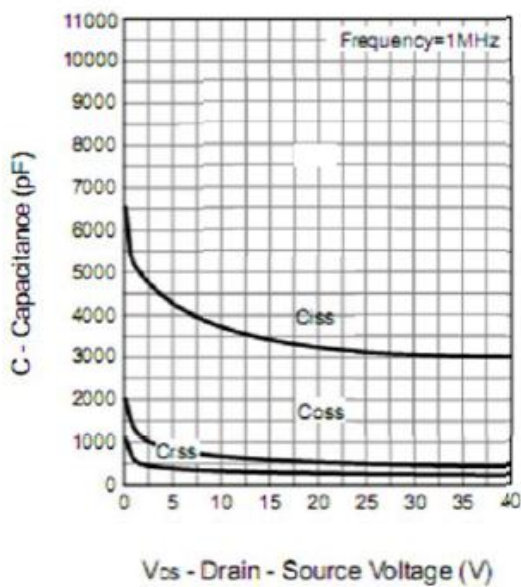
Drain-Source On Resistance



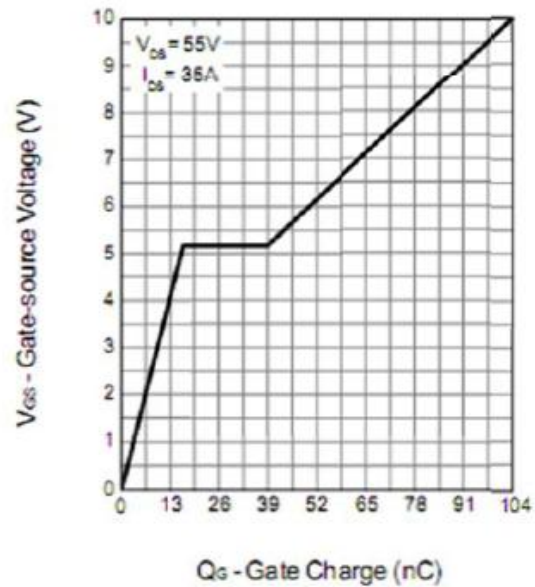
Source-Drain Diode Forward



Capacitance



Gate Charge



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