



### SOT-23 Plastic-Encapsulate MOSFETS

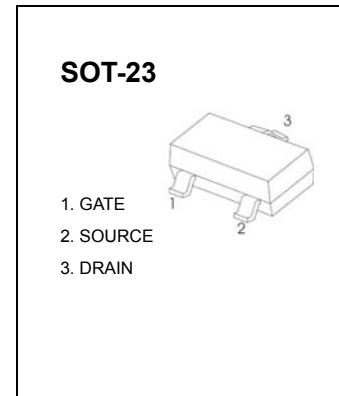
P-Channel 8-V(D-S) MOSFET

#### FEATURE

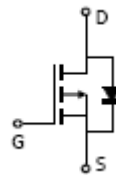
TrenchFET Power MOSFET

#### APPLICATIONS

- Load Switch for Portable Devices
- DC/DC Converter
- **Pb-Free package is available**  
RoHS product for packing code suffix "G"  
Halogen free product for packing code suffix "H"



#### MARKING: S5



#### Maximum ratings ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter   | Symbol          | Value      | Unit                 |
|---|-----------------|------------|----------------------|
| Drain-Source Voltage  | $V_{DS}$        | -8         | V                    |
| Gate-Source Voltage   | $V_{GS}$        | $\pm 8$    |                      |
| Continuous Drain Current                                    | $I_D$           | -4.1       | A                    |
| Continuous Source-Drain Diode Current                       | $I_S$           | -0.8       |                      |
| Maximum Power Dissipation                                   | $P_D$           | 0.35       | W                    |
| Thermal Resistance from Junction to Ambient( $t \leq 10s$ ) | $R_{\theta JA}$ | 357        | $^{\circ}\text{C/W}$ |
| Junction Temperature  | $T_J$           | 150        | $^{\circ}\text{C}$   |
| Storage Temperature   | $T_{STG}$       | -50 ~ +150 |                      |



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#### Electrical characteristics (T<sub>a</sub>=25°C unless otherwise noted)

| Parameter                                      | Symbol               | Test Condition  | Min  | Typ  | Max   | Units |
|--|----------------------|---|------|------|-------|-------|
| <b>Static</b>                                  |                      |   |      |      |       |       |
| Drain-source breakdown voltage                 | V <sub>(BR)DSS</sub> | V <sub>GS</sub> = 0V, I <sub>D</sub> = -250μA   | -8   |      |       | V     |
| Gate-source threshold voltage                  | V <sub>GS(th)</sub>  | V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = -250μA   | -0.5 |      | -0.9  |       |
| Gate-source leakage                            | I <sub>GSS</sub>     | V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±8V   |      |      | ±100  | nA    |
| Zero gate voltage drain current                | I <sub>DSS</sub>     | V <sub>DS</sub> = -8V, V <sub>GS</sub> = 0V   |      |      | -1    | μA    |
| Drain-source on-state resistance <sup>a</sup>  | R <sub>DS(on)</sub>  | V <sub>GS</sub> = -4.5V, I <sub>D</sub> = -3.5A   |      |      | 0.045 | Ω     |
|  |                      | V <sub>GS</sub> = -2.5V, I <sub>D</sub> = -3A   |      |      | 0.060 |       |
|  |                      | V <sub>GS</sub> = -1.8V, I <sub>D</sub> = -2.0A   |      |      | 0.090 |       |
| Forward transconductance <sup>a</sup>          | g <sub>fs</sub>      | V <sub>DS</sub> = -5V, I <sub>D</sub> = -4.1A   | 6    |      |       | S     |
| <b>Dynamic</b>                                 |                      |   |      |      |       |       |
| Input capacitance <sup>b,c</sup>               | C <sub>iss</sub>     | V <sub>DS</sub> = -4V, V <sub>GS</sub> = 0V, f = 1MHz   |      | 740  |       | pF    |
| Output capacitance <sup>b,c</sup>              | C <sub>oss</sub>     |   |      | 290  |       |       |
| Reverse transfer capacitance <sup>b,c</sup>    | C <sub>rss</sub>     |   |      | 190  |       |       |
| Total gate charge <sup>b</sup>                 | Q <sub>g</sub>       | V <sub>DS</sub> = -4V, V <sub>GS</sub> = -4.5V,<br>I <sub>D</sub> = -4.1A   |      | 7.8  | 15    | nC    |
|  |                      | V <sub>DS</sub> = -4V, V <sub>GS</sub> = -2.5V,<br>I <sub>D</sub> = -4.1A   |      | 4.5  | 9     |       |
| Gate-source charge <sup>b</sup>                | Q <sub>gs</sub>      |   |      | 1.2  |       |       |
| Gate-drain charge <sup>b</sup>                 | Q <sub>gd</sub>      |   |      | 1.6  |       |       |
| Gate resistance <sup>b,c</sup>                 | R <sub>g</sub>       | f = 1MHz  | 1.4  | 7    | 14    | Ω     |
| Turn-on delay time <sup>b,c</sup>              | t <sub>d(on)</sub>   | V <sub>DD</sub> = -4V,<br>R <sub>L</sub> = 1.2Ω, I <sub>D</sub> ≈ -3.3A,<br>V <sub>GEN</sub> = -4.5V, R <sub>g</sub> = 1Ω |      | 13   | 20    | ns    |
| Rise time <sup>b,c</sup>                       | t <sub>r</sub>       |   |      | 35   | 53    |       |
| Turn-off Delay time <sup>b,c</sup>             | t <sub>d(off)</sub>  |   |      | 32   | 48    |       |
| Fall time <sup>b,c</sup>                       | t <sub>f</sub>       |   |      | 10   | 20    |       |
| Turn-on delay time <sup>b,c</sup>              | t <sub>d(on)</sub>   | V <sub>DD</sub> = -4V,<br>R <sub>L</sub> = 1.2Ω, I <sub>D</sub> ≈ -3.3A,<br>V <sub>GEN</sub> = -8V, R <sub>g</sub> = 1Ω   |      | 5    | 10    |       |
| Rise time <sup>b,c</sup>                       | t <sub>r</sub>       |   |      | 11   | 17    |       |
| Turn-off delay time <sup>b,c</sup>             | t <sub>d(off)</sub>  |   |      | 22   | 33    |       |
| Fall time <sup>b,c</sup>                       | t <sub>f</sub>       |   |      | 16   | 24    |       |
| <b>Drain-source body diode characteristics</b> |                      |   |      |      |       |       |
| Continuous source-drain diode current          | I <sub>S</sub>       | T <sub>C</sub> = 25°C   |      |      | -1.4  | A     |
| Pulse diode forward current <sup>a</sup>       | I <sub>SM</sub>      |   |      |      | -10   |       |
| Body diode voltage                             | V <sub>SD</sub>      | I <sub>F</sub> = -3.3A  |      | -0.8 | -1.2  | V     |

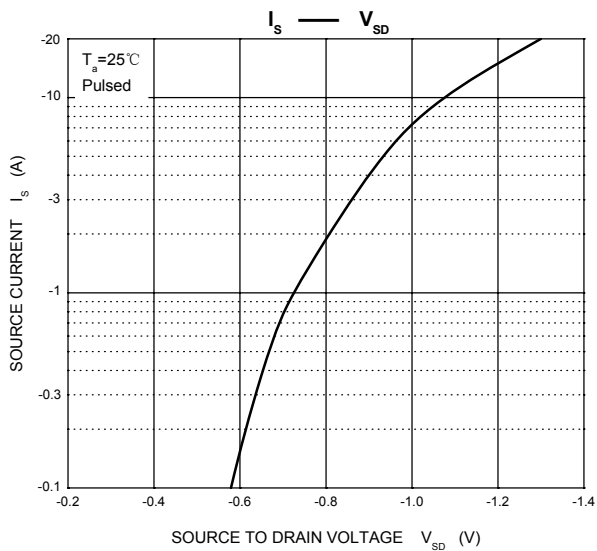
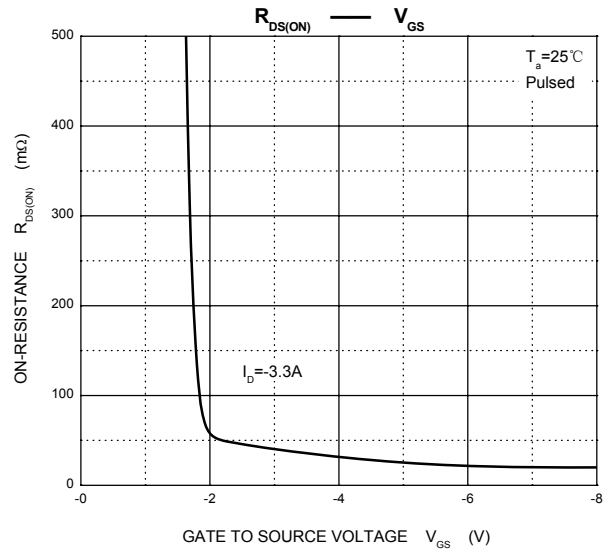
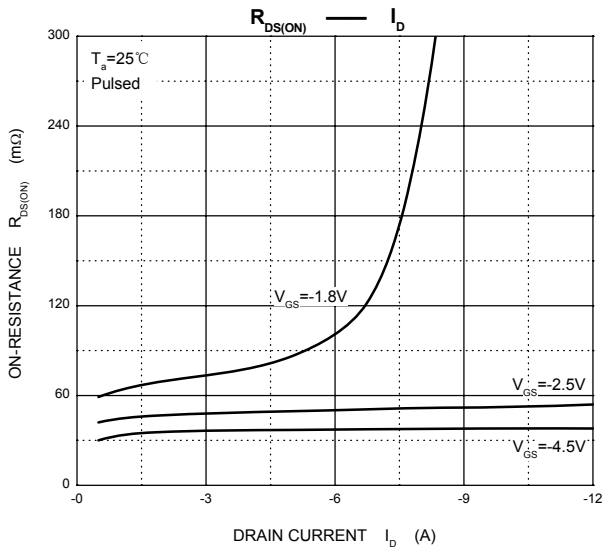
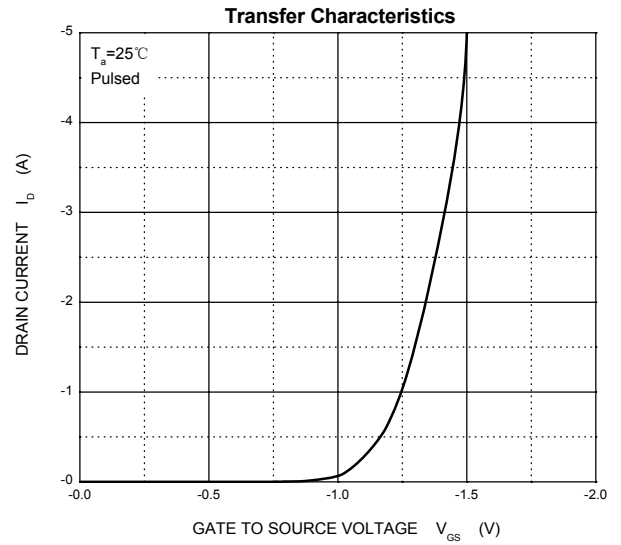
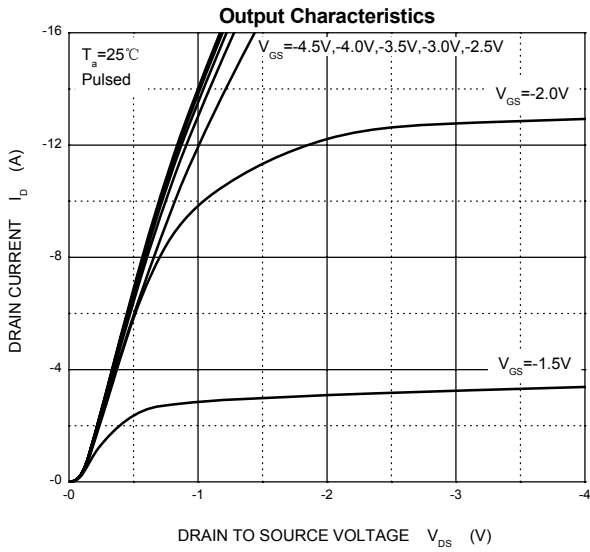
**Note :**

- a. Pulse Test ; Pulse Width ≤300μs, Duty Cycle ≤2%.
- b. Guaranteed by design, not subject to production testing.
- c. These parameters have no way to verify.



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# Typical Characteristics

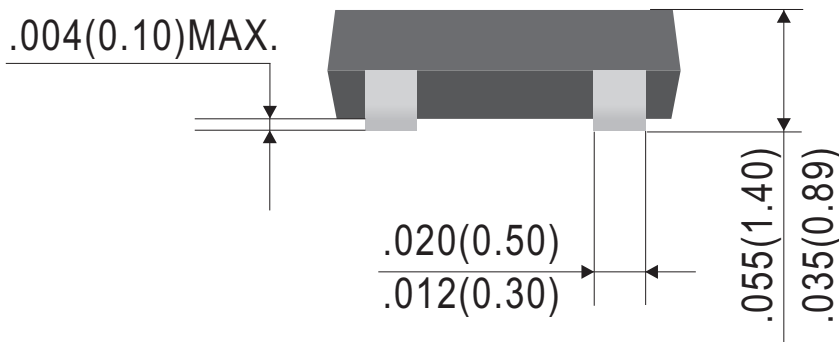
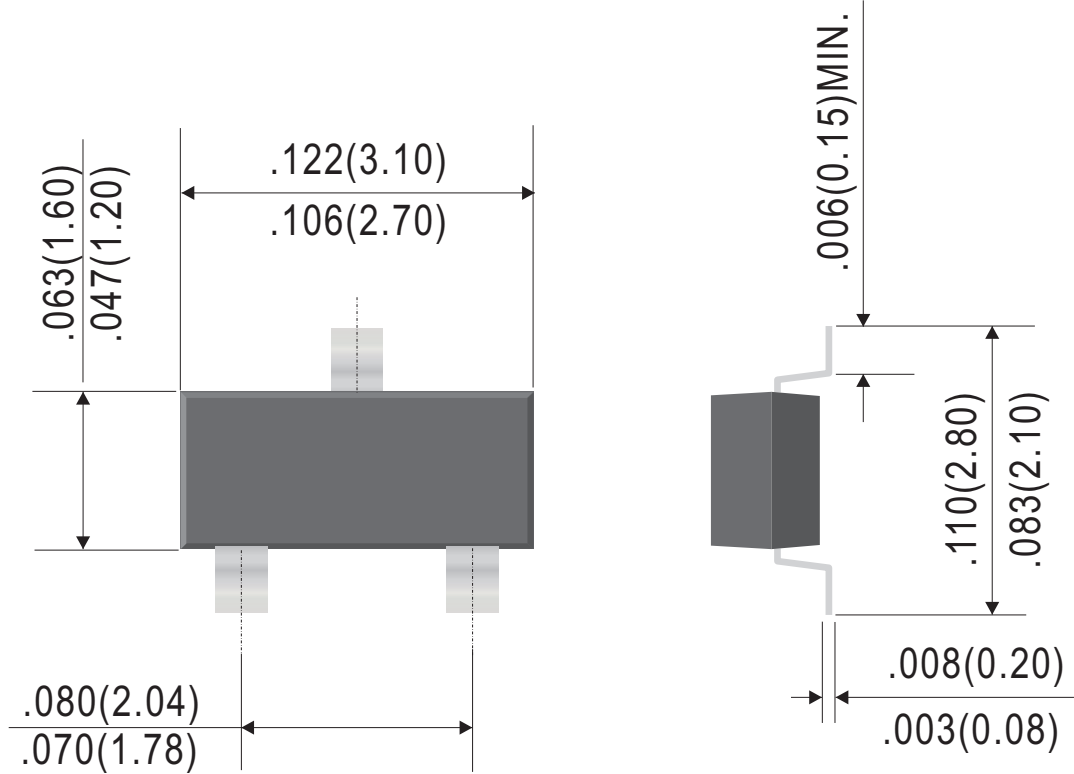




## SOT-23 Plastic-Encapsulate MOSFETS

### Outline Drawing

### SOT-23



Dimensions in inches and (millimeters)

Rev.D



### SOT-23 Plastic-Encapsulate MOSFETS

#### Ordering Information:

| Device PN                                    | Packing                |
|--|------------------------|
| SE2305-T <sup>(1)</sup> G <sup>(2)</sup> -WS | Tape&Reel: 3 Kpcs/Reel |

Note: (1) Packing code, Tape & Reel

(2) RoHS product for packing code suffix "G" ; Halogen free product for packing code suffix "H"

#### **\*\*\*Disclaimer\*\*\***

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