



# THE DATASHEET OF SM4002PL-TP





Micro Commercial Components



Micro Commercial Components  
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# SM4001PL thru SM4007PL

## 1.0 Ampere Silicon Rectifier 50 to 1000 Volts

### Features

- Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)
- Low Leakage Current
- Glass Passivated Junction
- Halogen free available upon request by adding suffix "-HF"
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1

### Maximum Ratings

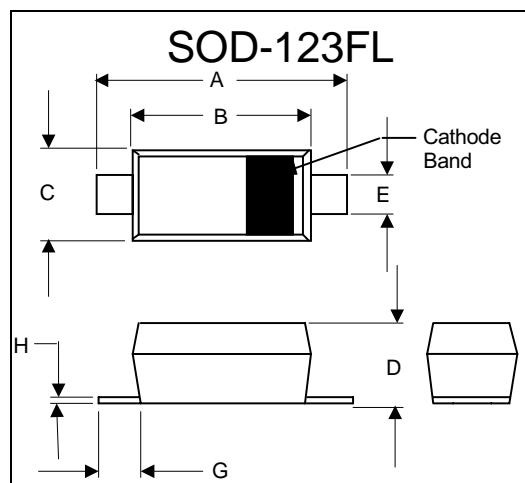
- Operating Temperature(T<sub>J</sub>): -65°C to +175°C
- Storage Temperature(T<sub>STG</sub>): -65°C to +175°C
- Typical Thermal Resistance(R<sub>thJA</sub>): 50°C/W

| MCC Part Number | Device Marking | Maximum Recurrent Peak Reverse Voltage | Maximum RMS Voltage | Maximum DC Blocking Voltage |
|-----------------|----------------|----------------------------------------|---------------------|-----------------------------|
| SM4001PL        | A1             | 50V                                    | 35V                 | 50V                         |
| SM4002PL        | A2             | 100V                                   | 70V                 | 100V                        |
| SM4003PL        | A3             | 200V                                   | 140V                | 200V                        |
| SM4004PL        | A4             | 400V                                   | 280V                | 400V                        |
| SM4005PL        | A5             | 600V                                   | 420V                | 600V                        |
| SM4006PL        | A6             | 800V                                   | 560V                | 800V                        |
| SM4007PL        | A7             | 1000V                                  | 700V                | 1000V                       |

### Electrical Characteristics @ 25°C Unless Otherwise Specified

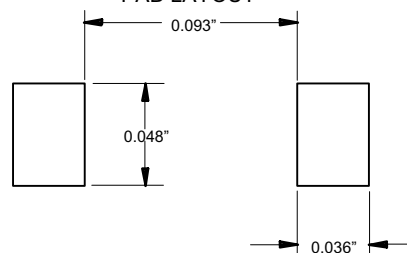
|                                                                         |                    |               |                                                                      |
|-------------------------------------------------------------------------|--------------------|---------------|----------------------------------------------------------------------|
| Average Forward Current                                                 | I <sub>F(AV)</sub> | 1.0A          | T <sub>A</sub> = 75°C                                                |
| Peak Forward Surge Current                                              | I <sub>FSM</sub>   | 25A           | 8.3ms, half sine                                                     |
| Maximum Instantaneous Forward Voltage                                   | V <sub>F</sub>     | 1.1V          | I <sub>F</sub> =1.0A<br>T <sub>A</sub> = 25°C                        |
| Maximum DC Reverse Current At Rated DC Blocking Voltage                 | I <sub>R</sub>     | 5.0µA<br>50uA | T <sub>A</sub> = 25°C<br>T <sub>A</sub> =100 °C                      |
| Maximum Full Load Reverse Current Average ,Full Cycle 9.5mm Lead Length | I <sub>R</sub>     | 30uA          | T <sub>L</sub> =75 °C                                                |
| Typical Junction Capacitance                                            | C <sub>J</sub>     | 15pF          | Measured at 1.0MHz, V <sub>R</sub> =4.0V                             |
| Typical Reverse Recovery Time                                           | T <sub>rr</sub>    | >1000ns       | I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A<br>I <sub>RR</sub> =0.25A |

Note:1. High Temperature Solder Exemptions Applied, see EU Directive Annex 7.



| DIM | INCHES |       | MM   |       | NOTE |
|-----|--------|-------|------|-------|------|
|     | MIN    | MAX   | MIN  | MAX   |      |
| A   | .140   | .152  | 3.55 | 3.85  |      |
| B   | .100   | .122  | 2.55 | 3.10  |      |
| C   | .055   | .075  | 1.40 | 1.90  |      |
| D   | .035   | .047  | 0.90 | 1.20  |      |
| E   | .020   | .041  | 0.50 | 1.05  |      |
| G   | .010   | ----- | 0.25 | ----- |      |
| H   | -----  | .010  | ---- | .25   |      |

### SUGGESTED SOLDER PAD LAYOUT



# SM4001PL thru SM4007PL

Figure 1  
Typical Forward Characteristics

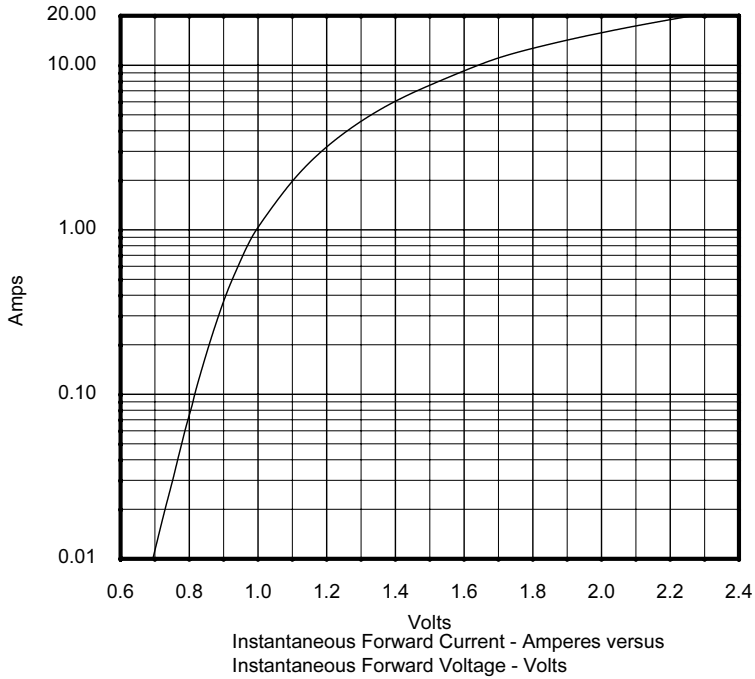


Figure 2  
Forward Derating Curve

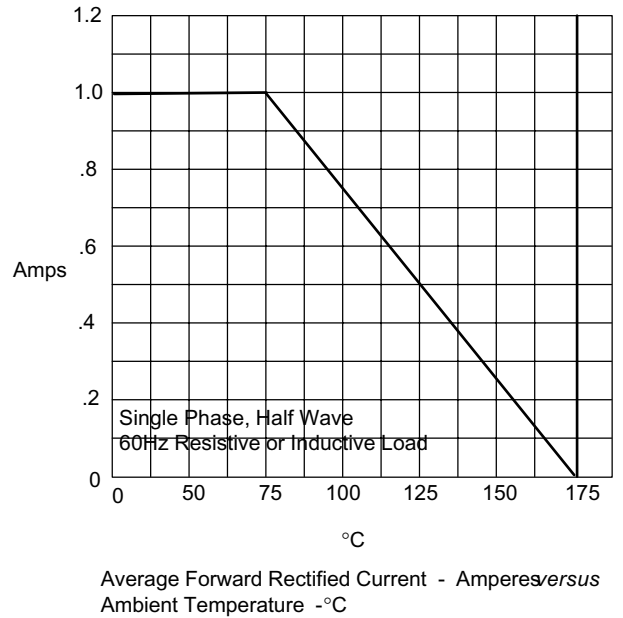


Figure 3  
Junction Capacitance

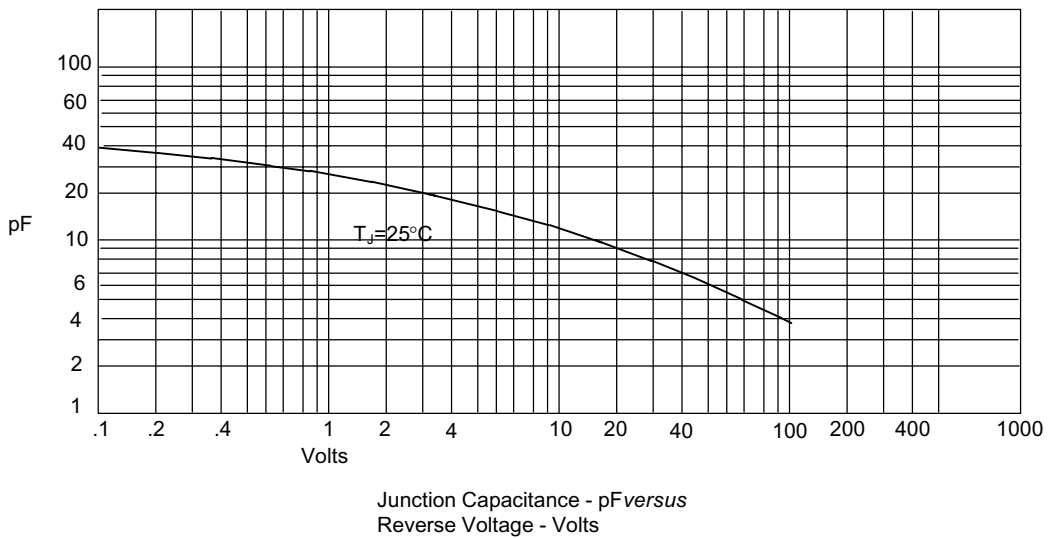
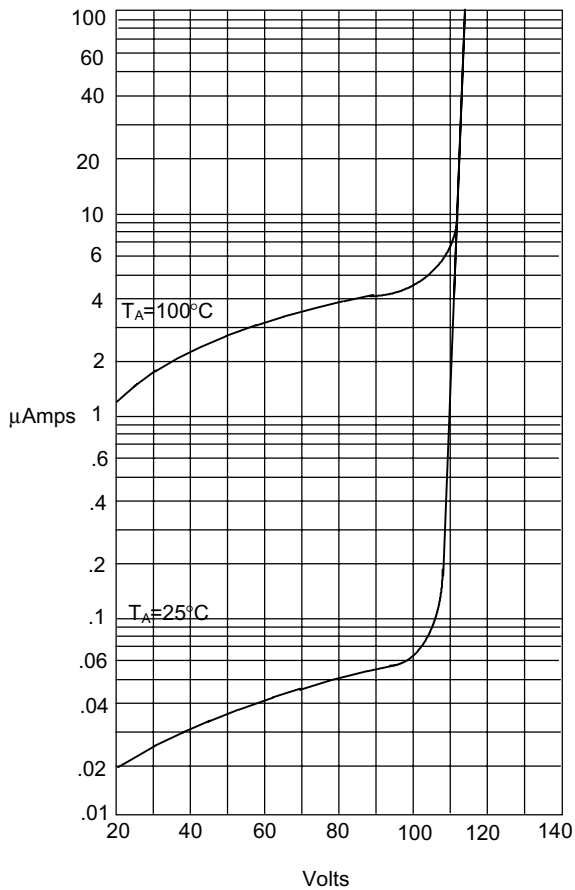
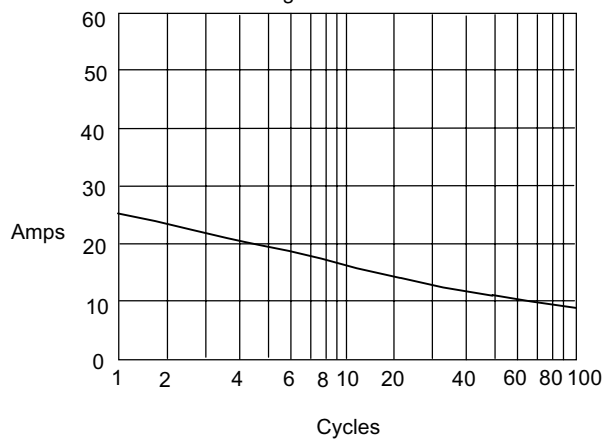


Figure 4  
Typical Reverse Characteristics



Instantaneous Reverse Leakage Current - MicroAmperes versus  
Percent Of Rated Peak Reverse Voltage - Volts

Figure 5  
Peak Forward Surge Current



Peak Forward Surge Current - Amperes versus  
Number Of Cycles At 60Hz - Cycles



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Ordering Information :

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

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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