

LP137N3T5G

20V P-Channel Enhancement MOSFET

1. FEATURES

- VDS = -20V
- Super high density cell design for extremely low RDS(ON).
- Fast Switching.
- Gate to Source ESD Protected.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.

2. APPLICATIONS

- Power Management in Note book
- Portable Equipment
- Battery Powered System

3. DEVICE MARKING AND ORDERING INFORMATION

| Device | Marking | Shipping |
|------------|---------|-----------------|
| LP137N3T5G | PF | 10000/Tape&Reel |

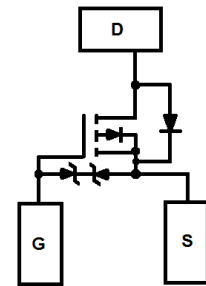
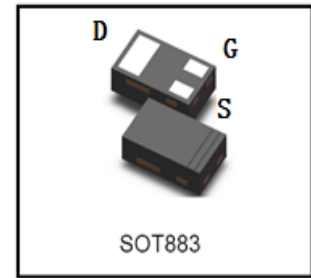
4. MAXIMUM RATINGS(Ta = 25°C)

| Parameter | Symbol | Limits | Unit |
|--|---------|----------|------|
| Drain-to-Source Voltage | VDSS | -20 | V |
| Gate-to-Source Voltage | VGS | ±8 | V |
| Drain Current | | | A |
| – Continuous TA = 25°C | ID | -0.9 | |
| – Pulsed (Note 2) | IDM | -3.6 | |
| Maximum Power Dissipation | PD | 0.4 | W |
| Operating Junction and Storage Temperature Range | TJ/Tstg | -55~+150 | °C |

5. THERMAL CHARACTERISTICS

| Parameter | Symbol | Limits | Unit |
|---|--------|--------|------|
| Junction-to-Ambient – Steady State (Note 1) | RθJA | 305 | °C/W |

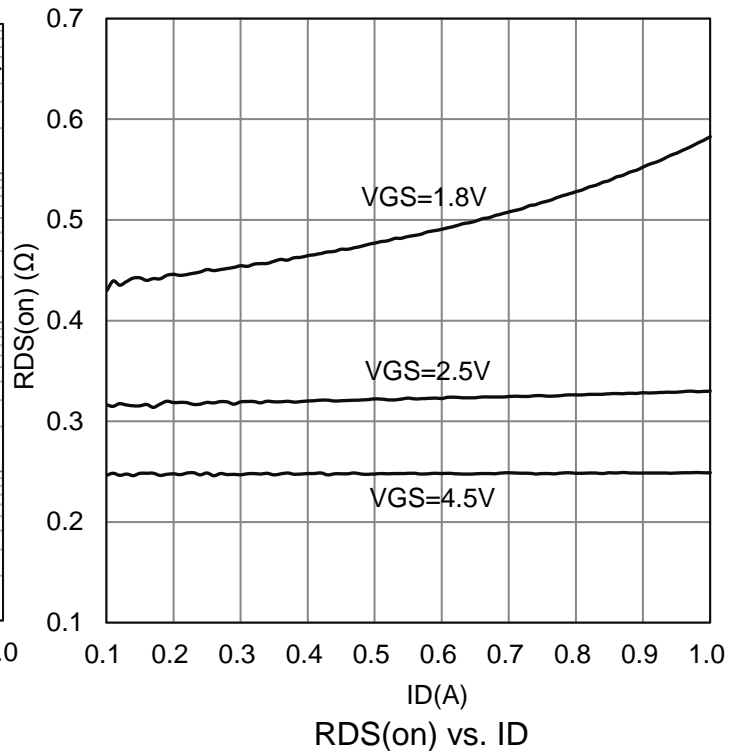
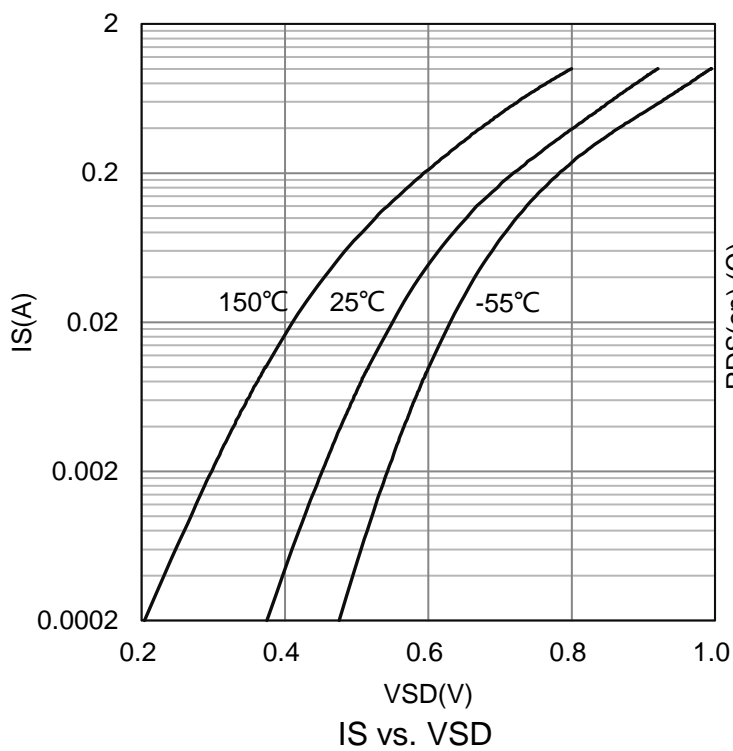
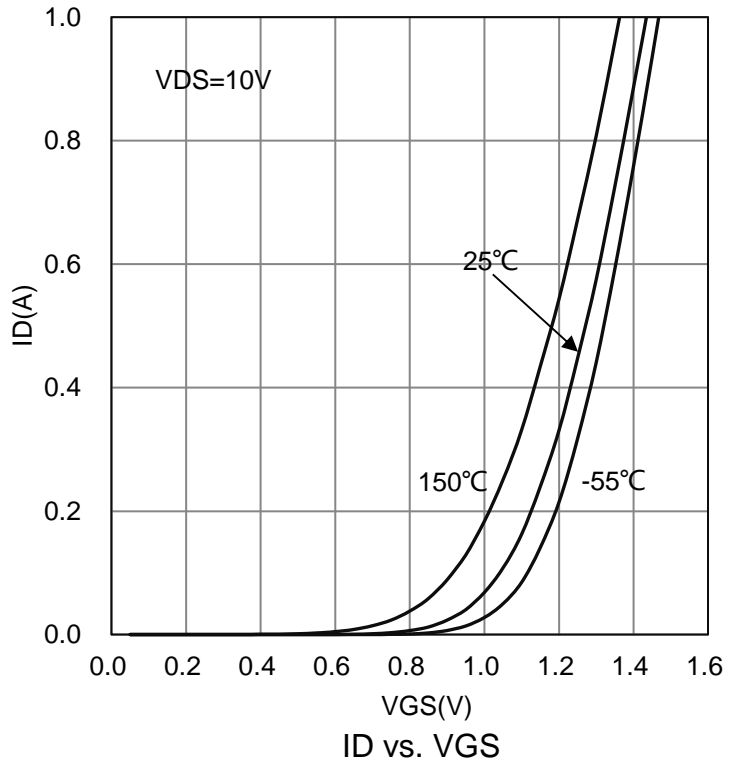
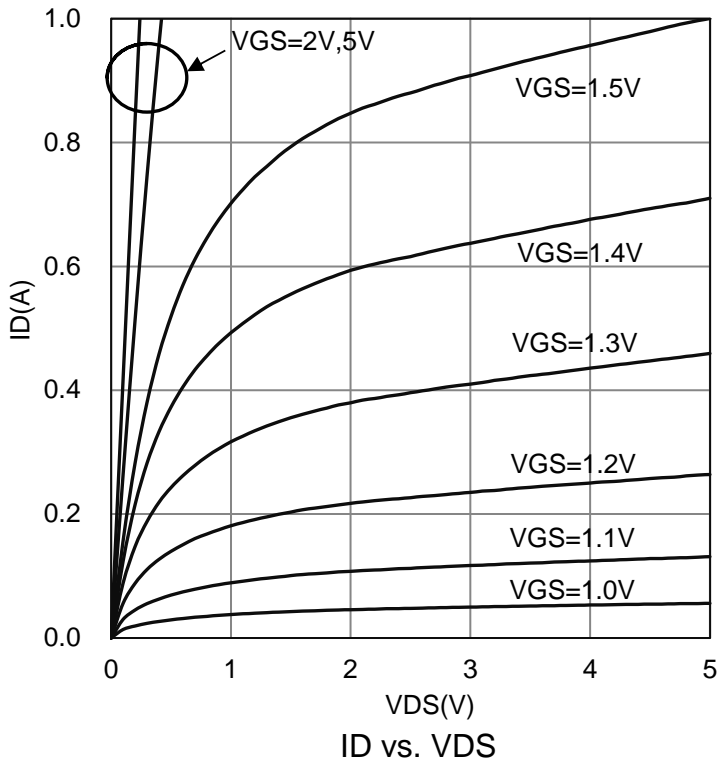
1. Surface-mounted on FR4 board using 1 in sq pad size (Cu area = 1.127 in sq [1 oz] including traces)
- 2.Repetitive Rating: Pulse width limited by the maximum junction temperature.



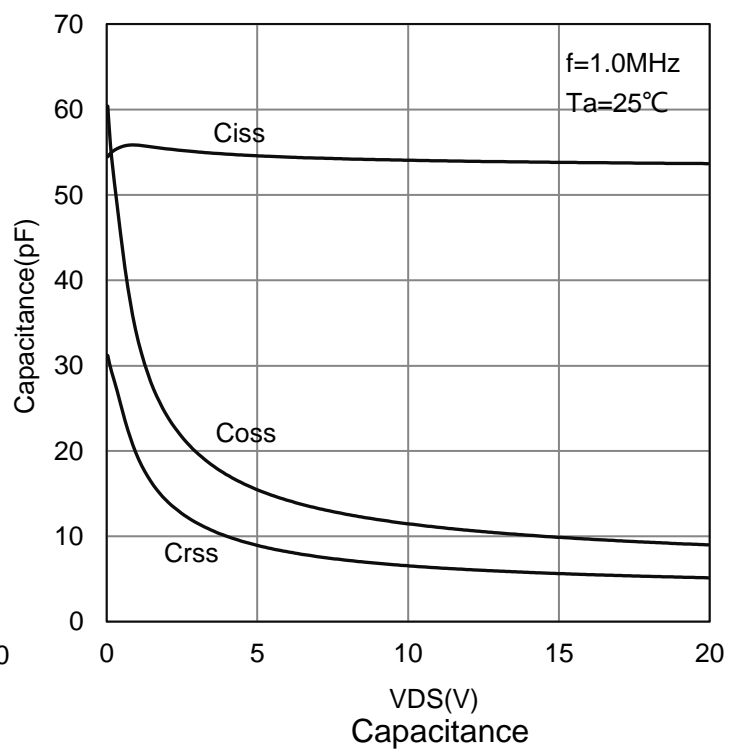
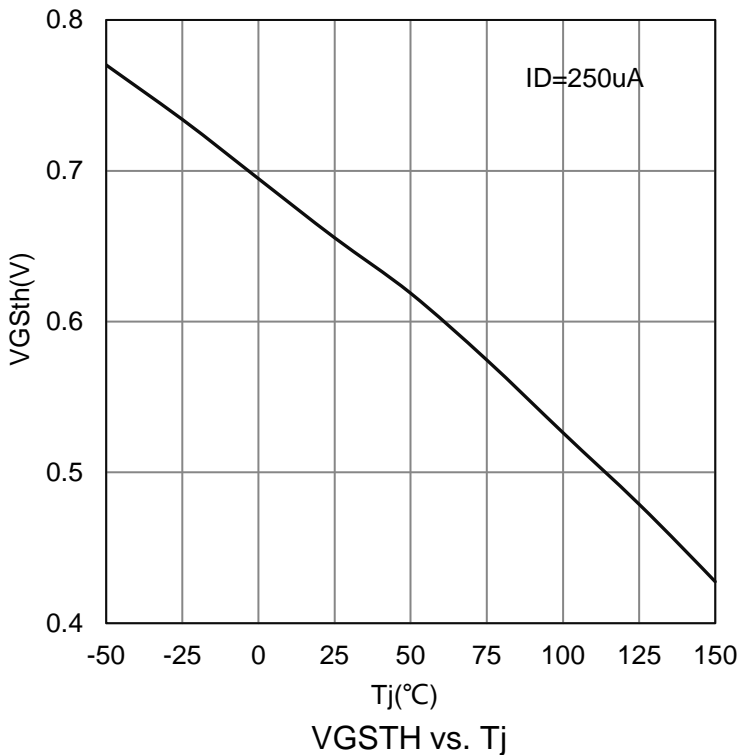
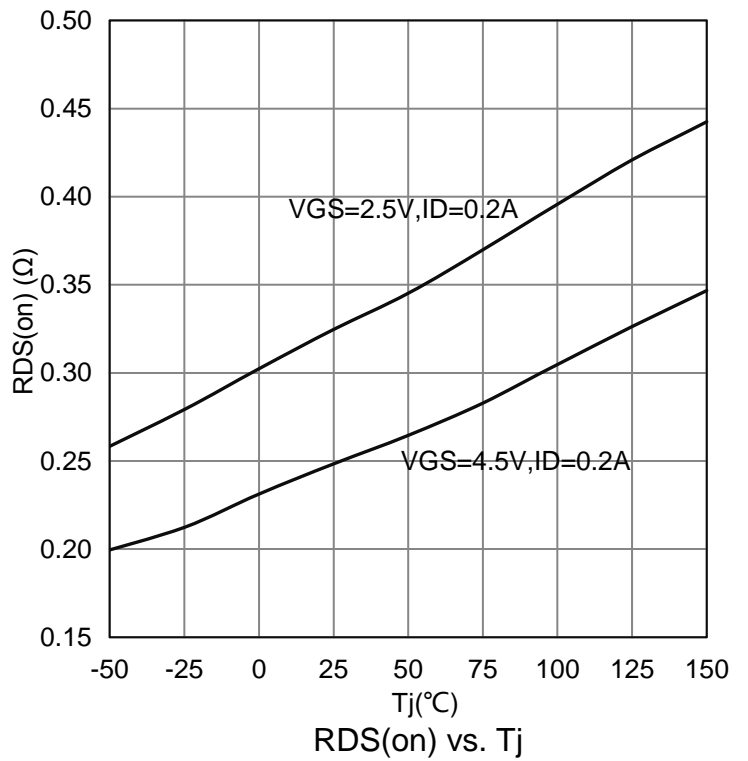
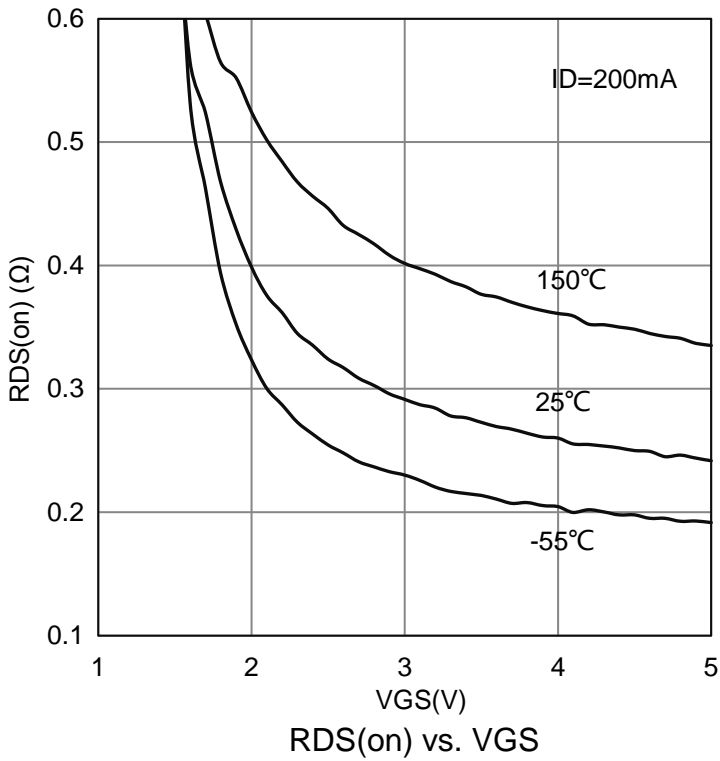
6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

| Characteristic | Symbol | Min. | Typ. | Max. | Unit | |
|---|---|---------|-------|-------------------|------|----|
| Static | | | | | | |
| Drain-Source Breakdown Voltage (VGS = 0V, ID = -250uA) | V(BR)DSS | -20 | - | - | V | |
| Gate Threshold Voltage (VDS =VGS , ID = -250μA) | VGS(th) | -0.4 | -0.68 | -1 | V | |
| Gate Body Leakage Current (VDS =0V, VGS =±8V) | IGSS | - | - | ±10 | μA | |
| Zero Gate Voltage Drain Current (VDS =-20V, VGS =0V) | IDSS | - | - | -1 | μA | |
| Drain-Source On-State Resistance (VGS=-4.5V, ID=-0.2A) (VGS=-2.5V, ID=-0.2A) (VGS=-1.8V, ID=-0.2A) | RDS(ON) | - | - | 310 420 890 | mΩ | |
| Diode Forward Voltage (IS = -1.0A, VGS = 0V) | VSD | - | - | -1.5 | V | |
| Dynamic | | | | | | |
| Total Gate Charge | (VDS =-16V, VGS =-4.5V, ID =-200mA) | Qg | - | 1.4 | - | nC |
| Gate-Source Charge | | Qgs | - | 0.15 | - | |
| Gate-Drain Charge | | Qgd | - | 0.5 | - | |
| Turn-On Delay Time | (VDD =-10V, RL =50Ω,VGEN =- 5V,RG =10Ω,ID =-200mA) | td(on) | - | 26 | - | ns |
| Rise Time | | tr | - | 66 | - | |
| Turn-Off Delay Time | | td(off) | - | 82 | - | |
| Fall Time | | tf | - | 280 | - | |
| Input Capacitance | (VDS = -16 V, VGS = 0 V, f = 1 MHz) | Ciss | - | 54 | - | pF |
| Output Capacitance | | Coss | - | 9.7 | - | |
| Reverse Transfer Capacitance | | Crss | - | 5.5 | - | |
| Gate-Resistance (VDS = 0 V, VGS = 0 V, f = 1MHz) | Rg | - | 1402 | - | Ω | |
| Reverse Recovery Time (IS=-0.8A,dIf/dt=15A/us) | trr | - | 75 | - | ns | |
| Reverse Recovery Charge (IS=-0.8A,dIf/dt=15A/us) | Qrr | - | 9.5 | - | nC | |

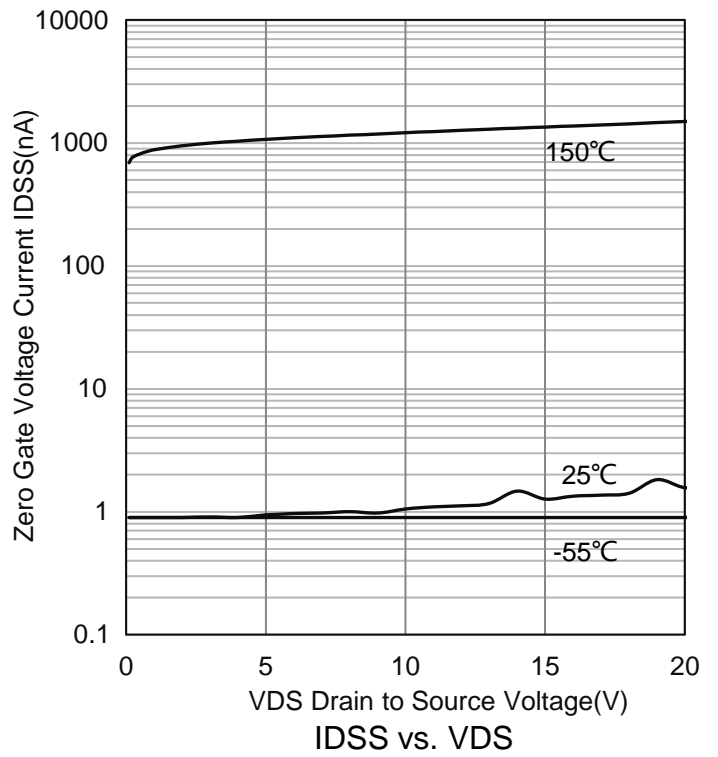
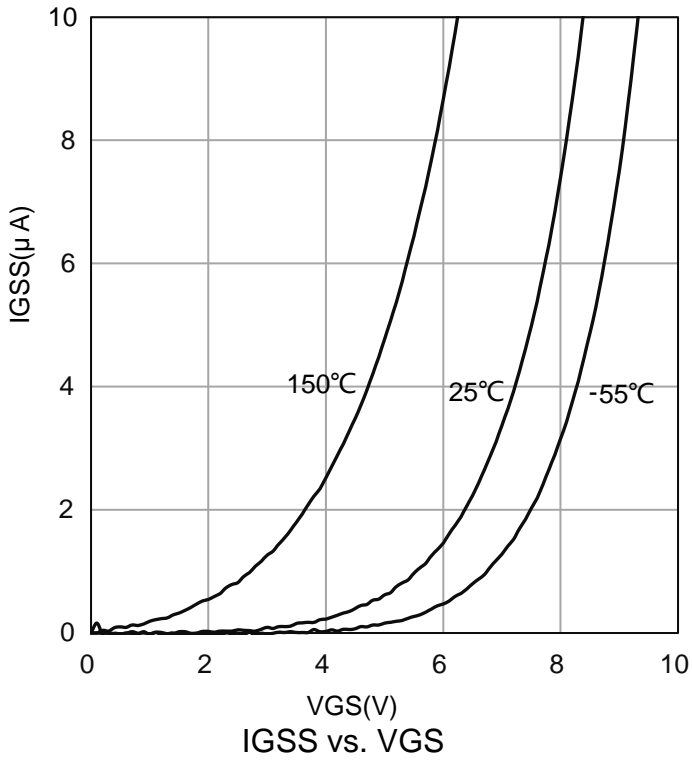
7 ELECTRICAL CHARACTERISTICS CURVES



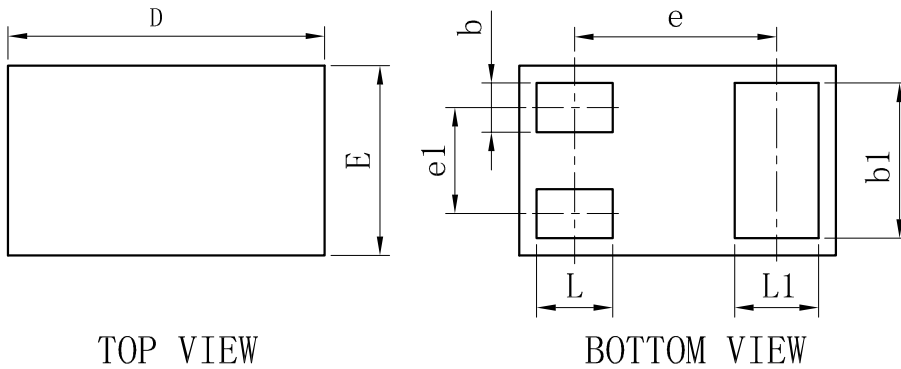
7 .ELECTRICAL CHARACTERISTICS CURVES(Con.)



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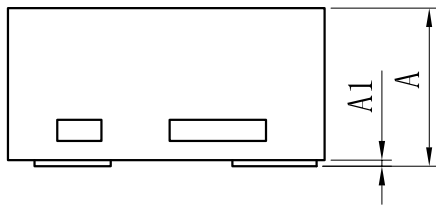


8. OUTLINE AND DIMENSIONS



TOP VIEW

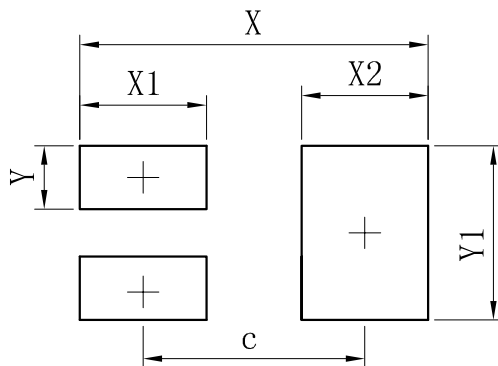
BOTTOM VIEW



SIDE VIEW

| SOT883 | | | |
|----------------------|------|------|------|
| Dim | Min | Typ | Max |
| D | 0.95 | 1.00 | 1.05 |
| E | 0.55 | 0.60 | 0.65 |
| e | - | 0.64 | - |
| e1 | - | 0.34 | - |
| L | 0.19 | 0.24 | 0.29 |
| L1 | 0.22 | 0.27 | 0.32 |
| b | 0.10 | 0.15 | 0.20 |
| b1 | 0.44 | 0.49 | 0.54 |
| A | 0.43 | 0.48 | 0.53 |
| A1 | 0 | - | 0.05 |
| All Dimensions in mm | | | |

9. SOLDERING FOOTPRINT



| Dimensions | (mm) |
|------------|------|
| c | 0.70 |
| X | 1.10 |
| X1 | 0.40 |
| X2 | 0.40 |
| Y | 0.20 |
| Y1 | 0.55 |

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