

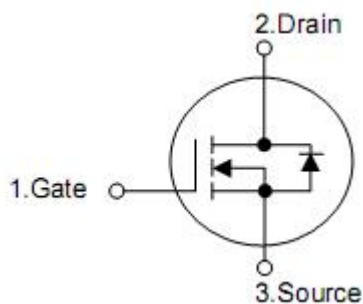
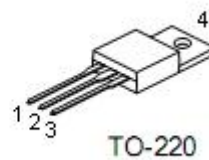
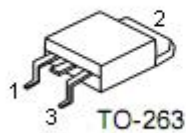
1. Features

- RDS(ON)= 10mΩ(typ.)@ VGS=10V
- Uses CRM(CQ) advanced Trench technology
- Extremely low on-resistance RDS(on)
- Excellent QgxRDS(on) product(FOM)
- Qualified according to JEDEC criteria

2. Application

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

3. Pin configuration



Pin	Function
1	Gate
2	Drain
3	Source
4	Drain

4. Ordering Information

Part Number	Package	Brand
KNP2915A	TO-220	KIA
KNB2915A	TO-263	KIA

5. Absolute maximum ratings

TC=25 °C unless otherwise specified

Parameter	Symbol	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}	150	V
Continuous Drain Current	I_D	$T_C=25\text{ °C}$ (Silicon limited)	130
		$T_C=25\text{ °C}$ (Package limited)	160
		$T_C=100\text{ °C}$ (Silicon limited)	80
Pulsed drain current ($T_C = 25\text{ °C}$, t_p limited by T_{jmax})	I_{DP}	500	
Avalanche energy, single pulse ($L=0.5\text{mH}$, $R_g=25\Omega$)	E_{AS}	272	mJ
Gate-Source voltage	V_{GS}	± 25	V
Power dissipation ($T_C = 25\text{ °C}$)	P_{tot}	428	W
Junction & Storage Temperature Range	T_J & T_{STG}	-55 to 150	°C

6. Thermal characteristics

Parameter	Symbol	Ratings	Units
Thermal resistance, junction-ambient	$R_{\theta JA}$	0.29	°C/W
Thermal resistance, Junction-case	$R_{\theta JC}$	65	

7. Electrical characteristics

(T_J=25°C, unless otherwise notes)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static characteristics						
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V, I _D =250μA	150	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =150V, V _{GS} =0V, T _J =25 °C	-	0.05	1	μA
		V _{DS} =150V, V _{GS} =0V, T _J =150 °C	-	-	20	
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	3	4	5	V
Gate leakage current	I _{GSS}	V _{GS} =25V, V _{DS} =0V	-	10	100	nA
Drain-source on-resistance	R _{DS(on)}	V _{GS} =10V, I _D =50A, T _J =25 °C	-	10	15	mΩ
		V _{DS} =4.5V, I _D =25A, T _J =150 °C	-	22	27	
Forward Transconductance	g _{fs}	V _{DS} =5V, I _D =50A	-	100	-	S
Dynamic characteristics						
Gate Resistance	R _G	V _{GS} =0V, V _{DS} =0V Frequency=1MHz	-	1.5	-	Ω
Input capacitance	C _{iss}	V _{DS} =0V, V _{GS} =75V, F=1MHz	-	3560	-	pF
Output capacitance	C _{oss}		-	330	-	pF
Reverse transfer capacitance	C _{rss}		-	90	-	pF
Turn-on delay time	t _{d(on)}		V _{DD} =75V, I _D =50A, V _{GS} =10V, R _G =2.7Ω	-	18	-
Rise time	t _r	-		92	-	ns
Turn-off delay time	t _{d(off)}	-		35	-	ns
Fall time	t _f	-		70	-	ns
Gate Charge Characteristics						
Total gate charge	Q _g	V _{DS} =75V, I _D =50A, V _{GS} =10V, F=1MHz	-	70	-	nC
Gate-source charge	Q _{gs}		-	24	-	nC
Gate-drain charge	Q _{gd}		-	25	-	nC
Diode characteristics						
Diode forward voltage	V _{SD}	V _{GS} =0V, I _{SD} =30A	-	-	1.3	V
Reverse recovery time	t _{rr}	I _F =50A DI _F /dt=100A/μs	-	70	-	ns
Reverse recovery charge	Q _{rr}		-	233	-	nC

8. Typical Characteristics

Fig 1: Output Characteristics

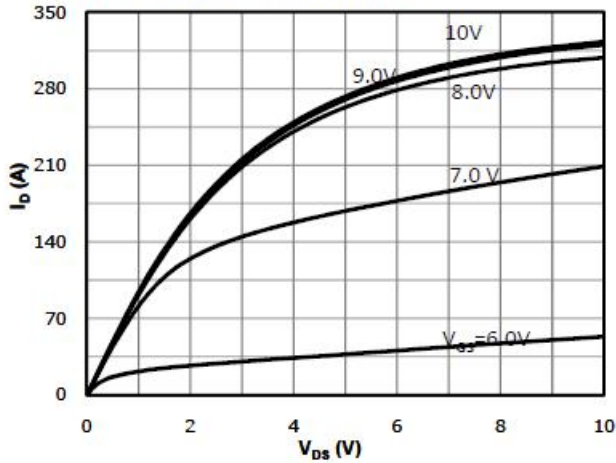


Fig 2: Transfer Characteristics

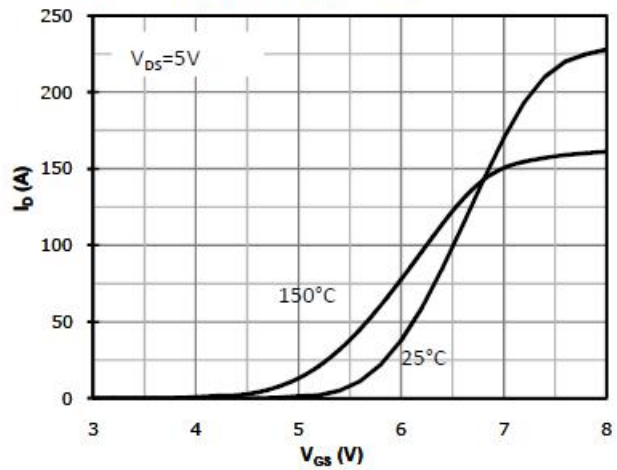


Fig 3: Rds(on) vs Drain Current and Gate Voltage

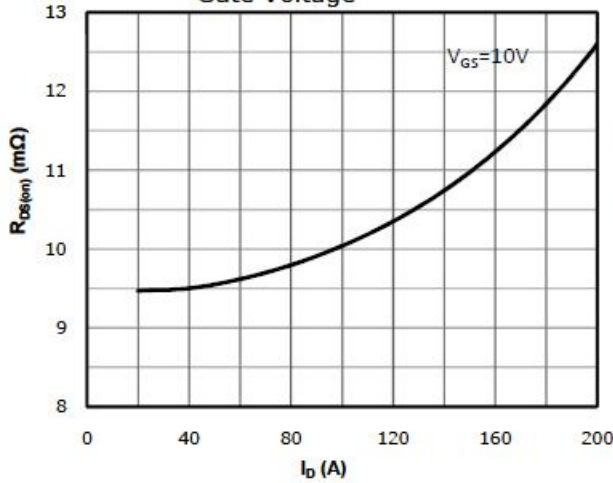


Fig 4: Rds(on) vs Gate Voltage

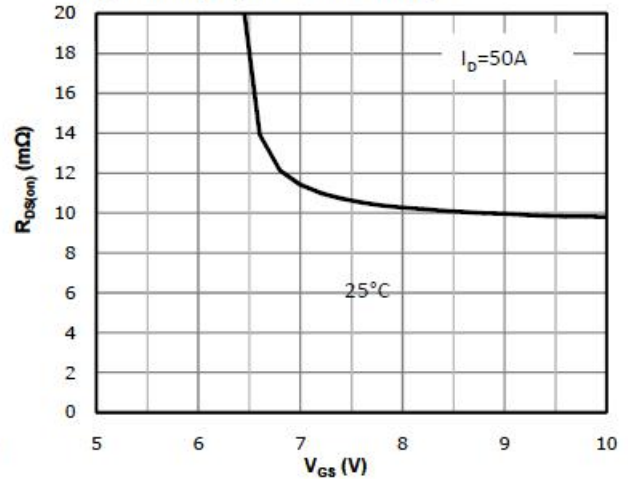


Fig 5: Rds(on) vs. Temperature

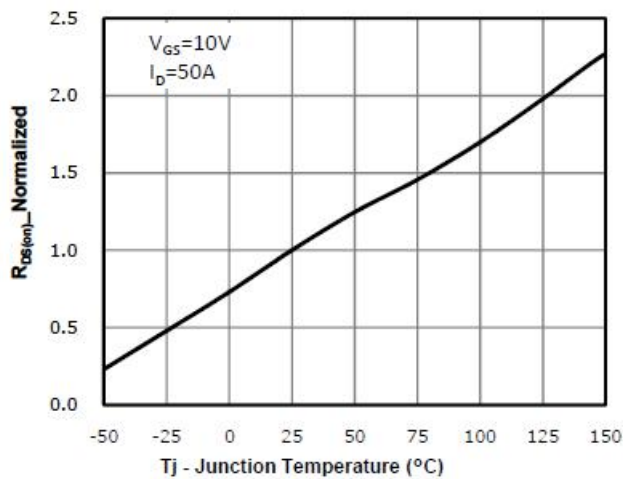


Fig 6: Capacitance Characteristics

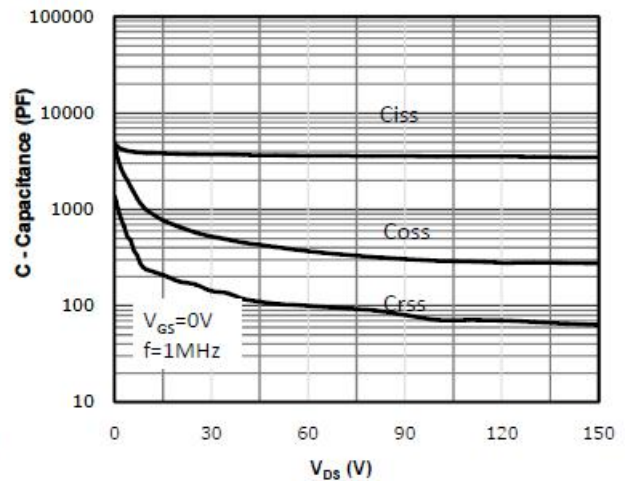


Fig 7: Gate Charge Characteristics

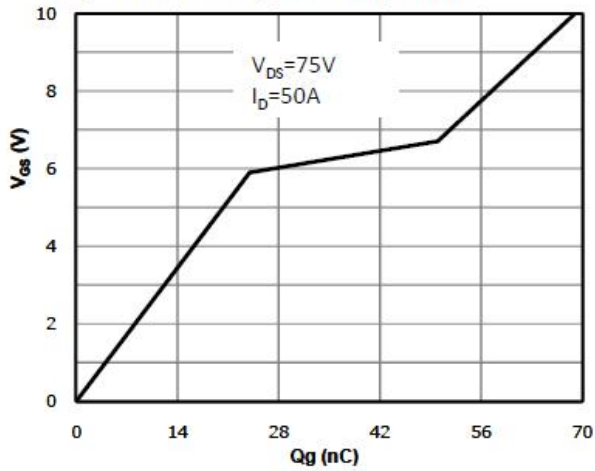


Fig 8: Body-diode Forward Characteristics

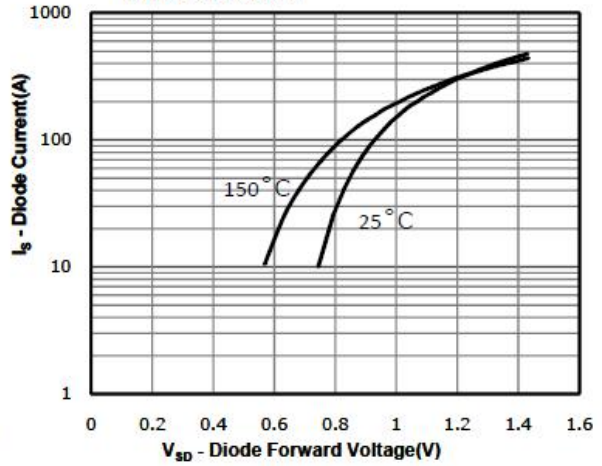


Fig 9: Power Dissipation

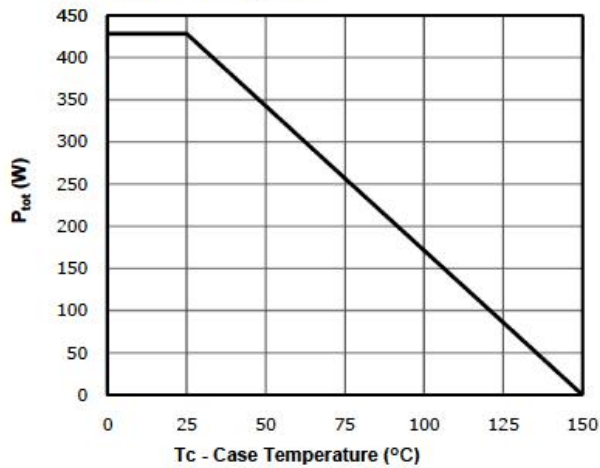


Fig 10: Drain Current Derating

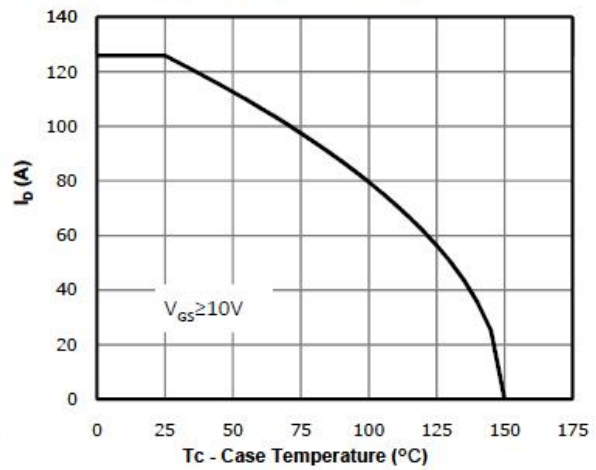


Fig 11: Safe Operating Area

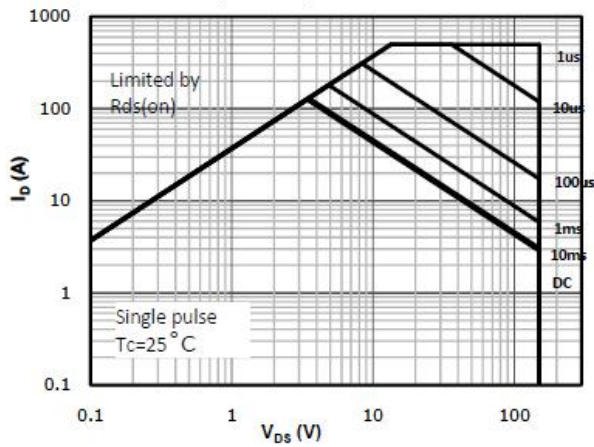


Fig 12: Max. Transient Thermal Impedance

