

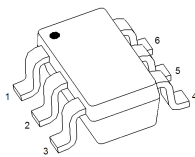
FEATURE

- TrenchFET Power MOSFET
- Excellent $R_{DS(on)}$
- Low Gate Charge
- High Power and Current Handling Capability
- Surface Mount Package

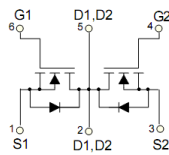
APPLICATION

- Battery Protection
- Load Switch
- Power Management

SOT-23-6

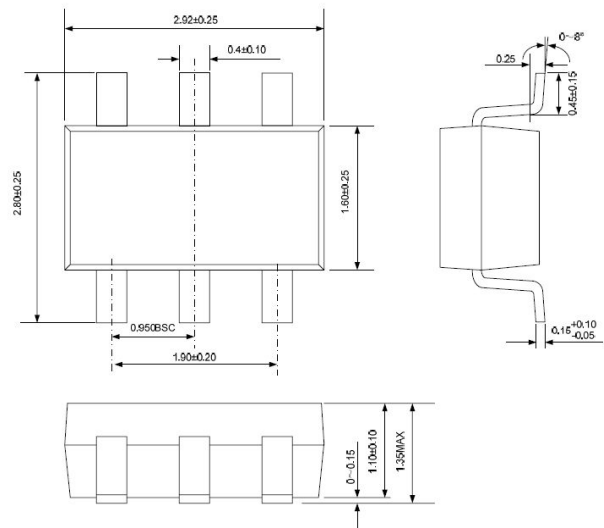


Equivalent Circuit



| $V_{(BR)DSS}$ | $R_{DS(on)MAX}$ | I_D Max |
|---------------|-----------------|-----------|
| 20V | 25 mΩ @ 4.5V | 5.0A |
| | 34 mΩ @ 2.5V | |

SOT23-6



Dimensions in millimeters

ABSOLUTE MAXIMUM RATINGS ($T_a=25^{\circ}C$ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------------|----------|---------------|
| Drain-Source Voltage | V_{DS} | 20 | V |
| Gate-Source Voltage | V_{GS} | ± 12 | V |
| Continuous Drain Current | I_D | 5 | A |
| Pulsed Drain Current (note 1) | I_{DM} | 15 | A |
| Thermal Resistance from Junction to Ambient (note 2) | $R_{\theta JA}$ | 100 | $^{\circ}C/W$ |
| Junction Temperature | T_J | 150 | $^{\circ}C$ |
| Storage Temperature | T_{STG} | -55~+150 | $^{\circ}C$ |
| Lead Temperature for Soldering Purposes(1/8" from case for 10 s) | T_L | 260 | $^{\circ}C$ |

8205S

T_a =25 °C unless otherwise specified

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|---|----------------------|---|-----|------|------|------|
| STATIC CHARACTERISTICS | | | | | | |
| Drain-source breakdown voltage | V _{(BR)DSS} | V _{GS} = 0V, I _D =250μA | 20 | | | V |
| Zero gate voltage drain current | I _{DSS} | V _{DS} =18V, V _{GS} = 0V | | | 300 | nA |
| Gate-body leakage current | I _{GSS} | V _{GS} =±12V, V _{DS} = 0V | | | ±100 | nA |
| Gate threshold voltage (note 3) | V _{GS(th)} | V _{DS} =V _{GS} , I _D =250μA | 0.4 | 0.7 | 1.0 | V |
| Drain-source on-resistance (note 3) | R _{DS(on)} | V _{GS} =4.5V, I _D =4A | | 20 | 25 | mΩ |
| | | V _{GS} =2.5V, I _D =3A | | 26 | 34 | mΩ |
| Forward tranconductance (note 3) | g _{FS} | V _{DS} =5V, I _D =5A | | 10 | | S |
| Diode forward voltage (note 3) | V _{SD} | I _S =1.25A, V _{GS} = 0V | | | 1.2 | V |
| DYNAMIC CHARACTERISTICS (note4) | | | | | | |
| Input Capacitance | C _{iss} | V _{DS} =10V, V _{GS} =0V, f =1MHz | | 800 | | pF |
| Output Capacitance | C _{oss} | | | 155 | | pF |
| Reverse Transfer Capacitance | C _{rss} | | | 125 | | pF |
| SWITCHING CHARACTERISTICS (note 4) | | | | | | |
| Turn-on delay time | t _{d(on)} | V _{DD} =10V, V _{GS} =4V, I _D =1A, R _{GEN} =10Ω | | 18 | | ns |
| Turn-on rise time | t _r | | | 4.8 | | ns |
| Turn-off delay time | t _{d(off)} | | | 43.5 | | ns |
| Turn-off fall time | t _f | | | 20 | | ns |
| Total Gate Charge | Q _g | V _{DS} =10V, V _{GS} =4.5V, I _D =4A | | 11 | | nC |
| Gate-Source Charge | Q _{gs} | | | 2.2 | | nC |
| Gate-Drain Charge | Q _{gd} | | | 2.5 | | nC |

Notes :

- 1.Repetitive rating: Pluse width limited by maximum junction temperature
- 2.Surface Mounted on FR4 board, t ≤ 10 sec.
3. Pulse test : Pulse width ≤ 300μs, duty cycle ≤ 2%.
4. Guaranteed by design, not subject to production.

RATING AND CHARACTERISTIC CURVES (8205S)

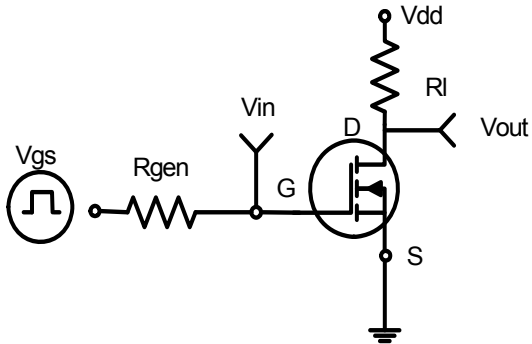


Figure 1: Switching Test Circuit

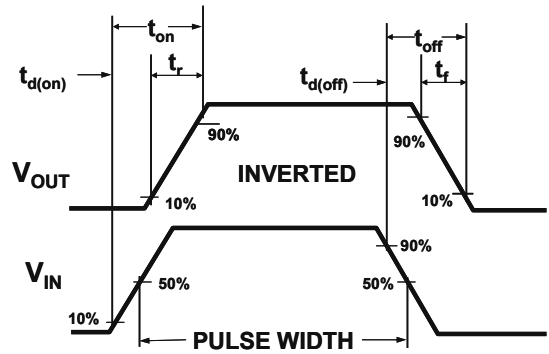


Figure 2: Switching Waveforms

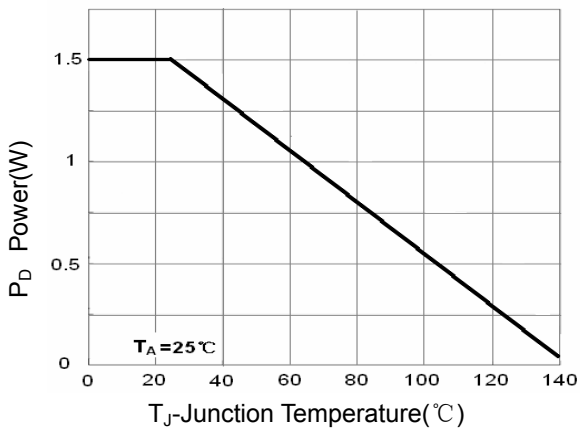


Figure 3 Power Dissipation

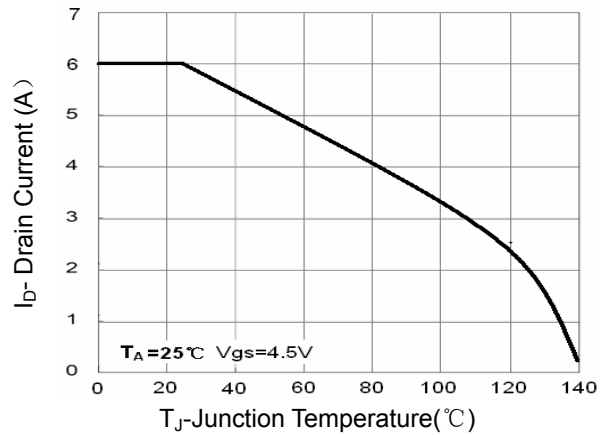


Figure 4 Drain Current

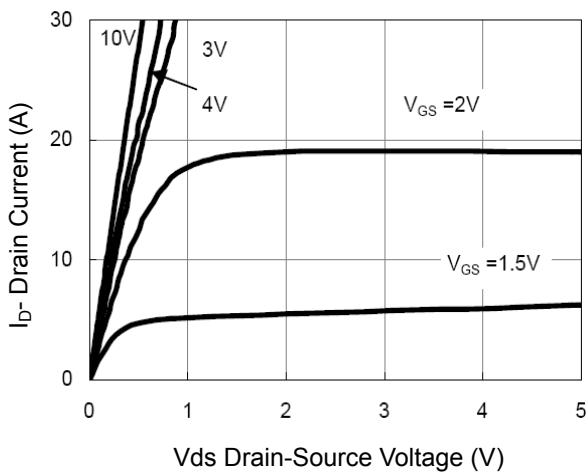


Figure 5 Output Characteristics

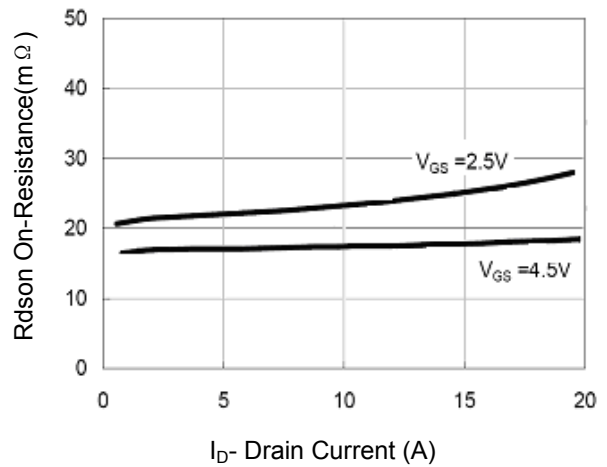
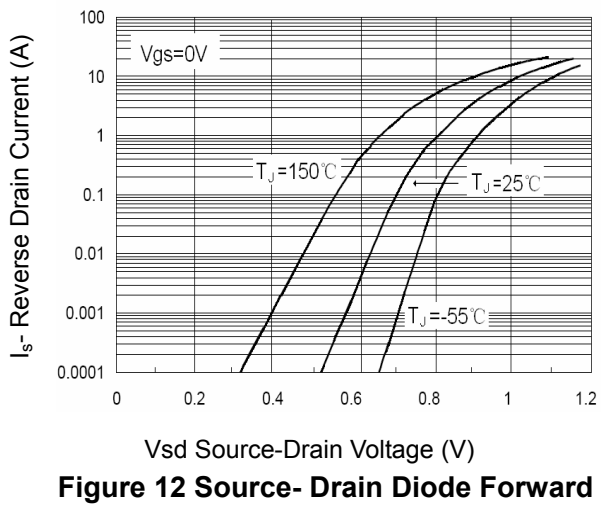
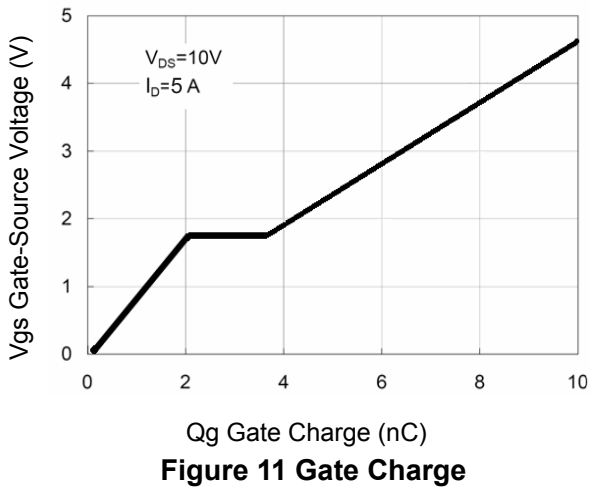
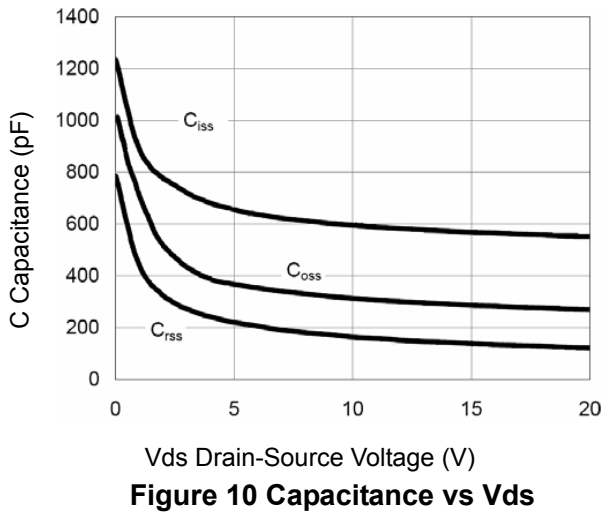
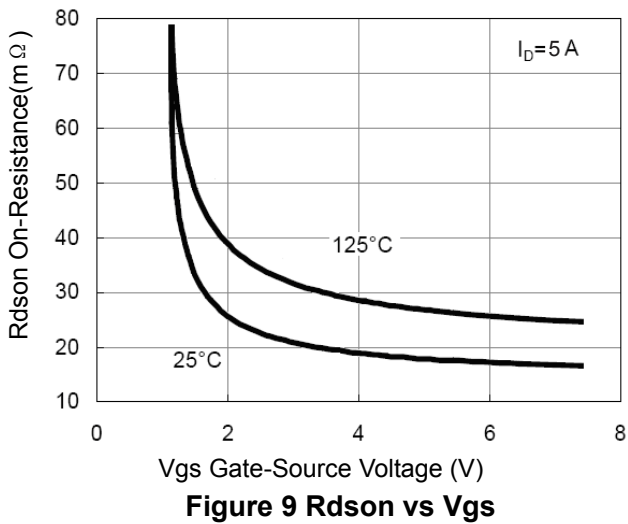
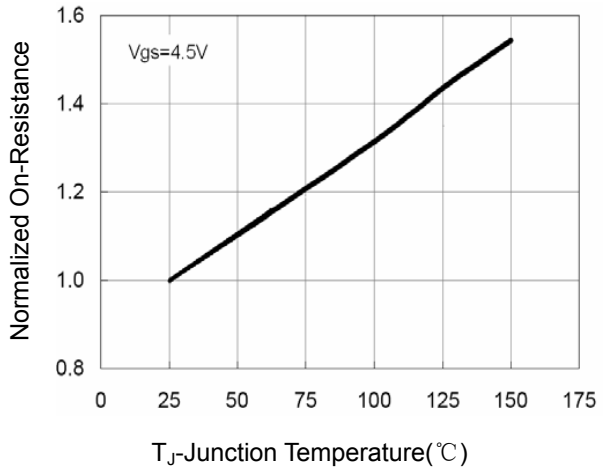
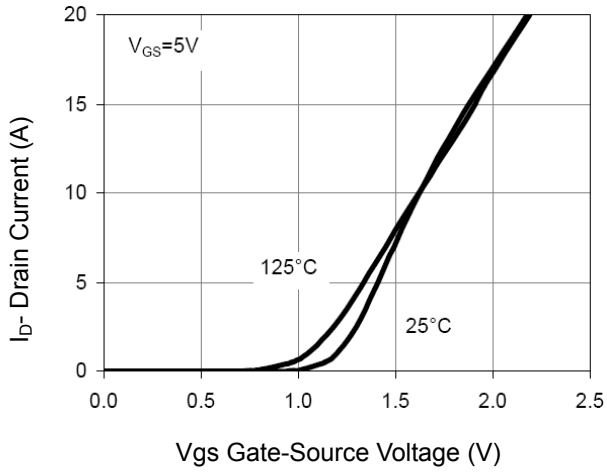


Figure 6 Drain-Source On-Resistance

RATING AND CHARACTERISTIC CURVES (8205S)



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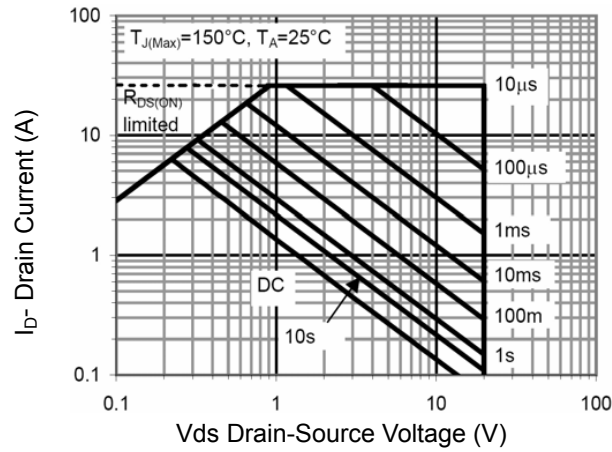


Figure 13 Safe Operation Area

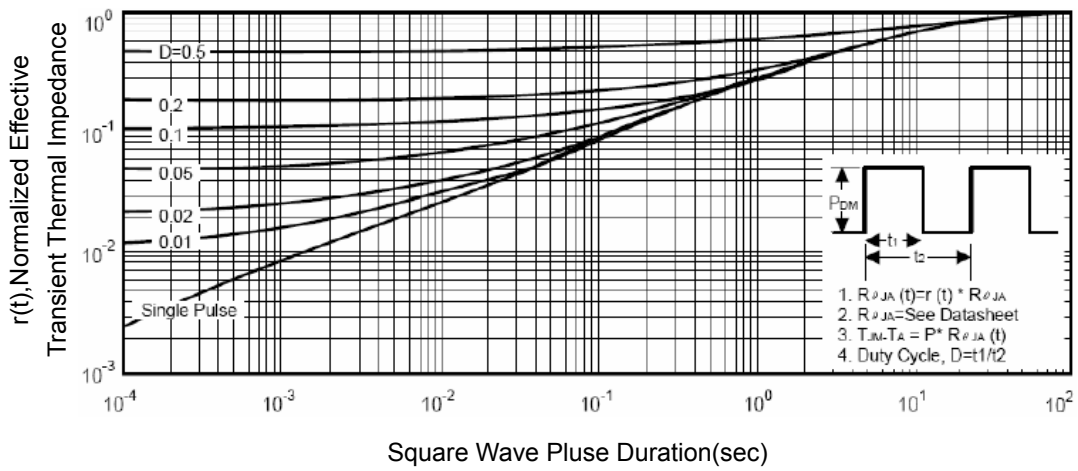


Figure 14 Normalized Maximum Transient Thermal Impedance

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