

**100V 15.8mΩ N-Ch Power MOSFET****Features**

- Ultra-low  $R_{DS(ON)}$
- Low Gate Charge
- 100% UIS Tested, 100%  $R_g$  Tested
- Pb-free Lead Plating
- Halogen-free and RoHS-compliant

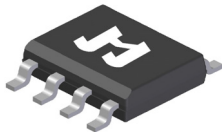
**Product Summary**

| Parameter                                | Value | Unit |
|------------------------------------------|-------|------|
| $V_{DS}$                                 | 100   | V    |
| $V_{GS(th\_typ)}$                        | 1.9   | V    |
| $I_D$ (@ $V_{GS} = 10V$ ) <sup>(1)</sup> | 8     | A    |
| $R_{DS(ON)\_typ}$ (@ $V_{GS} = 10V$ )    | 15.8  | mΩ   |
| $R_{DS(ON)\_typ}$ (@ $V_{GS} = 4.5V$ )   | 19    | mΩ   |

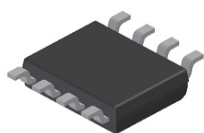
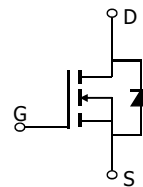
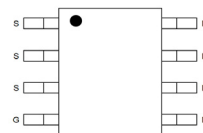
**Applications**

- Power Management in Telecom., Industrial Automation, CE
- Current Switching in DC/DC & AC/DC Sub-systems
- Motor Driving in Power Tool, E-vehicle, Robotics

SOP-8L Top View



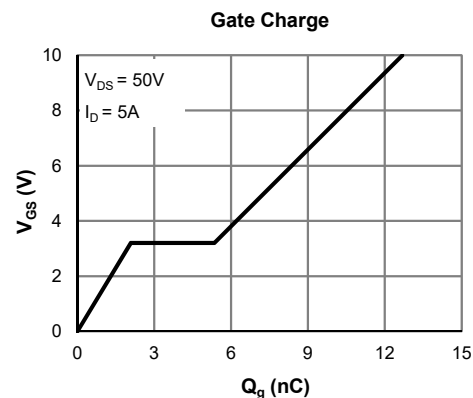
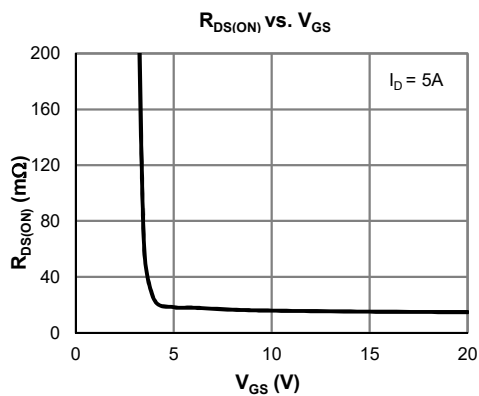
SOP-8L Bottom View

Top View  
Pin Configuration**Ordering Information**

| Device        | Package | # of Pins | Marking | MSL | $T_J$ (°C) | Media        | Quantity (pcs) |
|---------------|---------|-----------|---------|-----|------------|--------------|----------------|
| JMSL1018AP-13 | SOP-8L  | 8         | SL1018A | 3   | -55 to 150 | 13-inch Reel | 2500           |

**Absolute Maximum Ratings** (@  $T_A = 25^\circ\text{C}$  unless otherwise specified)

| Parameter                               | Symbol         | Value      | Unit |
|-----------------------------------------|----------------|------------|------|
| Drain-to-Source Voltage                 | $V_{DS}$       | 100        | V    |
| Gate-to-Source Voltage                  | $V_{GS}$       | $\pm 20$   | V    |
| Continuous Drain Current <sup>(1)</sup> | $I_D$          | 8.1        | A    |
| $T_A = 25^\circ\text{C}$                |                | 6.5        |      |
| $T_A = 70^\circ\text{C}$                |                | 6.5        |      |
| Pulsed Drain Current <sup>(2)</sup>     | $I_{DM}$       | 34         | A    |
| Avalanche Current <sup>(3)</sup>        | $I_{AS}$       | 22         | A    |
| Avalanche Energy <sup>(3)</sup>         | $E_{AS}$       | 24         | mJ   |
| Power Dissipation <sup>(4)</sup>        | $P_D$          | 2.5        | W    |
| $T_A = 25^\circ\text{C}$                |                | 1.6        |      |
| $T_A = 70^\circ\text{C}$                |                | 1.6        |      |
| Junction & Storage Temperature Range    | $T_J, T_{STG}$ | -55 to 150 | °C   |



**Electrical Characteristics** (@  $T_J = 25^\circ\text{C}$  unless otherwise specified)

| Parameter                                     | Symbol        | Conditions                                                                              | Min. | Typ. | Max.      | Unit             |
|-----------------------------------------------|---------------|-----------------------------------------------------------------------------------------|------|------|-----------|------------------|
| <b>STATIC PARAMETERS</b>                      |               |                                                                                         |      |      |           |                  |
| Drain-Source Breakdown Voltage                | $V_{(BR)DSS}$ | $I_D = 250\mu\text{A}$ , $V_{GS} = 0\text{V}$                                           | 100  |      |           | V                |
| Zero Gate Voltage Drain Current               | $I_{DSS}$     | $V_{DS} = 80\text{V}$ , $V_{GS} = 0\text{V}$                                            |      |      | 1.0       | $\mu\text{A}$    |
|                                               |               | $T_J = 55^\circ\text{C}$                                                                |      |      | 5.0       |                  |
| Gate-Body Leakage Current                     | $I_{GSS}$     | $V_{DS} = 0\text{V}$ , $V_{GS} = \pm 20\text{V}$                                        |      |      | $\pm 100$ | nA               |
| Gate Threshold Voltage                        | $V_{GS(th)}$  | $V_{DS} = V_{GS}$ , $I_D = 250\mu\text{A}$                                              | 1.2  | 1.9  | 2.5       | V                |
| Static Drain-Source ON-Resistance             | $R_{DS(on)}$  | $V_{GS} = 10\text{V}$ , $I_D = 5\text{A}$                                               |      | 15.8 | 19.8      | $\text{m}\Omega$ |
|                                               | $R_{DS(on)}$  | $V_{GS} = 4.5\text{V}$ , $I_D = 5\text{A}$                                              |      | 19   | 25        | $\text{m}\Omega$ |
| Forward Transconductance                      | $g_{FS}$      | $V_{DS} = 5\text{V}$ , $I_D = 5\text{A}$                                                |      | 18   |           | S                |
| Diode Forward Voltage                         | $V_{SD}$      | $I_S = 1\text{A}$ , $V_{GS} = 0\text{V}$                                                |      | 0.70 | 1.0       | V                |
| Diode Continuous Current                      | $I_S$         | $T_A = 25^\circ\text{C}$                                                                |      |      | 2.5       | A                |
| <b>DYNAMIC PARAMETERS</b> <sup>(5)</sup>      |               |                                                                                         |      |      |           |                  |
| Input Capacitance                             | $C_{iss}$     | $V_{GS} = 0\text{V}$ , $V_{DS} = 50\text{V}$ , $f = 1\text{MHz}$                        |      | 769  |           | pF               |
| Output Capacitance                            | $C_{oss}$     |                                                                                         |      | 171  |           | pF               |
| Reverse Transfer Capacitance                  | $C_{rss}$     |                                                                                         |      | 5.1  |           | pF               |
| Gate Resistance                               | $R_g$         | $V_{GS} = 0\text{V}$ , $V_{DS} = 0\text{V}$ , $f = 1\text{MHz}$                         |      | 1.9  |           | $\Omega$         |
| <b>SWITCHING PARAMETERS</b> <sup>(5)</sup>    |               |                                                                                         |      |      |           |                  |
| Total Gate Charge (@ $V_{GS} = 10\text{V}$ )  | $Q_g$         | $V_{GS} = 0$ to $10\text{V}$<br>$V_{DS} = 50\text{V}$ , $I_D = 5\text{A}$               |      | 12.7 |           | nC               |
| Total Gate Charge (@ $V_{GS} = 4.5\text{V}$ ) | $Q_g$         |                                                                                         |      | 6.7  |           | nC               |
| Gate Source Charge                            | $Q_{gs}$      |                                                                                         |      | 2.1  |           | nC               |
| Gate Drain Charge                             | $Q_{gd}$      |                                                                                         |      | 3.3  |           | nC               |
| Turn-On Delay Time                            | $t_{D(on)}$   | $V_{GS} = 10\text{V}$ , $V_{DS} = 50\text{V}$<br>$R_L = 10\Omega$ , $R_{GEN} = 6\Omega$ |      | 4.3  |           | ns               |
| Turn-On Rise Time                             | $t_r$         |                                                                                         |      | 5.1  |           | ns               |
| Turn-Off Delay Time                           | $t_{D(off)}$  |                                                                                         |      | 16.7 |           | ns               |
| Turn-Off Fall Time                            | $t_f$         |                                                                                         |      | 8.7  |           | ns               |
| Body Diode Reverse Recovery Time              | $t_{rr}$      | $I_F = 5\text{A}$ , $dI_F/dt = 100\text{A}/\mu\text{s}$                                 |      | 39   |           | ns               |
| Body Diode Reverse Recovery Charge            | $Q_{rr}$      | $I_F = 5\text{A}$ , $dI_F/dt = 100\text{A}/\mu\text{s}$                                 |      | 30   |           | nC               |

**Thermal Performance**

| Parameter                                                       | Symbol          | Typ. | Max. | Unit                      |
|-----------------------------------------------------------------|-----------------|------|------|---------------------------|
| Thermal Resistance, Junction-to-Ambient ( $t \leq 10\text{s}$ ) | $R_{\theta JA}$ | 40   | 50   | $^\circ\text{C}/\text{W}$ |
| Thermal Resistance, Junction-to-Ambient (steady state)          | $R_{\theta JA}$ | 75   | 90   | $^\circ\text{C}/\text{W}$ |

**Notes:**

1. Computed continuous current assumes the condition of  $T_{J\_Max}$  while the actual continuous current depends on the thermal & electro-mechanical application board design.
2. This single-pulse measurement was taken under  $T_{J\_Max} = 150^\circ\text{C}$ .
3. This single-pulse measurement was taken under the following condition [ $L = 100\mu\text{H}$ ,  $V_{GS} = 10\text{V}$ ,  $V_{DS} = 50\text{V}$ ] while its value is limited by  $T_{J\_Max} = 150^\circ\text{C}$ .
4. The power dissipation  $P_D$  is based on  $T_{J\_Max} = 150^\circ\text{C}$ .
5. This value is guaranteed by design hence it is not included in the production test.

## Typical Electrical & Thermal Characteristics

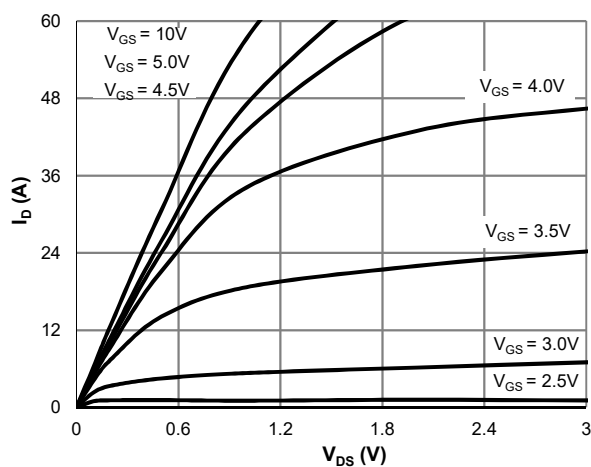


Figure 1: Saturation Characteristics

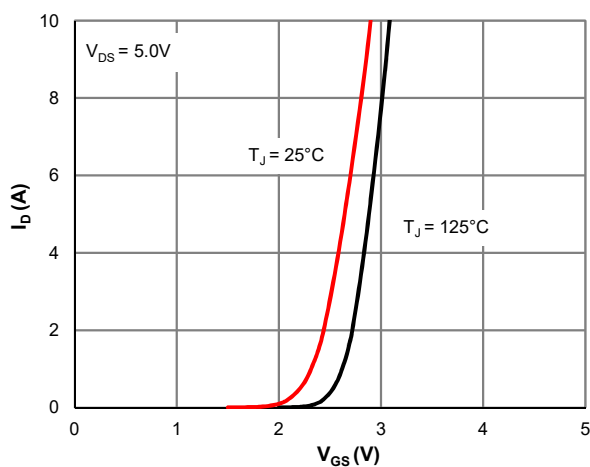


Figure 2: Transfer Characteristics

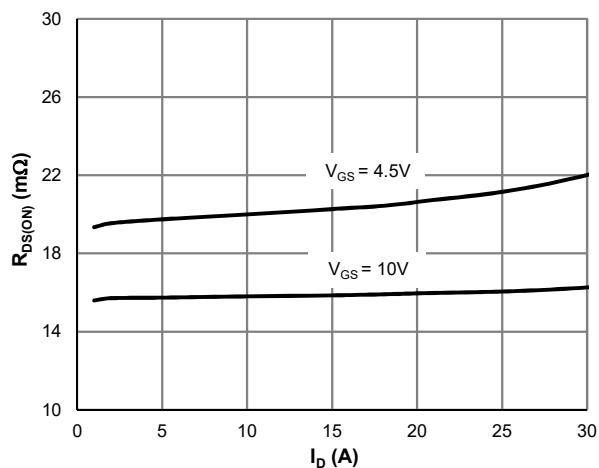


Figure 3:  $R_{DS(ON)}$  vs. Drain Current

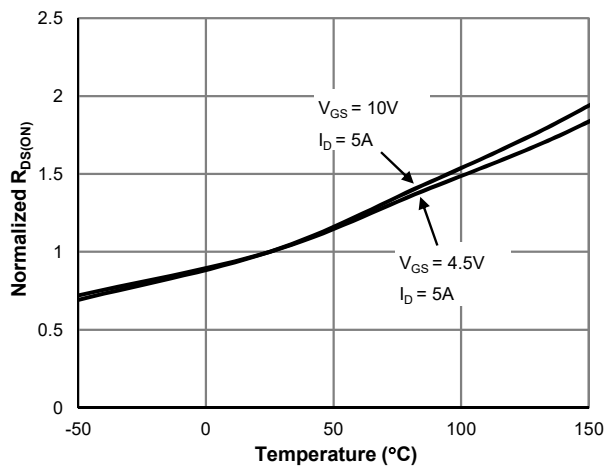


Figure 4:  $R_{DS(ON)}$  vs. Junction Temperature

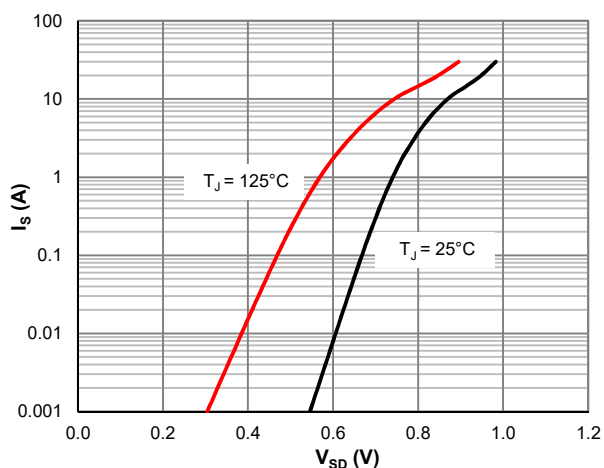


Figure 5: Body-Diode Characteristics

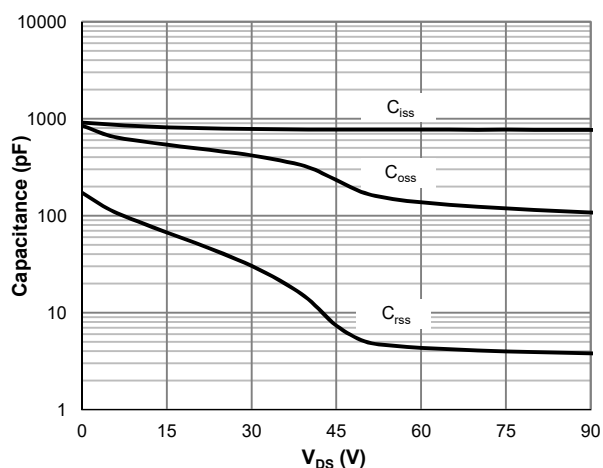


Figure 6: Capacitance Characteristics

### Typical Electrical & Thermal Characteristics

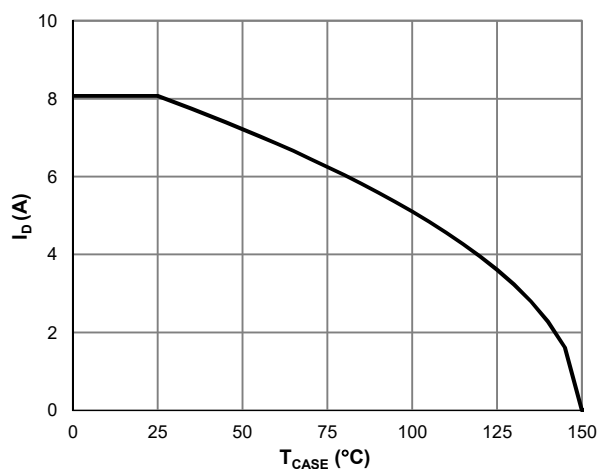


Figure 7: Current De-rating

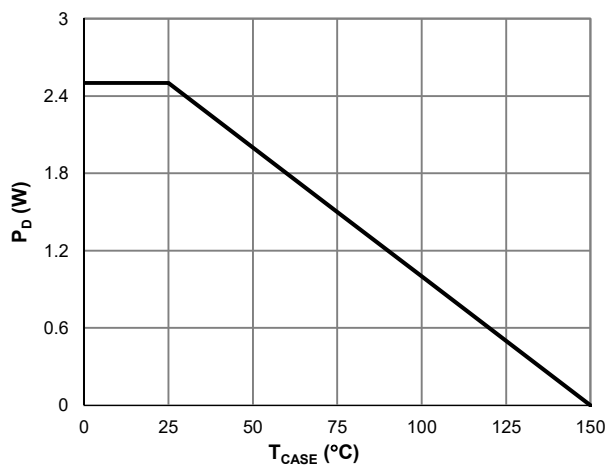


Figure 8: Power De-rating

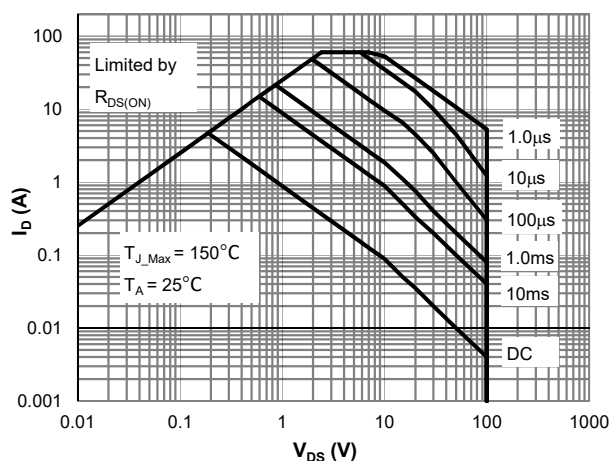


Figure 9: Maximum Safe Operating Area

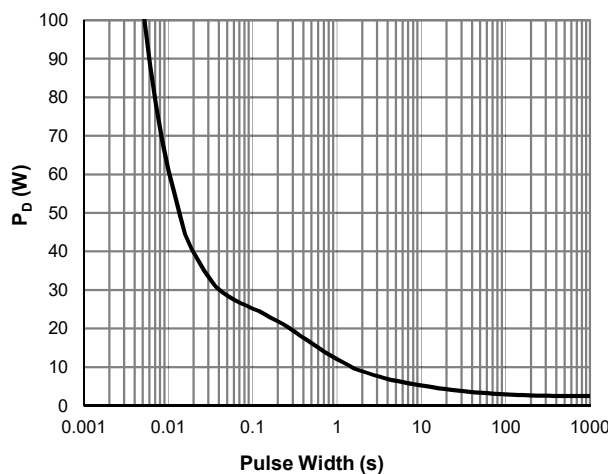


Figure 10: Single Pulse Power Rating, Junction-to-Case

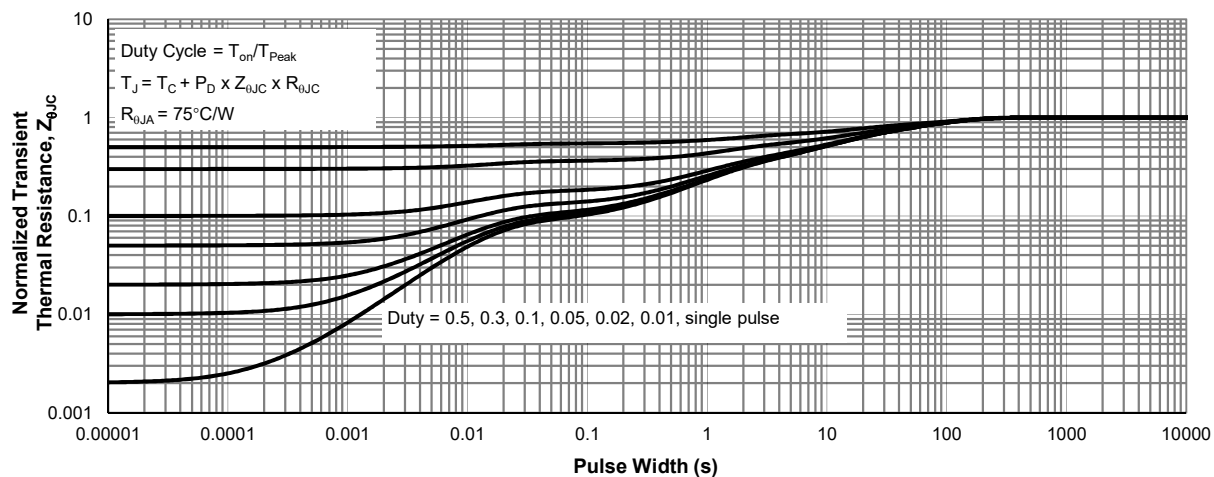
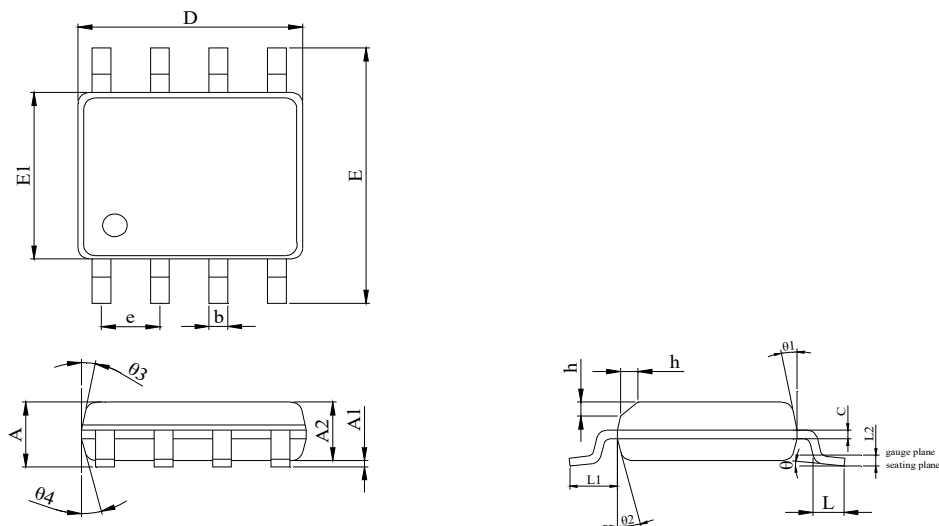


Figure 11: Normalized Maximum Transient Thermal Impedance

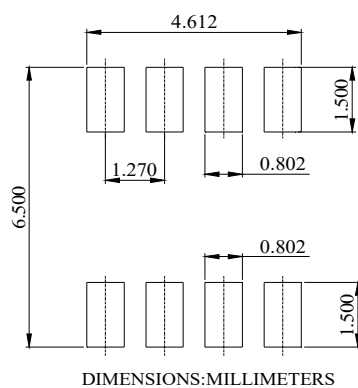
## SOP-8L Package Information

### Package Outline



| DIM | MILLIMETER |      |      |
|-----|------------|------|------|
|     | MIN.       | NOM. | MAX. |
| A   | 1.35       | 1.50 | 1.65 |
| A1  | 0.05       | 0.10 | 0.15 |
| A2  | 1.35       | 1.40 | 1.50 |
| b   | 0.38       | --   | 0.50 |
| c   | 0.17       | --   | 0.25 |
| D   | 4.80       | 4.90 | 5.00 |
| E   | 5.80       | 6.00 | 6.20 |
| E1  | 3.80       | 3.90 | 4.00 |
| e   | 1.27(BSC)  |      |      |
| L   | 0.45       | 0.60 | 0.80 |
| L1  | 1.04 REF   |      |      |
| L2  | 0.25 BSC   |      |      |
| h   | 0.30       | 0.40 | 0.50 |
| θ   | 0°         | --   | 8°   |
| θ1  | 10°        | 12°  | 14°  |
| θ2  | 8°         | 10°  | 12°  |
| θ3  | 10°        | 12°  | 14°  |
| θ4  | 8°         | 10°  | 12°  |

### Recommended Footprint



单击下面可查看定价，库存，交付和生命周期等信息

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