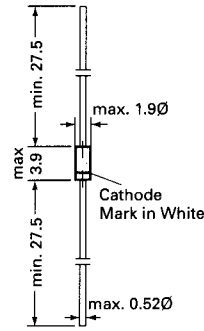


# HS Series SILICON PLANAR ZENER DIODE

## Silicon Planar Zener Diodes



Glass case JEDEC DO-35

Dimensions in mm

### Absolute Maximum Ratings ( $T_a = 25^\circ\text{C}$ )

|  | Symbol           | Value             | Unit             |
|--|------------------|-------------------|------------------|
| Zener Current see Table "Characteristics"                |                  |                   |                  |
| Power Dissipation at $T_{\text{amb}} = 25^\circ\text{C}$ | $P_{\text{tot}}$ | 500 <sup>1)</sup> | mW               |
| Junction Temperature                                     | $T_j$            | 175               | $^\circ\text{C}$ |
| Storage Temperature Range                                | $T_s$            | -55 to + 175      | $^\circ\text{C}$ |

<sup>1)</sup> Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case

### Characteristics at $T_{\text{amb}} = 25^\circ\text{C}$

|   | Symbol           | Min. | Typ. | Max.              | Unit |
|---|------------------|------|------|-------------------|------|
| Thermal Resistance<br>Junction to Ambient Air | $R_{\text{thA}}$ | -    | -    | 0.3 <sup>1)</sup> | K/mW |
| Forward Voltage<br>at $I_F = 100\text{ mA}$   | $V_F$            | -    | -    | 1                 | V    |

<sup>1)</sup> Valid provided that leads are kept at ambient temperature at a distance of 8 mm from case.



**SEMTECH ELECTRONICS LTD.**  
( wholly owned subsidiary of **HONEY TECHNOLOGY LTD.** )



# HS Series SILICON PLANAR ZENER DIODE

Characteristics at  $T_j = 25\text{ }^\circ\text{C}$

| TYPE    | Zener Voltage |         |               | Dynamic Resistance |               | Reverse Leakage Current ( $I_R$ at $V_R$ ) |           |
|---------|---------------|---------|---------------|--------------------|---------------|--|-----------|
|         | Min. (V)      | Max (V) | $I_{ZT}$ (mA) | Ohm at $I_{ZT}$    | $I_{ZT}$ (mA) | $I_R$ ( $\mu\text{A}$ ) Max.               | $V_R$ (V) |
| 2.0 HS  | 1.88          | 2.20    | 5             | 100                | 5             | 120  | 0.5       |
| 2.0 HSA | 1.88          | 2.10    |               |                    |               |  |           |
| 2.0 HSB | 2.02          | 2.20    |               |                    |               |  |           |
| 2.2 HS  | 2.12          | 2.41    | 5             | 100                | 5             | 120  | 0.7       |
| 2.2 HSA | 2.12          | 2.30    |               |                    |               |  |           |
| 2.2 HSB | 2.22          | 2.41    |               |                    |               |  |           |
| 2.4 HS  | 2.33          | 2.63    | 5             | 100                | 5             | 120  | 1.0       |
| 2.4 HSA | 2.33          | 2.52    |               |                    |               |  |           |
| 2.4 HSB | 2.43          | 2.63    |               |                    |               |  |           |
| 2.7 HS  | 2.54          | 2.91    | 5             | 110                | 5             | 100  | 1.0       |
| 2.7 HSA | 2.54          | 2.75    |               |                    |               |  |           |
| 2.7 HSB | 2.69          | 2.91    |               |                    |               |  |           |
| 3.0 HS  | 2.85          | 3.22    | 5             | 120                | 5             | 50   | 1.0       |
| 3.0 HSA | 2.85          | 3.07    |               |                    |               |  |           |
| 3.0 HSB | 3.01          | 3.22    |               |                    |               |  |           |
| 3.3 HS  | 3.16          | 3.53    | 5             | 120                | 5             | 20   | 1.0       |
| 3.3 HSA | 3.16          | 3.38    |               |                    |               |  |           |
| 3.3 HSB | 3.32          | 3.53    |               |                    |               |  |           |
| 3.6 HS  | 3.47          | 3.83    | 5             | 120                | 5             | 10   | 1.0       |
| 3.6 HSA | 3.47          | 3.68    |               |                    |               |  |           |
| 3.6 HSB | 3.62          | 3.83    |               |                    |               |  |           |
| 3.9 HS  | 3.77          | 4.14    | 5             | 120                | 5             | 5  | 1.0       |
| 3.9 HSA | 3.77          | 3.98    |               |                    |               |  |           |
| 3.9 HSB | 3.92          | 4.14    |               |                    |               |  |           |
| 4.3 HS  | 4.05          | 4.53    | 5             | 120                | 5             | 5  | 1.0       |
| 4.3 HSA | 4.05          | 4.26    |               |                    |               |  |           |
| 4.3 HSB | 4.20          | 4.40    |               |                    |               |  |           |
| 4.3 HSC | 4.34          | 4.53    |               |                    |               |  |           |
| 4.7 HS  | 4.47          | 4.91    | 5             | 100                | 5             | 5  | 1.0       |
| 4.7 HSA | 4.47          | 4.65    |               |                    |               |  |           |
| 4.7 HSB | 4.59          | 4.77    |               |                    |               |  |           |
| 4.7 HSC | 4.71          | 4.91    |               |                    |               |  |           |
| 5.1 HS  | 4.85          | 5.35    | 5             | 70                 | 5             | 5  | 1.5       |
| 5.1 HSA | 4.85          | 5.03    |               |                    |               |  |           |
| 5.1 HSB | 4.97          | 5.18    |               |                    |               |  |           |
| 5.1 HSC | 5.12          | 5.35    |               |                    |               |  |           |
| 5.6 HS  | 5.29          | 5.88    | 5             | 40                 | 5             | 5  | 2.5       |
| 5.6 HSA | 5.29          | 5.52    |               |                    |               |  |           |
| 5.6 HSB | 5.46          | 5.70    |               |                    |               |  |           |
| 5.6 HSC | 5.64          | 5.88    |               |                    |               |  |           |
| 6.2 HS  | 5.81          | 6.40    | 5             | 30                 | 5             | 5  | 3.0       |
| 6.2 HSA | 5.81          | 6.06    |               |                    |               |  |           |
| 6.2 HSB | 5.99          | 6.24    |               |                    |               |  |           |
| 6.2 HSC | 6.16          | 6.40    |               |                    |               |  |           |

<sup>1)</sup> Tested with pulse  $t_p = 40\text{ ms}$ .

<sup>2)</sup> Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature.



**SEMTECH ELECTRONICS LTD.**  
( wholly owned subsidiary of HONEY TECHNOLOGY LTD. )



# HS Series SILICON PLANAR ZENER DIODE

Characteristics at  $T_j = 25\text{ }^\circ\text{C}$

| TYPE    | Zener Voltage |         |               | Dynamic Resistance |               | Reverse Leakage Current ( $I_R$ at $V_R$ ) |           |
|---------|---------------|---------|---------------|--------------------|---------------|--|-----------|
|         | Min. (V)      | Max (V) | $I_{ZT}$ (mA) | Ohm at $I_{ZT}$    | $I_{ZT}$ (mA) | $I_R$ (uA) Max.                            | $V_R$ (V) |
| 6.8 HS  | 6.32          | 6.97    | 5             | 25                 | 5             | 2  | 3.5       |
| 6.8 HSA | 6.32          | 6.59    |               |                    |               |  |           |
| 6.8 HSB | 6.52          | 6.79    |               |                    |               |  |           |
| 6.8 HSC | 6.70          | 6.97    |               |                    |               |  |           |
| 7.5 HS  | 6.88          | 7.64    | 5             | 25                 | 5             | 0.5  | 4.0       |
| 7.5 HSA | 6.88          | 7.19    |               |                    |               |  |           |
| 7.5 HSB | 7.11          | 7.41    |               |                    |               |  |           |
| 7.5 HSC | 7.33          | 7.64    |               |                    |               |  |           |
| 8.2 HS  | 7.56          | 8.41    | 5             | 20                 | 5             | 0.5  | 5.0       |
| 8.2 HSA | 7.56          | 7.90    |               |                    |               |  |           |
| 8.2 HSB | 7.82          | 8.15    |               |                    |               |  |           |
| 8.2 HSC | 8.07          | 8.41    |               |                    |               |  |           |
| 9.1 HS  | 8.33          | 9.29    | 5             | 20                 | 5             | 0.5  | 6.0       |
| 9.1 HSA | 8.33          | 8.70    |               |                    |               |  |           |
| 9.1 HSB | 8.61          | 8.99    |               |                    |               |  |           |
| 9.1 HSC | 8.89          | 9.29    |               |                    |               |  |           |
| 10 HS   | 9.19          | 10.30   | 5             | 20                 | 5             | 0.2  | 7.0       |
| 10 HSA  | 9.19          | 9.59    |               |                    |               |  |           |
| 10 HSB  | 9.48          | 9.90    |               |                    |               |  |           |
| 10 HSC  | 9.82          | 10.30   |               |                    |               |  |           |
| 11 HS   | 10.18         | 11.26   | 5             | 20                 | 5             | 0.2  | 8.0       |
| 11 HSA  | 10.18         | 10.63   |               |                    |               |  |           |
| 11 HSB  | 10.50         | 10.95   |               |                    |               |  |           |
| 11 HSC  | 10.82         | 11.26   |               |                    |               |  |           |
| 12 HS   | 11.13         | 12.30   | 5             | 25                 | 5             | 0.2  | 9.0       |
| 12 HSA  | 11.13         | 11.63   |               |                    |               |  |           |
| 12 HSB  | 11.50         | 11.92   |               |                    |               |  |           |
| 12 HSC  | 11.80         | 12.30   |               |                    |               |  |           |
| 13 HS   | 12.18         | 13.62   | 5             | 25                 | 5             | 0.2  | 10        |
| 13 HSA  | 12.18         | 12.71   |               |                    |               |  |           |
| 13 HSB  | 12.59         | 13.16   |               |                    |               |  |           |
| 13 HSC  | 13.03         | 13.62   |               |                    |               |  |           |
| 15 HS   | 13.48         | 15.02   | 5             | 25                 | 5             | 0.2  | 11        |
| 15 HSA  | 13.48         | 14.09   |               |                    |               |  |           |
| 15 HSB  | 13.95         | 14.56   |               |                    |               |  |           |
| 15 HSC  | 14.42         | 15.02   |               |                    |               |  |           |
| 16 HS   | 14.87         | 16.50   | 5             | 25                 | 5             | 0.2  | 12        |
| 16 HSA  | 14.87         | 15.50   |               |                    |               |  |           |
| 16 HSB  | 15.33         | 15.96   |               |                    |               |  |           |
| 16 HSC  | 15.79         | 16.50   |               |                    |               |  |           |
| 18 HS   | 16.34         | 18.30   | 5             | 30                 | 5             | 0.2  | 13        |
| 18 HSA  | 16.34         | 17.06   |               |                    |               |  |           |
| 18 HSB  | 16.90         | 17.67   |               |                    |               |  |           |
| 18 HSC  | 17.51         | 18.30   |               |                    |               |  |           |

1) Tested with pulse  $t_p = 40$  ms.

2) Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature.



**SEMTECH ELECTRONICS LTD.**  
( wholly owned subsidiary of HONEY TECHNOLOGY LTD. )



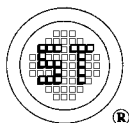
# HS Series SILICON PLANAR ZENER DIODE

Characteristics at  $T_j = 25\text{ }^\circ\text{C}$

| TYPE   | Zener Voltage |         |               | Dynamic Resistance |               | Reverse Leakage Current ( $I_R$ at $V_R$ ) |           |
|--------|---------------|---------|---------------|--------------------|---------------|--|-----------|
|        | Min. (V)      | Max (V) | $I_{ZT}$ (mA) | Ohm at $I_{ZT}$    | $I_{ZT}$ (mA) | $I_R$ (uA) Max.                            | $V_R$ (V) |
| 20 HS  | 18.14         | 20.45   | 5             | 30                 | 5             | 0.2  | 15        |
| 20 HSA | 18.14         | 18.96   |               |                    |               |  |           |
| 20 HSB | 18.80         | 19.68   |               |                    |               |  |           |
| 20 HSC | 19.52         | 20.45   |               |                    |               |  |           |
| 22 HS  | 20.23         | 22.61   | 5             | 30                 | 5             | 0.2  | 17        |
| 22 HSA | 20.23         | 21.08   |               |                    |               |  |           |
| 22 HSB | 20.76         | 21.65   |               |                    |               |  |           |
| 22 HSC | 21.22         | 22.09   |               |                    |               |  |           |
| 22 HSD | 21.68         | 22.61   |               |                    |               |  |           |
| 24 HS  | 22.26         | 24.81   | 5             | 35                 | 5             | 0.2  | 19        |
| 24 HSA | 22.26         | 23.12   |               |                    |               |  |           |
| 24 HSB | 22.75         | 23.73   |               |                    |               |  |           |
| 24 HSC | 23.29         | 24.27   |               |                    |               |  |           |
| 24 HSD | 23.81         | 24.81   |               |                    |               |  |           |
| 27 HS  | 24.26         | 27.64   | 5             | 45                 | 5             | 0.2  | 21        |
| 27 HSA | 24.26         | 25.52   |               |                    |               |  |           |
| 27 HSB | 24.97         | 26.26   |               |                    |               |  |           |
| 27 HSC | 25.63         | 26.95   |               |                    |               |  |           |
| 27 HSD | 26.29         | 27.64   |               |                    |               |  |           |
| 30 HS  | 26.99         | 30.51   | 5             | 55                 | 5             | 0.2  | 23        |
| 30 HSA | 26.99         | 28.39   |               |                    |               |  |           |
| 30 HSB | 27.70         | 29.13   |               |                    |               |  |           |
| 30 HSC | 28.36         | 29.82   |               |                    |               |  |           |
| 30 HSD | 29.02         | 30.51   |               |                    |               |  |           |
| 33 HS  | 29.68         | 33.11   | 5             | 65                 | 5             | 0.2  | 25        |
| 33 HSA | 29.68         | 31.22   |               |                    |               |  |           |
| 33 HSB | 30.32         | 31.88   |               |                    |               |  |           |
| 33 HSC | 30.90         | 32.50   |               |                    |               |  |           |
| 33 HSD | 31.49         | 33.11   |               |                    |               |  |           |
| 36 HS  | 32.14         | 35.77   | 5             | 75                 | 5             | 0.2  | 27        |
| 36 HSA | 32.14         | 33.79   |               |                    |               |  |           |
| 36 HSB | 32.79         | 34.49   |               |                    |               |  |           |
| 36 HSC | 33.40         | 35.13   |               |                    |               |  |           |
| 36 HSD | 34.01         | 35.77   |               |                    |               |  |           |
| 39 HS  | 34.68         | 38.52   | 5             | 85                 | 5             | 0.2  | 30        |
| 39 HSA | 34.68         | 36.47   |               |                    |               |  |           |
| 39 HSB | 35.36         | 37.19   |               |                    |               |  |           |
| 39 HSC | 36.00         | 37.85   |               |                    |               |  |           |
| 39 HSD | 36.63         | 38.52   |               |                    |               |  |           |

1) Tested with pulse  $t_p = 40\text{ ms}$ .

2) Valid provided that leads at a distance of 8 mm from case are kept at ambient temperature.



**SEMTECH ELECTRONICS LTD.**

( wholly owned subsidiary of HONEY TECHNOLOGY LTD. )

