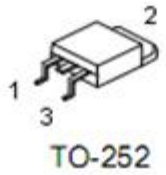
1. Features

- RDS(on)=3.2mΩ@ VGS=10V
- Uses CRM(CQ) advanced Trench MOS technology
- Extremely low on-resistance R_{DS}(on)
- Excellent QgxR_{DS}(on) product(FOM)
- Qualified according to JEDEC criteria

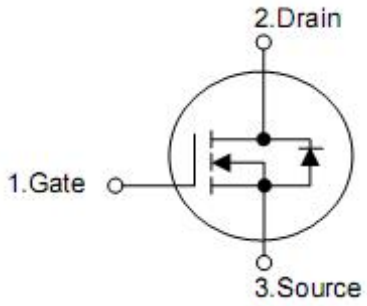
2. Applications

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

3.Symbol



TO-252



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°C,unless otherwise noted)

Parameter		Symbol	Rating	Units
Drain-source voltage		V_{DS}	30	V
Continuous drain current	T_C=25ºC(Silicon limit)	I_D	100	A
	T_C=25ºC(Package limit)		80	A
	T_C=100ºC(Silicon limit)		72	A
Pulse drain current (T_C = 25°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°C)		P_D	92	W
Operating junction and storage temperature		T_J,T_{STG}	-55- 150	°C

6. Thermal characteristics

Parameter	Symbol	Max	Unit
Thermal resistance, Junction-ambient	$R_{\theta JA}$	105	ºC/W
Thermal resistance, Junction-case	$R_{\theta JC}$	1.35	ºC/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	gfs	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, di/dt=100A/μs	-	25	-	nS
Body Diode Reverse Recovery charge	Q_{rr}		-	15	-	nC

Note :
1 .Repetitive Rating : Pulsed width limited by maximum junction temperature.
2 .The EAS data shows Max. rating . The test condition is VDD=25V,VGS=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

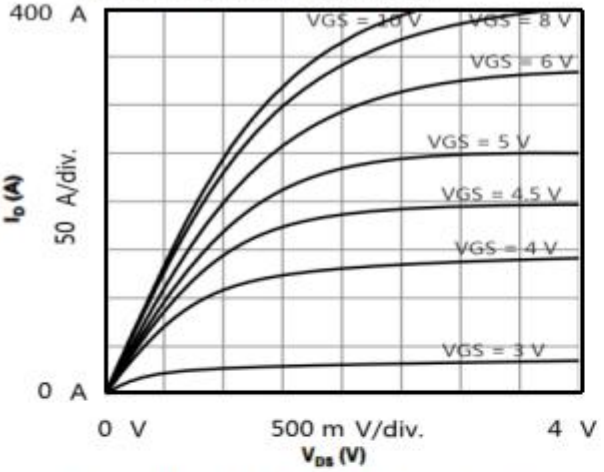


Fig 2: Transfer Characteristics

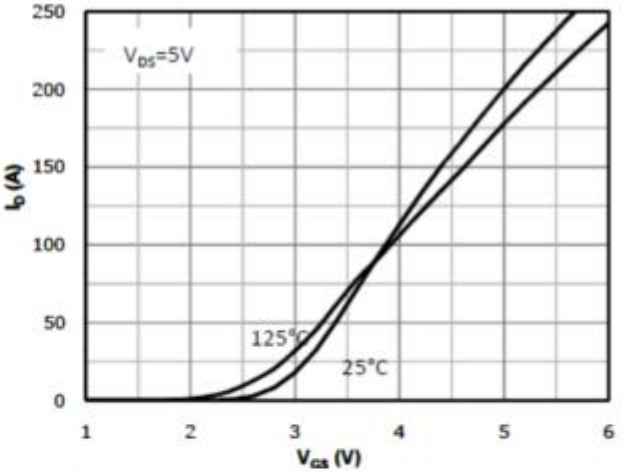


Fig 3: Rds(on) vs Drain Current and Gate Voltage

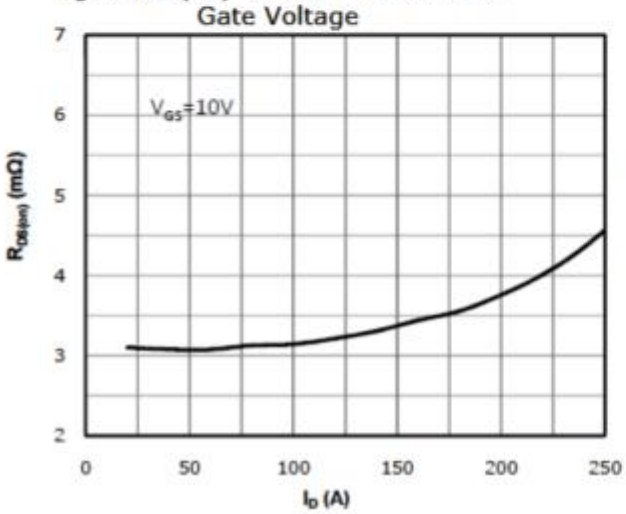


Fig 4: Rds(on) vs Gate Voltage

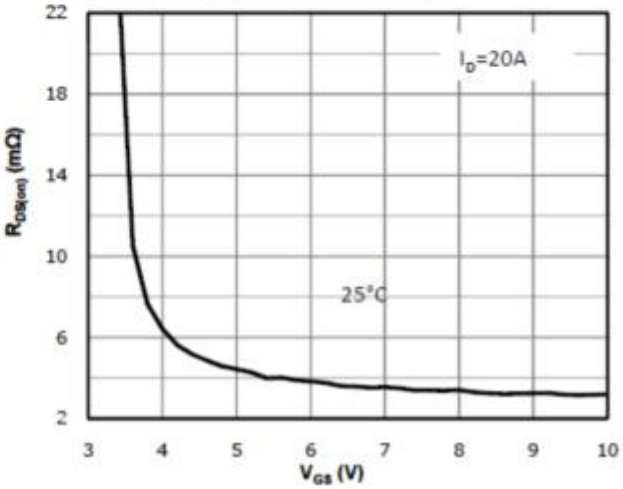


Fig 5: Rds(on) vs. Temperature

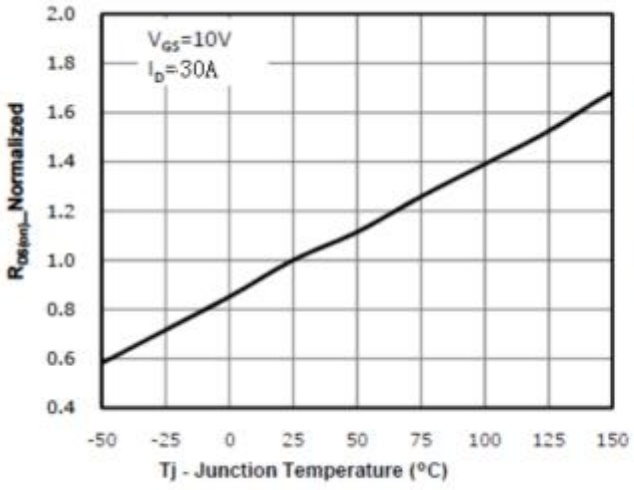


Fig 6: Capacitance Characteristics

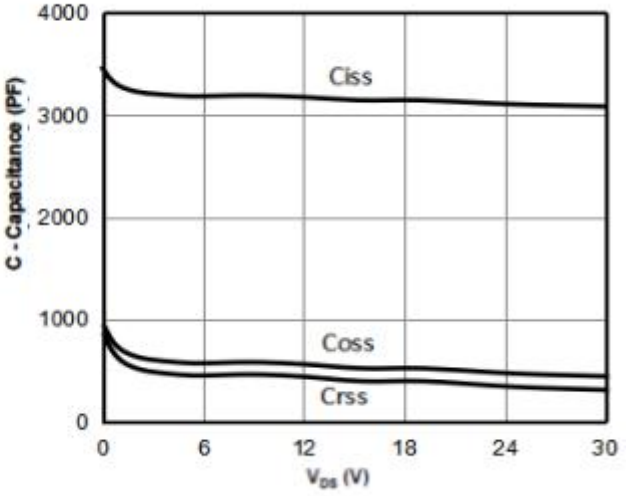


Fig 7: Gate Charge Characteristics

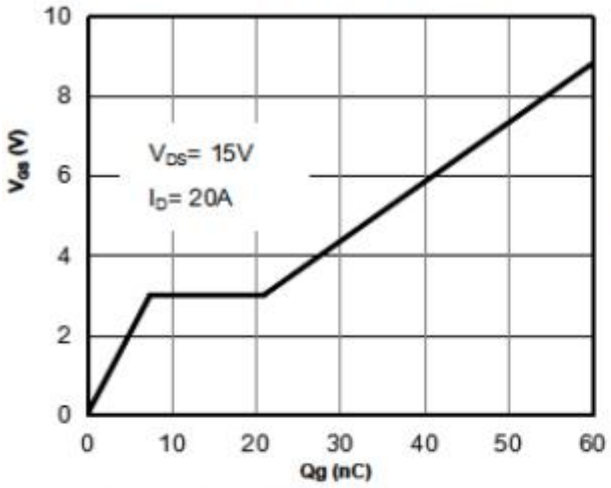


Fig 8: Body-diode Forward Characteristics

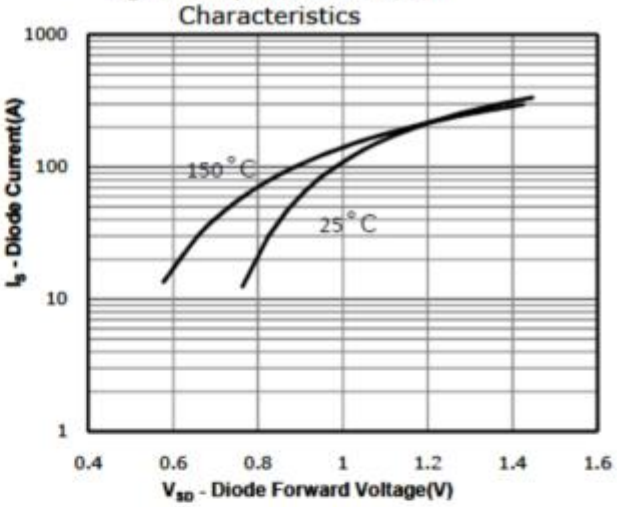


Fig 9: Power Dissipation

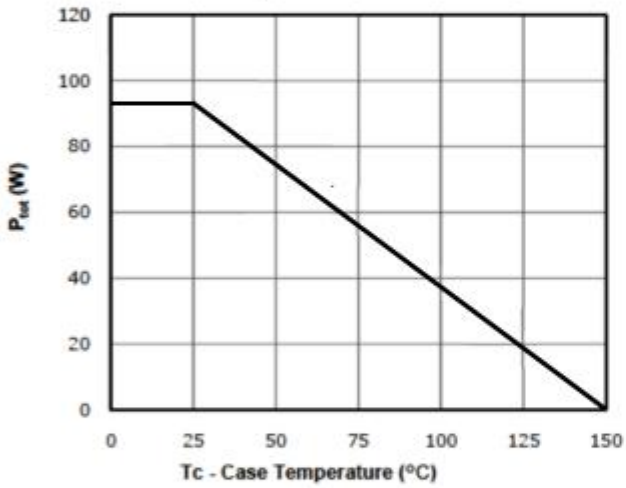


Fig 10: Drain Current Derating

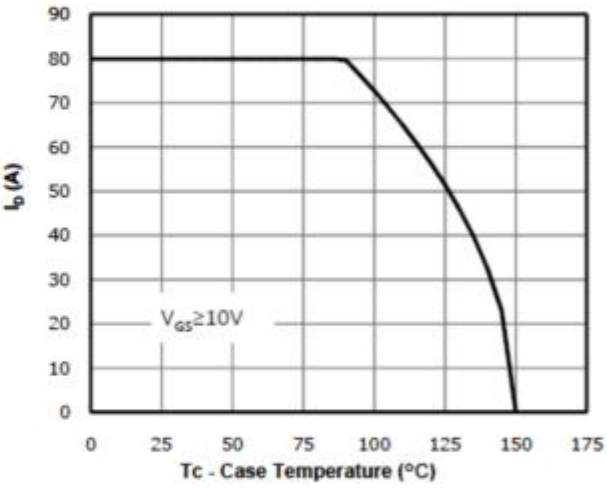


Fig 11: Safe Operating Area

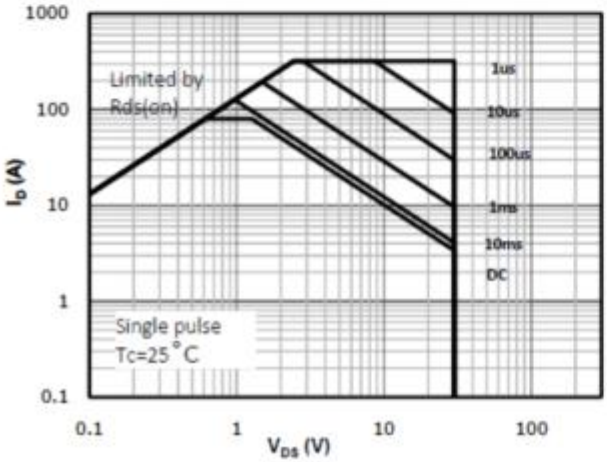


Fig 12: Max. Transient Thermal Impedance