

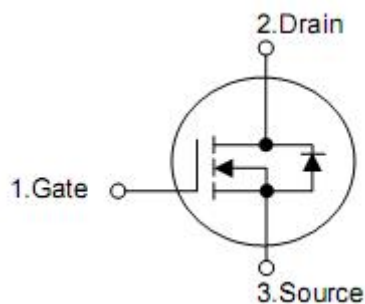
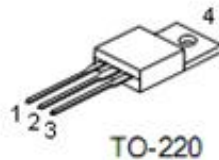
## 1. Features

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

## 2. Application

- n Motor control and drive
- n Battery management
- n 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

#### 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	$T_C=25\text{ °C}$ (Silicon limited)	$I_D$	130	A
	$T_C=25\text{ °C}$ (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		$V_{GS}$	$\pm 25$	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<sub>J</sub>=25°C, unless otherwise notes)

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

**8. Typical Characteristics**

Fig 1: Output Characteristics

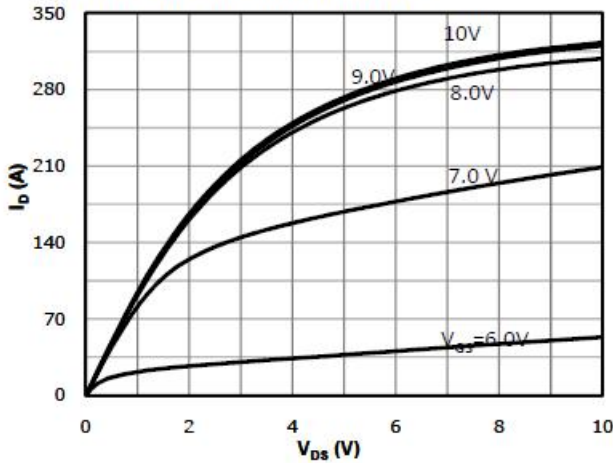


Fig 2: Transfer Characteristics

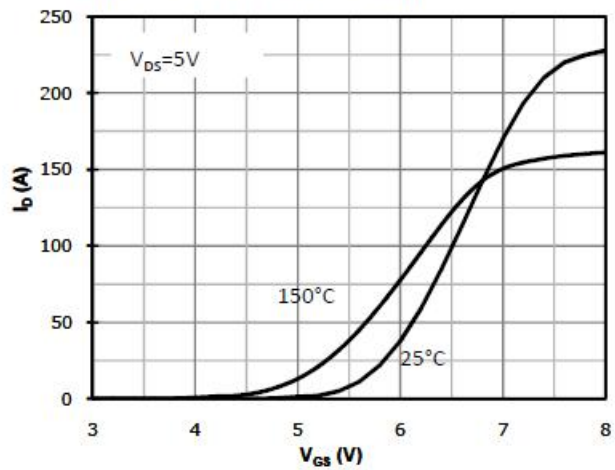


Fig 3: Rds(on) vs Drain Current and Gate Voltage

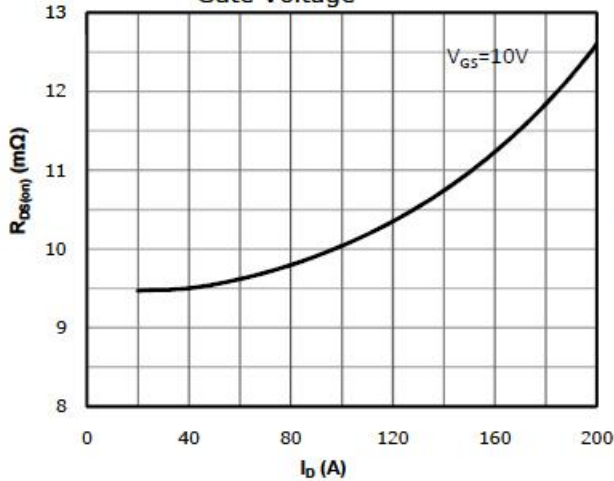


Fig 4: Rds(on) vs Gate Voltage

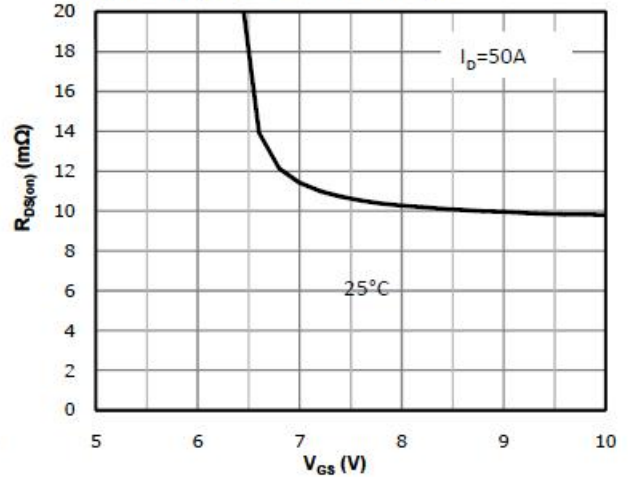


Fig 5: Rds(on) vs. Temperature

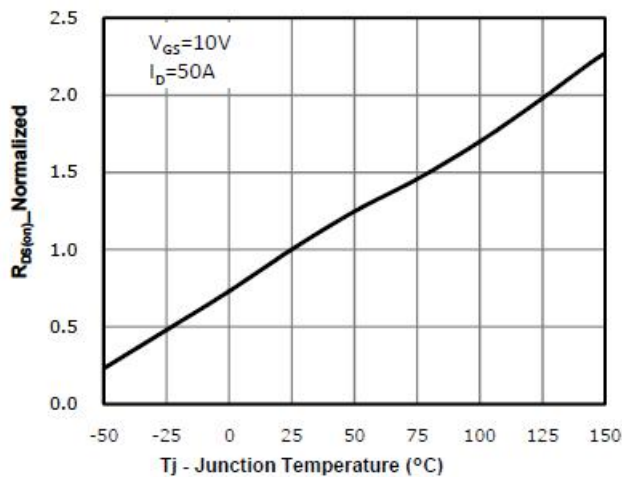


Fig 6: Capacitance Characteristics

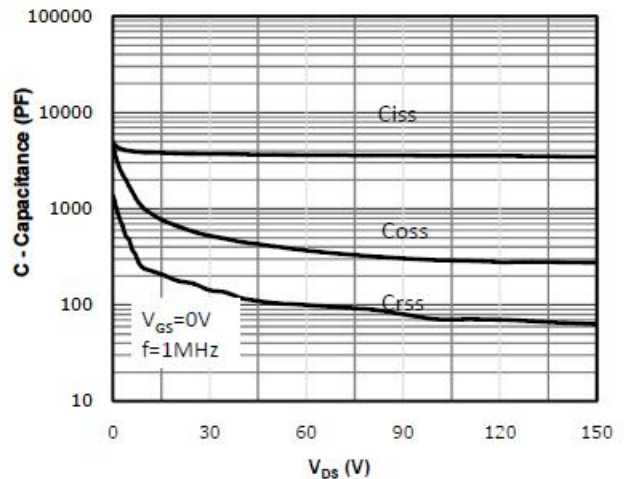


Fig 7: Gate Charge Characteristics

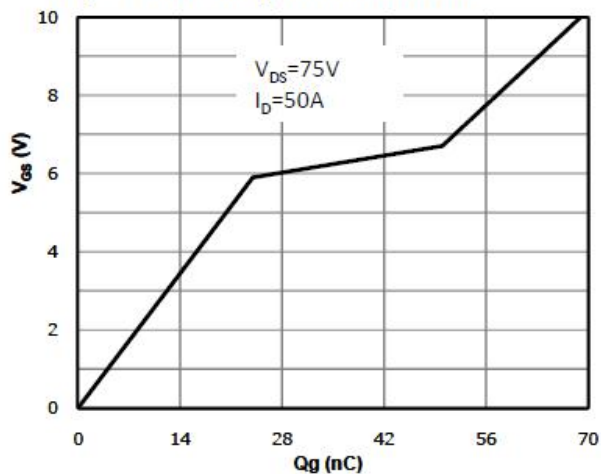


Fig 8: Body-diode Forward Characteristics

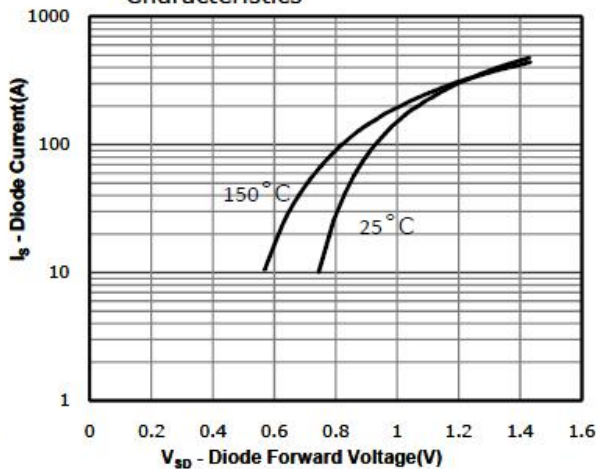


Fig 9: Power Dissipation

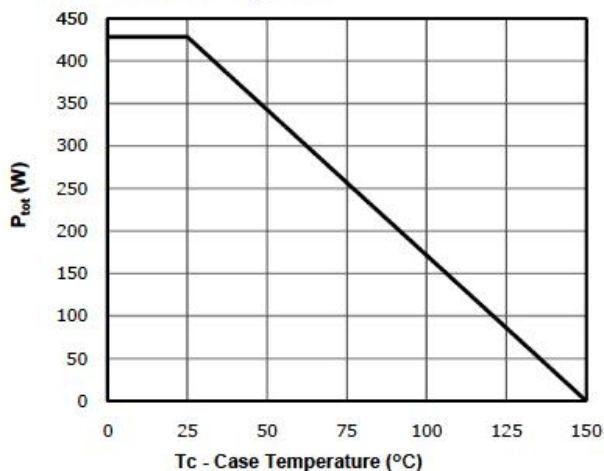


Fig 10: Drain Current Derating

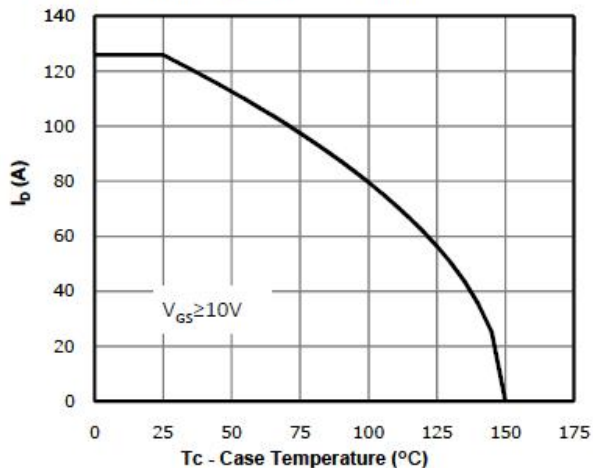


Fig 11: Safe Operating Area

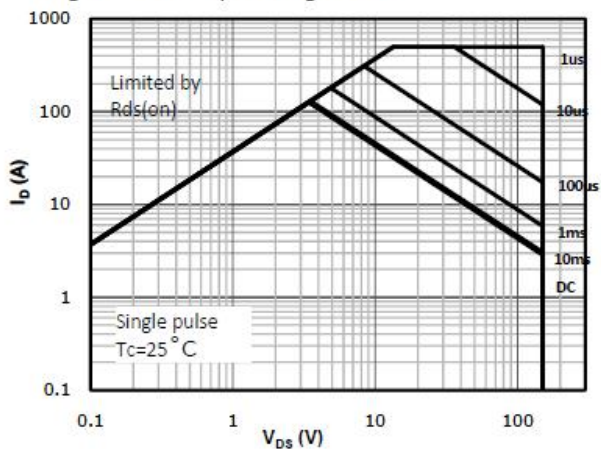


Fig 12: Max. Transient Thermal Impedance

