



Dual N-Channel High Density Trench MOSFET (19.5V 4.5A)

| PRODUCT SUMMARY | | |
|-----------------|-------|--------------------------|
| V_{DS} | I_D | $R_{DS(on)}$ (m-ohm) Max |
| 19.5V | 4.5A | 19 @ $V_{GS} = 4.5V$ |
| | | 23 @ $V_{GS} = 2.5V$ |

Applications

- Battery protection
- Battery Powered Systems
- Power Management in Notebook Computer
- Portable Equipment

KF8205 Pin Assignment & Symbol

6-Lead Plastic **SOT-23-6**

Pin 1:S1

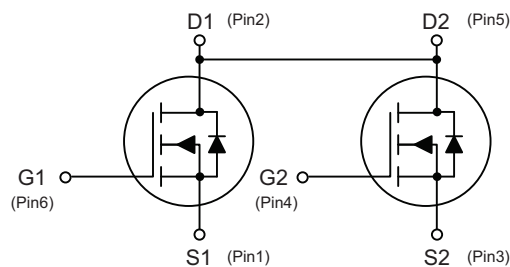
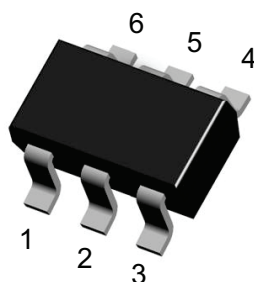
Pin 2:D1/D2

Pin 3:S2

Pin 4:G2

Pin 5:D1/D2

Pin 6:G1



ABSOLUTE MAXIMUM RATINGS

| | | | |
|--------------------------------------|-------|---|----------------|
| Drain-Source Voltage V_{DS} | 19.5V | Storage Temperature Range T_{STG} | -55°C to 150°C |
| Gate-Source Voltage V_{GS} | ±12V | Maximum Junction Temperature T_J | 150°C |
| Drain Current-Continuous I_D | 4.5A | Maximum Power Dissipation P_D | |
| Drain Current-Pulsed $I_{DM}^{(2)}$ | 25A | SOT23-6 (Thermal Resistance $\theta_{JA}=100^\circ\text{C/W}$) | 1 25W |

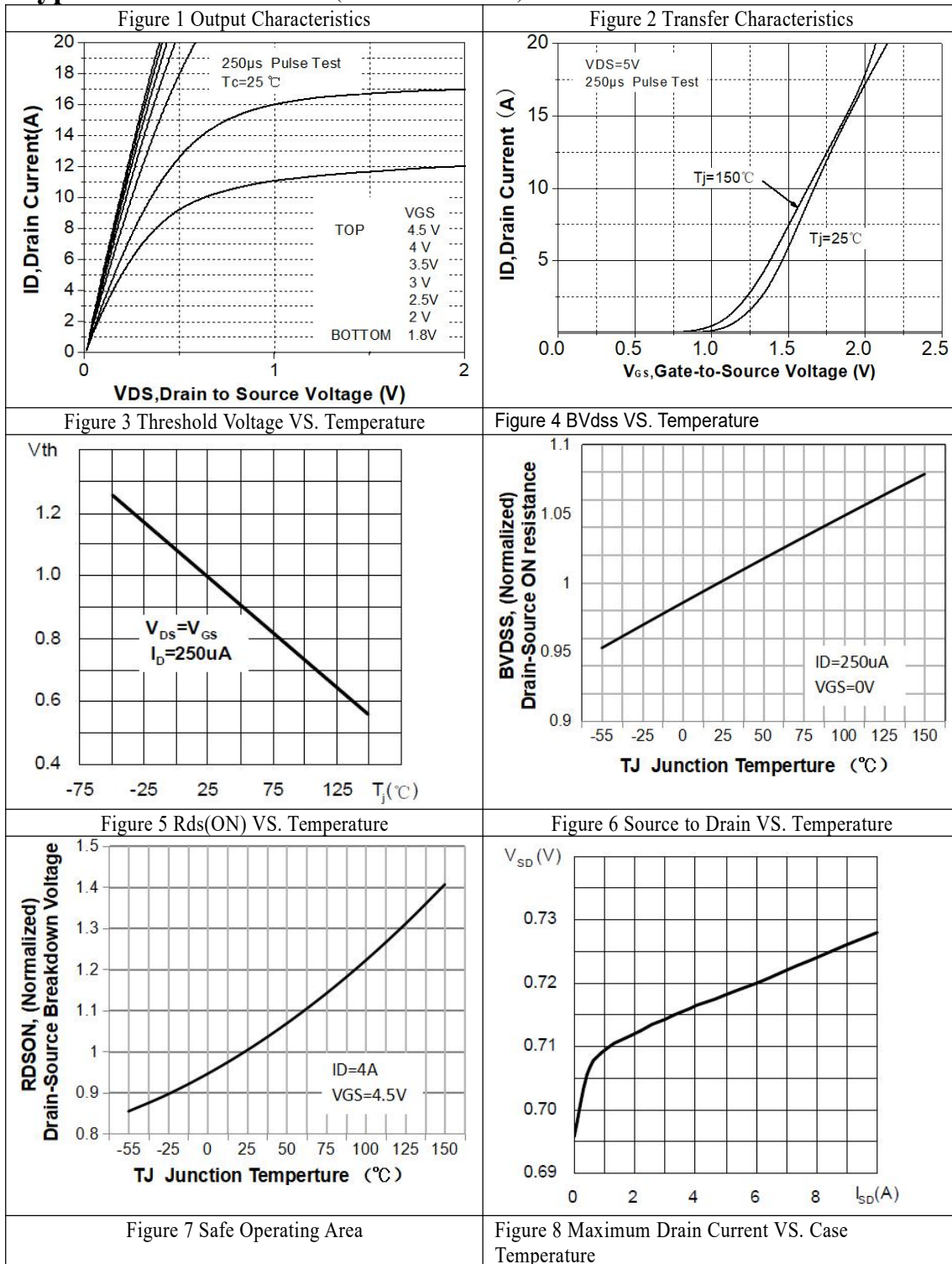


Electrical Characteristics (Ta=25°C)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--|---------------------|--|------|-----|------|------|
| OFF CHARACTERISTICS | | | | | | |
| Drain-Source breakdown voltage | BV _{DSS} | V _{GS} =0V, I _D =250μA | 19.5 | | | V |
| Zero gate voltage drain current | I _{DSS} | V _{DS} =19.5V, V _{GS} =0V | | | 1 | μA |
| Gate-body leakage current | I _{GSS} | V _{GS} =±12V, V _{DS} =0V | | | ±100 | nA |
| ON CHARACTERISTICS⁽¹⁾ | | | | | | |
| Gate threshold voltage | V _{GS(TH)} | V _{DS} = V _{GS} , I _D =250μA | 0.55 | 0.7 | 0.95 | V |
| Drain-source on-state resistance | R _{DS(ON)} | V _{GS} =4.5V, I _D =2A | | 19 | 23 | mΩ |
| | | V _{GS} =2.5V, I _D =2A | | 23 | 30 | mΩ |
| DYNAMIC CHARACTERISTICS⁽²⁾ | | | | | | |
| Input capacitance | C _{ISS} | V _{DS} =10V, V _{GS} =0V, F=1.0MHz | | 465 | | PF |
| Output capacitance | C _{OSS} | | | 99 | | PF |
| Reverse transfer capacitance | C _{RSS} | | | 76 | | PF |
| SWITCHING CHARACTERISTICS⁽²⁾ | | | | | | |
| Turn-on delay time | t _{d(ON)} | V _{DD} = 10V, I _D =1A V _{GS} = 4.5V, R _{GEN} =10Ω | | 8 | | nS |
| Turn-on rise time | t _r | | | 17 | | nS |
| Turn-off delay time | t _{d(OFF)} | | | 19 | | nS |
| Turn-off fall time | t _f | | | 12 | | nS |
| Total gate charge | Q _g | V _{DS} = 10V, I _D =4A V _{GS} = 4.5V | | 6.1 | | nC |
| Gate-source charge | Q _{gs} | | | 0.9 | | nC |
| Gate-drain charge | Q _{gd} | | | 1.8 | | nC |
| Drain-source diode characteristics | | | | | | |
| Diode forward voltage ⁽¹⁾ | V _{SD} | V _{GS} = 0V, I _S =2.8A | | 0.7 | 1.2 | V |
| Diode forward current ⁽³⁾ | I _S | | | | 4.5 | A |



Typical characteristics (25°C unless noted)



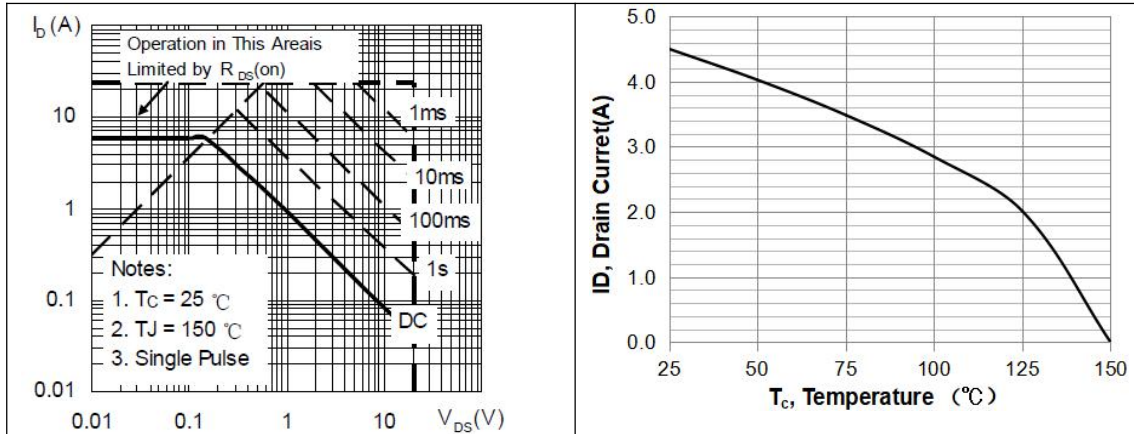
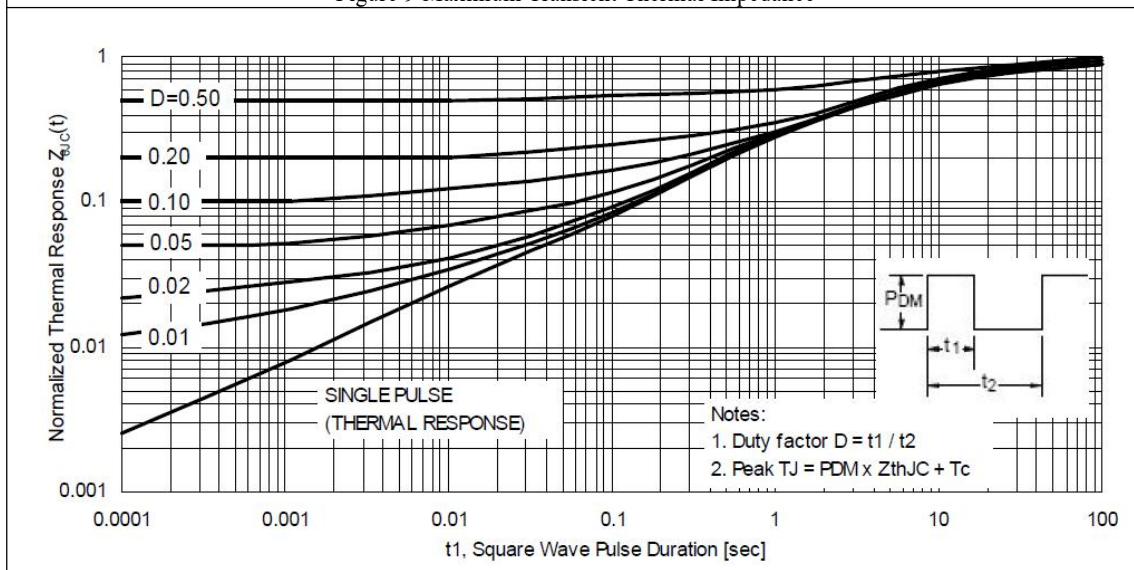


Figure 9 Maximum Transient Thermal Impedance

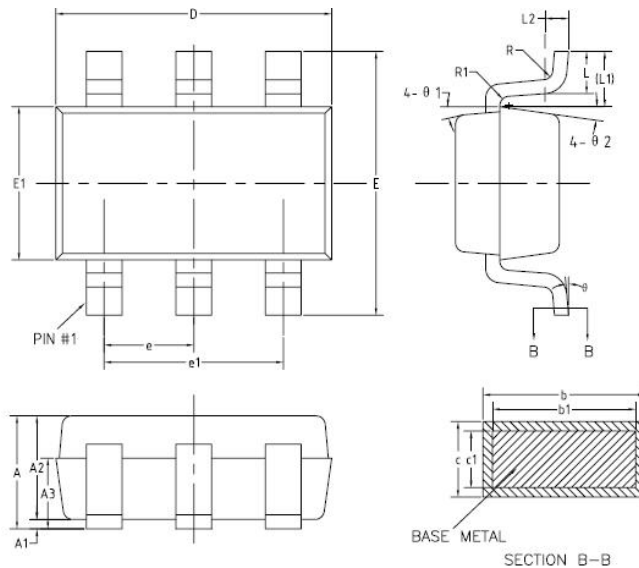


Package Dimensions:

SOT23-6

COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

| SYMBOL | MIN | NOM | MAX |
|------------|---------|------|------|
| A | — | — | 1.45 |
| A1 | 0 | — | 0.15 |
| A2 | 0.90 | 1.15 | 1.30 |
| A3 | 0.60 | 0.65 | 0.70 |
| b | 0.39 | — | 0.49 |
| b1 | 0.35 | 0.40 | 0.45 |
| c | 0.08 | — | 0.22 |
| c1 | 0.08 | 0.13 | 0.20 |
| D | 2.80 | 2.90 | 3.00 |
| E | 2.60 | 2.80 | 3.00 |
| E1 | 1.50 | 1.60 | 1.70 |
| e | 0.85 | 0.95 | 1.05 |
| e1 | 1.80 | 1.90 | 2.00 |
| L | 0.35 | 0.45 | 0.60 |
| L1 | 0.60REF | | |
| L2 | 0.25BSC | | |
| R | 0.10 | — | — |
| R1 | 0.10 | — | 0.25 |
| θ | 0° | — | 8° |
| θ_1 | 7° | 9° | 11° |
| θ_2 | 8° | 10° | 12° |



NOTES:
ALL DIMENSIONS REFER TO JEDEC STANDARD MO-178 C
DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS.



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