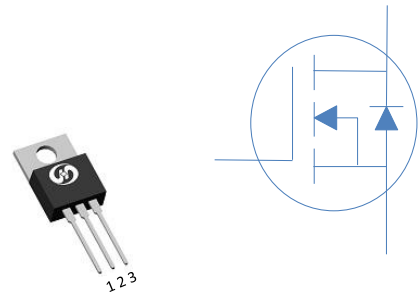


**150V N-Ch Power MOSFET**

|                  |        |     |   |
|------------------|--------|-----|---|
| $V_{DS}$         |        | 150 | V |
| $R_{DS(on),typ}$ | TO-263 | 9.4 | m |
| $R_{DS(on),typ}$ | TO-220 | 9.7 | m |
| $I_D$            |        | 91  | A |



| Part Number | Package | Marking   |
|-------------|---------|-----------|
| HGB115N15S  | TO-263  | GB115N15S |
| HGP115N15S  | TO-220  | GP115N15S |

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

| Parameter                                  | Symbol         | Conditions                               | Value      | Unit               |
|--|----------------|--|------------|--------------------|
| Continuous Drain Current (Silicon Limited) | $I_D$          | $T_C=25^{\circ}\text{C}$                 | 91         | A                  |
|  |                | $T_C=100^{\circ}\text{C}$                | 64         |                    |
| Drain to Source Voltage                    | $V_{DS}$       | -  | 150        | V                  |
| Gate to Source Voltage                     | $V_{GS}$       | -  | $\pm 20$   | V                  |
| Pulsed Drain Current                       | $I_{DM}$       | -  | 300        | A                  |
| Avalanche Energy, Single Pulse             | $E_{AS}$       | $L=0.4\text{mH}, T_C=25^{\circ}\text{C}$ | 125        | mJ                 |
| Power Dissipation                          | $P_D$          | $T_C=25^{\circ}\text{C}$                 | 214        | W                  |
| Operating and Storage Temperature          | $T_J, T_{stg}$ | -  | -55 to 175 | $^{\circ}\text{C}$ |

**Absolute Maximum Ratings**

| Parameter                           | Symbol   | Max | Unit                 |
|-------------------------------------|----------|-----|----------------------|
| Thermal Resistance Junction-Ambient | $R_{JA}$ | 60  | $^{\circ}\text{C/W}$ |
| Thermal Resistance Junction-Case    | $R_{JC}$ | 0.7 | $^{\circ}\text{C/W}$ |

|                     |              |                                    |    |   |    |
|---------------------|--------------|------------------------------------|----|---|----|
|                     |              |                                    | 42 | - |    |
|                     |              |                                    | 14 | - | nC |
|                     |              |                                    | 7  | - |    |
| Turn on Delay Time  | $t_{d(on)}$  |                                    | 17 | - |    |
| Rise time           | $t_r$        | $V_{DD}=75V, I_D=20A, V_{GS}=10V,$ | 8  | - | ns |
| Turn off Delay Time | $t_{d(off)}$ | $R_G=10 \Omega$                    | 26 | - |    |
| Fall Time           | $t_f$        |                                    | 10 | - |    |

Reverse Diode Characteristics

|                         |          |                                      |     |     |    |
|-------------------------|----------|--------------------------------------|-----|-----|----|
| Diode Forward Voltage   | $V_{SD}$ | $V_{GS}=0V, I_F=20A$                 | 0.9 | 1.2 | V  |
| Reverse Recovery Time   | $t_{rr}$ | $V_D=75V, I_F=20A, di/dt=100A/\mu s$ |     |     | ns |
| Reverse Recovery Charge |          |                                      |     |     |    |

075



Fig 1. Typical Output Characteristics

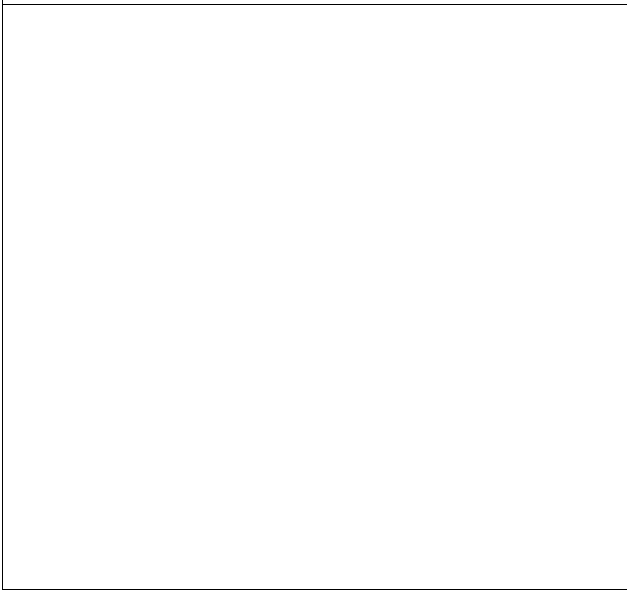


Figure 2. On-Resistance vs. Gate-Source Voltage

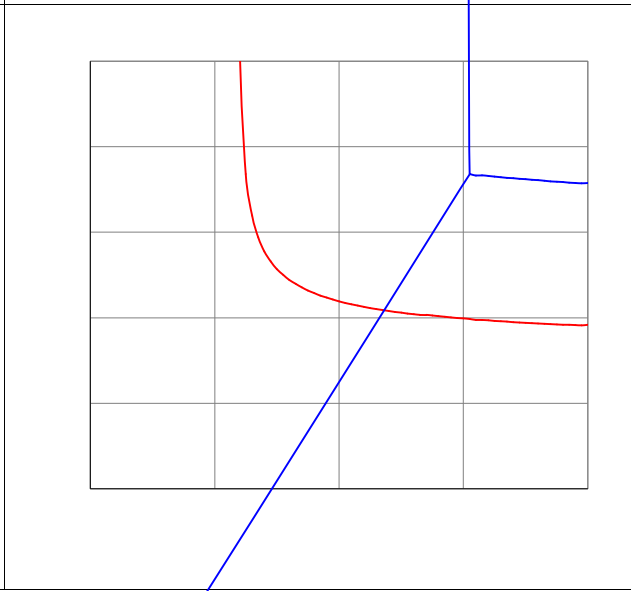


Figure 3. On-Resistance vs. Drain Current and Gate Voltage

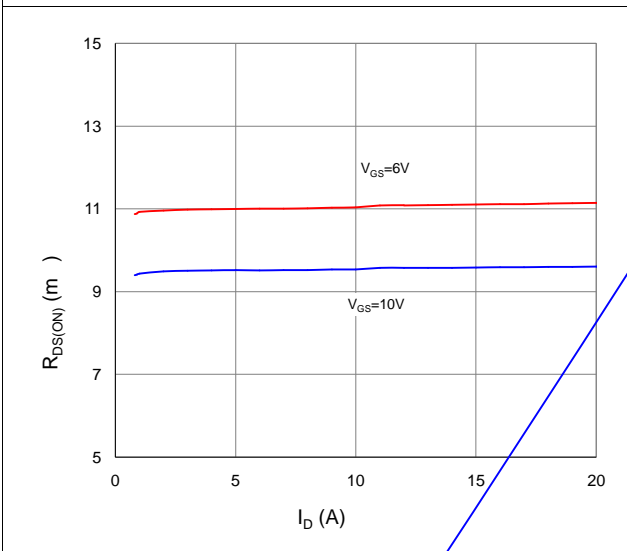


Figure 4. Normalized On-Resistance vs. Junction Temperature

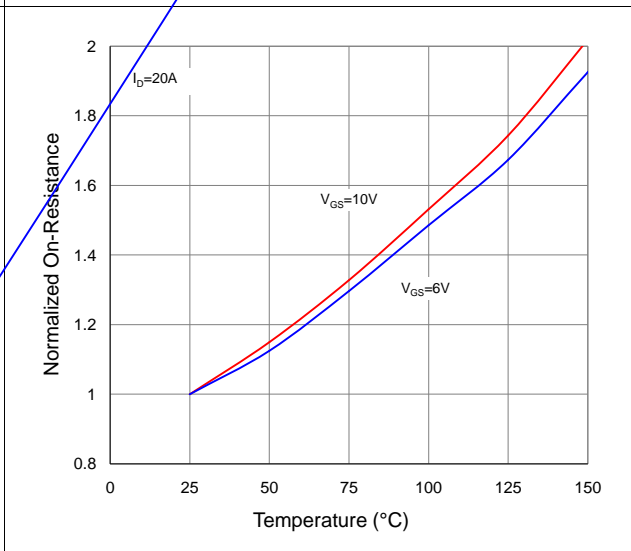


Figure 5. Typical Transfer Characteristics

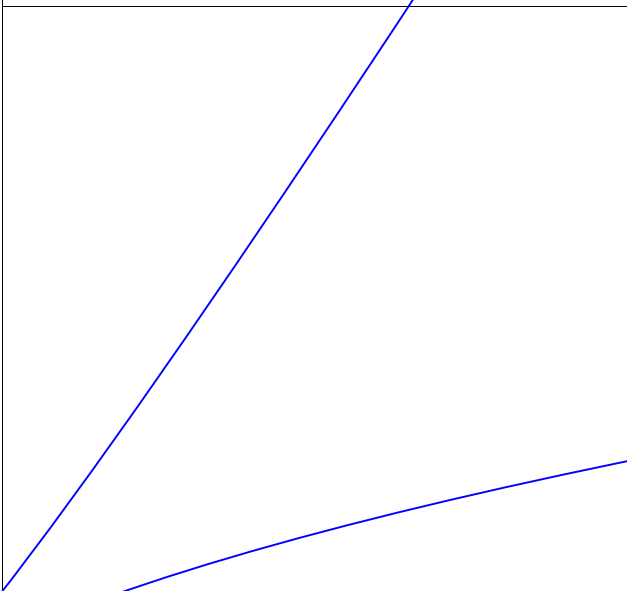
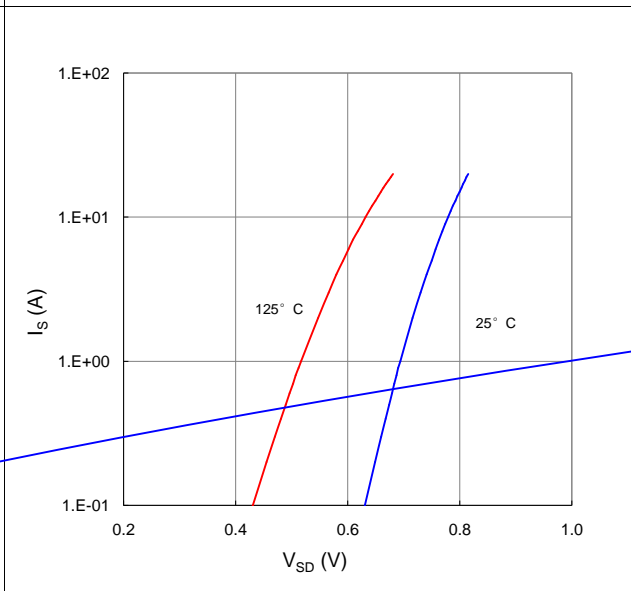


Figure 6. Typical Source-Drain Diode Forward Voltage



1  
2  
3

4  
5  
6

7  
8  
9

10

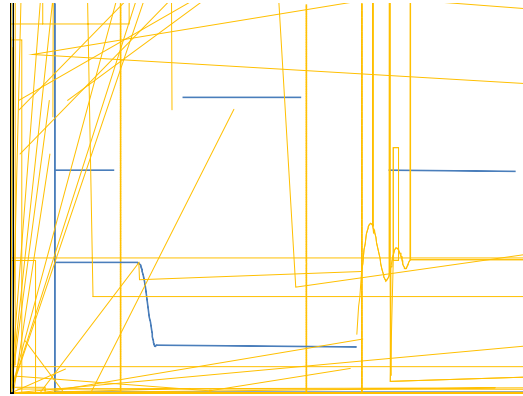
11

12

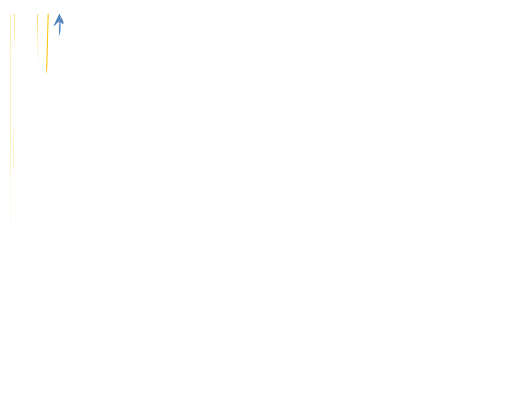
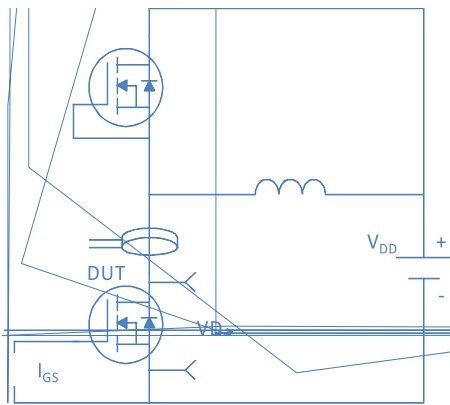
13  
14

15

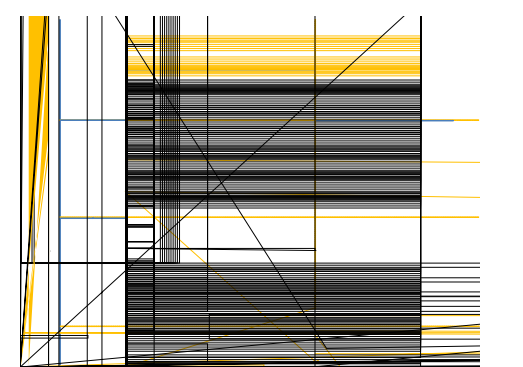
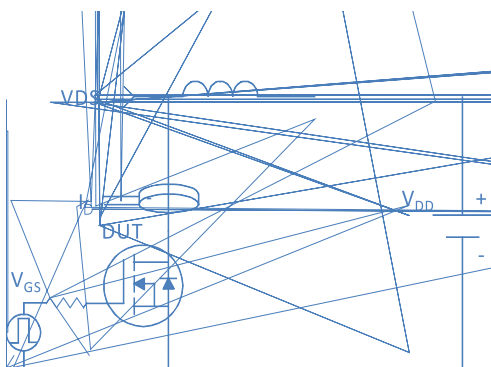
Inductive switching Test



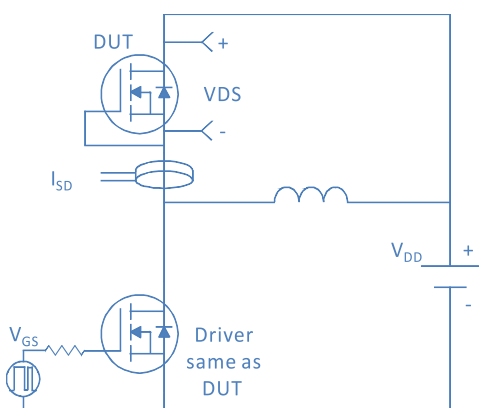
Gate Charge Test



Uclamped Inductive Switching (UIS) Test

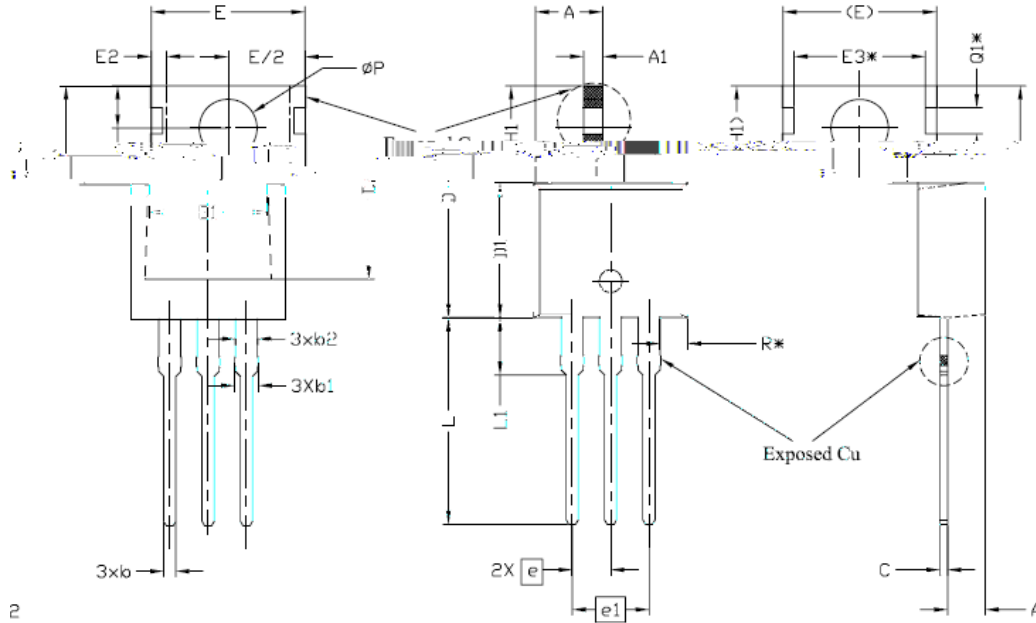


Diode Recovery Test



Package Outline

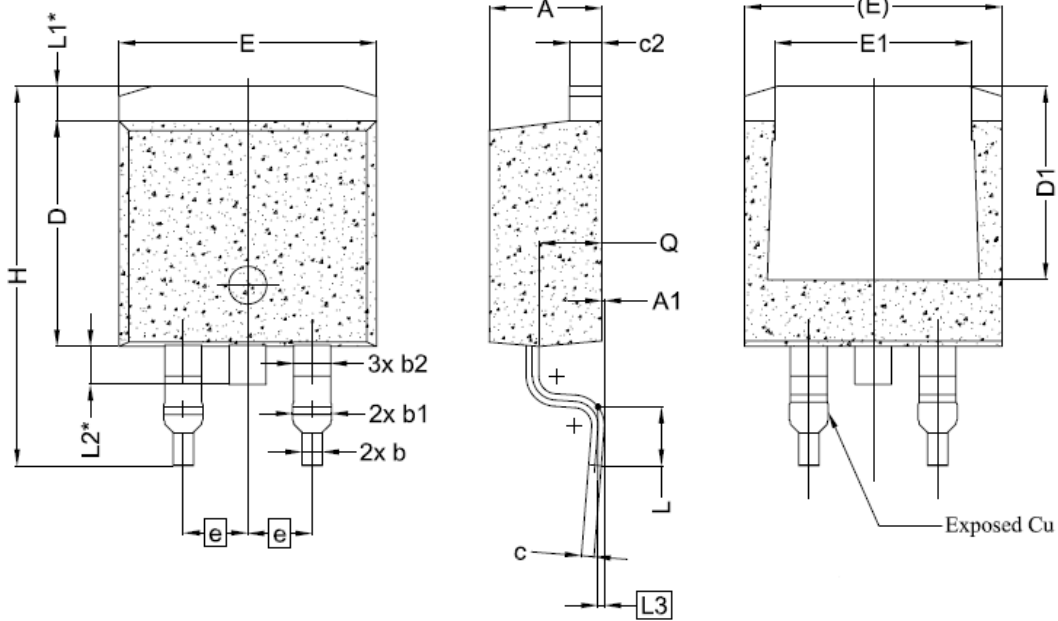
TO-220, 3 leads



| SYMBOL | DIMENSIONS |       |       | NOTES |
|--------|------------|-------|-------|-------|
|        | MIN.       | NOM.  | MAX.  |       |
| A      | 4.25       | 4.44  | 4.57  |       |
| A1     | 1.18       | 1.27  | 1.40  |       |
| A2     | 2.75       | 2.83  | 2.93  |       |
| b      | 2.15       | 2.28  | 2.40  |       |
| b1     | 1.25       | 1.28  | 1.38  |       |
| b2     | 1.25       | 1.28  | 1.38  |       |
| e      | 2.50       | 2.54  | 2.60  |       |
| e1     | 1.25       | 1.27  | 1.30  |       |
| e2     | 1.25       | 1.27  | 1.30  |       |
| e3     | 1.25       | 1.27  | 1.30  |       |
| E      | 12.80      | 13.10 | 13.40 |       |
| E1     | 6.80       | 7.10  | 7.40  |       |
| E2     | 6.80       | 7.10  | 7.40  |       |
| E3     |            | 6.25  |       |       |
| E4     |            | 2.60  |       |       |
| E5     |            | 2.60  |       |       |
| E6     |            | 1.75  |       |       |
| E7     |            | 1.75  |       |       |
| E8     |            | 1.75  |       |       |
| E9     |            | 1.75  |       |       |
| E10    |            | 1.75  |       |       |
| E11    |            | 1.75  |       |       |
| E12    |            | 1.75  |       |       |
| E13    |            | 1.75  |       |       |
| E14    |            | 1.75  |       |       |
| E15    |            | 1.75  |       |       |
| E16    |            | 1.75  |       |       |
| E17    |            | 1.75  |       |       |
| E18    |            | 1.75  |       |       |
| E19    |            | 1.75  |       |       |
| E20    |            | 1.75  |       |       |
| E21    |            | 1.75  |       |       |
| E22    |            | 1.75  |       |       |
| E23    |            | 1.75  |       |       |
| E24    |            | 1.75  |       |       |
| E25    |            | 1.75  |       |       |
| E26    |            | 1.75  |       |       |
| E27    |            | 1.75  |       |       |
| E28    |            | 1.75  |       |       |
| E29    |            | 1.75  |       |       |
| E30    |            | 1.75  |       |       |
| E31    |            | 1.75  |       |       |
| E32    |            | 1.75  |       |       |
| E33    |            | 1.75  |       |       |
| E34    |            | 1.75  |       |       |
| E35    |            | 1.75  |       |       |
| E36    |            | 1.75  |       |       |
| E37    |            | 1.75  |       |       |
| E38    |            | 1.75  |       |       |
| E39    |            | 1.75  |       |       |
| E40    |            | 1.75  |       |       |
| E41    |            | 1.75  |       |       |
| E42    |            | 1.75  |       |       |
| E43    |            | 1.75  |       |       |
| E44    |            | 1.75  |       |       |
| E45    |            | 1.75  |       |       |
| E46    |            | 1.75  |       |       |
| E47    |            | 1.75  |       |       |
| E48    |            | 1.75  |       |       |
| E49    |            | 1.75  |       |       |
| E50    |            | 1.75  |       |       |
| E51    |            | 1.75  |       |       |
| E52    |            | 1.75  |       |       |
| E53    |            | 1.75  |       |       |
| E54    |            | 1.75  |       |       |
| E55    |            | 1.75  |       |       |
| E56    |            | 1.75  |       |       |
| E57    |            | 1.75  |       |       |
| E58    |            | 1.75  |       |       |
| E59    |            | 1.75  |       |       |
| E60    |            | 1.75  |       |       |
| E61    |            | 1.75  |       |       |
| E62    |            | 1.75  |       |       |
| E63    |            | 1.75  |       |       |
| E64    |            | 1.75  |       |       |
| E65    |            | 1.75  |       |       |
| E66    |            | 1.75  |       |       |
| E67    |            | 1.75  |       |       |
| E68    |            | 1.75  |       |       |
| E69    |            | 1.75  |       |       |
| E70    |            | 1.75  |       |       |
| E71    |            | 1.75  |       |       |
| E72    |            | 1.75  |       |       |
| E73    |            | 1.75  |       |       |
| E74    |            | 1.75  |       |       |
| E75    |            | 1.75  |       |       |
| E76    |            | 1.75  |       |       |
| E77    |            | 1.75  |       |       |
| E78    |            | 1.75  |       |       |
| E79    |            | 1.75  |       |       |
| E80    |            | 1.75  |       |       |
| E81    |            | 1.75  |       |       |
| E82    |            | 1.75  |       |       |
| E83    |            | 1.75  |       |       |
| E84    |            | 1.75  |       |       |
| E85    |            | 1.75  |       |       |
| E86    |            | 1.75  |       |       |
| E87    |            | 1.75  |       |       |
| E88    |            | 1.75  |       |       |
| E89    |            | 1.75  |       |       |
| E90    |            | 1.75  |       |       |
| E91    |            | 1.75  |       |       |
| E92    |            | 1.75  |       |       |
| E93    |            | 1.75  |       |       |
| E94    |            | 1.75  |       |       |
| E95    |            | 1.75  |       |       |
| E96    |            | 1.75  |       |       |
| E97    |            | 1.75  |       |       |
| E98    |            | 1.75  |       |       |
| E99    |            | 1.75  |       |       |
| E100   |            | 1.75  |       |       |

Package Outline

TO-263, 3 leads



| Symbol | Dimension | Value | Symbol | Dimension | Value |
|--------|-----------|-------|--------|-----------|-------|
| A      | 1.27      | 0.050 | A1     | 0.25      | 0.010 |
| A1     | 0.25      | 0.010 | b1     | 0.25      | 0.010 |
| b1     | 0.25      | 0.010 | b2     | 0.25      | 0.010 |
| b2     | 0.25      | 0.010 | c      | 0.25      | 0.010 |
| c      | 0.25      | 0.010 | c2     | 0.25      | 0.010 |
| c2     | 0.25      | 0.010 | D      | 0.25      | 0.010 |
| D      | 0.25      | 0.010 | D1     | 0.25      | 0.010 |
| D1     | 0.25      | 0.010 | E      | 0.25      | 0.010 |
| E      | 0.25      | 0.010 | E1     | 0.25      | 0.010 |
| E1     | 0.25      | 0.010 | H      | 0.25      | 0.010 |
| H      | 0.25      | 0.010 | L1     | 0.25      | 0.010 |
| L1     | 0.25      | 0.010 | L2     | 0.25      | 0.010 |
| L2     | 0.25      | 0.010 | L3     | 0.25      | 0.010 |
| L3     | 0.25      | 0.010 | Q      | 0.25      | 0.010 |
| Q      | 0.25      | 0.010 |        |           |       |