

# LN2322LT1G

## N-Channel 20V (D-S) MOSFET

### 1. FEATURES

- Low Gate Threshold Voltage
- Fast Switching Speed
- Gate-Source ESD Protected
- We declare that the material of product are Halogen Free and compliance with RoHS requirements.

### 2.APPLICATIONS

- Battery Management Application
- Power Management Functions
- DC-DC Converters

### 3. ORDERING INFORMATION

| Device     | Marking | Shipping        |
|------------|---------|-----------------|
| LN2322LT1G | 2ED     | 3000/Tape&Reel  |
| LN2322LT3G | 2ED     | 10000/Tape&Reel |

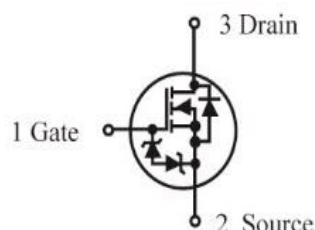
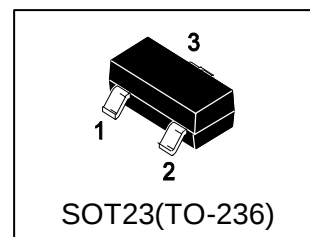
### 4. MAXIMUM RATINGS(Ta = 25°C unless otherwise stated)

| Parameter                | Symbol | Limits | Unit |
|--------------------------|--------|--------|------|
| Drain-to-Source Voltage  | VDSS   | 20     | V    |
| Gate-to-Source Voltage   | VGS    | ± 12   | V    |
| Continuous Drain Current | ID     | 8      | A    |
| Pulsed Drain Current     | IDM    | 26     | A    |

### 5. THERMAL CHARACTERISTICS

| Parameter                                          | Symbol  | Limits   | Unit |
|----------------------------------------------------|---------|----------|------|
| Maximum Power Dissipation                          | PD      | 0.9      | W    |
| Thermal Resistance,<br>Junction-to-Ambient(Note 1) | RθJA    | 140      | °C/W |
| Junction and Storage temperature                   | TJ,Tstg | -55~+150 | °C   |

1. 1-in<sup>2</sup> 2oz Cu PCB board.



## 6. ELECTRICAL CHARACTERISTICS

| Characteristic                                                                                                   | Symbol   | Min.        | Typ.        | Max.           | Unit |
|------------------------------------------------------------------------------------------------------------------|----------|-------------|-------------|----------------|------|
| <b>Static</b>                                                                                                    |          |             |             |                |      |
| Drain-Source Breakdown Voltage<br>(VGS =0V, ID =250μA)                                                           | V(BR)DSS | 20          | -           | -              | V    |
| Gate Threshold Voltage<br>(VDS =VGS , ID =250μA)                                                                 | VGS(th)  | 0.4         | -           | 1              | V    |
| Gate Leakage Current<br>(VDS =0V, VGS =± 10V)                                                                    | IGSS     | -           | -           | ±10            | μA   |
| Zero Gate Voltage Drain Current<br>(VDS =16V, VGS =0V )                                                          | IDSS     | -           | -           | 1              | μA   |
| Drain-Source On-Resistance(Note 2)<br>(VGS =4.5V, ID = 0.5A)<br>(VGS =2.5V, ID = 0.5A)<br>(VGS =1.8V, ID = 0.5A) | RDS(ON)  | -<br>-<br>- | -<br>-<br>- | 25<br>40<br>40 | mΩ   |
| Diode Forward Voltage<br>(ISD = 0.5 A, VGS = 0 V)                                                                | VSD      | -           | -           | 1.3            | V    |
| <b>DYNAMIC</b>                                                                                                   |          |             |             |                |      |
| Total Gate Charge                                                                                                | Qg       | -           | 12          | -              | nC   |
| Gate-Source Charge                                                                                               | Qgs      | -           | 1.9         | -              |      |
| Gate-Drain Charge                                                                                                | Qgd      | -           | 3           | -              |      |
| Input Capacitance                                                                                                | Ciss     | -           | 850         | -              | pF   |
| Output Capacitance                                                                                               | Coss     | -           | 395         | -              |      |
| Reverse Transfer Capacitance                                                                                     | Crss     | -           | 125         | -              |      |
| Turn-On Delay Time                                                                                               | td(on)   | -           | 250         | -              | ns   |
| Turn-On Rise Time                                                                                                | tr       | -           | 420         | -              |      |
| Turn-Off Delay Time                                                                                              | td(off)  | -           | 3950        | -              |      |
| Turn-Off Fall Time                                                                                               | tf       | -           | 3700        | -              |      |

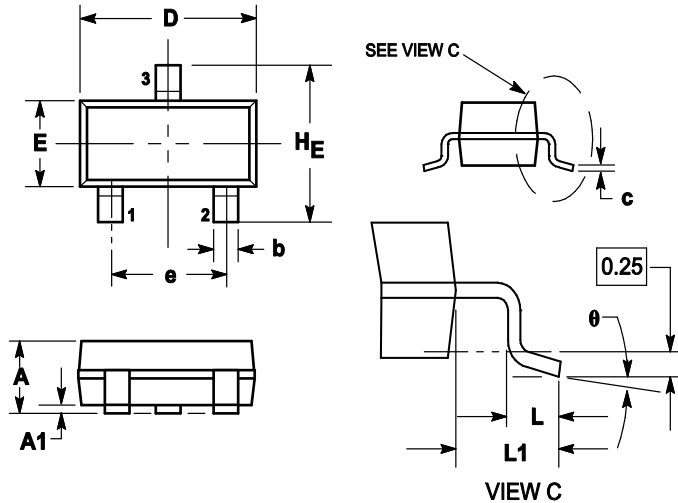
2. Pulse test; pulse width ≤ 300us, duty cycle ≤ 2%

3. Matsuki Electric/ Force mos reserves the right to improve product design, functions and reliability without notice.

## 7.OUTLINE AND DIMENSIONS

Notes:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. DIMENSIONS D AND E DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.



| DIM            | MILLIMETERS |      |      | INCHES |       |       |
|----------------|-------------|------|------|--------|-------|-------|
|                | MIN         | NOM  | MAX  | MIN    | NOM   | MAX   |
| A              | 0.89        | 1    | 1.11 | 0.035  | 0.04  | 0.044 |
| A1             | 0.01        | 0.06 | 0.1  | 0.001  | 0.002 | 0.004 |
| b              | 0.37        | 0.44 | 0.5  | 0.015  | 0.018 | 0.02  |
| c              | 0.09        | 0.13 | 0.18 | 0.003  | 0.005 | 0.007 |
| D              | 2.80        | 2.9  | 3.04 | 0.11   | 0.114 | 0.12  |
| E              | 1.20        | 1.3  | 1.4  | 0.047  | 0.051 | 0.055 |
| e              | 1.78        | 1.9  | 2.04 | 0.07   | 0.075 | 0.081 |
| L              | 0.10        | 0.2  | 0.3  | 0.004  | 0.008 | 0.012 |
| L1             | 0.35        | 0.54 | 0.69 | 0.014  | 0.021 | 0.029 |
| H <sub>E</sub> | 2.10        | 2.4  | 2.64 | 0.083  | 0.094 | 0.104 |
| θ              | 0°          | ---  | 10°  | 0°     | ---   | 10°   |

## 8.SOLDERING FOOTPRINT

