



#### Product Summary

|               |                 |       |
|---------------|-----------------|-------|
| $V_{(BR)DSS}$ | $R_{DS(on)TYP}$ | $I_D$ |
| 150V          | 430mΩ@10V       | 1A    |

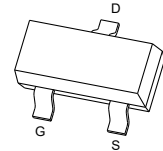
#### Feature

- Trench Technology Power MOSFET
- Low  $R_{DS(ON)}$
- Low Gate Charge

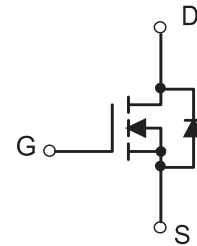
#### Application

- Load Switching
- Low Current Inverters
- Low Current DC/DC Converters

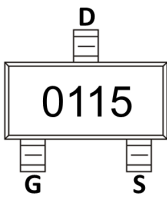
#### SOT-23



#### Schematic diagram



#### MARKING:



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

| Parameter  | Symbol          | Value     | Unit |
|--|-----------------|-----------|------|
| Drain - Source Voltage                                   | $V_{DS}$        | 150       | V    |
| Gate - Source Voltage                                    | $V_{GS}$        | ±20       | V    |
| Continuous Drain Current <sup>1,5</sup>                  | $I_D$           | 1         | A    |
| Pulsed Drain Current <sup>2</sup>                        | $I_{DM}$        | 4         | A    |
| Power Dissipation <sup>4,5</sup>                         | $P_D$           | 0.4       | W    |
| Thermal Resistance from Junction to Ambient <sup>5</sup> | $R_{\theta JA}$ | 312       | °C/W |
| Junction Temperature                                     | $T_J$           | 150       | °C   |
| Storage Temperature                                      | $T_{STG}$       | -55~ +150 | °C   |

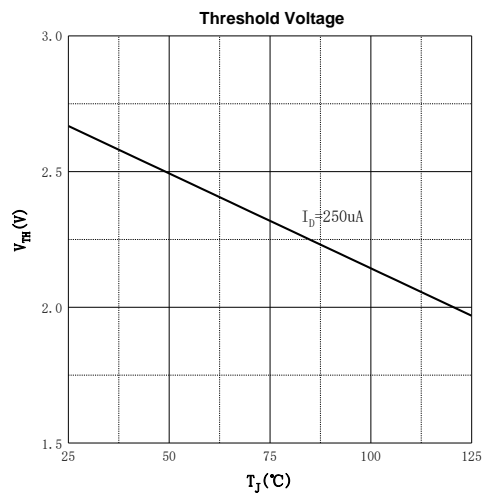
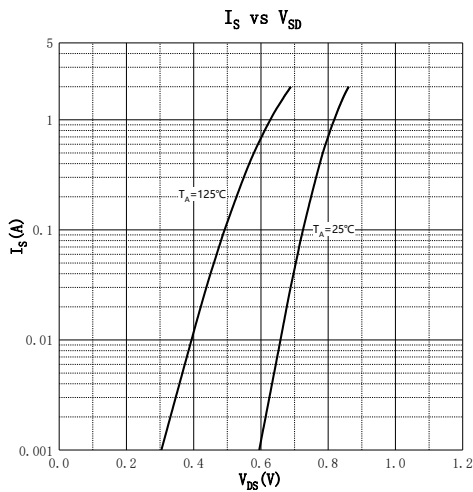
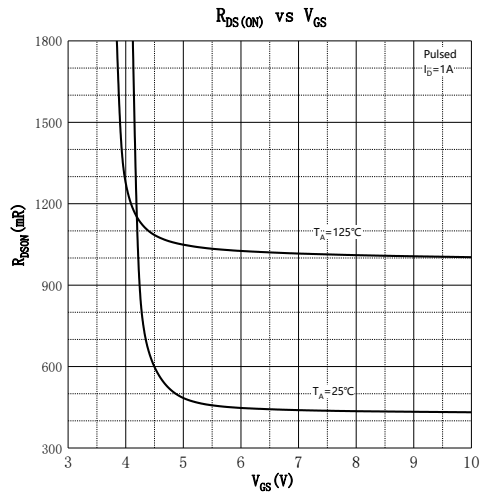
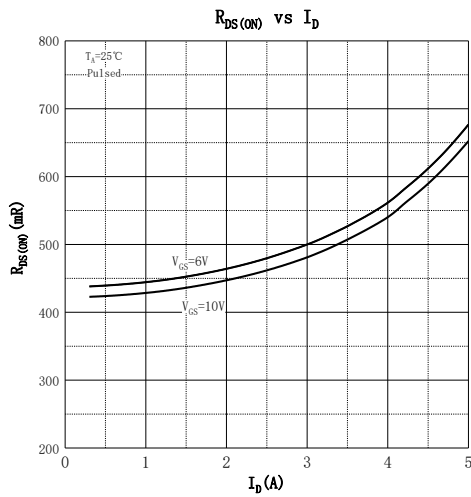
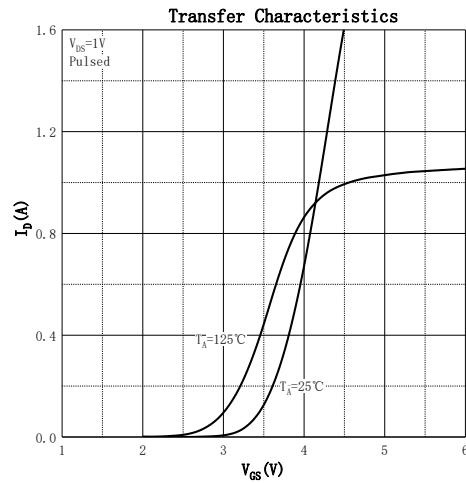
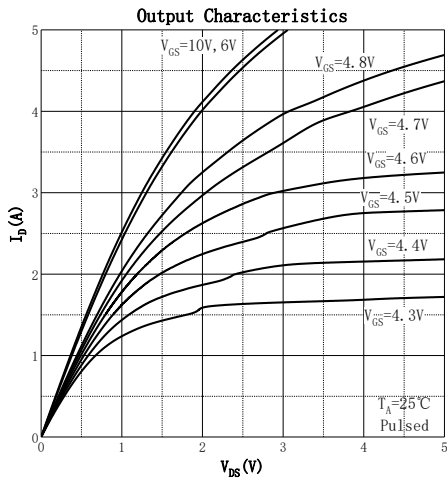
**MOSFET ELECTRICAL CHARACTERISTICS ( $T_J = 25^\circ\text{C}$  unless otherwise noted)**

| Parameter                                   | Symbol        | Test Condition   | Min | Type | Max       | Unit       |
|---|---------------|--|-----|------|-----------|------------|
| <b>Off Characteristics</b>                  |               |  |     |      |           |            |
| Drain - Source Breakdown Voltage            | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$                                    | 150 |      |           | V          |
| Zero Gate Voltage Drain Current             | $I_{DSS}$     | $V_{DS} = 120V, V_{GS} = 0V$                                     |     |      | -1        | $\mu A$    |
| Gate - Body Leakage Current                 | $I_{GSS}$     | $V_{GS} = \pm 20V, V_{DS} = 0V$                                  |     |      | $\pm 100$ | nA         |
| <b>On Characteristics<sup>3</sup></b>       |               |  |     |      |           |            |
| Gate Threshold Voltage                      | $V_{GS(th)}$  | $V_{DS} = V_{GS}, I_D = 250\mu A$                                | 1.5 | 2.5  | 3.5       | V          |
| Drain-source On-resistance                  | $R_{DS(on)}$  | $V_{GS} = 10V, I_D = 1A$   |     | 430  | 650       | m $\Omega$ |
| Forward Transconductance                    | $g_{FS}$      | $V_{DS} = 5V, I_D = 1A$  |     | 2    |           | S          |
| <b>Dynamic Characteristics</b>              |               |  |     |      |           |            |
| Input Capacitance                           | $C_{iss}$     | $V_{DS} = 45V, V_{GS} = 0V, f = 1MHz$                            |     | 372  |           | pF         |
| Output Capacitance                          | $C_{oss}$     |  |     | 14   |           |            |
| Reverse Transfer Capacitance                | $C_{rss}$     |  |     | 11   |           |            |
| <b>Switching Characteristics</b>            |               |  |     |      |           |            |
| Total Gate Charge                           | $Q_g$         | $V_{DS} = 75V, V_{GS} = 10V, I_D = 1A$                           |     | 8.7  |           | nC         |
| Gate-source Charge                          | $Q_{gs}$      |  |     | 0.79 |           |            |
| Gate-drain Charge                           | $Q_{gd}$      |  |     | 2.7  |           |            |
| Turn-on Delay Time                          | $t_{d(on)}$   | $V_{DD} = 75V, V_{GS} = 10V,$<br>$R_L = 75\Omega, R_G = 3\Omega$ |     | 8    |           | ns         |
| Turn-on Rise Time                           | $t_r$         |  |     | 22   |           |            |
| Turn-off Delay Time                         | $t_{d(off)}$  |  |     | 9    |           |            |
| Turn-off Fall Time                          | $t_f$         |  |     | 20   |           |            |
| <b>Source - Drain Diode Characteristics</b> |               |  |     |      |           |            |
| Diode Forward Voltage <sup>3</sup>          | $V_{SD}$      | $V_{GS} = 0V, I_S = 1A$  |     |      | 1.2       | V          |

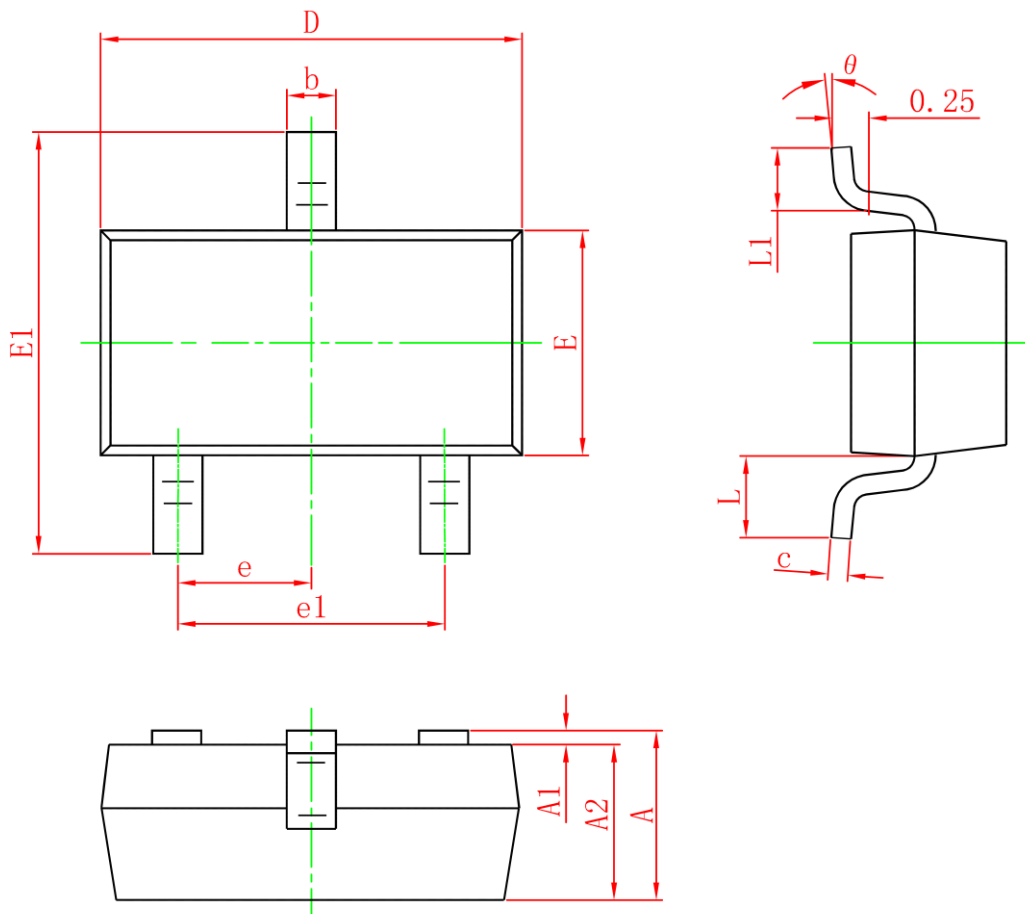
**Notes :**

- 1.The maximum current rating is limited by package.
- 2.Repetitive rating:pulse width limited by  $T_{J(MAX)} = 150^\circ\text{C}$ .
- 3.Pulse Test : Pulse Width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
- 4.The power dissipation PD is limited by  $T_{J(MAX)} = 150^\circ\text{C}$ .
- 5.Device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with  $T_A = 25^\circ\text{C}$ .

**Typical Characteristics**



## SOT-23 Package Information



| Symbol   | Dimensions In Millimeters |       | Dimensions In Inches |       |
|----------|---------------------------|-------|----------------------|-------|
|          | Min.                      | Max.  | Min.                 | Max.  |
| A        | 0.900                     | 1.150 | 0.035                | 0.045 |
| A1       | 0                         | 0.100 | 0                    | 0.004 |
| A2       | 0.900                     | 1.050 | 0.035                | 0.041 |
| b        | 0.300                     | 0.500 | 0.012                | 0.020 |
| c        | 0.080                     | 0.150 | 0.003                | 0.006 |
| D        | 2.800                     | 3.000 | 0.110                | 0.118 |
| E        | 1.150                     | 1.500 | 0.045                | 0.059 |
| E1       | 2.250                     | 2.650 | 0.089                | 0.104 |
| e        | 0.950TYP                  |       | 0.037TYP             |       |
| e1       | 1.800                     | 2.000 | 0.071                | 0.079 |
| L        | 0.550REF                  |       | 0.022REF             |       |
| L1       | 0.300                     | 0.500 | 0.012                | 0.020 |
| $\theta$ | 0°                        | 8°    | 0°                   | 8°    |