



**THE DATASHEET OF  
FM4005W**



**SURFACE MOUNT SILICON RECTIFIER**

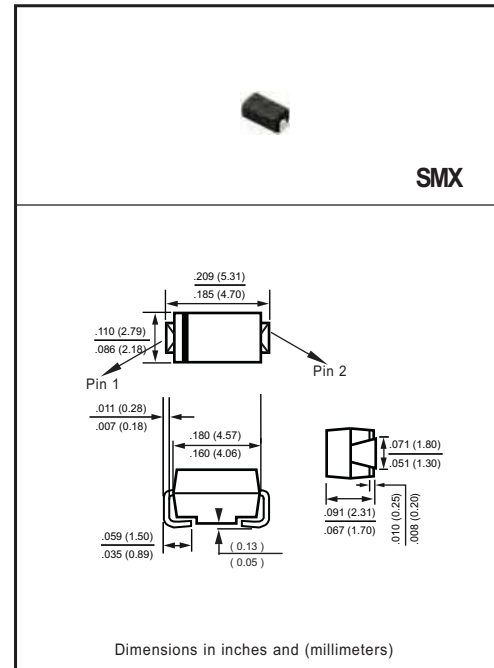
**VOLTAGE RANGE 50 to 1000 Volts CURRENT 1.0 Ampere**

**FEATURES**

- \* Ideal for surface mounted applications
- \* Low leakage current
- \* Metallurgically bonded construction
- \* Mounting position: Any
- \* Weight: 0.078 gram

**MECHANICAL DATA**

- \* Epoxy : Device has UL flammability classification 94V-0



**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%.

**MAXIMUM RATINGS (@ TA=25 °C unless otherwise noted)**

| RATINGS   | SYMBOL          | FM4001W      | FM4002W | FM4003W | FM4004W | FM4005W | FM4006W | FM4007W | UNITS            |
|---|-----------------|--------------|---------|---------|---------|---------|---------|---------|------------------|
| Maximum Recurrent Peak Reverse Voltage  | $V_{RRM}$       | 50           | 100     | 200     | 400     | 600     | 800     | 1000    | Volts            |
| Maximum RMS Voltage   | $V_{RMS}$       | 35           | 70      | 140     | 280     | 420     | 560     | 700     | Volts            |
| Maximum DC Blocking Voltage   | $V_{DC}$        | 50           | 100     | 200     | 400     | 600     | 800     | 1000    | Volts            |
| Maximum Average Forward Rectified Current at Ambient Temperature                                  | $I_O$           | 1.0          |         |         |         |         |         |         | Amps             |
| Peak Forward Surge Current 8.3 ms single half sine-wave superimposed on rated load (JEDEC method) | $I_{FSM}$       | 30           |         |         |         |         |         |         | Amps             |
| Typical Thermal Resistance (Note 1)   | $R_{\theta JA}$ | 80           |         |         |         |         |         |         | °C/W             |
| Typical Thermal Resistance (Note 1)   | $R_{\theta JL}$ | 30           |         |         |         |         |         |         | °C/W             |
| Typical Current Squared Time  | $I^2T$          | 3.74         |         |         |         |         |         |         | A <sup>2</sup> S |
| Typical Junction Capacitance (Note 2)   | $C_J$           | 15           |         |         |         |         |         |         | pF               |
| Operating Temperature Range   | $T_J$           | -55 to + 150 |         |         |         |         |         |         | °C               |
| Storage Temperature Range   | $T_{STG}$       | -55 to + 150 |         |         |         |         |         |         | °C               |

**ELECTRICAL CHARACTERISTICS (@TA=25 °C unless otherwise noted)**

| CHARACTERISTICS   | SYMBOL | FM4001W | FM4002W | FM4003W | FM4004W | FM4005W | FM4006W | FM4007W | UNITS |
|---|--------|---------|---------|---------|---------|---------|---------|---------|-------|
| Maximum Instantaneous Forward Voltage at 1.0A DC                                | $V_F$  | 1.1     |         |         |         |         |         |         | Volts |
| Maximum Full Load Reverse Current, Full cycle Average at $T_A=75^\circ\text{C}$ | $I_R$  | 30      |         |         |         |         |         |         | uA    |
| Maximum Average Reverse Current @ $T_A = 25^\circ\text{C}$                      |        | 5.0     |         |         |         |         |         |         | uA    |
| at Rated DC Blocking Voltage @ $T_A = 150^\circ\text{C}$                        |        | 2.0     |         |         |         |         |         |         | mA    |

- NOTES : 1. Thermal Resistance :Mounted on PCB.  
2. Measured at 1 MHz and applied reverse voltage of 4.0 volts.  
3. "ROHS compliant".

# RATING AND CHARACTERISTICS CURVES ( FM4001W THRU FM4007W )

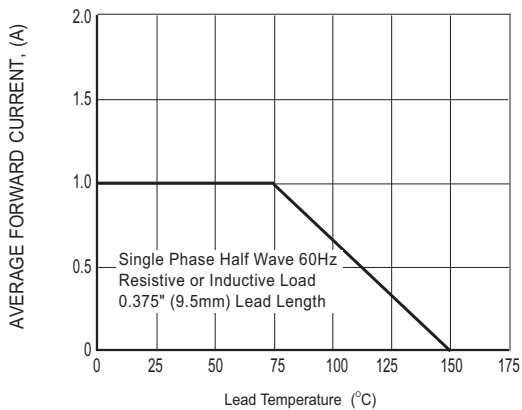


FIG.1 TYPICAL FORWARD CURRENT DERATING CURVE

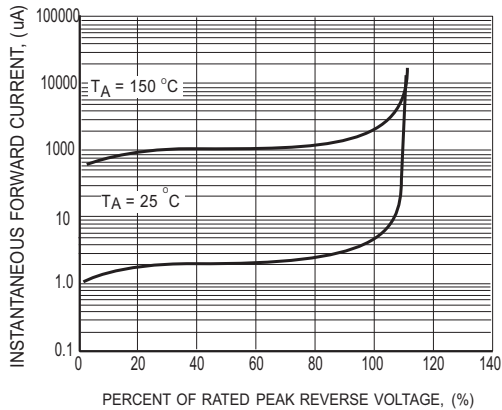


FIG.2 MAXIMUM REVERSE CHARACTERISTICS

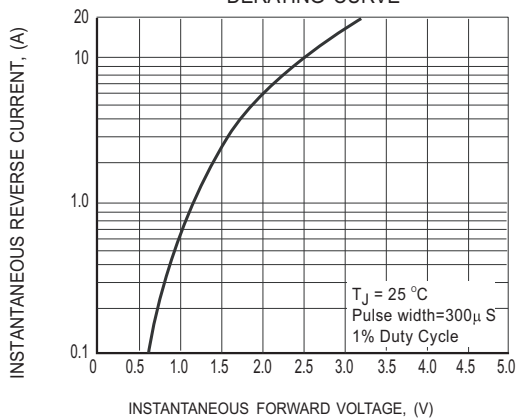


FIG.3 MAXIMUM INSTANTANEOUS FORWARD CHARACTERISTICS

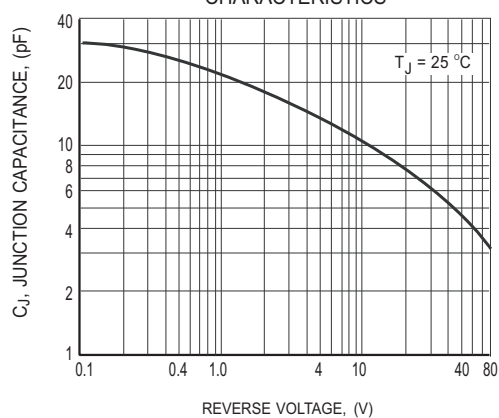


FIG.4 TYPICAL JUNCTION CAPACITANCE

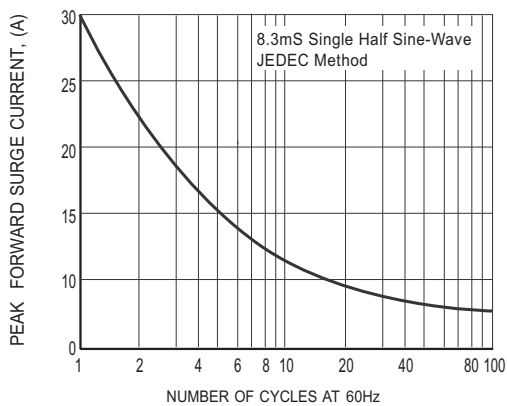
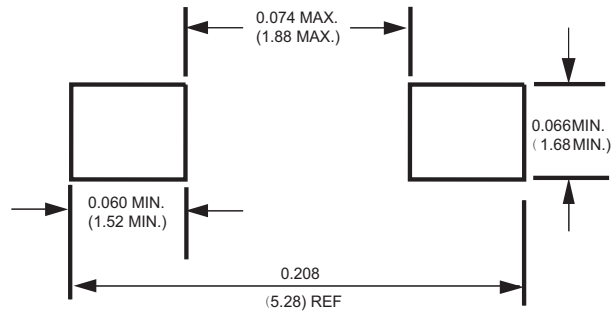


FIG.5 MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT



## Mounting Pad Layout



Dimensions in inches and (millimeters)

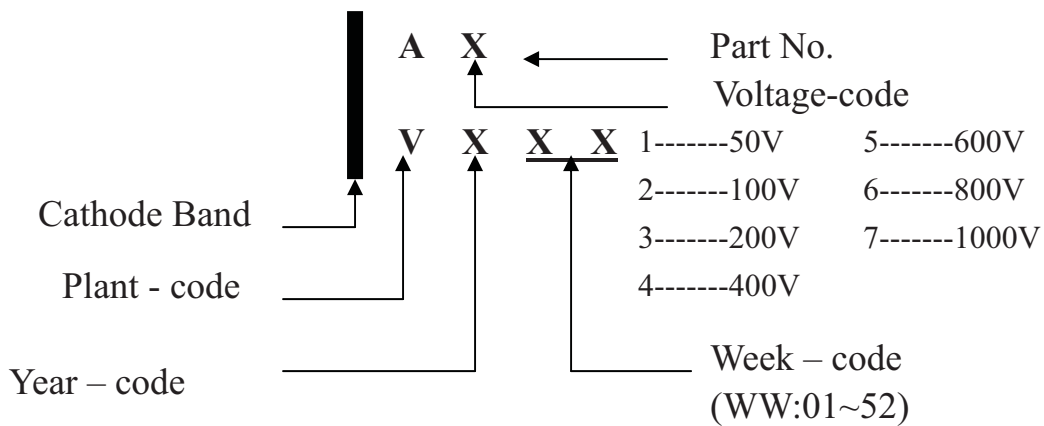


## Attachment information about FM400XW

### 1. Internal Circuit



### 2. Marking on the body



(Y: Last digit of year &  
A:2010,B:2011.....)

# REEL TAPING SPECIFICATIONS FOR SURFACE MOUNT DEVICES-FLAT MELF ( SMA/SMB/SMC/SMX )

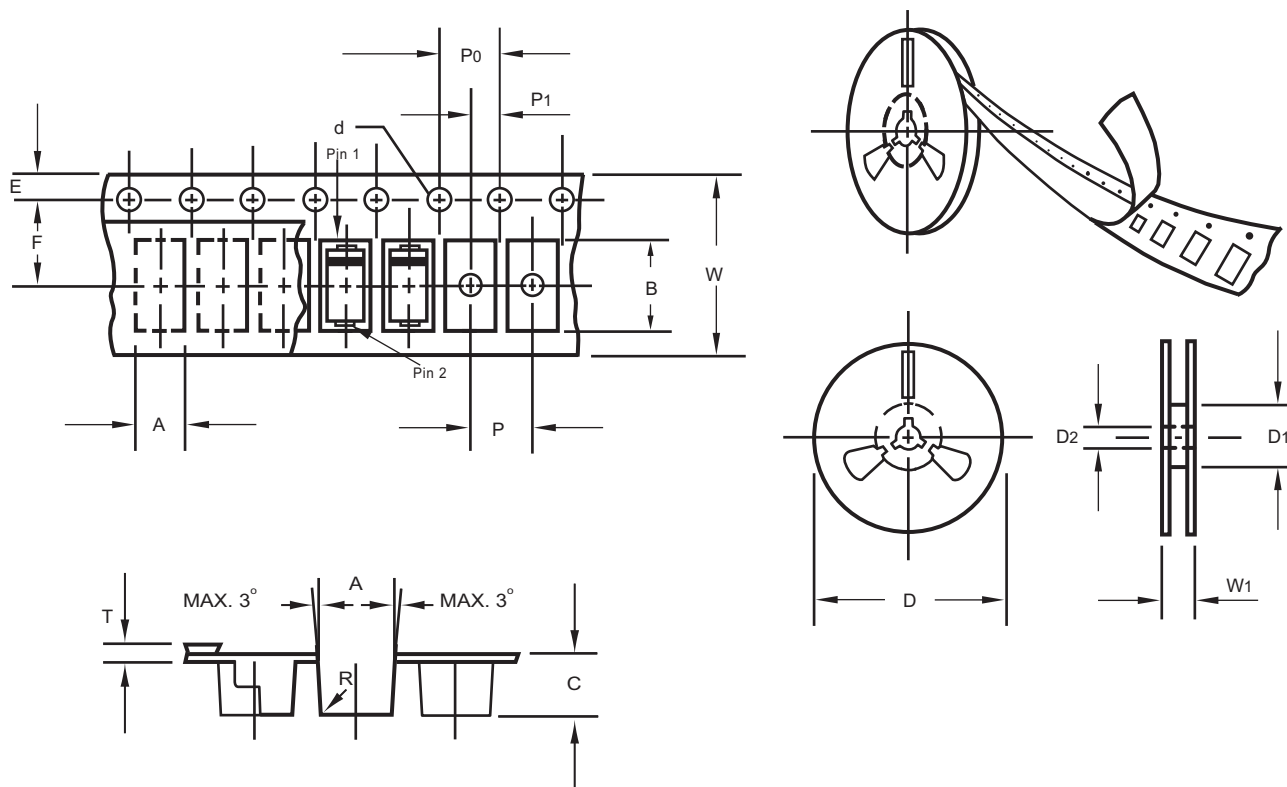


Fig.: Configuration of FLAT MELF TAPING  
(SMA/SMB/SMC/SMX)

| ITEM                   | SYMBOL | DO214AC (SMA) mm(inch)      | DO214AA (SMB) mm(inch)      | DO214AB (SMC) mm(inch)     |
|------------------------|--------|-----------------------------|-----------------------------|----------------------------|
| Carrier width          | A      | 2.6 ± 0.15 (0.102 ± 0.006)  | 3.65 ± 0.1 (0.144 ± 0.004)  | 6.0 ± 0.1 (0.236 ± 0.004)  |
| Carrier length         | B      | 5.15 ± 0.15 (0.203 ± 0.006) | 5.69 ± 0.1 (0.224 ± 0.004)  | 8.30 ± 0.1 (0.327 ± 0.004) |
| Carrier depth          | C      | 2.3 ± 0.15 (0.091 ± 0.006)  | 2.67 ± 0.1 (0.105 ± 0.004)  | 2.5 ± 0.1 (0.098 ± 0.004)  |
| Sprocket hole          | d      | 1.5 ± 0.1 (0.059 ± 0.004)   | 1.5 ± 0.1 (0.059 ± 0.004)   | 1.5 ± 0.1 (0.059 ± 0.004)  |
| Reel outside diameter  | D      | 178 ± 2.0 (7.0 ± 0.079)     | 178 ± 2.0 (7.0 ± 0.079)     | 178 ± 2.0 (7.0 ± 0.079)    |
| Reel inner diameter    | D1     | 50 Min.                     | 50 Min.                     | 50 Min.                    |
| Feed hole diameter     | D2     | 13 ± 0.5 (0.512 ± 0.020)    | 13 ± 0.5 (0.512 ± 0.020)    | 13 ± 0.5 (0.512 ± 0.020)   |
| Sprocket hole position | E      | 1.75 ± 0.1 (0.059 ± 0.004)  | 1.75 ± 0.1 (0.059 ± 0.004)  | 1.75 ± 0.1 (0.059 ± 0.004) |
| Punch hole position    | F      | 5.65 ± 0.05 (0.222 ± 0.002) | 5.65 ± 0.05 (0.222 ± 0.002) | 7.5 ± 0.05 (0.301 ± 0.002) |
| Punch hole pitch       | P      | 4.0 ± 0.1 (0.157 ± 0.004)   | 8.0 ± 0.1 (0.315 ± 0.004)   | 8.0 ± 0.1 (0.315 ± 0.004)  |
| Sprocket hole pitch    | P0     | 4.0 ± 0.1 (0.157 ± 0.004)   | 4.0 ± 0.1 (0.157 ± 0.004)   | 4.0 ± 0.1 (0.157 ± 0.004)  |
| Embossment center      | P1     | 2.0 ± 0.1 (0.079 ± 0.004)   | 2.0 ± 0.1 (0.079 ± 0.004)   | 2.0 ± 0.1 (0.157 ± 0.004)  |
| Total tape thickness   | T      | 0.30 ± 0.05 (0.012 ± 0.002) | 0.6 Max.                    | 0.6 Max.                   |
| Tape width             | W      | 12.0 ± 0.2 (0.472 ± 0.008)  | 12.0 ± 0.2 (0.472 ± 0.008)  | 16.0 ± 0.2 (0.630 ± 0.008) |
| Reel width             | W1     | 16.8 ± 2.0 (0.661 ± 0.079)  | 16.8 ± 2.0 (0.661 ± 0.079)  | 24.0 ± 2.0 (0.945 ± 0.079) |

Note: 1.Devices are packed in accordance with EIA standard RS-481-D and specification given above.  
2.Available on 7 inch ( 1500 ct. ) or 13 inch ( 5000 ct. ) diameter reels.

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## PACKAGING OF DIODE AND BRIDGE RECTIFIERS

### REEL PACK

| PACKAGE | PACKING CODE | EA PER REEL | EA PER INNER BOX | COMPONENT SPACE (mm) | TAPE SPACE (mm) | REEL DIA (mm) | CARTON SIZE (mm) | EA PER CARTON | GROSS WEIGHT(Kg) |
|---------|--------------|-------------|------------------|----------------------|-----------------|---------------|------------------|---------------|------------------|
| SMX     | -W           | 7,500       | 15,000           | ---                  | ---             | 330           | 360*355*360      | 120,000       | 15.2             |

| PACKAGE | PACKING CODE | EA PER REEL | EA PER INNER BOX | COMPONENT SPACE (mm) | TAPE SPACE (mm) | REEL DIA (mm) | CARTON SIZE (mm) | EA PER CARTON | GROSS WEIGHT(Kg) |
|---------|--------------|-------------|------------------|----------------------|-----------------|---------------|------------------|---------------|------------------|
| SMX     | -T           | 2,000       | 8,000            | ---                  | ---             | 178           | 390*205*310      | 64,000        | 7.8              |

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