

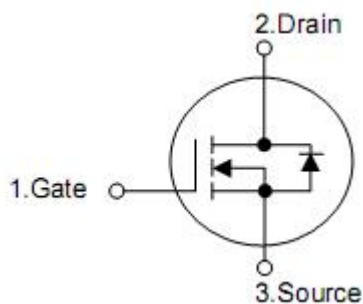
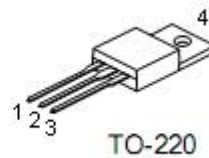
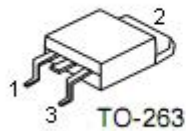
1. Features

- 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

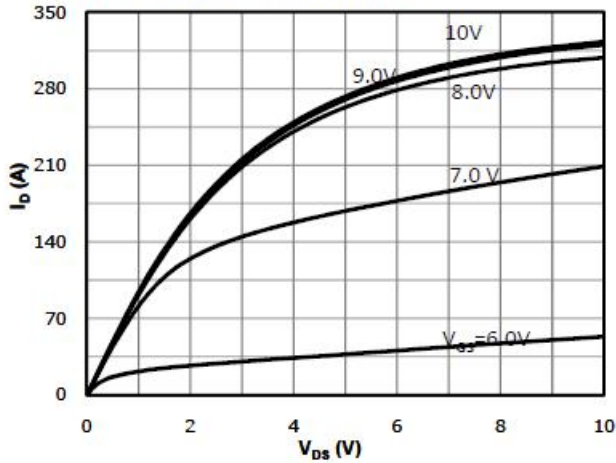


Fig 2: Transfer Characteristics

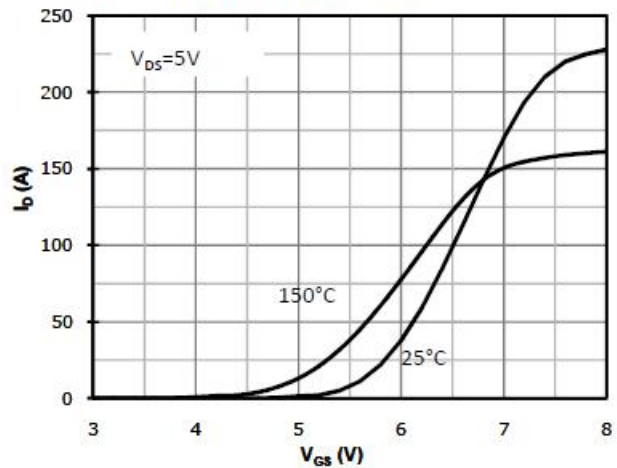


Fig 3: Rds(on) vs Drain Current and Gate Voltage

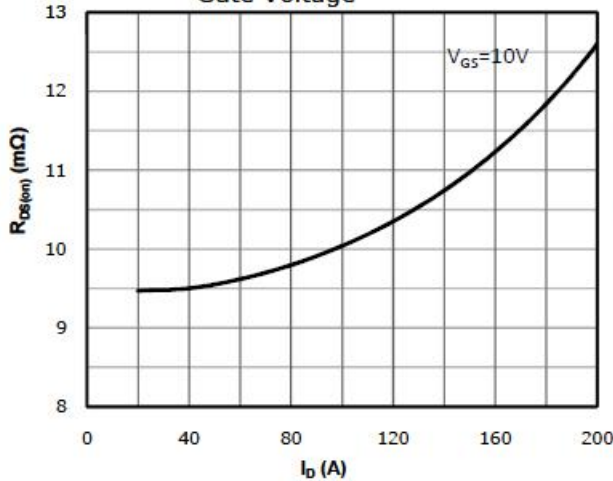


Fig 4: Rds(on) vs Gate Voltage

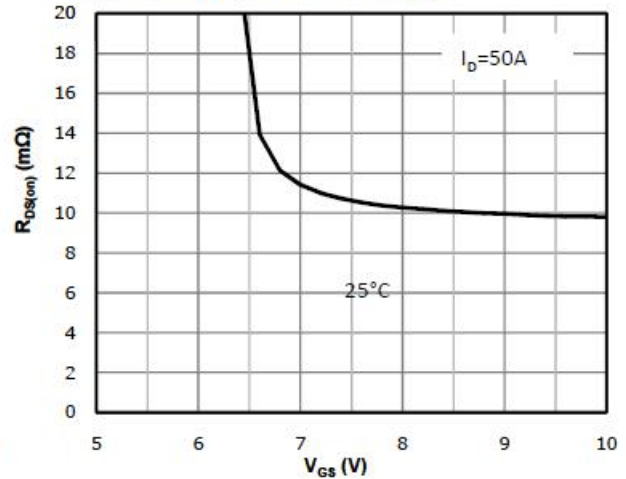


Fig 5: Rds(on) vs. Temperature

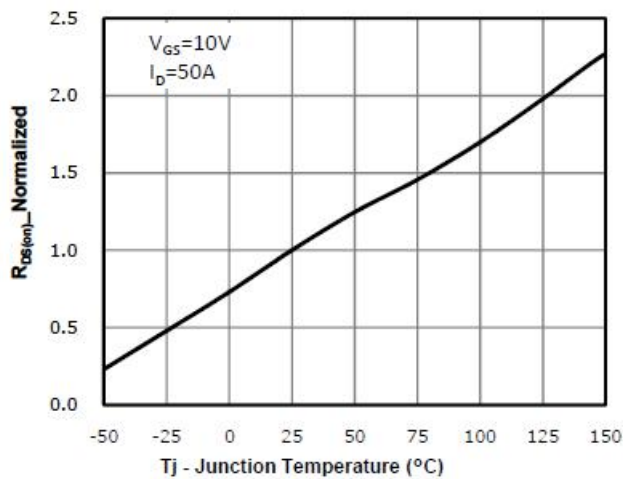


Fig 6: Capacitance Characteristics

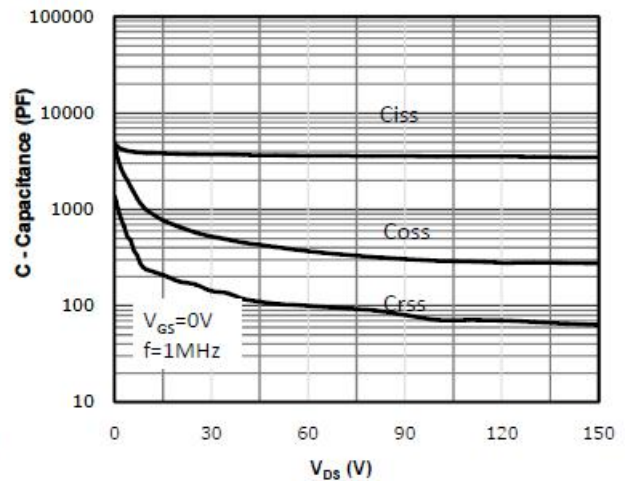


Fig 7: Gate Charge Characteristics

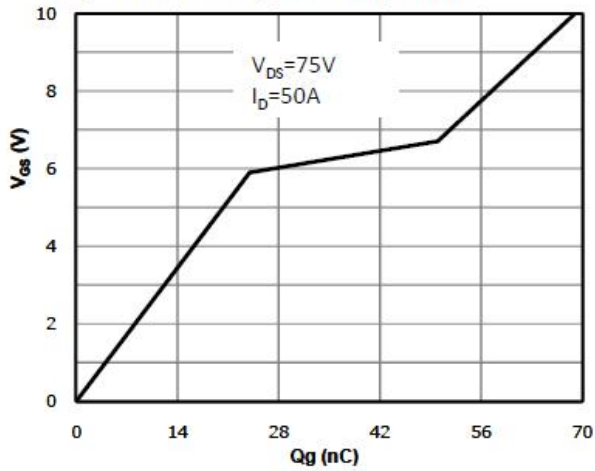


Fig 8: Body-diode Forward Characteristics

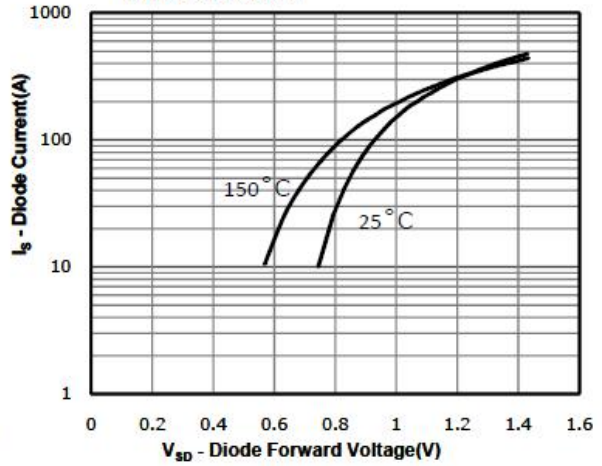


Fig 9: Power Dissipation

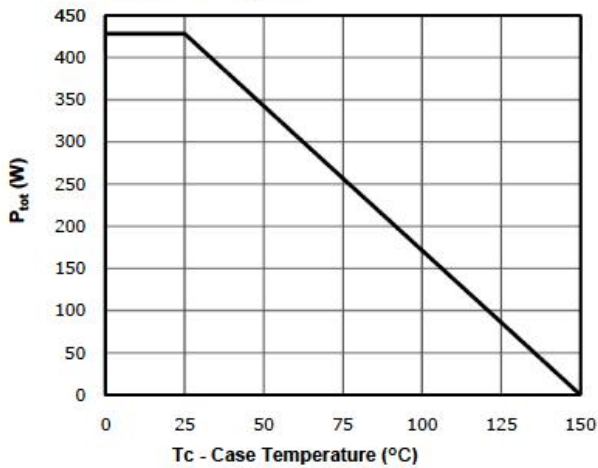


Fig 10: Drain Current Derating

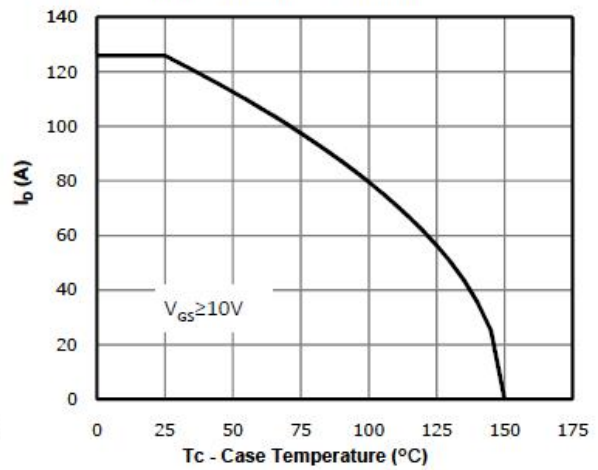


Fig 11: Safe Operating Area

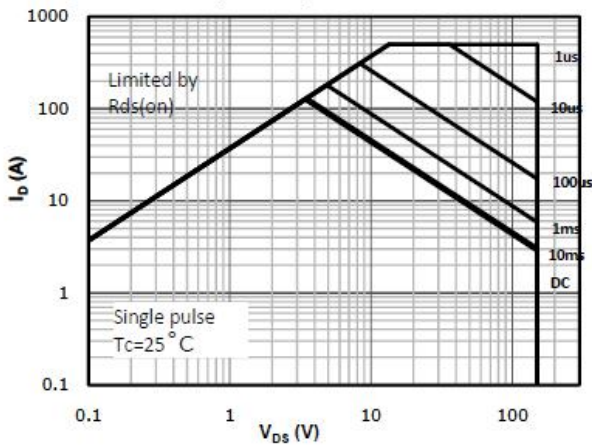


Fig 12: Max. Transient Thermal Impedance

