

LM4001 THRU LM4007

SURFACE MOUNT SILICON RECTIFIERS

Reverse Voltage - 50 to 1000 V

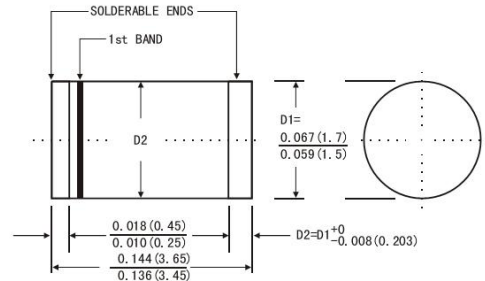
Forward Current - 1 A

Features

- The plastic package carries Underwrites Laboratory Flammability classification 94V-0
- For surface mounted application

Mechanical Data

- Case: MiniMELF(DO-213AA), molded plastic body
- Terminals: Lead solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end
- Mounting Position: Any



MiniMELF (DO-213AA) Plastic Package

Maximum Ratings and Electrical characteristics

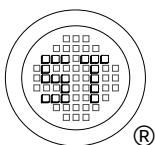
Ratings at 25 °C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Parameter	Symbols	LM4001	LM4002	LM4003	LM4004	LM4005	LM4006	LM4007	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS Voltage	V_{RMS}	35	70	140	280	420	560	700	V
Maximum DC Blocking Voltage	V_{DC}	50	100	200	400	600	800	1000	V
Maximum Average Forward Rectified Current at $T_A = 75^\circ\text{C}$	$I_{(AV)}$	1							A
Peak Forward Surge Current 8.3 ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method)	I_{FSM}	25							A
Maximum Forward Voltage at 1 A	V_F	1.1							V
Maximum Reverse Current $T_A = 25^\circ\text{C}$ at Rated DC Blocking Voltage $T_A = 125^\circ\text{C}$	I_R	5 50							μA
Typical Junction Capacitance ¹⁾	C_J	15							pF
Typical Thermal Resistance ²⁾	$R_{\theta JA}$	75							$^\circ\text{C/W}$
Typical Thermal Resistance ³⁾	$R_{\theta JL}$	30							$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_j, T_{stg}	- 65 to + 175							$^\circ\text{C}$

¹⁾ Measured at 1 MHz and applied reverse voltage of 4 V D.C

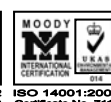
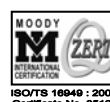
²⁾ Thermal resistance from junction to ambient, 0.24 X 0.24" (6 X 6 mm) copper pads to each terminal

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SEMTECH ELECTRONICS LTD.

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The graph shows the relationship between average forward current and terminal temperature for the 2N3866. The current is constant at 1.0 A for temperatures up to 60°C. Beyond 60°C, the current decreases linearly, reaching 0 A at 175°C.

Terminal Temperature (°C)	Average Forward Current (A)
0	1.0
60	1.0
175	0

A line graph showing the relationship between the number of cycles at 60Hz and the peak forward surge current for a 6.3ms single half sine wave using the JEDEC method. The x-axis is logarithmic, representing the number of cycles from 1 to 100. The y-axis is linear, representing the peak forward surge current in amperes from 0 to 10. The curve starts at 10A for 1 cycle and decreases to approximately 0.5A for 100 cycles. The ambient temperature is specified as $T_J = 25^\circ\text{C}$.

Number of Cycles at 60Hz	Peak Forward Surge Current I_{FSM} (A)
1	10
2	8
5	5
10	3.5
20	2.2
50	1.0
100	0.5

A graph showing the relationship between Junction Capacitance (C_j) in pF and Reverse Voltage (V_R) in V for a 1N4148 diode. The x-axis is logarithmic, ranging from 0.01 V to 100 V. The y-axis is linear, ranging from 0 to 14 pF. The curve shows that the junction capacitance decreases as the reverse voltage increases.

Reverse Voltage (V_R) (V)	Junction Capacitance (C_j) (pF)
0.01	6.5
0.05	6.0
0.1	5.5
0.5	4.5
1	4.0
5	2.5
10	1.8
50	0.8
100	0.5

Instantaneous Forward Current (A)

Forward Voltage (V)

$T_j = 25^\circ\text{C}$
Pulse Width 300us
1% Duty Cycle

This graph shows the reverse leakage current (I_R) in microamperes (μA) on a logarithmic y-axis (from 0.1 to 1000) versus the percentage of rated peak reverse voltage on the x-axis (from 0 to 140%). Two curves are plotted: one for $T_J = 100^\circ C$ and another for $T_J = 25^\circ C$. The leakage current increases with both voltage and temperature. At 100% voltage, the leakage is approximately 7 μA at 100°C and 4 μA at 25°C. Beyond 120% voltage, the leakage current increases sharply for both temperatures.

