

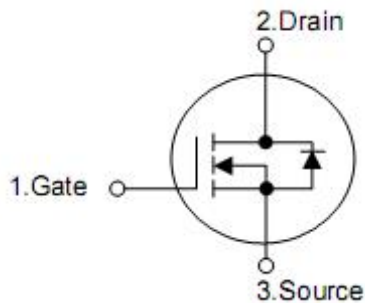
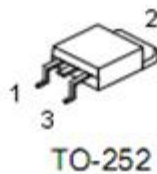
1. Features

- $R_{DS(on)}=3.2m\Omega@ V_{GS}=10V$
- Uses CRM(CQ) advanced Trench MOS technology
- Extremely low on-resistance $R_{DS(on)}$
- Excellent $Q_g \times R_{DS(on)}$ product(FOM)
- Qualified according to JEDEC criteria

2. Applications

- Motor control and drive
- Battery management
- UPS (Uninterruptible Power Supplies)

3.Symbol



Pin	Function
1	Gate
2	Drain
3	Source

4. Ordering information

Part Number	Package	Brand
KND3203C	TO-252	KIA

5. Absolute maximum ratings

($T_A=25^{\circ}\text{C}$, unless otherwise noted)

Parameter		Symbol	Rating	Units
Drain-source voltage		V_{DS}	30	V
Continuous drain current	$T_C=25^{\circ}\text{C}$ (Silicon limit)	I_D	100	A
	$T_C=25^{\circ}\text{C}$ (Package limit)		80	A
	$T_C=100^{\circ}\text{C}$ (Silicon limit)		72	A
Pulse drain current ($T_C = 25^{\circ}\text{C}$, t_p limited by T_{jmax}) ¹		I_{DP}	320	A
Avalanche energy, single pulse		E_{AS}^2	248	mJ
Gate-Source voltage		V_{GS}	± 20	V
Power dissipation ($T_C = 25^{\circ}\text{C}$)		P_D	92	W
Operating junction and storage temperature		T_J, T_{STG}	-55- 150	$^{\circ}\text{C}$

6. Thermal characteristics

Parameter	Symbol	Max	Unit
Thermal resistance, Junction-ambient	$R_{\theta JA}$	105	$^{\circ}\text{C}/\text{W}$
Thermal resistance, Junction-case	$R_{\theta JC}$	1.35	$^{\circ}\text{C}/\text{W}$

7. Electrical characteristics

(T_A=25°C, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V, I _{DS} =250μA	30	-	-	V
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.9	1.3	2.5	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =30V, V _{GS} =0V, T _J =25°C	-	-	1	μA
		V _{DS} =24V, V _{GS} =0V, T _J =125°C	-	-	10	
Gate-source leakage current	I _{GSS}	V _{GS} =20V, V _{DS} =0V	-	-	100	nA
Drain-source on-resistance ³	R _{DS(on)}	V _{GS} =10V, I _D =30A, T _J =25°C	-	3.2	4.0	mΩ
		V _{GS} =4.5V, I _D =15A	-	4.7	8.0	
Forward transconductance	g _{fs}	V _{DS} =5V, I _D =15A	-	20	-	S
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1MHz	-	3100	-	pF
Output capacitance	C _{oss}		-	340	-	
Reverse transfer capacitance	C _{rss}		-	300	-	
Turn-on delay time ^{3 4}	t _{d(on)}	V _{DD} =15V, I _D =15A, R _G =3.3Ω, V _{GS} =10V	-	20	-	nS
Rise time ^{3 4}	t _r		-	44	-	
Turn-off delay time ^{3 4}	t _{d(off)}		-	53	-	
Fall time ^{3 4}	t _f		-	22	-	
Total gate charge ^{3 4}	Q _g	V _{DS} =25V, V _{GS} =10V I _D =20A	-	68	-	nC
Gate-source charge ^{3 4}	Q _{gs}		-	7.5	-	
Gate-drain charge ^{3 4}	Q _{gd}		-	21	-	
Gate resistance ^{3 4}	R _g	V _{DS} =0V, V _{GS} =0V, f=1MHz	-	1.5	-	Ω
Body Diode forward voltage	V _{SD}	V _{GS} =0V, I _{SD} =30A	-	-	1.5	V
Body Diode Reverse Recovery Time	t _{rr}	I _F =30A,	-	25	-	nS
Body Diode Reverse Recovery charge	Q _{rr}	di/dt=100A/μs	-	15	-	nC

Note :

- 1 .Repetitive Rating : Pulsed width limited by maximum junction temperature.
- 2 .The EAS data shows Max. rating . The test condition is V_{DD}=25V, V_{GS}=10V, L=0.5mH.
3. The data tested by pulsed , pulse width ≅ 300us , duty cycle ≅ 2%.
4. Essentially independent of operating temperature.

8. Test circuits and waveforms

Fig 1: Output Characteristics

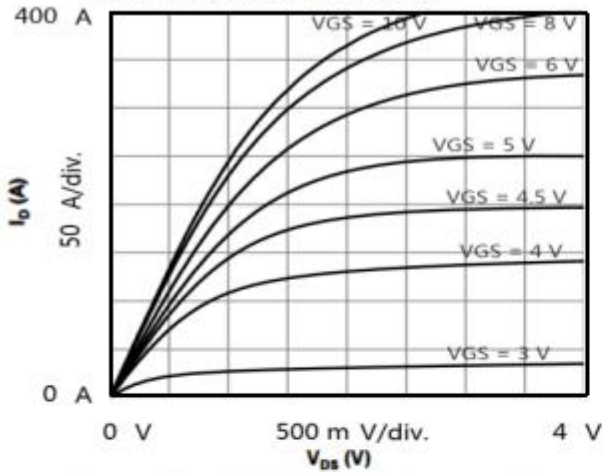


Fig 2: Transfer Characteristics

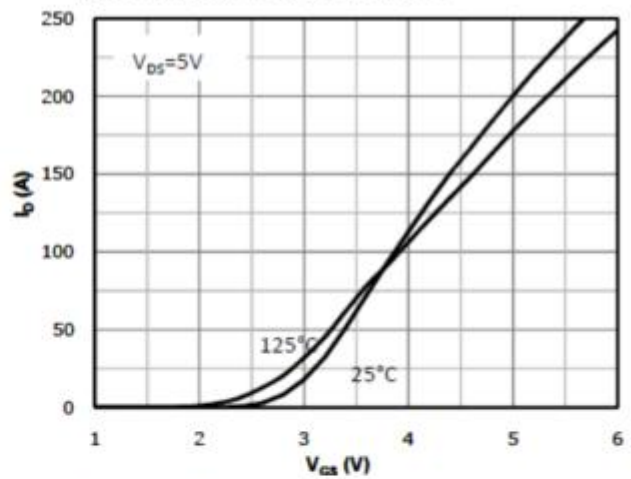


Fig 3: Rds(on) vs Drain Current and Gate Voltage

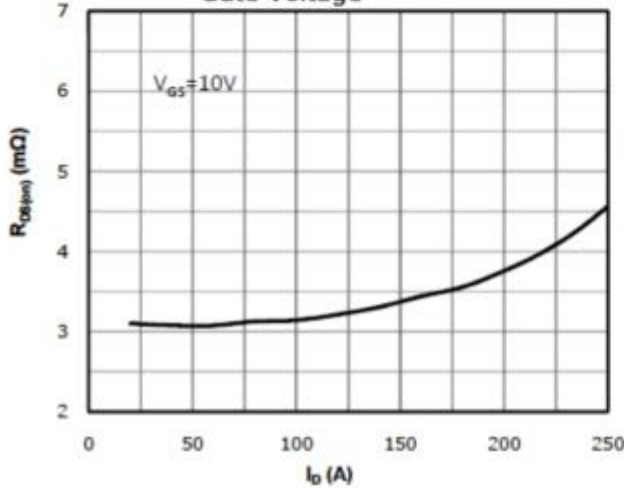


Fig 4: Rds(on) vs Gate Voltage

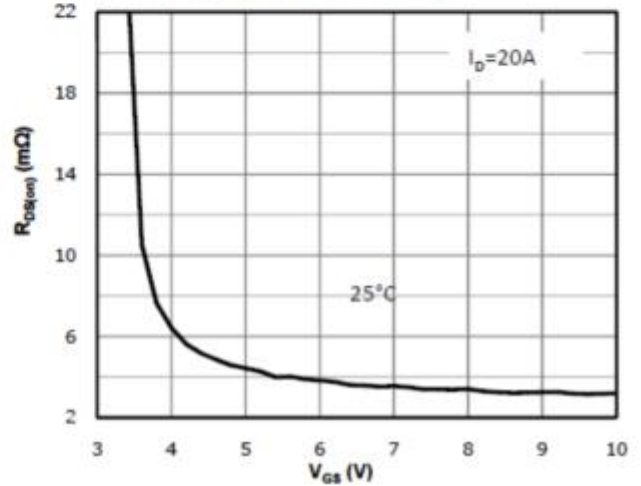


Fig 5: Rds(on) vs. Temperature

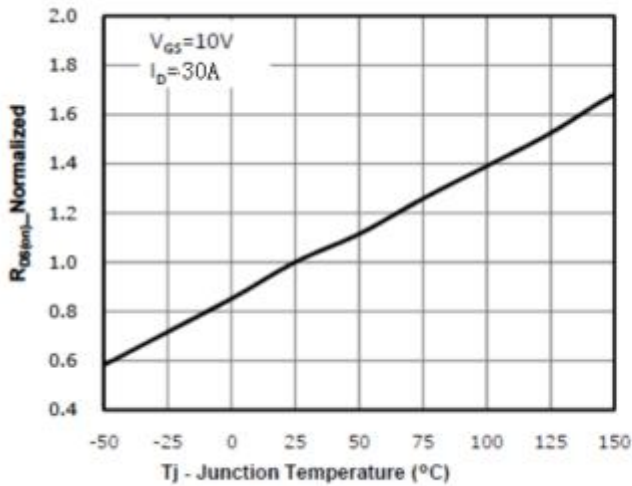


Fig 6: Capacitance Characteristics

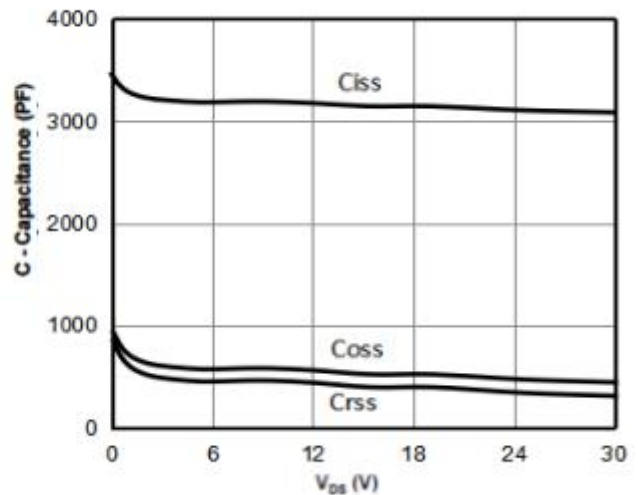


Fig 7: Gate Charge Characteristics

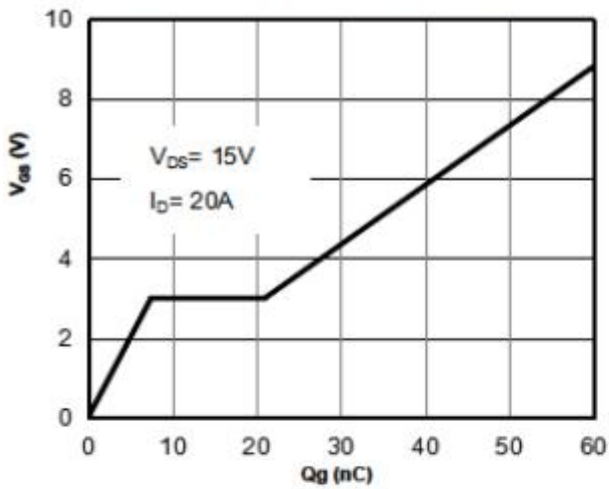


Fig 8: Body-diode Forward Characteristics

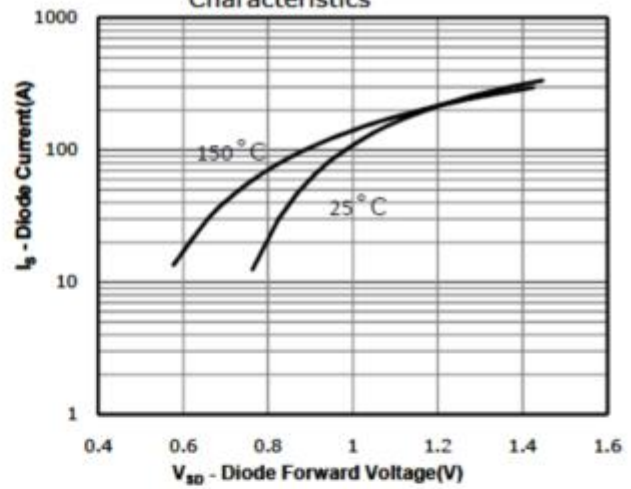


Fig 9: Power Dissipation

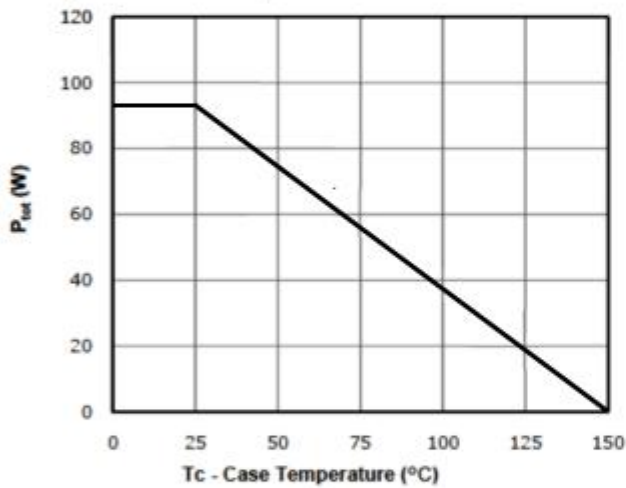


Fig 10: Drain Current Derating

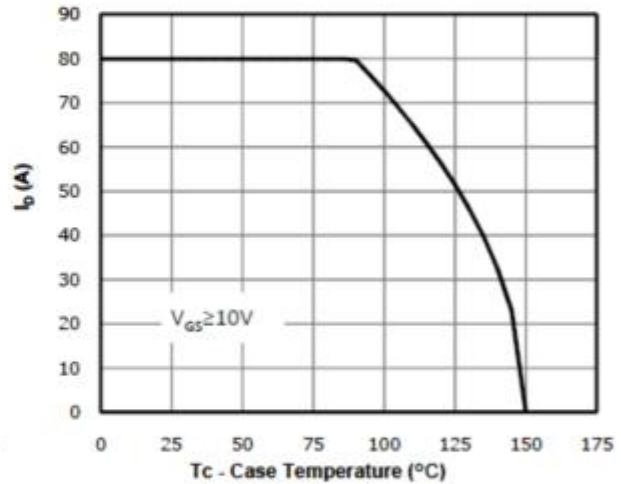


Fig 11: Safe Operating Area

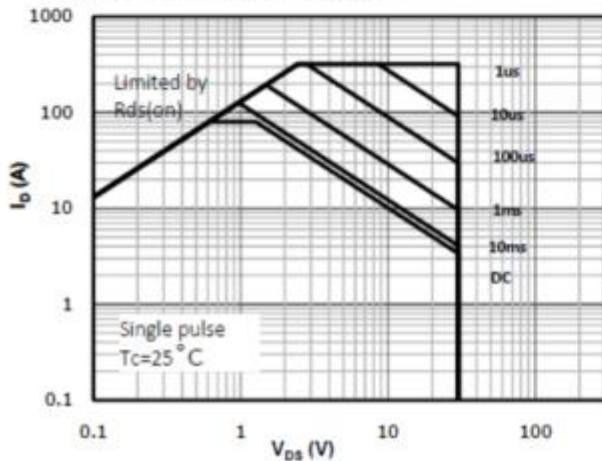


Fig 12: Max. Transient Thermal Impedance

