

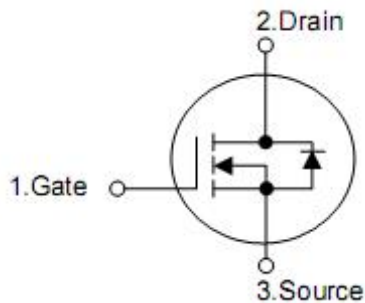
1. Features

- $R_{DS(on)}=3.1m\Omega@ V_{GS}=10V$
- 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
KND3203B	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	I_D	$T_C=25^{\circ}\text{C}$ (Silicon limit)	100
		$T_C=25^{\circ}\text{C}$ (Package limit)	80
		$T_C=100^{\circ}\text{C}$ (Silicon limit)	72
Pulse drain current ($T_C = 25^{\circ}\text{C}$, t_p limited by T_{jmax})	I_{DP}	320	A
Avalanche energy, single pulse ($L=0.5\text{mH}$)	E_{AS}	90	mJ
Gate-Source voltage	V_{GS}	± 20	V
Power dissipation ($T_C = 25^{\circ}\text{C}$)	P_{tot}	101	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	$R_{\theta JC}$	1.24	$^{\circ}\text{C}/\text{W}$

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	1.3	1.8	2.3	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	R _{DS(on)}	V _{GS} =10V, I _D =24A, T _J =25°C	-	3.1	4.0	mΩ
		V _{GS} =4.5V, I _D =20A	-	4.7	8.0	
Forward transconductance	g _{fs}	V _{DS} =5V, I _D =30A	-	73	-	S
Input capacitance	C _{iss}	V _{DS} =30V, V _{GS} =0V, f=1MHz	-	2340	-	pF
Output capacitance	C _{oss}		-	460	-	
Reverse transfer capacitance	C _{rss}		-	305	-	
Turn-on delay time	t _{d(on)}	V _{DD} =15V, I _D =30A, R _{G_ext} =3Ω, V _{GS} =10V	-	11	-	nS
Rise time	t _r		-	102	-	
Turn-off delay time	t _{d(off)}		-	34	-	
Fall time	t _f		-	95	-	
Total gate charge	Q _g	V _{DS} =15V, V _{GS} =10V I _D =30A, f=1MHz	-	50	-	nC
Gate-source charge	Q _{gs}		-	9.5	-	
Gate-drain charge	Q _{gd}		-	13.2	-	
Gate resistance	R _g	V _{DS} =0V, V _{GS} =0V, f=1MHz	-	1.4	-	Ω
Body Diode forward voltage	V _{SD}	V _{GS} =0V, I _{SD} =200A	-	-	1.3	V
Body Diode Reverse Recovery Time	t _{rr}	I _F =30A, di/dt=100A/μs	-	21	-	nS
Body Diode Reverse Recovery charge	Q _{rr}		-	12	-	nC

8. Test circuits and waveforms

Fig 1: Output Characteristics

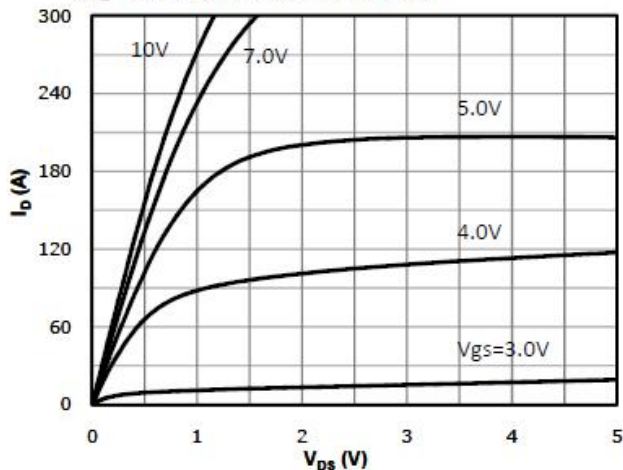


Fig 2: Transfer Characteristics

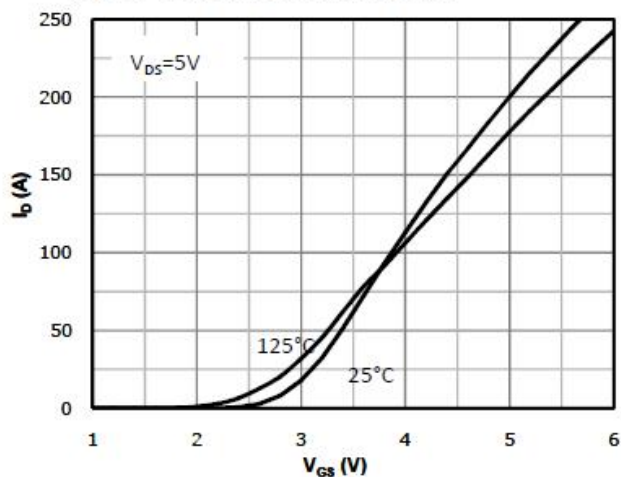


Fig 3: Rds(on) vs Drain Current and Gate Voltage

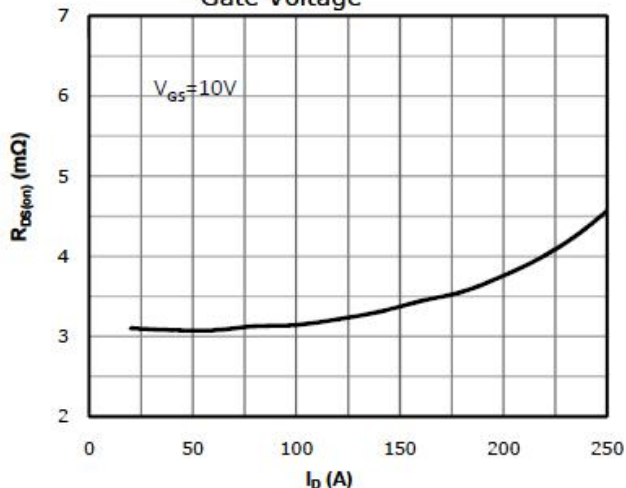


Fig 4: Rds(on) vs Gate Voltage

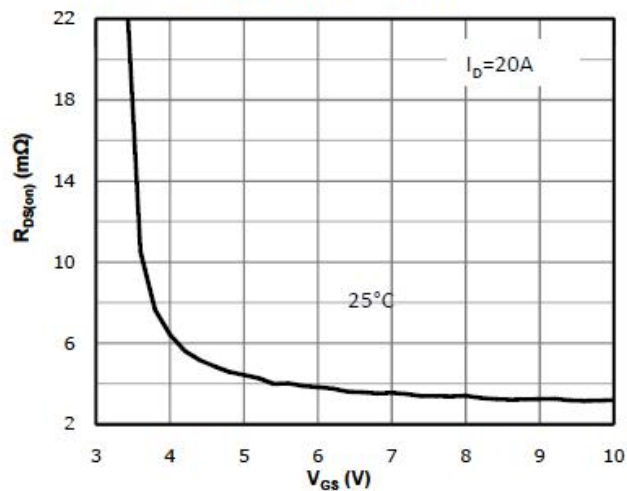


Fig 5: Rds(on) vs. Temperature

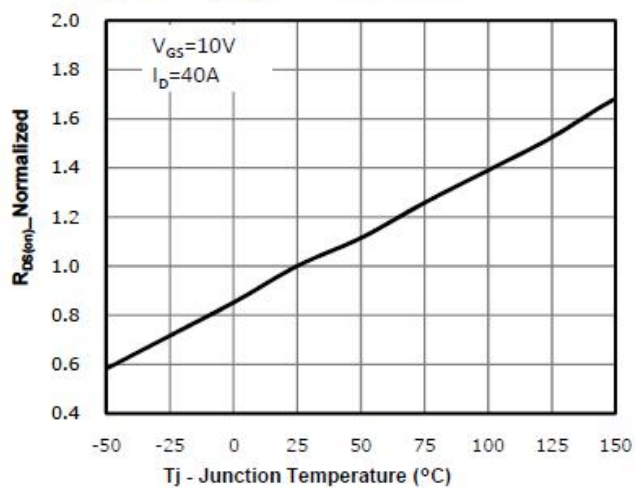


Fig 6: Capacitance Characteristics

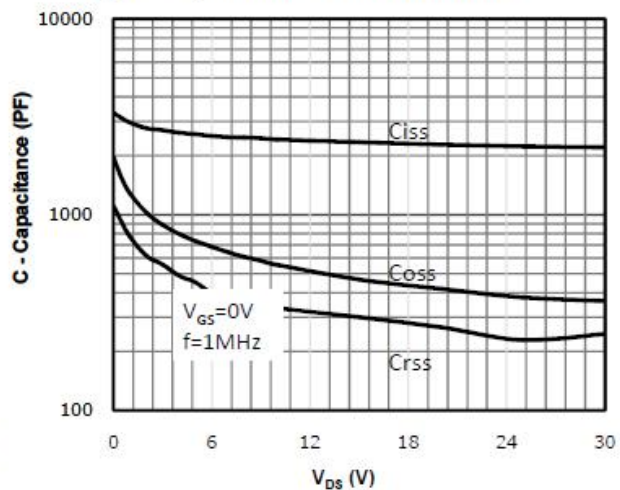


Fig 7: Gate Charge Characteristics

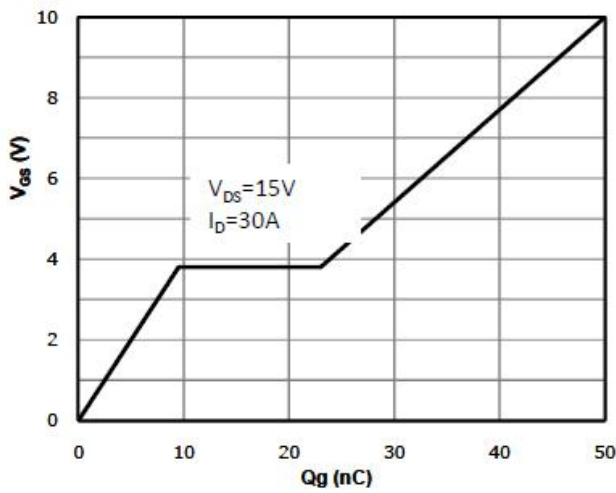


Fig 8: Body-diode Forward Characteristics

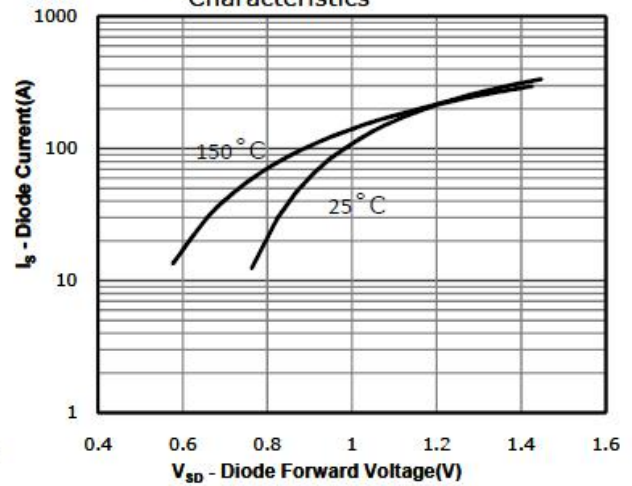


Fig 9: Power Dissipation

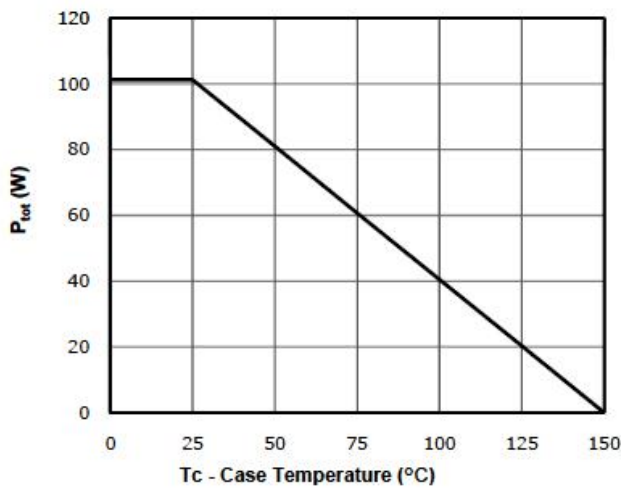


Fig 10: Drain Current Derating

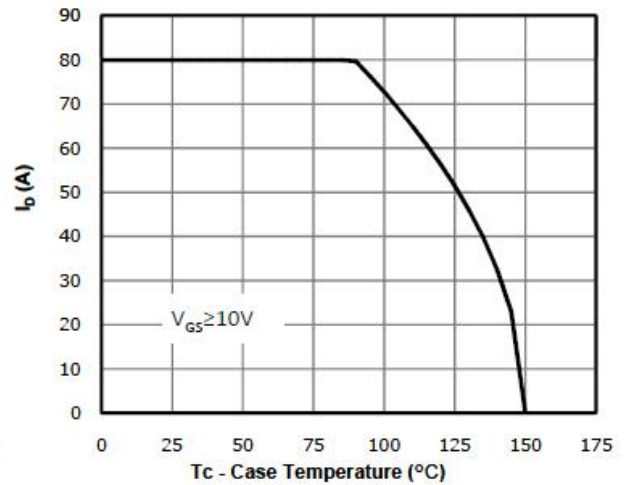


Fig 11: Safe Operating Area

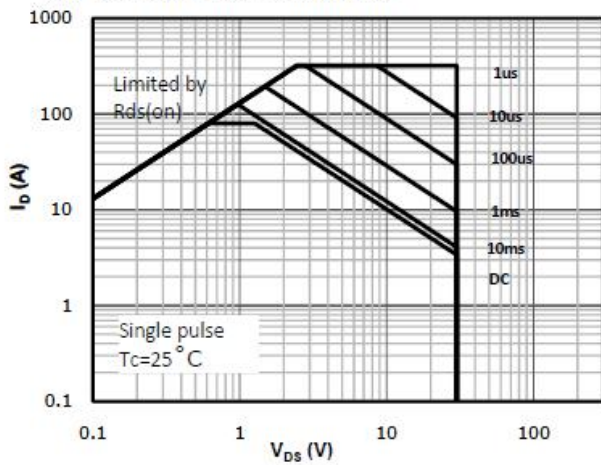


Fig 12: Max. Transient Thermal Impedance

