

FM320-AF1 THRU FM3200-AF1**List**

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FM320-AF1 THRU FM3200-AF1

3.0A Surface Mount Schottky Barrier Rectifiers - 20-200V

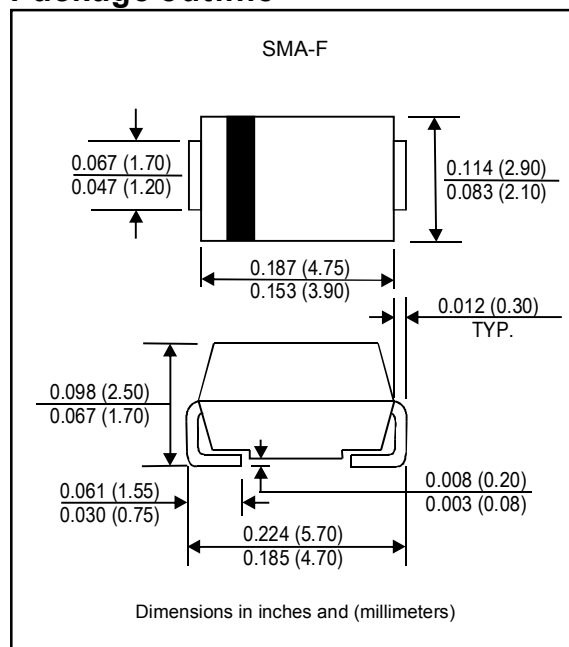
Features

- Low power loss, high efficiency.
- High current capability, low forward voltage drop.
- Ultra high-speed switching.
- Silicon epitaxial planar chip, metal silicon junction.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen free parts, ex. FM320-AF1-H.

Mechanical data

- Epoxy: UL94-V0 rated flame retardant
- Case : Molded plastic, DO-214AC / SMA-F
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.07 gram

Package outline



Maximum ratings (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbols	FM320-AF1	FM340-AF1	FM360-AF1	FM380-AF1	FM3100-AF1	FM3150-AF1	FM3200-AF1	Units
Maximum repetitive peak reverse voltage	V _{RRM}	20	40	60	80	100	150	200	V
Maximum RMS voltage	V _{RMS}	14	28	42	56	70	105	140	V
Maximum DC blocking voltage	V _{DC}	20	40	60	80	100	150	200	V
Maximum average forward rectified current at T _L (see fig. 1)	I _O	3.0							A
Peak forward surge current, 8.3ms single half-sine-wave (JEDEC method)	I _{FSM}	70.0							A
Operating junction temperature range	T _J	-55 to +125			-55 to +150				°C
Storage temperature range	T _{STG}	-55 to +150							°C

Electrical characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbols	FM320-AF1	FM340-AF1	FM360-AF1	FM380-AF1	FM3100-AF1	FM3150-AF1	FM3200-AF1	Units
Maximum forward voltage at $I_F=3.0A$	V_F	0.55		0.70	0.85		0.95		V
Maximum reverse current at $T_A=25^{\circ}C$ at rated DC blocking voltage $T_A=125^{\circ}C$	I_R	0.5 50			0.05 10				mA

Thermal characteristics

Parameter	Symbols	FM320-AF1	FM340-AF1	FM360-AF1	FM380-AF1	FM3100-AF1	FM3150-AF1	FM3200-AF1	Units
Typical thermal resistance junction to ambient	$R_{\theta JA}$	80							$^{\circ}\text{C}/\text{W}$

Rating and characteristic curves (FM320-AF1 THRU FM3200-AF1)

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

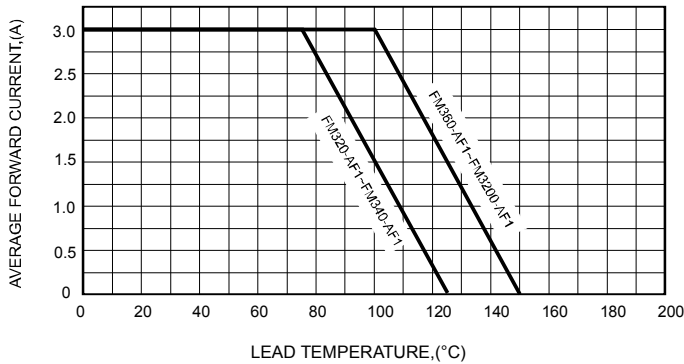


FIG.2-TYPICAL FORWARD CHARACTERISTICS

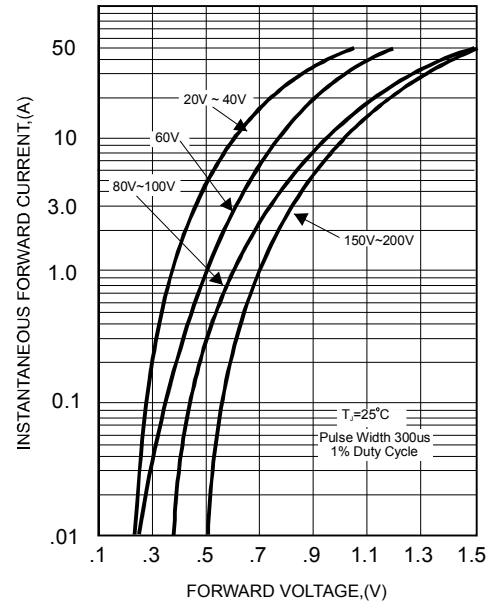


FIG.3-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

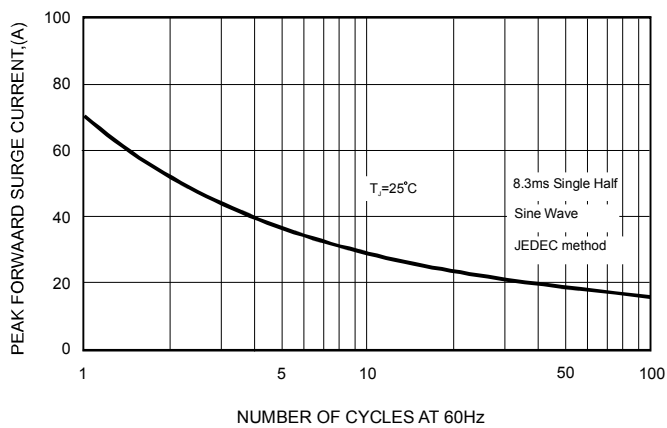


FIG.4-TYPICAL JUNCTION CAPACITANCE

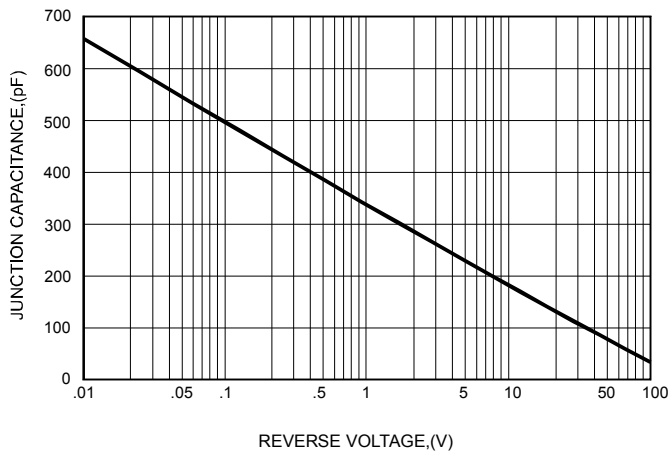
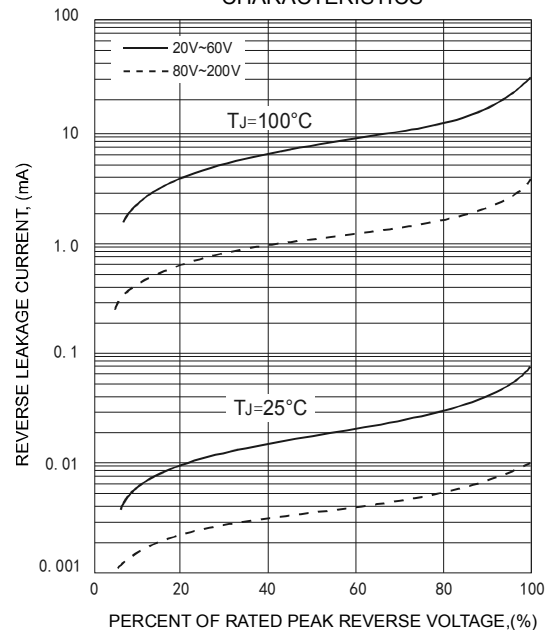
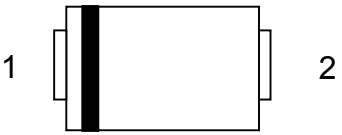


FIG.5 - TYPICAL REVERSE CHARACTERISTICS

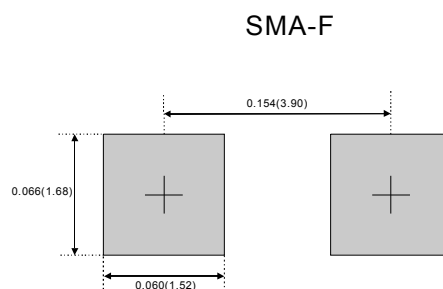


FM320-AF1 THRU FM3200-AF1**Pinning information**

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

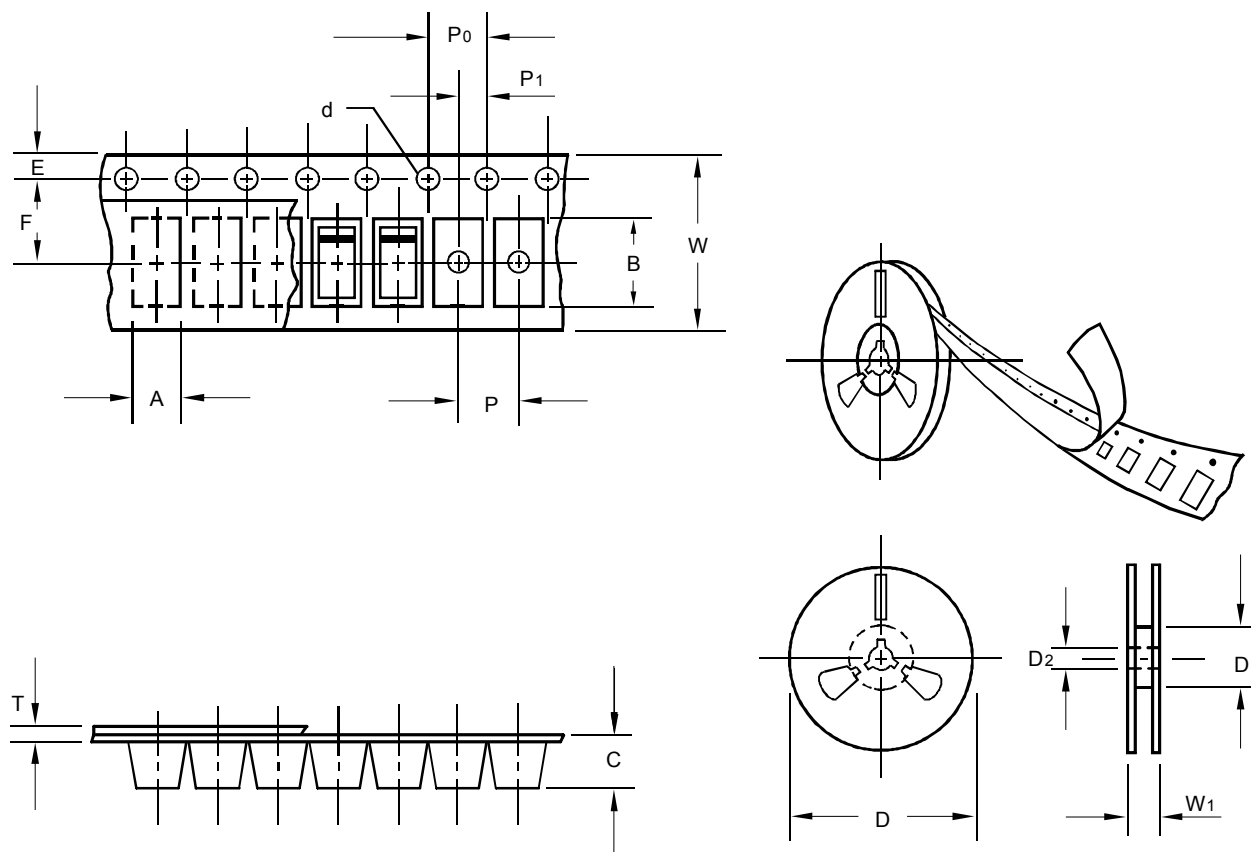
Type number	Marking code
FM320-AF1	SS32
FM340-AF1	SS34
FM360-AF1	SS36
FM380-AF1	SS38
FM3100-AF1	SS310
FM3150-AF1	SS315
FM3200-AF1	SS320

Suggested solder pad layout

Dimensions in inches and (millimeters)

FM320-AF1 THRU FM3200-AF1

Packing information



unit:mm

Item	Symbol	Tolerance	SMA-F
Carrier width	A	0.1	2.79
Carrier length	B	0.1	5.33
Carrier depth	C	0.1	2.36
Sprocket hole	d	0.1	1.50
13" Reel outside diameter	D	2.0	330.00
13" Reel inner diameter	D1	min	72.00
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	5.50
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	0.30
Tape width	W	0.3	12.00
Reel width	W1	1.0	18.00

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

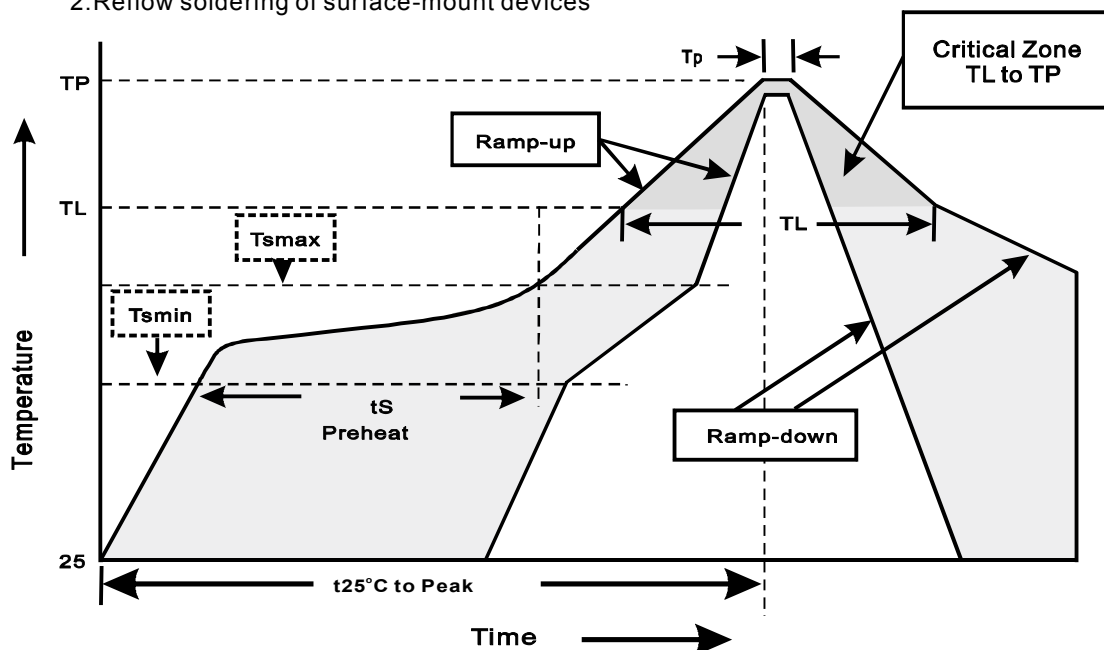
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Reel packing

PACKAGE	REEL SIZE	REEL (pcs)	COMPONENT SPACING (m/m)	BOX (pcs)	INNER BOX (m/m)	REEL DIA, (m/m)	CARTON SIZE (m/m)	CARTON (pcs)	APPROX. GROSS WEIGHT (kg)
SMA-F	11"	5,000	4.0	10,000	282*282*39	310	350*330*360	80,000	14.50
	13"	7,500	4.0	15,000	337*337*37	330	350*330*360	120,000	18.50

Suggested thermal profiles for soldering processes

- 1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
- 2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T _L to T _P)	<3°C/sec
Preheat - Temperature Min(T _{sm}) - Temperature Max(T _{sm}) - Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{sm} to T _L - Ramp-upRate	<3°C/sec
Time maintained above: - Temperature(T _L) - Time(t _L)	217°C 60~260sec
Peak Temperature(T _P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t _P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

FM320-AF1 THRU FM3200-AF1**High reliability test capabilities**

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^{\circ}\text{C}$ for $10 \pm 2\text{sec.}$ immerse body into solder $1/16" \pm 1/32"$	MIL-STD-750D METHOD-2031
2. Solderability	at $245 \pm 5^{\circ}\text{C}$ for 5 sec.	MIL-STD-202F METHOD-208
3. High Temperature Reverse Bias	$V_R = 80\%$ rate at $T_J = 125^{\circ}\text{C}$ 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 $+125^{\circ}\text{C}$ 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 150°C for 1000 hrs.	MIL-STD-750D METHOD-1031