

### Features

- Super Fast Reverse Recovery Time
- Glass Passivated Junction
- Low Profile Package
- Low Thermal Resistance
- Lead Free Finish/RoHS Compliant (Note 1)("P" Suffix Designates RoHS Compliant. See Ordering Information)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free. "Green" Device (Note 2)
- Moisture Sensitivity Level 1

# 2 Amp Super Fast Recovery Rectifier 200 to 600 Volts

### Maximum Ratings @ 25°C (Unless Otherwise Specified)

| Parameter                                                    | Symbol      | Value  |        |        | Unit                 |
|--------------------------------------------------------------|-------------|--------|--------|--------|----------------------|
|                                                              |             | ES2DHL | ES2GHL | ES2JHL |                      |
| Peak Repetitive Reverse Voltage                              | $V_{RRM}$   | 200    | 400    | 600    | V                    |
| Working Peak Reverse Voltage                                 | $V_{RWM}$   |        |        |        |                      |
| DC Blocking Voltage                                          | $V_R$       |        |        |        |                      |
| RMS Reverse Voltage                                          | $V_{RMS}$   | 140    | 280    | 420    | V                    |
| Average Rectified Forward Current @ $T_L=85^\circ\text{C}$   | $I_{F(AV)}$ | 2      |        |        | A                    |
| Non-Repetitive Peak Surge Current @ 8.3ms Half Sine Wave     | $I_{FSM}$   | 50     |        |        | A                    |
| Current Squared Time @ $1\text{ms} \leq t \leq 8.3\text{ms}$ | $I^2t$      | 10.375 |        |        | $\text{A}^2\text{s}$ |

### Marking code

| Part Number | Marking code |
|-------------|--------------|
| ES2DHL      | ES2D         |
| ES2GHL      | ES2G         |
| ES2JHL      | ES2J         |

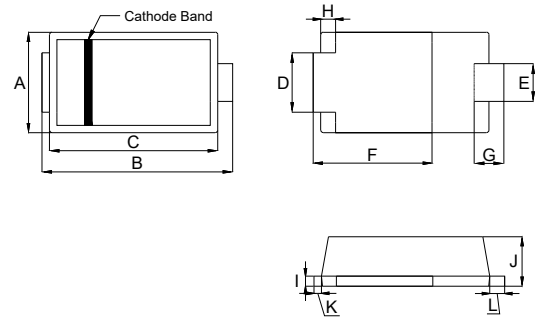
### Internal Structure

| Pin | Description | Simplified outline         | Graphic symbol |
|-----|-------------|----------------------------|----------------|
| 1   | Cathode     | <p>XXXX = Marking code</p> |                |
| 2   | Anode       |                            |                |

Note:

1. High temperature solder exemption applied, see EU directive annex 7a.
2. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

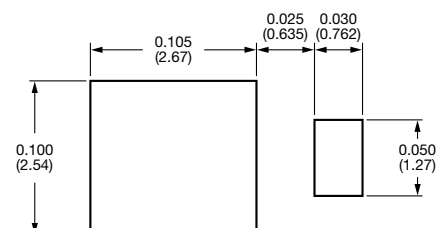
### SOD-123HL



#### DIMENSIONS

| DIM | INCHES |       | MM   |      | NOTE |
|-----|--------|-------|------|------|------|
|     | MIN    | MAX   | MIN  | MAX  |      |
| A   | 0.074  | 0.086 | 1.88 | 2.18 |      |
| B   | 0.146  | 0.157 | 3.70 | 4.00 |      |
| C   | 0.041  | 0.053 | 3.19 | 3.61 |      |
| D   | 0.024  | 0.036 | 1.05 | 1.35 |      |
| E   | 0.087  | 0.102 | 0.61 | 0.91 |      |
| F   | 0.016  | 0.031 | 2.20 | 2.60 |      |
| G   | 0.012  | 0.000 | 0.40 | 0.80 |      |
| H   | 0.012  |       | 0.30 |      | REF  |
| I   | 0.004  | 0.012 | 0.10 | 0.30 |      |
| J   | 0.033  | 0.045 | 0.85 | 1.15 |      |
| K   | 0.000  | 0.012 | 0.00 | 0.30 |      |
| L   | 0.006  | 0.018 | 0.15 | 0.45 |      |

#### Suggested Solder Pad Layout



## Thermal characteristics

| Symbol        | Parameter                                   | Conditions | Min | Typ | Max | Unit |
|---------------|---------------------------------------------|------------|-----|-----|-----|------|
| $T_J$         | Operating Junction Temperature Range        |            | -55 |     | 150 | °C   |
| $T_{stg}$     | Storage Temperature Range                   |            | -55 |     | 150 | °C   |
| $R_{th(J-L)}$ | Thermal Resistance from Junction to Lead    | Note 1     |     | 20  |     | °C/W |
| $R_{th(J-A)}$ | Thermal Resistance from Junction to Ambient | Note 1     |     | 80  |     | °C/W |

Note:

1. Mounted on P.C.B. with 5mm\*5mm copper pad areas,  $R_{th(J-L)}$  is measured at the terminal of cathode band.

## Electrical Characteristics @ 25°C Unless Otherwise Specified

| Parameter                                          | Symbol   | Test Conditions                                                   | Min | Typ            | Max                  | Unit    |
|----------------------------------------------------|----------|-------------------------------------------------------------------|-----|----------------|----------------------|---------|
| Forward Voltage<br>ES2DHL<br>ES2GHL<br>ES2JHL      | $V_F$    | $I_F=2A; T_J=25^\circ C$                                          |     |                | 0.95<br>1.30<br>1.70 | V       |
| Reverse Current                                    | $I_R$    | at Rated $V_R; T_J=25^\circ C$<br>at Rated $V_R; T_J=125^\circ C$ |     |                | 5<br>100             | $\mu A$ |
| Reverse Recovery Time                              | $t_{rr}$ | $I_F=0.5A; I_R=1.0A;$<br>$I_{rr}=0.25A; T_J=25^\circ C$           |     |                | 35                   | nS      |
| Junction Capacitance<br>ES2DHL<br>ES2GHL<br>ES2JHL | $C_J$    | $V_R=4V; f=1MHz; T_J=25^\circ C$                                  |     | 30<br>18<br>12 |                      | pF      |

**Curve Characteristics**

Fig. 1 - Forward Current Derating Curve

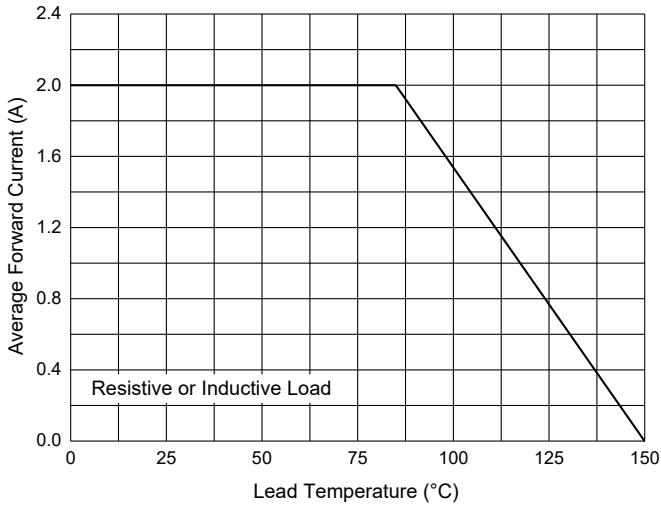


Fig. 2 - Maximum Non-Repetitive Peak Forward Surge Current

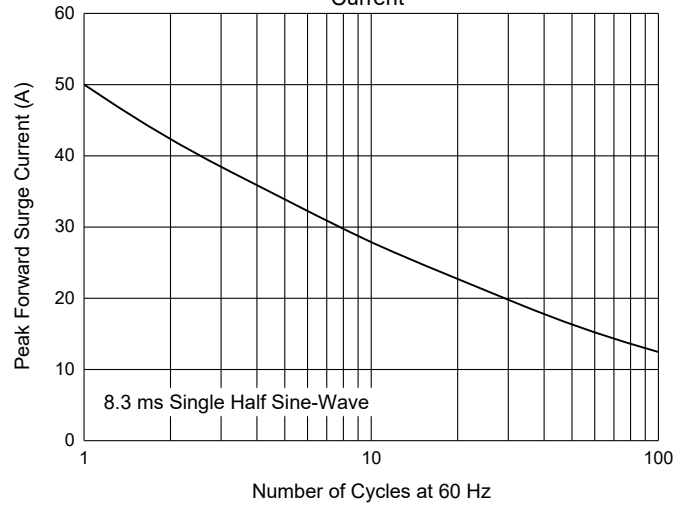


Fig. 3 - Typical Forward Characteristics

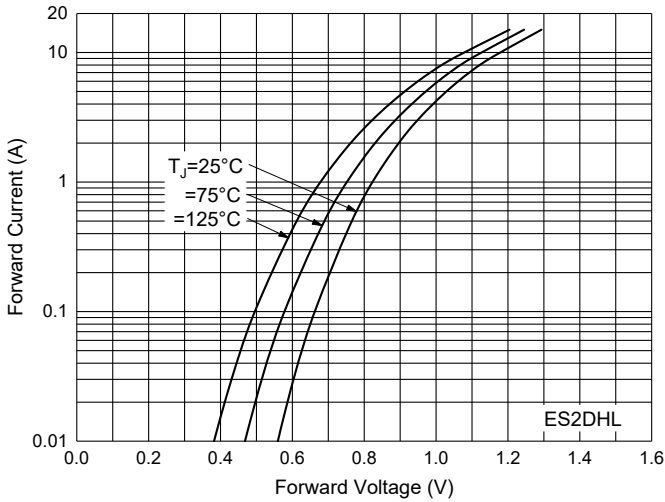


Fig. 4 - Typical Forward Characteristics

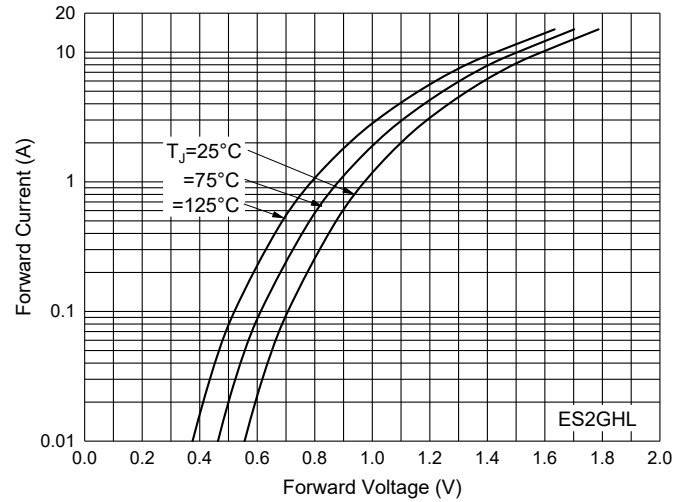


Fig. 5 - Typical Forward Characteristics

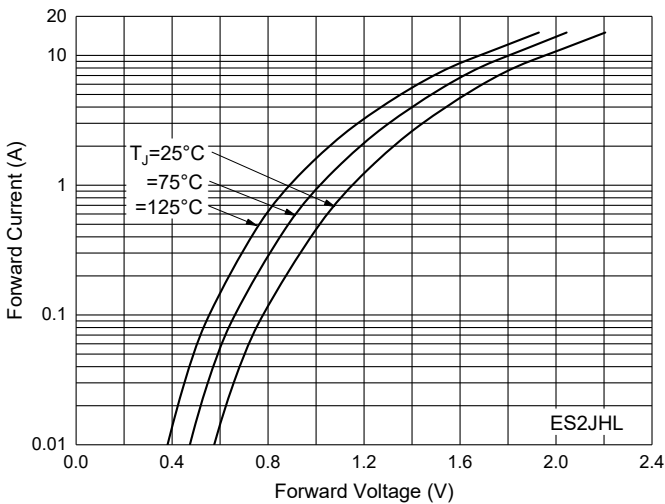
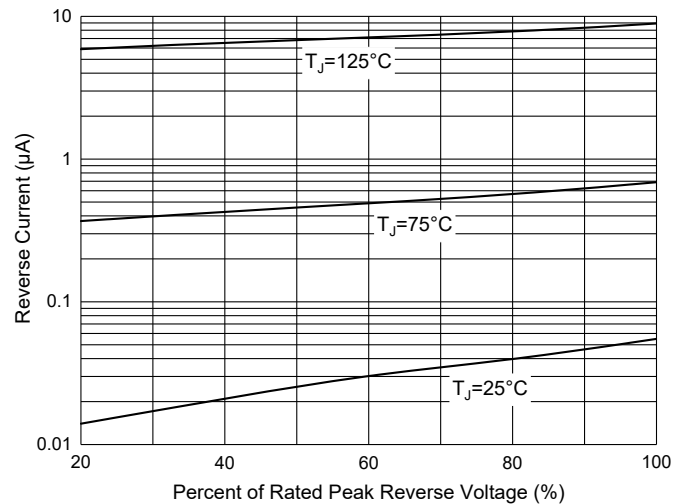
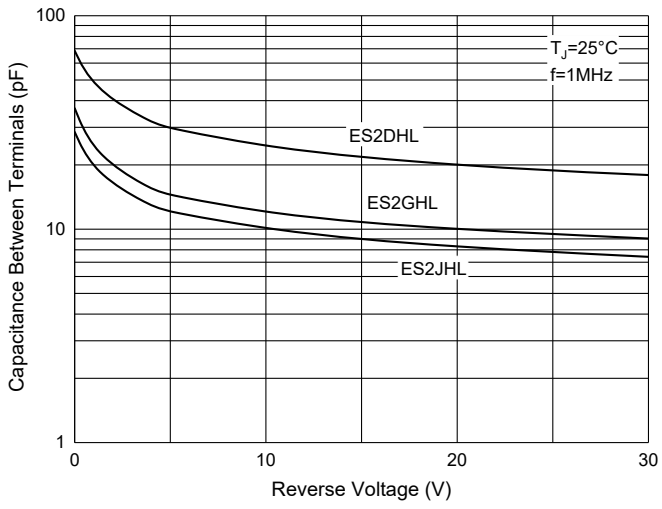


Fig. 6 - Typical Reverse Leakage Characteristics



## Curve Characteristics

Fig. 7 - Typical Capacitance Characteristics



## Ordering Information

| Device         | Packing                |
|----------------|------------------------|
| Part Number-TP | Tape&Reel:2.5Kpcs/Reel |

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