

# LN2292LT1G

## 100V N-Channel Enhancement-Mode MOSFET

### 1. FEATURES

- $V_{DS} = 100V$
- $R_{DS(ON)} \leq 200 m\Omega @ V_{GS} = 10V, I_D = 3A$
- $R_{DS(ON)} \leq 260 m\Omega @ V_{GS} = 4.5V, I_D = 1A$
- Super high density cell design for extremely low  $R_{DS(ON)}$ .
- Exceptional on-resistance and maximum DC current capability.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

### 2. APPLICATIONS

- Power Management in Note book
- DC/DC Converter
- Load Switch

### 3. DEVICE MARKING AND ORDERING INFORMATION

| Device     | Marking | Shipping       |
|------------|---------|----------------|
| LN2292LT1G | N2L     | 3000/Tape&Reel |

### 4. MAXIMUM RATINGS( $T_a = 25^\circ C$ )

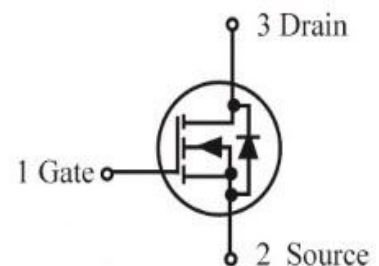
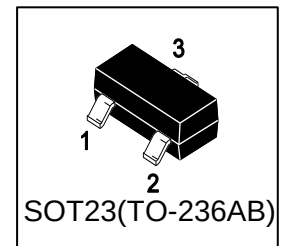
| Parameter                                | Symbol   | Limits   | Unit |
|------------------------------------------|----------|----------|------|
| Drain-Source Voltage                     | $V_{DS}$ | 100      | V    |
| Gate-to-Source Voltage – Continuous      | $V_{GS}$ | $\pm 20$ | V    |
| Drain Current                            |          |          |      |
| – Continuous $T_a = 25^\circ C$ (Note 1) | $I_D$    | 1.6      | A    |
| – Pulsed                                 | $I_{DM}$ | 6.4      |      |
| – Continuous $T_a = 25^\circ C$ (Note 2) | $I_D$    | 1.1      | A    |
| – Pulsed                                 | $I_{DM}$ | 4.5      |      |
| Avalanche Current                        | $I_{AS}$ | 9.6      | A    |
| Avalanche energy $L=0.1mH$               | $E_{AS}$ | 4.6      | mJ   |

### 5. THERMAL CHARACTERISTICS

| Parameter                         | Symbol          | Limits          | Unit         |
|-----------------------------------|-----------------|-----------------|--------------|
| Maximum Power Dissipation(Note 1) | $P_D$           | 1.25            | W            |
| Maximum Power Dissipation(Note 2) | $P_D$           | 0.6             | W            |
| Thermal Resistance,               |                 |                 |              |
| Junction-to-Ambient(Note 1)       | $R_{\theta JA}$ | 100             | $^\circ C/W$ |
| Junction-to-Ambient(Note 2)       | $R_{\theta JA}$ | 205             |              |
| Junction-to-Case                  | $R_{\theta JC}$ | 25              |              |
| Operating junction temperature    | $T_J$           | $-55 \sim +150$ | $^\circ C$   |
| Storage Temperature Range         | $T_{stg}$       | $-55 \sim +150$ | $^\circ C$   |

1.Surface-mounted on FR4 board using 1 sq-in pad, 2 oz Cu.

2.Surface mounted on FR4 board using the minimum recommended pad size.

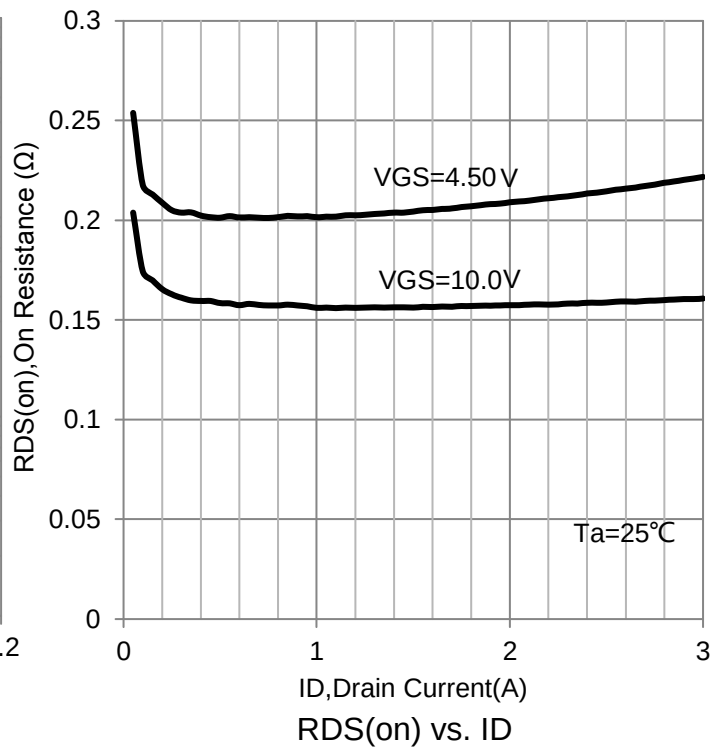
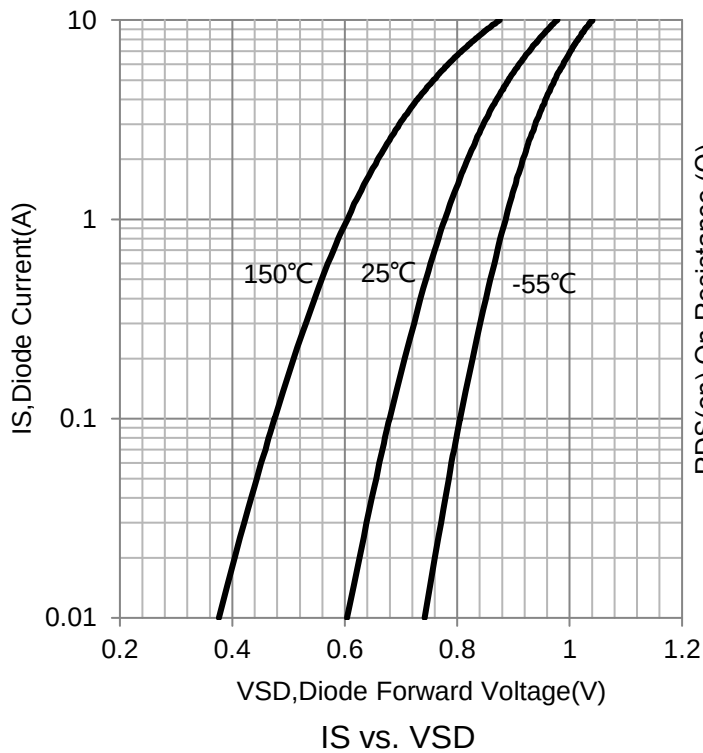
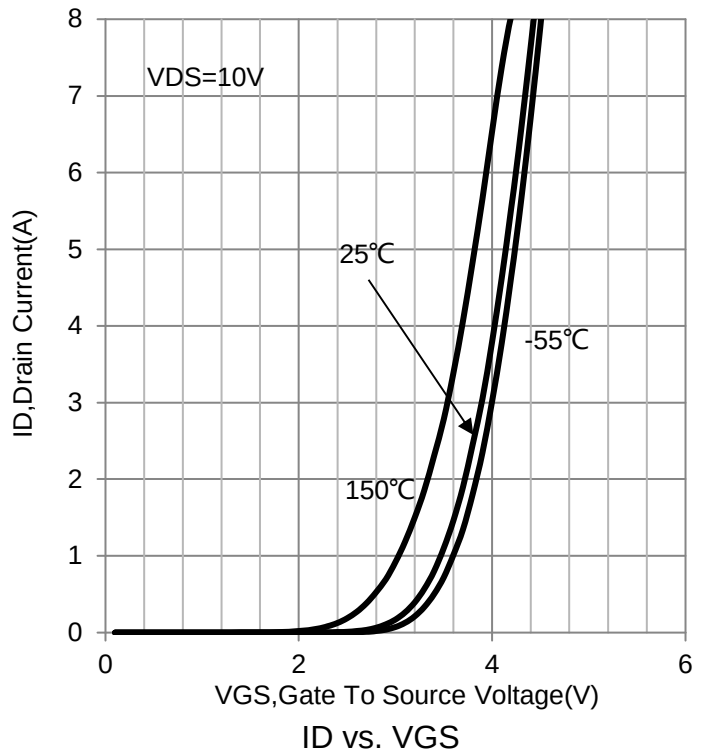
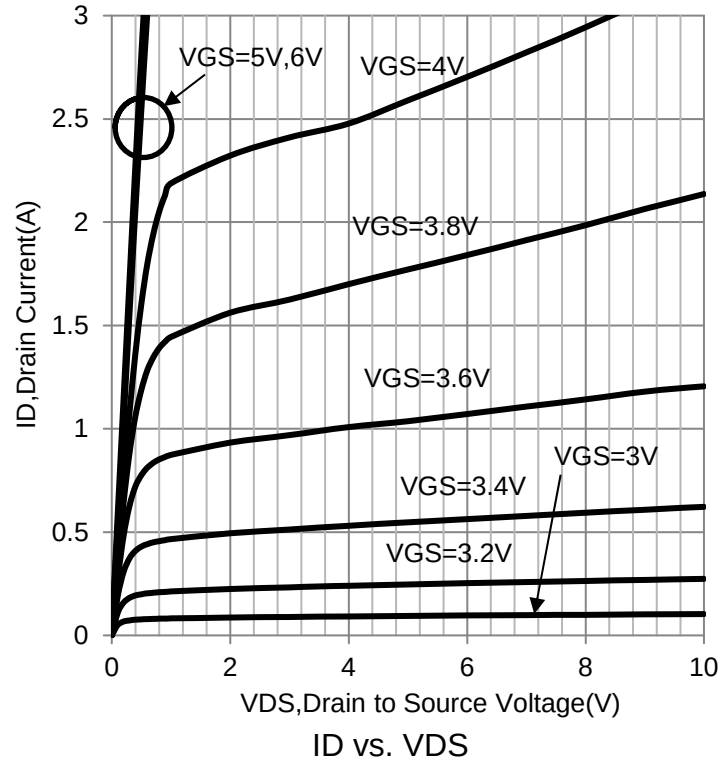


## 6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

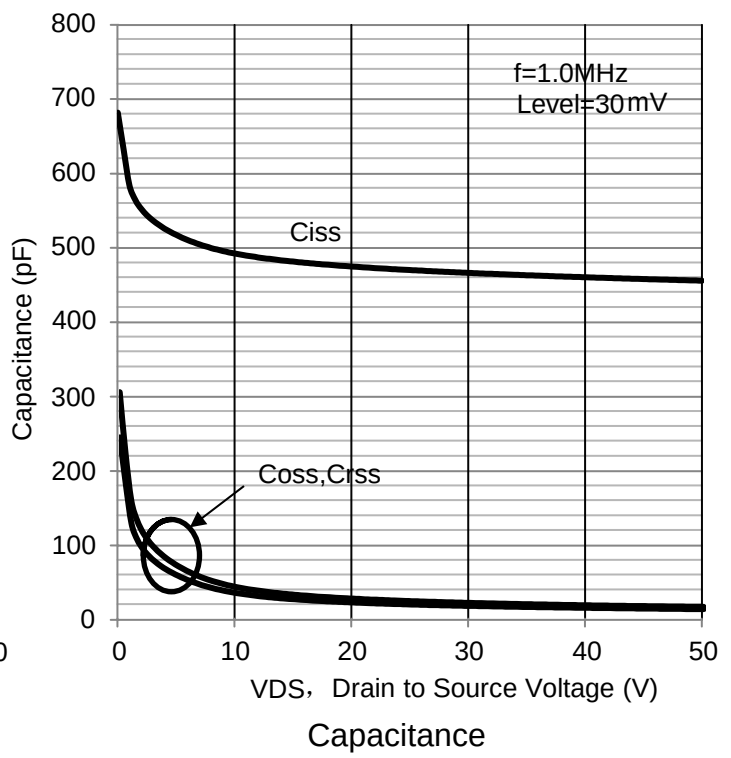
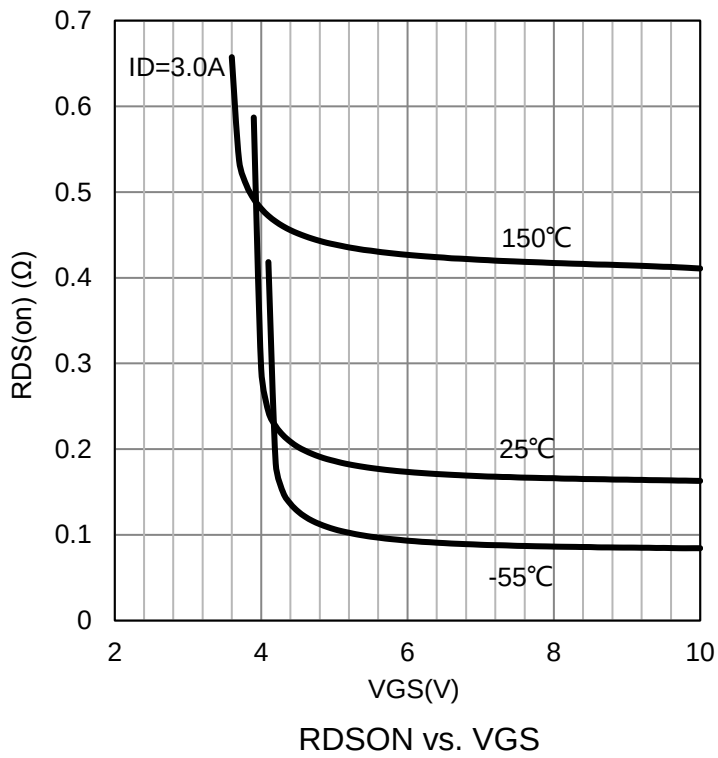
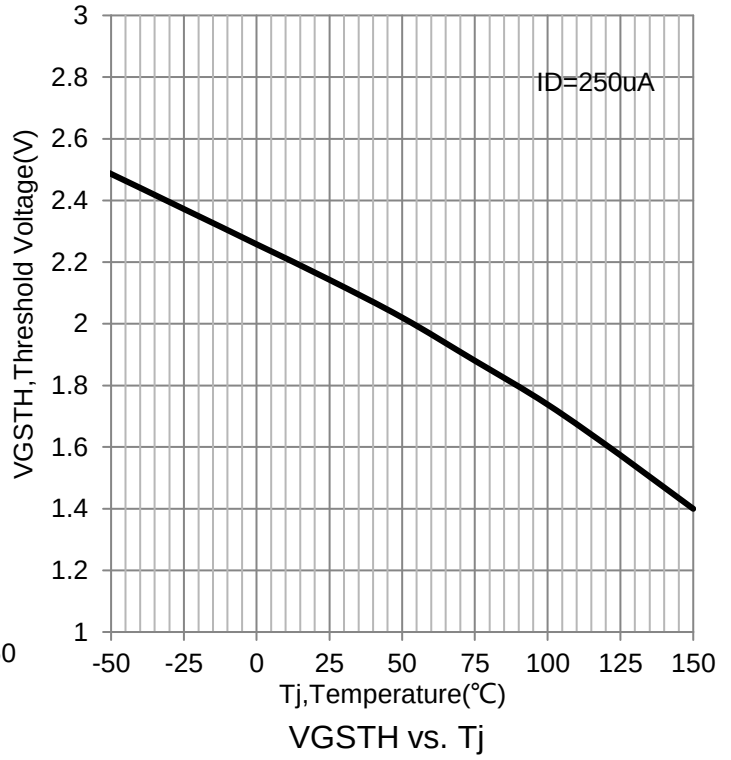
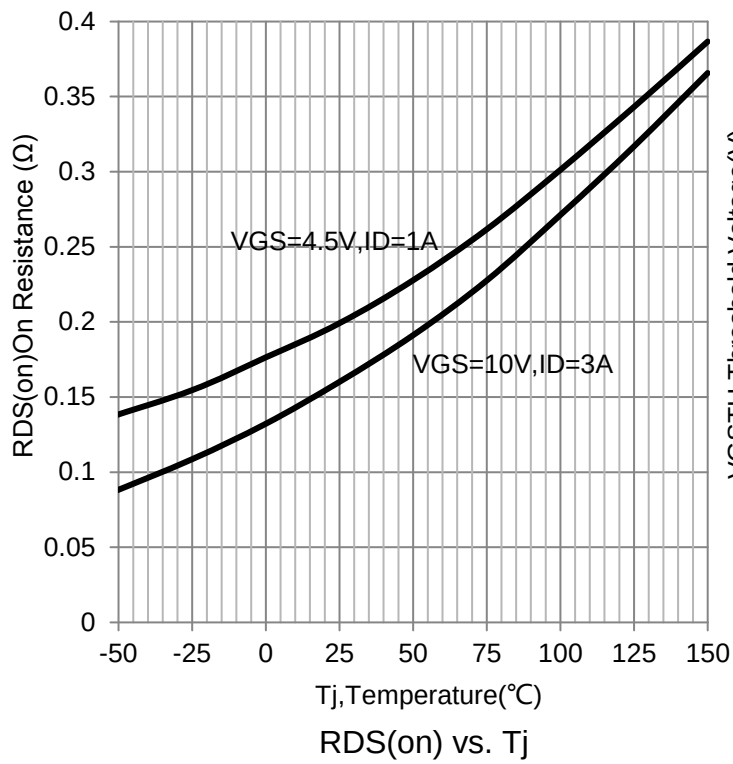
| Characteristic                                                                                       | Symbol                                                     | Min.    | Typ.       | Max.       | Unit       |
|------------------------------------------------------------------------------------------------------|------------------------------------------------------------|---------|------------|------------|------------|
| Static                                                                                               |                                                            |         |            |            |            |
| Drain–Source Breakdown Voltage<br>(VGS = 0 V, ID = 250 $\mu$ A)                                      | V(BR)DSS                                                   | 100     | -          | -          | V          |
| Gate Threshold Voltage<br>(VDS = VGS, ID = 250 $\mu$ A)                                              | VGS(th)                                                    | 1.0     | -          | 3.0        | V          |
| Gate–Body Leakage<br>(VDS = 0 V, VGS = $\pm$ 20 V)                                                   | IGSS                                                       | -       | -          | $\pm$ 100  | nA         |
| Zero Gate Voltage Drain Current<br>(VDS= 100 V, VGS=0 V)                                             | IDSS                                                       | -       | -          | 1          | $\mu$ A    |
| Static Drain–Source On–State Resistance(Note 3)<br>(VGS = 10 V, ID = 3 A)<br>(VGS = 4.5 V, ID = 1 A) | RDS(on)                                                    | -<br>-  | 160<br>200 | 200<br>260 | m $\Omega$ |
| Forward Voltage<br>(VGS = 0 V, IS = 6.5 A)                                                           | VSD                                                        | -       | 0.9        | 1.3        | V          |
| Dynamic                                                                                              |                                                            |         |            |            |            |
| Total Gate Charge                                                                                    | (VDS =50V, VGS =5V, ID =6.5A)                              | Qg      | -          | 5.8        | nC         |
| Gate–Source Charge                                                                                   |                                                            | Qgs     | -          | 2.0        |            |
| Gate–Drain Charge                                                                                    |                                                            | Qgd     | -          | 3.0        |            |
| Input Capacitance                                                                                    | (VDS =25V, VGS =0V, f=1MHz)                                | Ciss    | -          | 501        | pF         |
| Output Capacitance                                                                                   |                                                            | Coss    | -          | 24.3       |            |
| Reverse Transfer Capacitance                                                                         |                                                            | Crss    | -          | 19.6       |            |
| Turn-On Delay Time                                                                                   | (VDD =50V, RL =50 $\Omega$ , VGEN =10V, RG =6.2 $\Omega$ ) | td(on)  | -          | 7.98       | ns         |
| Rise Time                                                                                            |                                                            | tr      | -          | 4.85       |            |
| Turn-Off Delay Time                                                                                  |                                                            | td(off) | -          | 11.1       |            |
| Fall Time                                                                                            |                                                            | tf      | -          | 5.4        |            |

Note 3:Pulse Test: Pulse Width  $\leq$ 300  $\mu$ s, Duty Cycle  $\leq$ 2.0%.

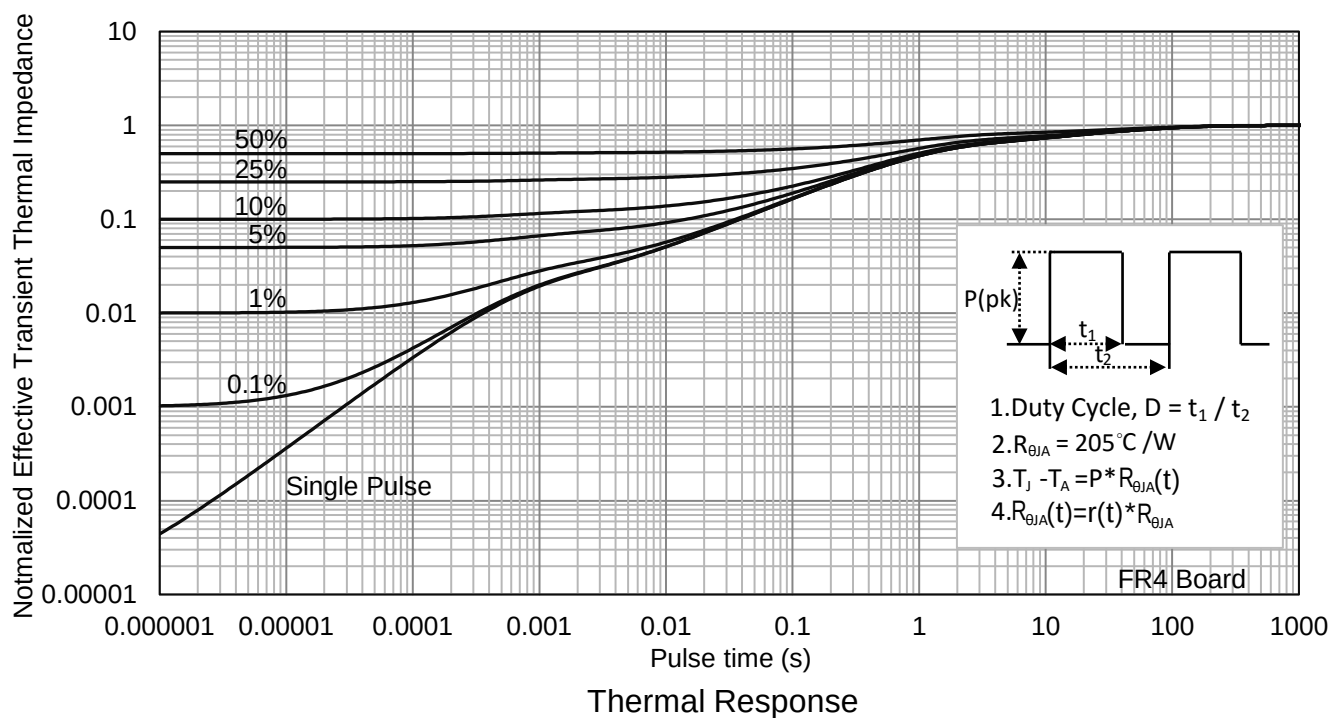
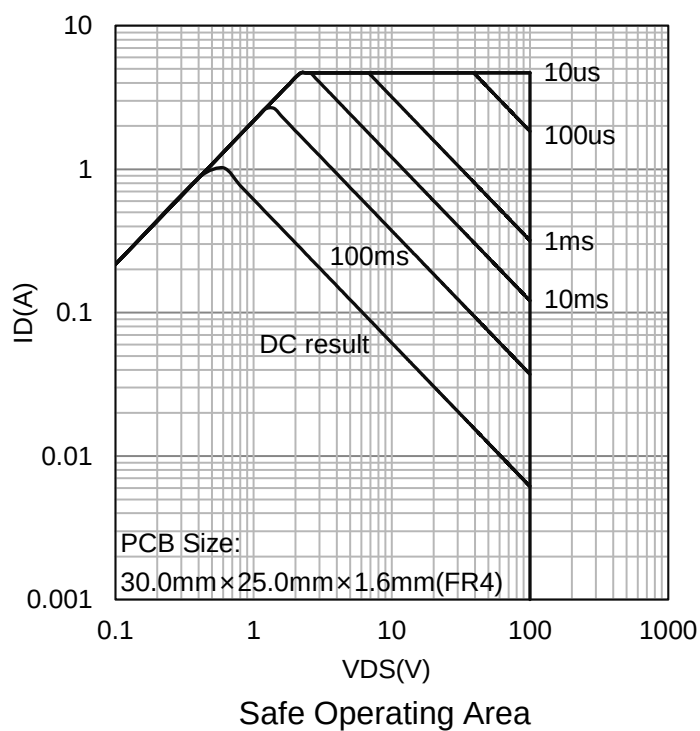
## 7. ELECTRICAL CHARACTERISTICS CURVES



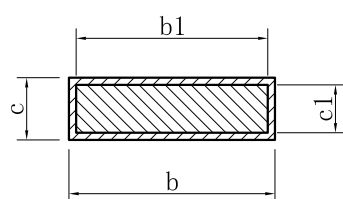
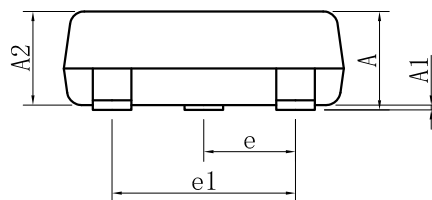
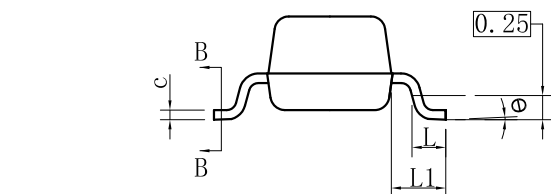
## 7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



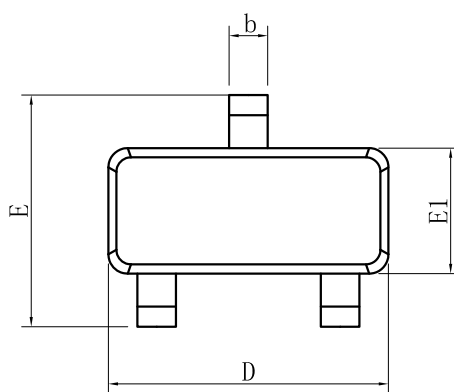
## 7.ELECTRICAL CHARACTERISTICS CURVES(Con.)



## 8.OUTLINE AND DIMENSIONS



SECTION B-B

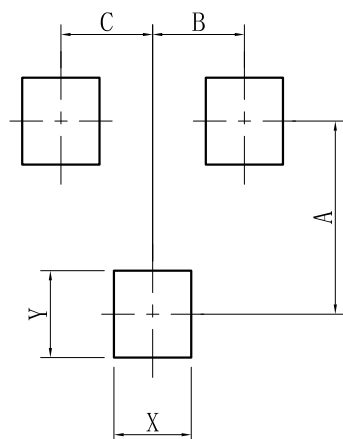


| SOT23                |         |      |      |
|----------------------|---------|------|------|
| DIM                  | MIN     | NOR  | MAX  |
| A                    | 0.89    | —    | 1.12 |
| A1                   | 0.01    | —    | 0.10 |
| A2                   | 0.88    | 0.95 | 1.02 |
| b                    | 0.30    | —    | 0.50 |
| b1                   | 0.30    | 0.40 | 0.45 |
| c                    | 0.08    | —    | 0.20 |
| c1                   | 0.08    | 0.10 | 0.16 |
| D                    | 2.80    | 2.90 | 3.04 |
| E                    | 2.10    | —    | 2.64 |
| E1                   | 1.20    | 1.30 | 1.40 |
| e                    | 0.95BSC |      |      |
| e1                   | 1.90BSC |      |      |
| L                    | 0.40    | 0.46 | 0.60 |
| L1                   | 0.54REF |      |      |
| θ                    | 0°      | —    | 8°   |
| All Dimensions in mm |         |      |      |

### GENERAL NOTES

- 1.Top package surface finish  $Ra0.4 \pm 0.2\mu m$
- 2.Bottom package surface finish  $Ra0.7 \pm 0.2\mu m$
- 3.Side package surface finish  $Ra0.4 \pm 0.2\mu m$

## 9.SOLDERING FOOTPRINT



| SOT23 |      |
|-------|------|
| DIM   | (mm) |
| X     | 0.80 |
| Y     | 0.90 |
| A     | 2.00 |
| B     | 0.95 |
| C     | 0.95 |

## **DISCLAIMER**

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.
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