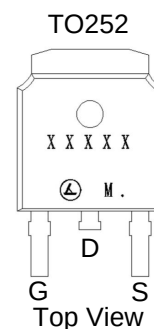
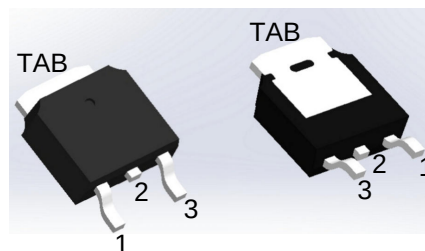


# LP15N06D2

## 60V P-Channel Power MOSFET

### 1. FEATURES

- Low thermal impedance.
- Fast switching capability.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

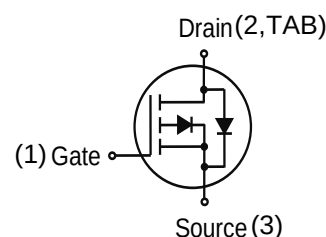


### 2. APPLICATIONS

- Load switch

### 3. DEVICE MARKING AND RESISTOR VALUES

| Device    | Marking | Shipping          |
|-----------|---------|-------------------|
| LP15N06D2 | P15N06  | 2500pcs/Tape&Reel |



### 4. MAXIMUM RATINGS(Ta = 25°C)

| Parameter                                        |         | Symbol  | Limits   | Unit |
|--------------------------------------------------|---------|---------|----------|------|
| Drain-to-Source Voltage                          |         | VDS     | -60      | V    |
| Gate-to-Source Voltage                           |         | VGS     | ± 20     | V    |
| Continuous Drain Current(Note 1)                 | TC=25°C | ID      | -15      | A    |
|                                                  | TC=70°C |         | -12.6    |      |
| Pulsed Drain Current (Note 2)                    |         | IDM     | -60      | A    |
| Avalanche Current                                |         | IAS     | 15       | A    |
| Avalanche Energy(L=0.1mH)                        |         | EAS     | 11.25    | mJ   |
| Power Dissipation(Note 1)                        | TC=25°C | PD      | 25       | W    |
|                                                  | TC=70°C |         | 16       |      |
| Operating Junction and Storage Temperature Range |         | Tj/Tstg | -55~+150 | °C   |

### 5. THERMAL CHARACTERISTICS

| Parameter                   | Symbol | Max | Unit |
|-----------------------------|--------|-----|------|
| Junction-to-Ambient(Note 1) | RθJA   | 52  | °C/W |
| Junction-to-Case            | RθJC   | 5   |      |

Note:1.Surface mounted on "1.5in x 1.5in" FR4 board using 1\*1 in pad, 2 oz Cu.

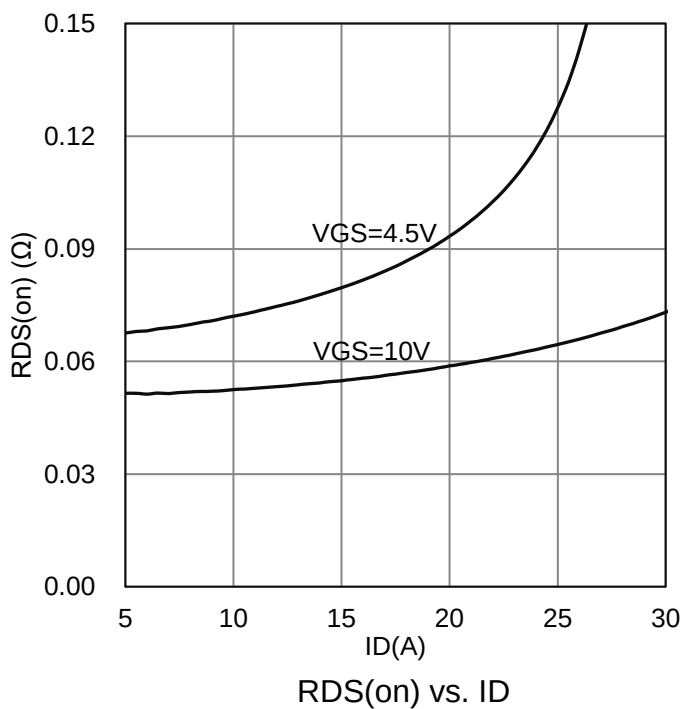
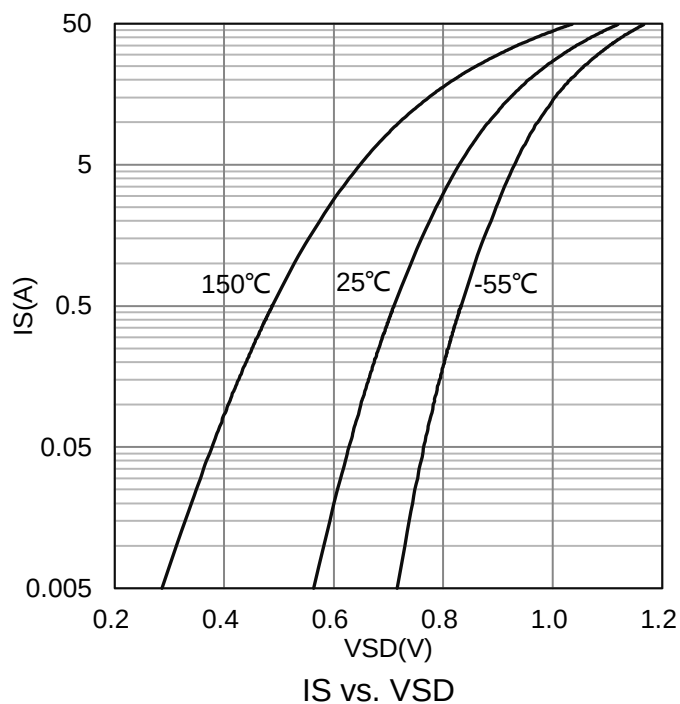
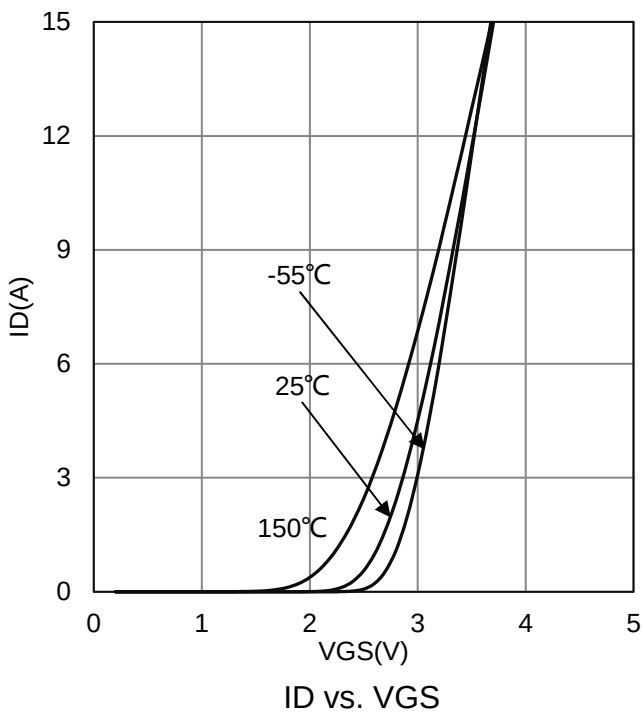
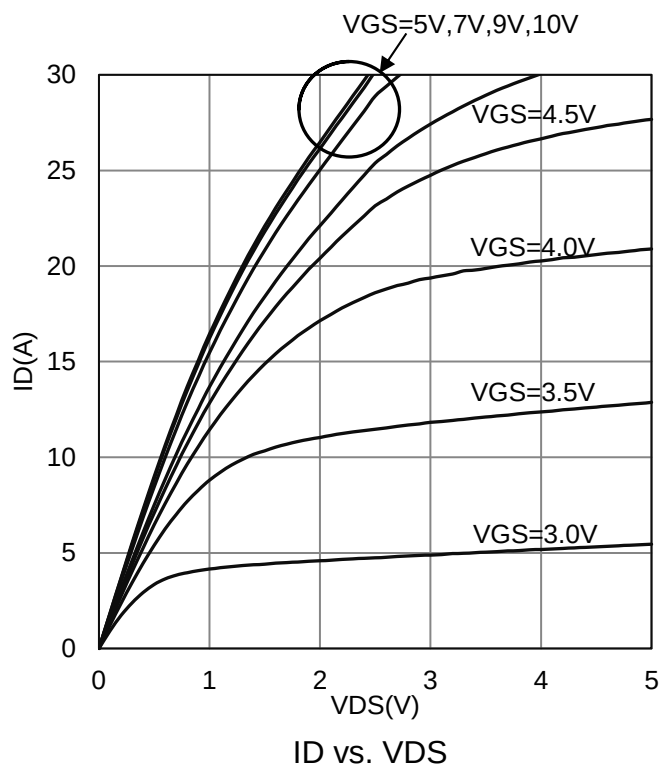
2.Pulse width limited by maximum junction temperature.

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

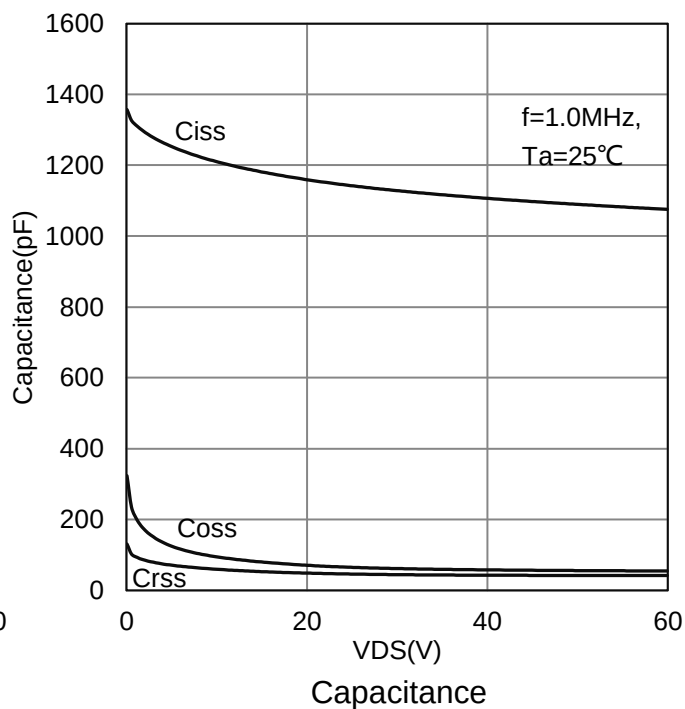
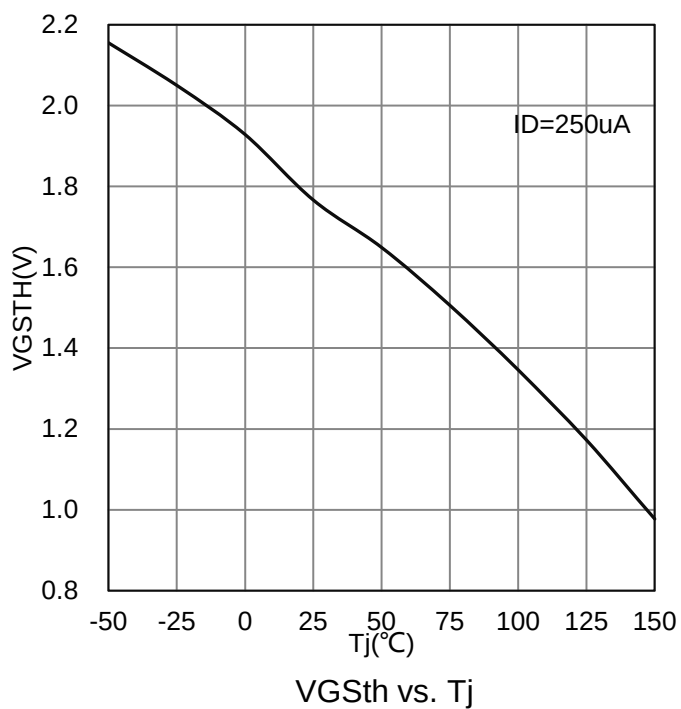
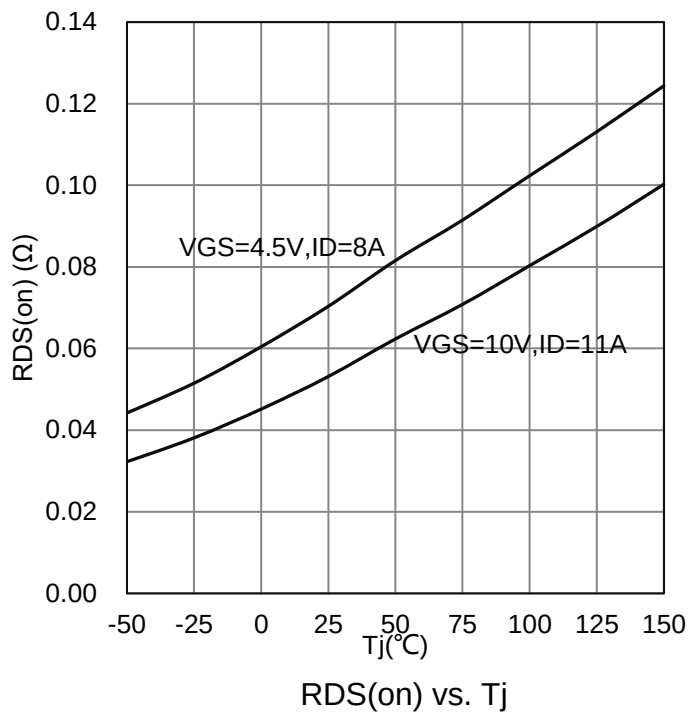
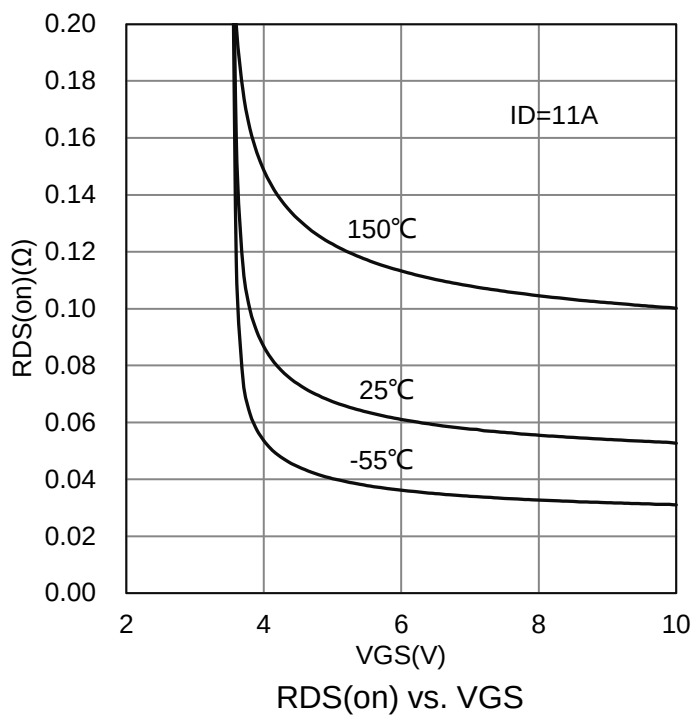
| Characteristic                                                                                   |                                                       | Symbol  | Min.   | Typ.     | Max.     | Unit |
|--------------------------------------------------------------------------------------------------|-------------------------------------------------------|---------|--------|----------|----------|------|
| Static                                                                                           |                                                       |         |        |          |          |      |
| Drain–Source Breakdown Voltage<br>(VGS = 0 V, ID = -250 μA)                                      |                                                       | VBRDSS  | -60    | -        | -        | V    |
| Gate Threshold Voltage<br>(VDS = VGS , ID = -250 uA)                                             |                                                       | VGS(th) | -1     | -        | -2.5     | V    |
| Gate-Body leakage current<br>(VDS = 0 V, VGS = ± 20 V)                                           |                                                       | IGSS    | -      | -        | ±100     | nA   |
| Zero Gate Voltage Drain Current<br>(VDS = -48 V, VGS = 0 V)                                      |                                                       | IDSS    | -      | -        | -1       | uA   |
| Drain-to-Source On-Resistance (Note 3)<br>(VGS = -10 V, ID = -11 A)<br>(VGS = -4.5 V, ID = -8 A) |                                                       | RDS(ON) | -<br>- | 52<br>66 | 64<br>83 | mΩ   |
| Diode Forward Voltage<br>(IS = -1 A, VGS = 0 V)                                                  |                                                       | VSD     | -      | -0.73    | -1.2     | V    |
| Dynamic                                                                                          |                                                       |         |        |          |          |      |
| Total Gate Charge                                                                                | (VDS = -30 V,<br>VGS = -10 V, ID<br>= -11 A)          | Qg      | -      | 17.5     | -        | nC   |
| Gate to Source Charge                                                                            |                                                       | Qgs     | -      | 3.8      | -        |      |
| Gate to Drain Charge                                                                             |                                                       | Qgd     | -      | 3.2      | -        |      |
| Turn-on Delay Time                                                                               | (VDS = -30 V, ID<br>= -1 A, VGS =<br>-10 V, RG = 10Ω) | td(on)  | -      | 7        | -        | nS   |
| Rise Time                                                                                        |                                                       | tr      | -      | 7        | -        |      |
| Turn-Off Delay Time                                                                              |                                                       | td(off) | -      | 66       | -        |      |
| Fall Time                                                                                        |                                                       | tf      | -      | 25       | -        |      |
| Input Capacitance                                                                                | (VDS = -30 V,<br>VGS = 0 V, f =<br>1 MHz)             | Ciss    | -      | 1130     | -        | pF   |
| Output Capacitance                                                                               |                                                       | Coss    | -      | 62       | -        |      |
| Reverse Transfer Capacitance                                                                     |                                                       | Crss    | -      | 45       | -        |      |
| Gate Resistance<br>(VDS = 0 V, VGS = 0 V, f = 1.0MHz)                                            |                                                       | Rg      | -      | 12       | -        | Ω    |
| Continuous Current(Note 1)                                                                       |                                                       | IS      | -      | -        | -15      | A    |
| Plused Current                                                                                   |                                                       | ISM     | -      | -        | -60      | A    |

3. Pulse test; pulse width  $\leq$  300 $\mu$ s, duty cycle  $\leq$  2%

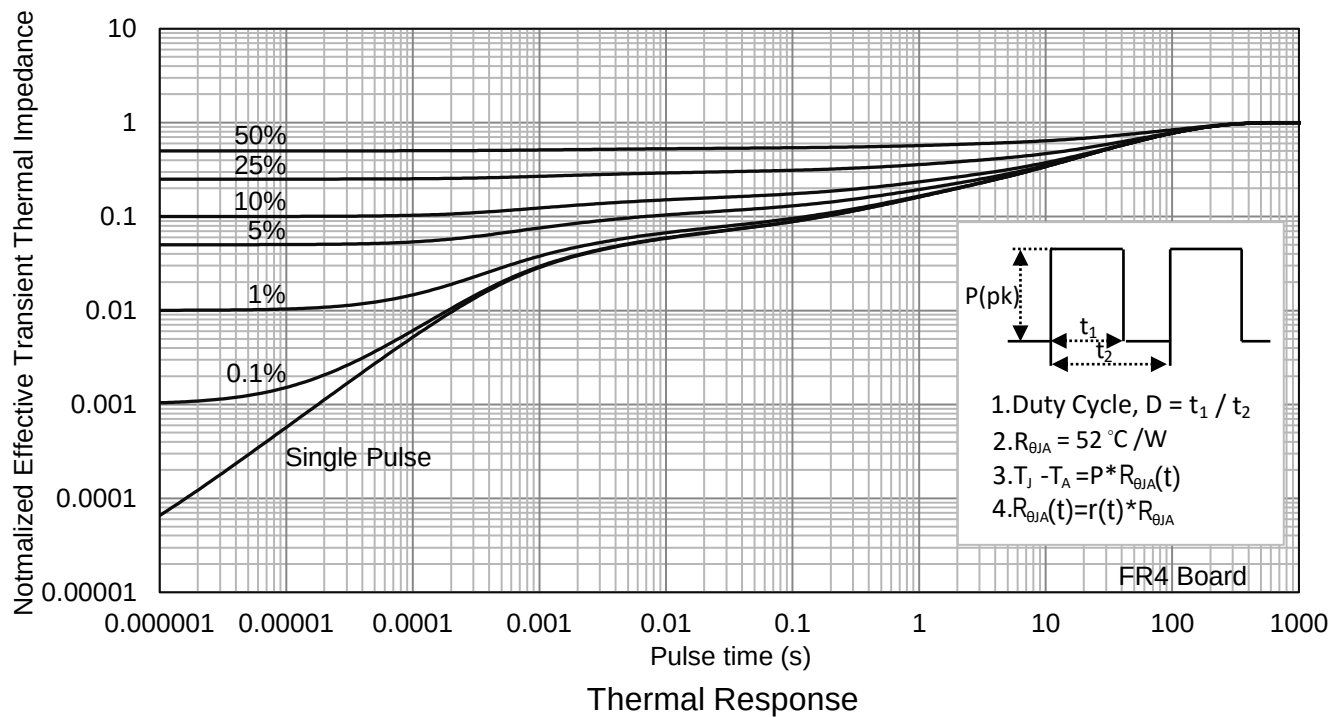
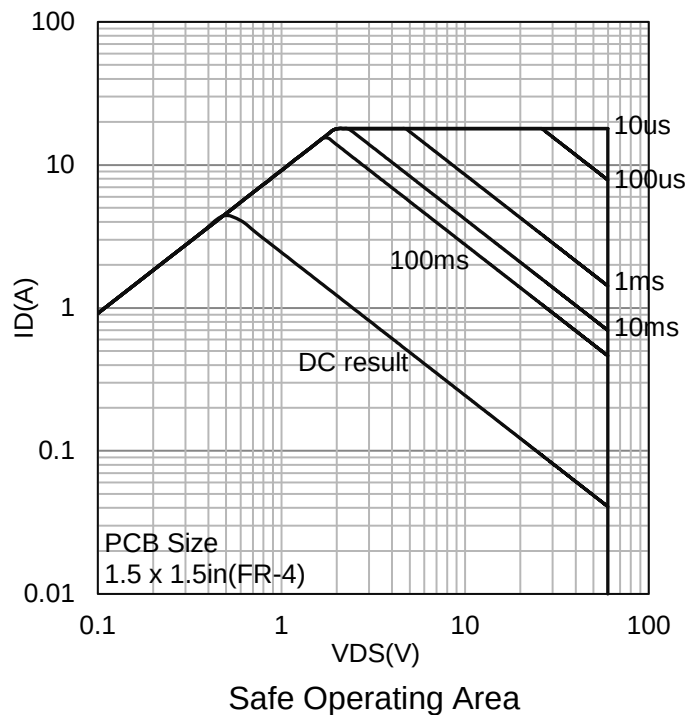
## 7. ELECTRICAL CHARACTERISTICS CURVES



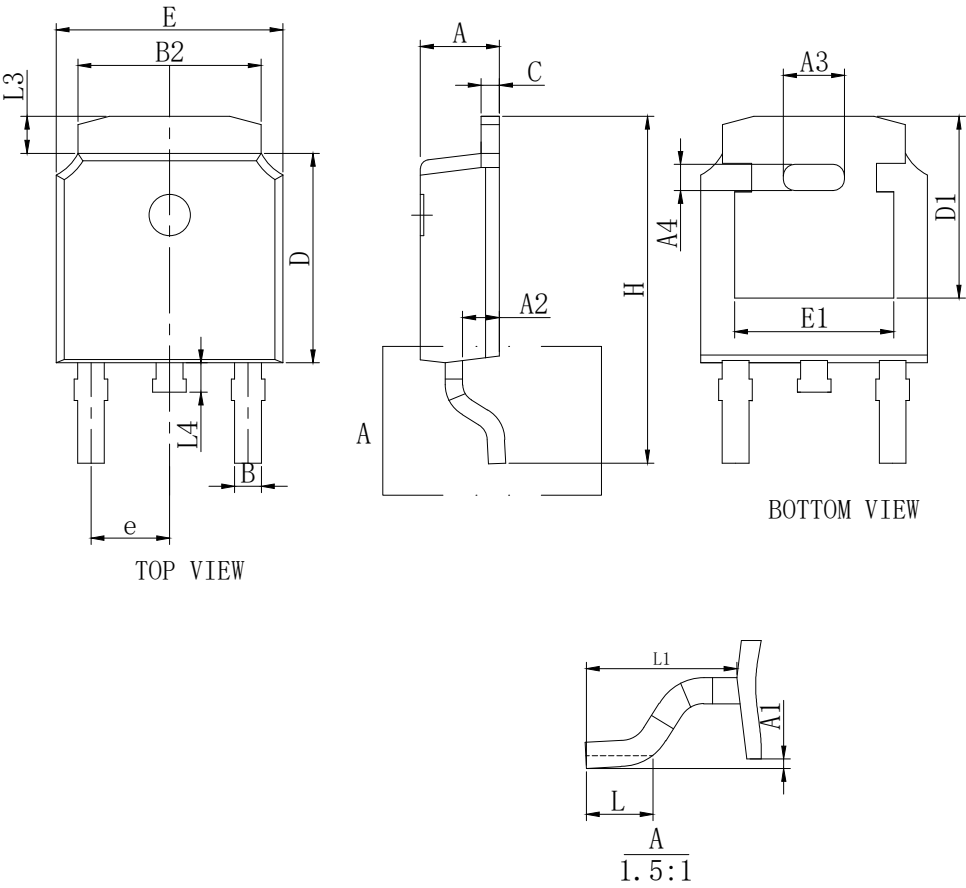
## 7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



## 7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

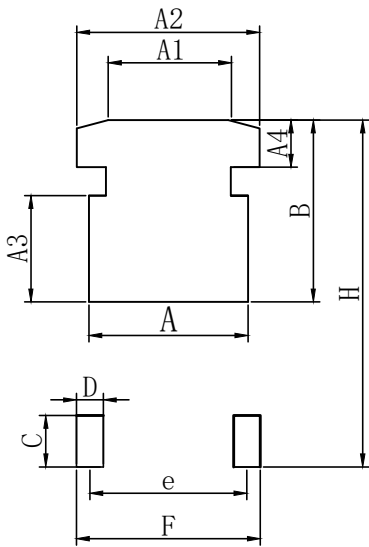


8.OUTLINE AND DIMENSIONS



| DIM | MILLIMETERS |       |      |
|-----|-------------|-------|------|
|     | MIN         | NOM   | MAX  |
| A   | 2.15        | 2.30  | 2.45 |
| A1  | 0           | -     | 0.20 |
| A2  | 0.90        | 1.07  | 1.17 |
| A3  | 1.58        | 1.78  | 1.98 |
| A4  | 0.56        | 0.76  | 0.96 |
| B   | 0.68        | 0.78  | 0.88 |
| B2  | 5.20        | 5.33  | 5.46 |
| C   | 0.49        | -     | 0.58 |
| D   | 5.90        | 6.10  | 6.30 |
| D1  | 5.30REF     |       |      |
| E   | 6.40        | 6.60  | 6.80 |
| E1  | 4.63        | 4.83  | 5.03 |
| e   | 2.286BSC    |       |      |
| H   | 9.8         | 10.10 | 10.4 |
| L   | 1.09        | 1.29  | 1.49 |
| L1  | 2.90REF     |       |      |
| L3  | 0.88        | 1.08  | 1.28 |
| L4  | 0.55        | 0.80  | 1.05 |

9.SOLDERING FOOTPRINT



| DIM | MIN(mm)   |
|-----|-----------|
| A   | 6.03      |
| A1  | 4.50      |
| A2  | 6.46      |
| A3  | 4.10      |
| A4  | 2.37      |
| B   | 6.50      |
| C   | 2.50      |
| D   | 1.68      |
| e   | 4.57(TYP) |
| H   | 12.35     |
| F   | 6.25      |

## **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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