

FM4001-MS THRU FM4007-MS

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FM4001-MS THRU FM4007-MS

1.0A Surface Mount General Purpose Rectifiers 50V-1000V

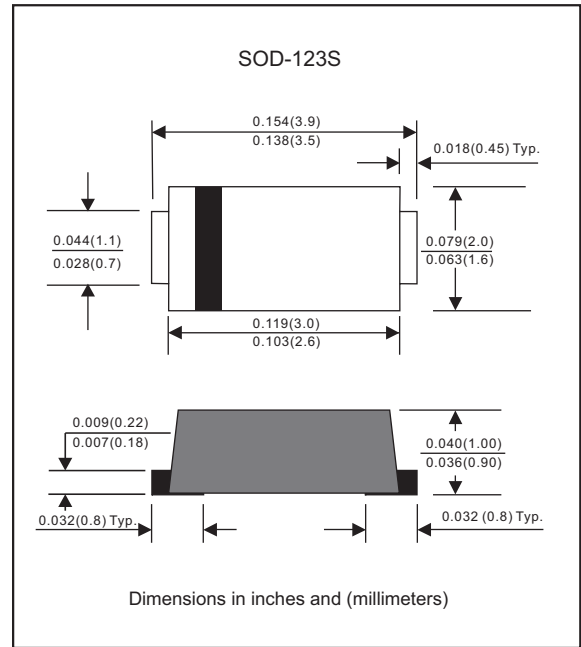
Features

- Batch process design, excellent power dissipation offers better reverse leakage current
- Low profile surface mounted application in order to optimize board space
- Tiny plastic SMD package
- High current capability
- High surge capability
- Glass passivated chip junction
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free parts, ex. FM4001-MS-H

Mechanical data

- Epoxy : UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-123S/MINI SMA
- Terminals :Plated terminals, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.0155 gram

Package outline



Maximum ratings (AT T_A=25°C unless otherwise noted)

PARAMETER	SYMBOLS	FM4001-MS	FM4002-MS	FM4003-MS	FM4004-MS	FM4005-MS	FM4006-MS	FM4007-MS	UNIT
Maximum repetitive 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 continuous reverse voltage	V _R	50	100	200	400	600	800	1000	V
Maximum average forward rectified current	I _o	1.0							A
Non-repetitive peak forward surge current 8.3ms single half sine-wave (JEDEC method)	I _{FSM}	30							A
Typical junction capacitance (Note 1)	C _J	4.5							pF
Operating junction temperature range	T _J	-55 to +150							°C
Storage temperature range	T _{STG}	-65 to +175							°C

Electrical characteristics (AT T_A=25°C unless otherwise noted)

PARAMETER	SYMBOLS	FM4001-MS	FM4002-MS	FM4003-MS	FM4004-MS	FM4005-MS	FM4006-MS	FM4007-MS	UNIT
Maximum instantaneous forward voltage at I _F =1.0A	V _F	1.1							V
Maximum reverse leakage current at rated V _R	I _R	5.0 50							μA μA

Thermal characteristics

PARAMETER	SYMBOLS	FM4001-MS	FM4002-MS	FM4003-MS	FM4004-MS	FM4005-MS	FM4006-MS	FM4007-MS	UNIT
Typical thermal resistance junction to ambient (Note 2)	R _{θJA}	67							°C/W
Typical thermal resistance junction to case (Note 2)	R _{θJC}	42							°C/W

Notes 1: Measured at 1 MHz and applied reverse voltage of 4.0 VDC
 2: Mounted on FR-4 PCB copper, minimum recommended pad layout

Rating and characteristic curves (FM4001-MS THRU FM4007-MS)

FIG.1-TYPICAL FORWARD CHARACTERISTICS

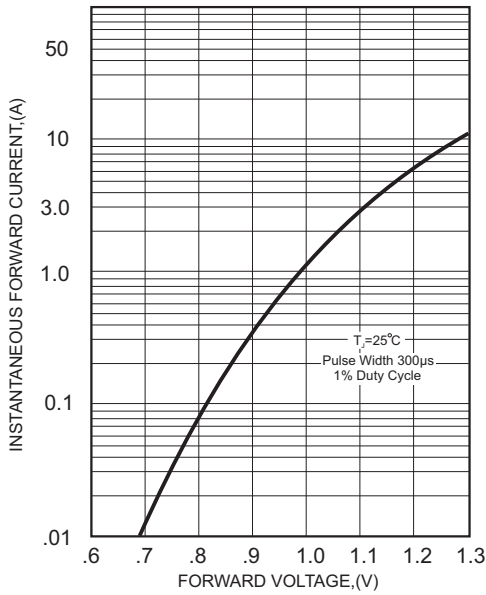


FIG.2-TYPICAL FORWARD CURRENT DERATING CURVE

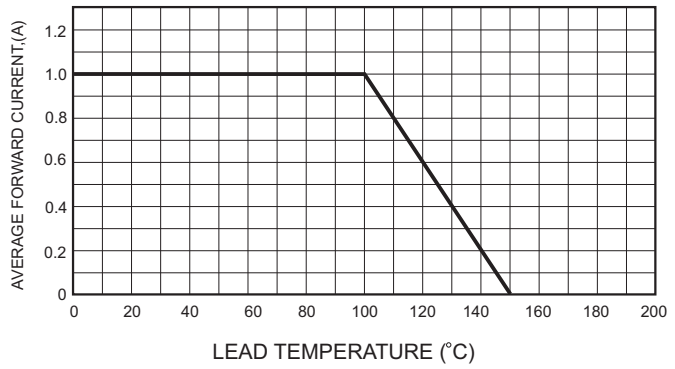


FIG.4-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

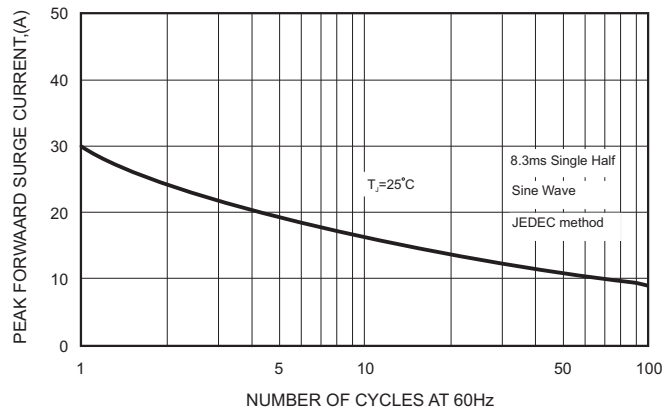


FIG.3 - TYPICAL REVERSE CHARACTERISTICS

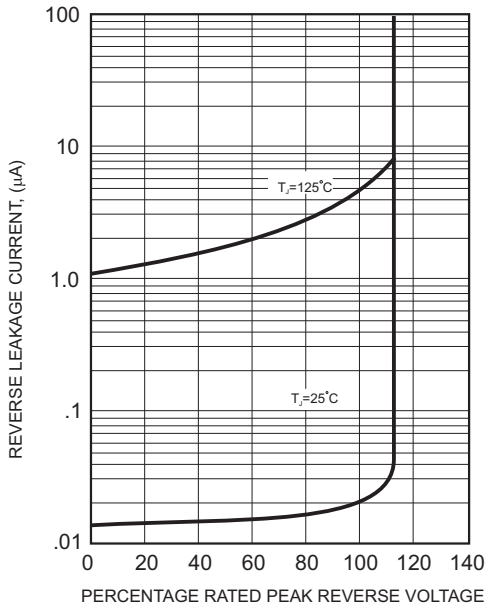
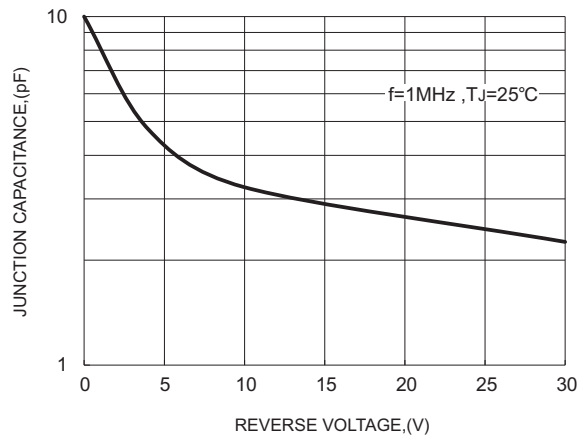




FIG.5-TYPICAL JUNCTION CAPACITANCE



FM4001-MS THRU FM4007-MS

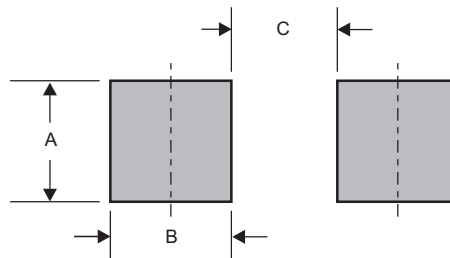
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
FM4001-MS	A1
FM4002-MS	A2
FM4003-MS	A3
FM4004-MS	A4
FM4005-MS	A5
FM4006-MS	A6
FM4007-MS	A7

Suggested solder pad layout

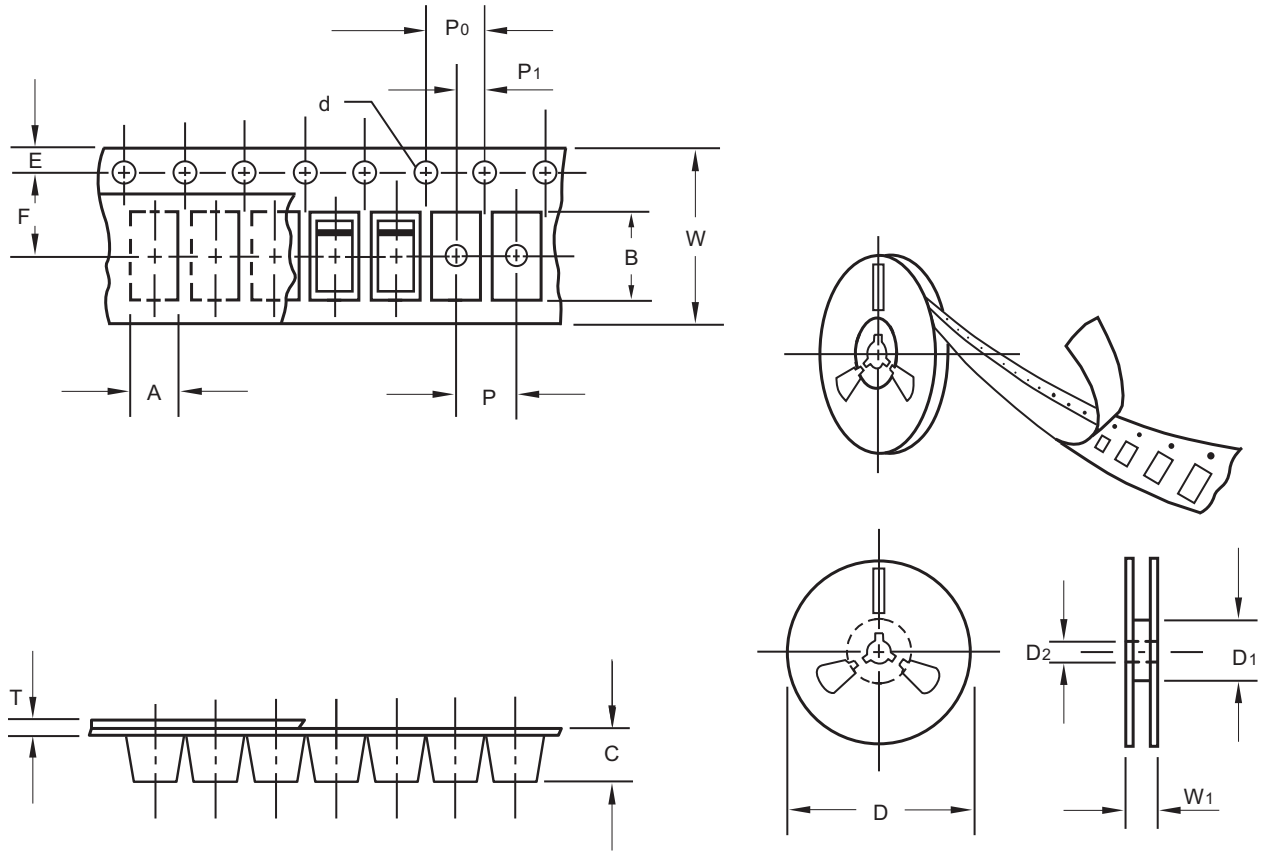


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-123S	0.044 (1.10)	0.040 (1.00)	0.079 (2.00)

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Packing information



unit:mm

Item	Symbol	Tolerance	SOD-123S
Carrier width	A	0.1	2.00
Carrier length	B	0.1	3.85
Carrier depth	C	0.1	1.10
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	62.00
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.23
Tape width	W	0.3	8.00
Reel width	W1	1.0	11.40

Note: Devices are packed in accordance with EIA standard RS-481-A and specifications listed above.

FM4001-MS THRU FM4007-MS**High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec.	MIL-STD-750D METHOD-2031
2. Solderability	at 245±5°C for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_R=80\%$ rate at $T_J=150^\circ\text{C}$ for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at $T_A=25^\circ\text{C}$ for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	$T_A = 25^\circ\text{C}$, $I_F = I_O$ On state: power on for 5 min. off state: power off for 5 min. on and off for 500 cycles.	MIL-STD-750D METHOD-1036
6. Pressure Cooker	15P _{SIG} at $T_A=121^\circ\text{C}$ for 4 hrs.	JESD22-A102
7. Temperature Cycling	-55°C to +125°C dwelled for 30 min. and transferred for 5min. total 10 cycles.	MIL-STD-750D METHOD-1051
8. Forward Surge	8.3ms single half sine-wave , one surge.	MIL-STD-750D METHOD-4066-2
9. Humidity	at $T_A=85^\circ\text{C}$, RH=85% for 1000hrs.	MIL-STD-750D METHOD-1021
10. High Temperature Storage Life	at 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031