

## Dual N-Channel Enhancement Mode MOSFET

### 1. Product Information

#### 1.1 Features

- ☒ Surface-mounted package
- ☒ Advanced trench cell design
- ☒ Extremely low threshold voltage
- ☒ ESD:2kv

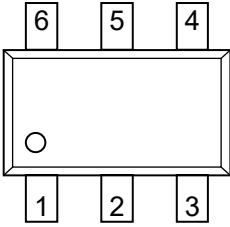
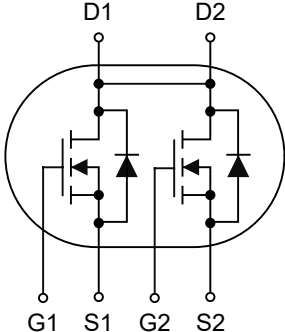
#### 1.2 Applications

- ☒ Portable appliances
- ☒ Battery management

#### 1.3 Quick reference

- ☒  $BV \geq 20V$
- ☒  $P_{tot} \leq 1.25W$
- ☒  $I_D \leq 7.8A$
- ☒  $R_{DS(ON)} \leq 16 m\Omega @ V_{GS} = 4.5V$
- $R_{DS(ON)} \leq 20 m\Omega @ V_{GS} = 2.5V$

### 2. Pin Description

| Pin | Description | Simplified Outline                                                                                                | Symbol                                                                                |
|-----|-------------|-------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1   | Source(S1)  |  <p>Top View<br/>SOT23-6L</p> |  |
| 2   | Drain(D1)   |                                                                                                                   |                                                                                       |
| 3   | Source(S2)  |                                                                                                                   |                                                                                       |
| 4   | Gate(G2)    |                                                                                                                   |                                                                                       |
| 5   | Drain(D2)   |                                                                                                                   |                                                                                       |
| 6   | Gate(G1)    |                                                                                                                   |                                                                                       |

## 3. Limiting Values

| Symbol            | Parameter                               | Conditions                                    | Min  | Max      | Unit                 |
|-------------------|-----------------------------------------|-----------------------------------------------|------|----------|----------------------|
| $V_{DS}$          | Drain-Source Voltage                    | $T_A=25^{\circ}\text{C}$                      | 20   | -        | V                    |
| $V_{GS}$          | Gate-Source Voltage                     | $T_A=25^{\circ}\text{C}$                      | -    | $\pm 12$ | V                    |
| $I_D^*$           | Drain Current                           | $T_A=25^{\circ}\text{C}, V_{GS}=4.5\text{V}$  | -    | 7.8      | A                    |
|                   |                                         | $T_A=100^{\circ}\text{C}, V_{GS}=4.5\text{V}$ | -    | 4.3      | A                    |
| $I_{DM}^{*,**}$   | Pulsed Drain Current                    | $T_A=25^{\circ}\text{C}, V_{GS}=4.5\text{V}$  | -    | 27       | A                    |
| $P_{tot}$         | Total Power Dissipation                 | $T_A=25^{\circ}\text{C}$                      | -    | 1.25     | W                    |
| $T_{stg}$         | Storage Temperature                     |                                               | - 55 | 150      | $^{\circ}\text{C}$   |
| $T_J$             | Junction Temperature                    |                                               | - 55 | 150      | $^{\circ}\text{C}$   |
| $I_S$             | Diode Forward Current                   | $T_A=25^{\circ}\text{C}$                      | -    | 7.8      | A                    |
| $R_{\theta JA}^*$ | Thermal Resistance- Junction to Ambient |                                               |      | 100      | $^{\circ}\text{C/W}$ |

Notes :

\* Surface Mounted on 1 in<sup>2</sup> pad area,  $t \leq 10$  sec

\*\* Pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$

## 4. Marking Information

| Product Name | Marking                                                        |
|--------------|----------------------------------------------------------------|
| KJ8810S      | <div>8810</div> <div>YWWXXX</div> <div>YWWXXX: Date Code</div> |

## 5. Ordering Code

| Product Name | Package | Reel Size | Tape width | Quantity | Note |
|--------------|---------|-----------|------------|----------|------|
| KJ8810S      | SOT23-6 |           |            | 3000     |      |

Note: KUIJIEXIN defines "Green" as lead-free (RoHS compliant) and halogen free (Br or Cl does not exceed 900 ppm by weight in homogeneous material and total of Br and Cl does not exceed 1500 ppm by weight; Follow IEC 61249-2-21 and IPC/JEDEC J-STD-020C)

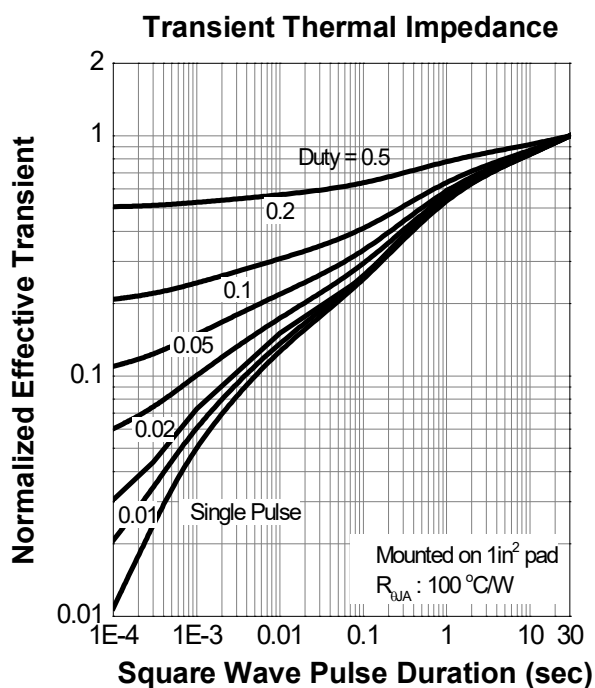
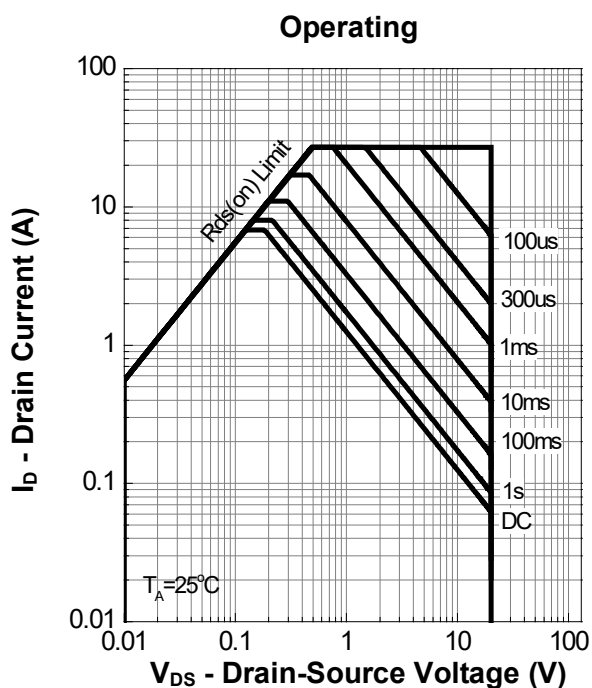
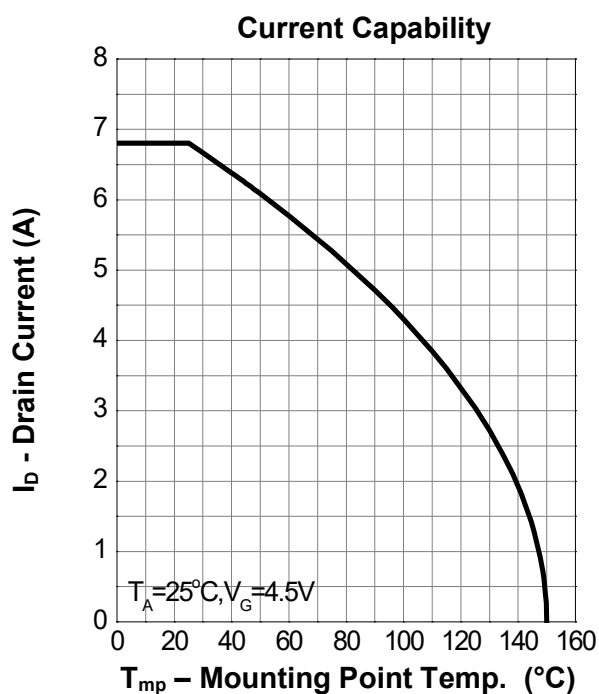
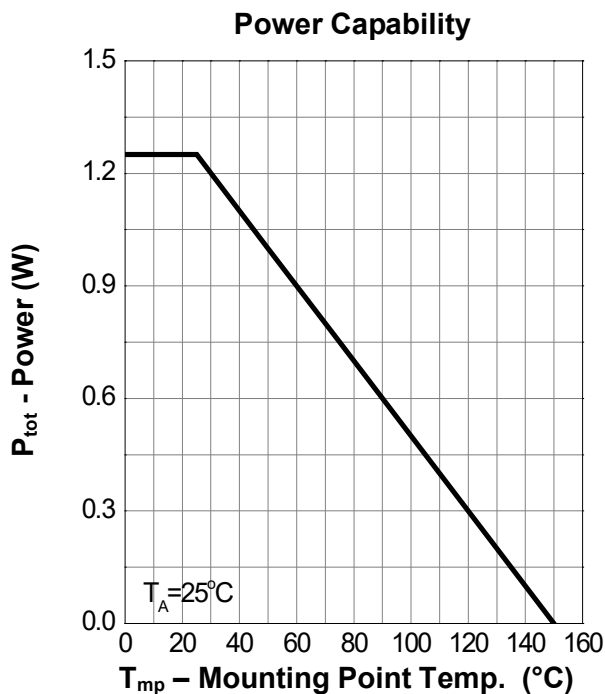
## 6. Electrical Characteristics (T<sub>A</sub> = 25 °C Unless Otherwise Noted)

| Symbol                                   | Parameter                      | Conditions                                                                                                           | Min | Typ  | Max   | Unit |
|------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------|-----|------|-------|------|
| Static Characteristics                   |                                |                                                                                                                      |     |      |       |      |
| BV <sub>DSS</sub>                        | Drain-Source Breakdown Voltage | V <sub>GS</sub> =0V, I <sub>DS</sub> =250μA                                                                          | 20  | -    | -     | V    |
| V <sub>GS(th)</sub>                      | Gate Threshold Voltage         | V <sub>DS</sub> =V <sub>GS</sub> , I <sub>DS</sub> =250μA                                                            | 0.5 | -    | 1     | V    |
| I <sub>DSS</sub>                         | Drain Leakage Current          | V <sub>DS</sub> =16V, V <sub>GS</sub> =0V                                                                            | -   | -    | 1     | μA   |
|                                          |                                | T <sub>J</sub> = 85 °C                                                                                               | -   | -    | 30    | μA   |
| I <sub>GSS</sub>                         | Gate Leakage Current           | V <sub>GS</sub> =±10V, V <sub>DS</sub> =0V                                                                           | -   | -    | ± 10  | μA   |
|                                          |                                | V <sub>GS</sub> =±4.5V, V <sub>DS</sub> =0V                                                                          | -   | -    | ± 0.8 |      |
| R <sub>DS(ON)</sub> <sup>a</sup>         | On-State Resistance            | V <sub>GS</sub> =4.5V, I <sub>DS</sub> =6.8A                                                                         | -   | 15   | 16    | mΩ   |
|                                          |                                | V <sub>GS</sub> =2.5V, I <sub>DS</sub> =5A                                                                           | -   | 18   | 20    |      |
| Diode Characteristics                    |                                |                                                                                                                      |     |      |       |      |
| V <sub>SD</sub> <sup>a</sup>             | Diode Forward Voltage          | I <sub>SD</sub> =6.8A, V <sub>GS</sub> =0V                                                                           | -   | 0.7  | 1.1   | V    |
| Dynamic Characteristics <sup>b</sup>     |                                |                                                                                                                      |     |      |       |      |
| C <sub>iss</sub>                         | Input Capacitance              | V <sub>GS</sub> =0V, V <sub>DS</sub> =10V<br>Frequency=1MHz                                                          | -   | 666  | -     | pF   |
| C <sub>oss</sub>                         | Output Capacitance             |                                                                                                                      | -   | 100  | -     |      |
| C <sub>rss</sub>                         | Reverse Transfer Capacitance   |                                                                                                                      | -   | 85   | -     |      |
| t <sub>d(on)</sub>                       | Turn-on Delay Time             | V <sub>DS</sub> =10V, V <sub>GEN</sub> =4.5V,<br>R <sub>G</sub> =6Ω, R <sub>L</sub> =1.47Ω,<br>I <sub>DS</sub> =6.8A | -   | 0.12 | -     | μs   |
| t <sub>r</sub>                           | Turn-on Rise Time              |                                                                                                                      | -   | 0.29 | -     |      |
| t <sub>d(off)</sub>                      | Turn-off Delay Time            |                                                                                                                      | -   | 3.63 | -     |      |
| t <sub>f</sub>                           | Turn-off Fall Time             |                                                                                                                      | -   | 2.55 | -     |      |
| Gate Charge Characteristics <sup>b</sup> |                                |                                                                                                                      |     |      |       |      |
| Q <sub>g</sub>                           | Total Gate Charge              | V <sub>GS</sub> =4.5V, V <sub>DS</sub> =10V,<br>I <sub>DS</sub> =6.8A                                                | -   | 22   | -     | nC   |
| Q <sub>gs</sub>                          | Gate-Source Charge             |                                                                                                                      | -   | 0.5  | -     |      |
| Q <sub>gd</sub>                          | Gate-Drain Charge              |                                                                                                                      | -   | 1.7  | -     |      |

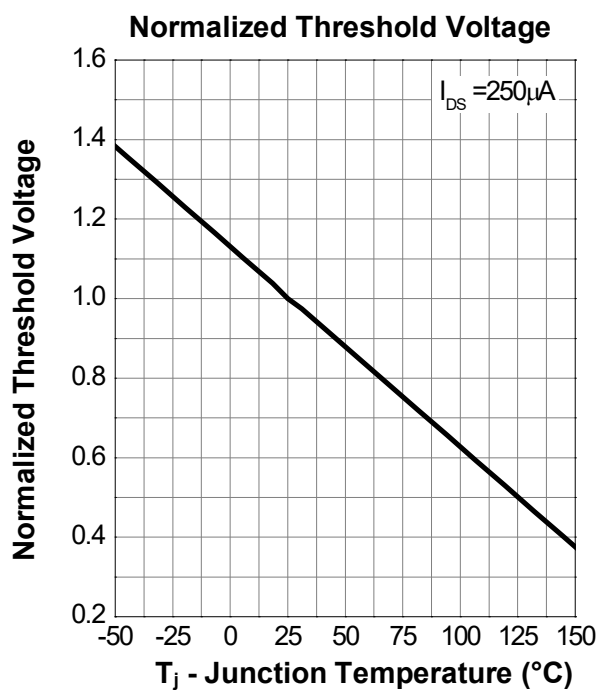
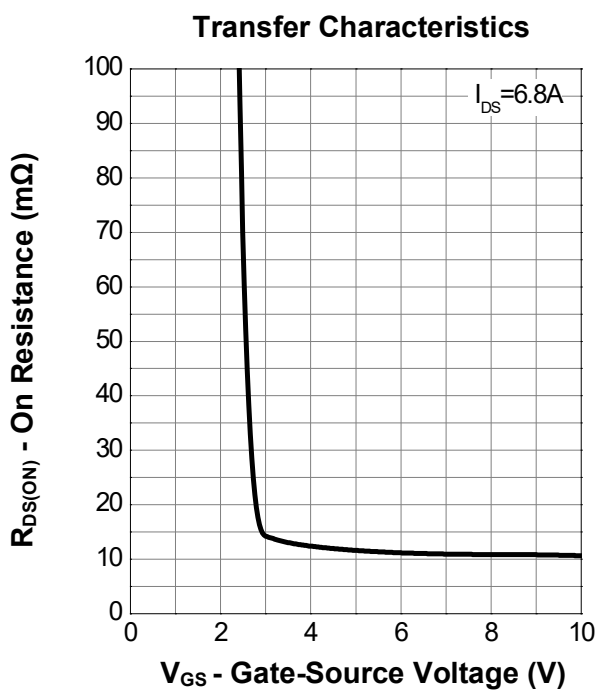
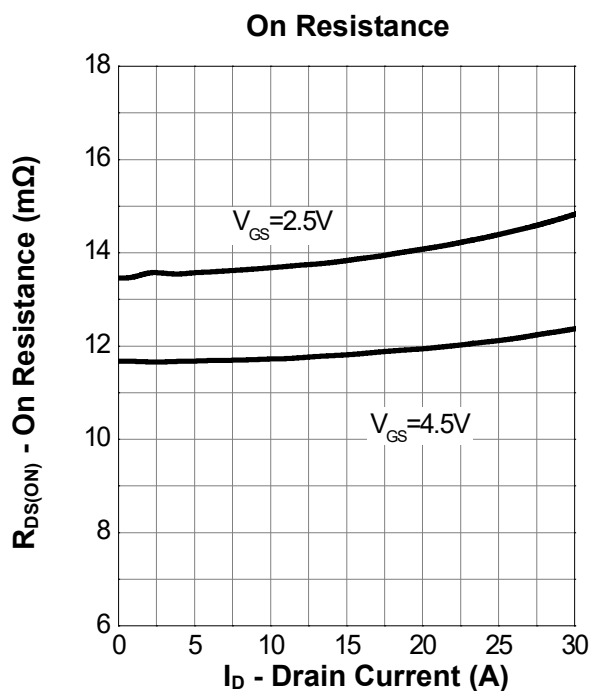
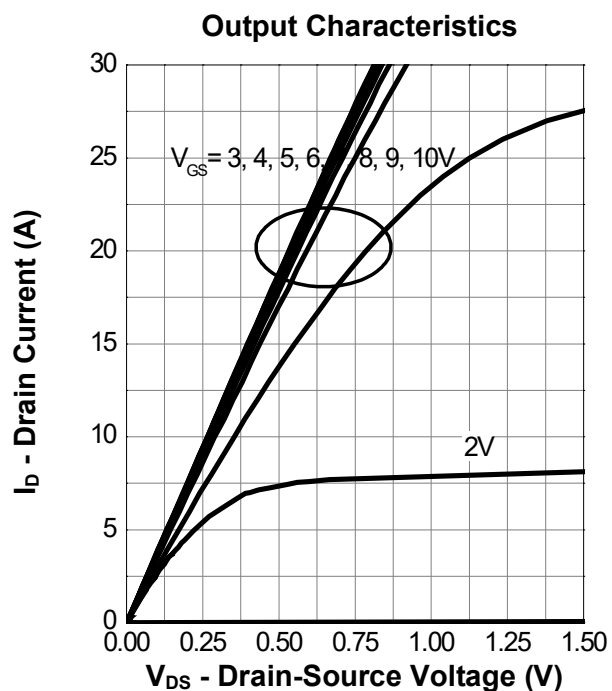
Notes:

- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%
- b. Guaranteed by design, not subject to production testing

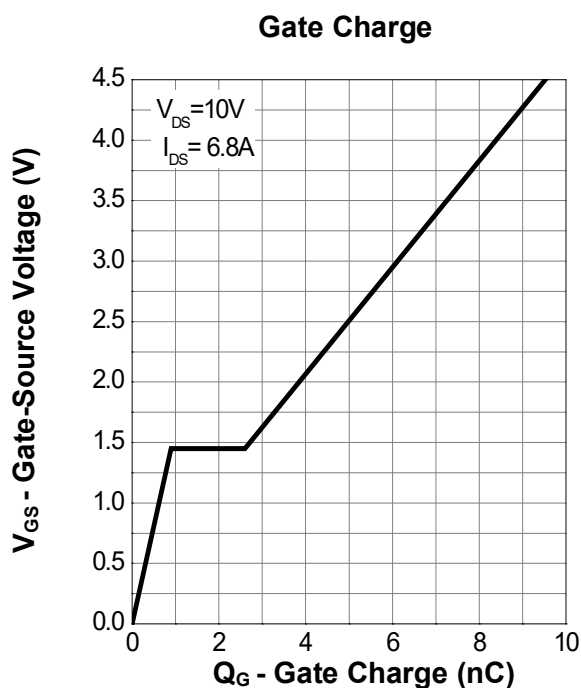
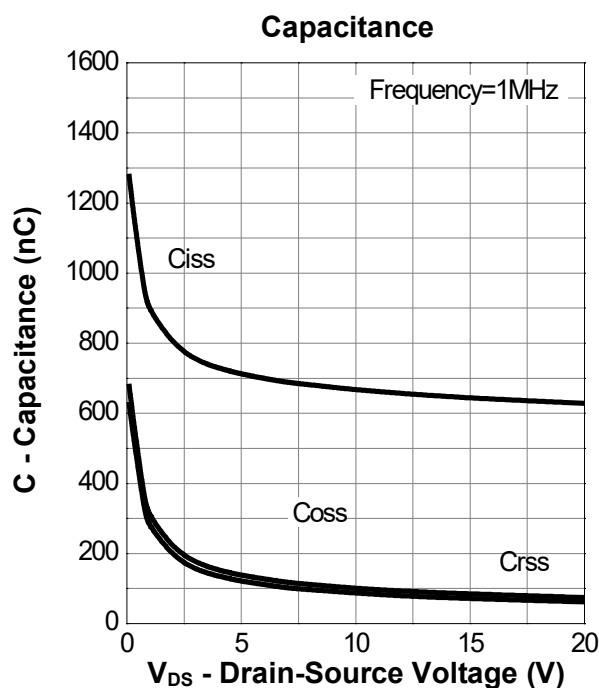
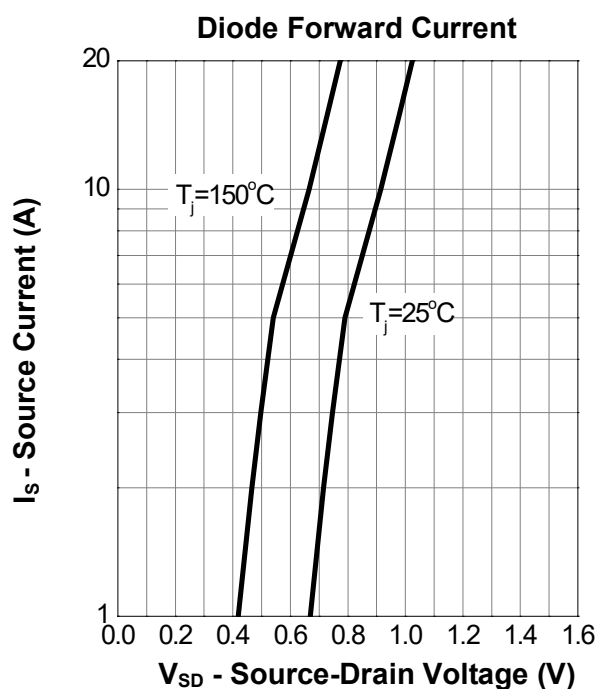
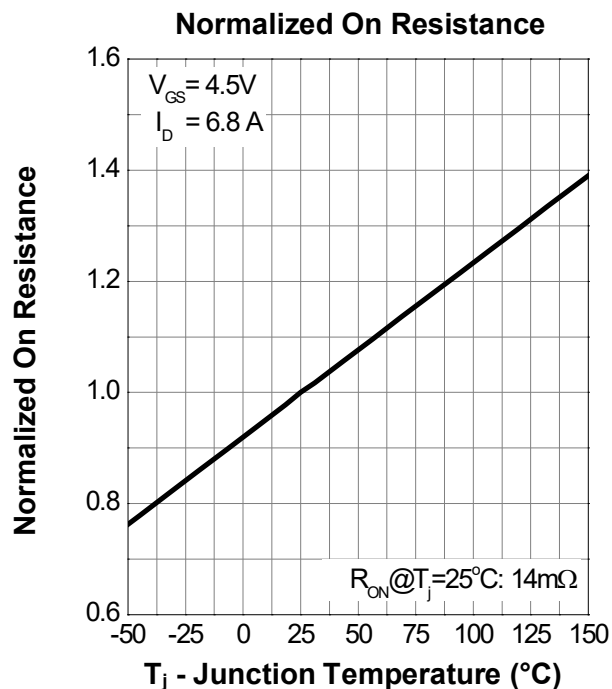
## 7. Typical Characteristics



## 7. Typical Characteristics (cont.)

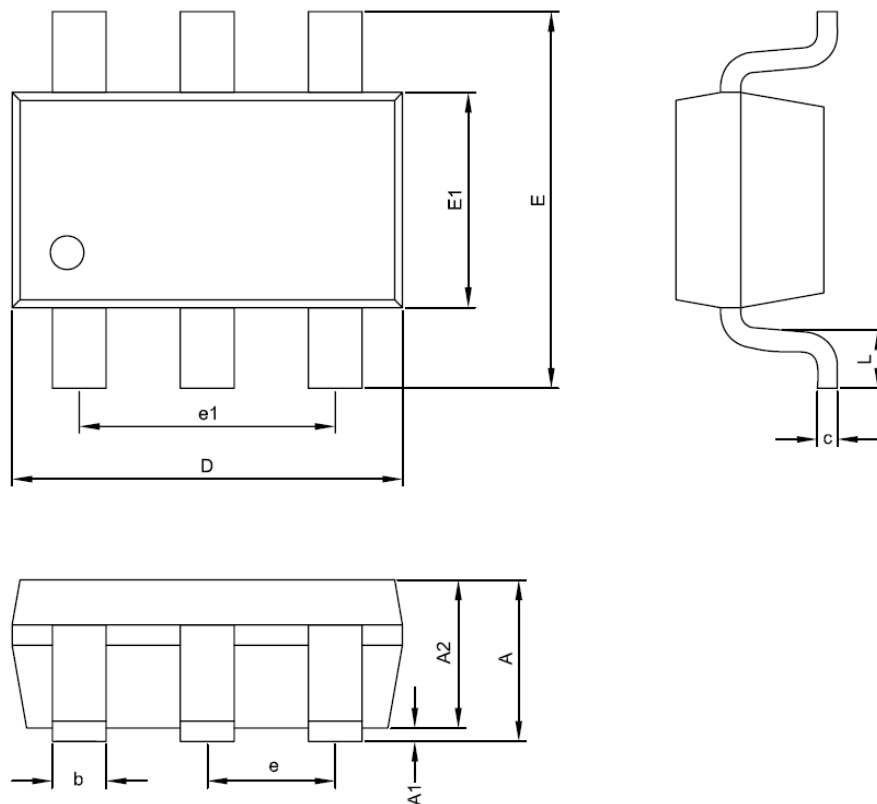


## 7. Typical Characteristics (cont.)



## 8. Package Dimensions

### SOT23-6L Package



| Symbol | Dimensions In Millimeters |      |
|--------|---------------------------|------|
|        | MIN.                      | MAX. |
| A      | —                         | 0.90 |
| A1     | 0.00                      | 0.10 |
| A2     | 0.70                      | 0.80 |
| D      | 2.90 BSC                  |      |
| E      | 2.80 BSC                  |      |
| E1     | 1.50                      | 1.70 |
| c      | 0.08                      | 0.25 |
| b      | 0.30                      | 0.51 |
| e      | 0.95 BSC                  |      |
| e1     | 1.90 BSC                  |      |
| L      | 0.30                      | 0.60 |