

FM520-CF THRU FM5200-CF**List**

List.....	1
Package outline.....	2
Features.....	2
Mechanical data.....	2
Maximum ratings	2
Electrical characteristics.....	2
Rating and characteristic curves.....	3
Pinning information.....	4
Marking.....	4
Suggested solder pad layout.....	4
Packing information.....	5
Reel packing.....	6
Suggested thermal profiles for soldering processes.....	6
High reliability test capabilities.....	7

FM520-CF THRU FM5200-CF

5.0A Surface Mount Schottky Barrier Rectifiers 20V-200V

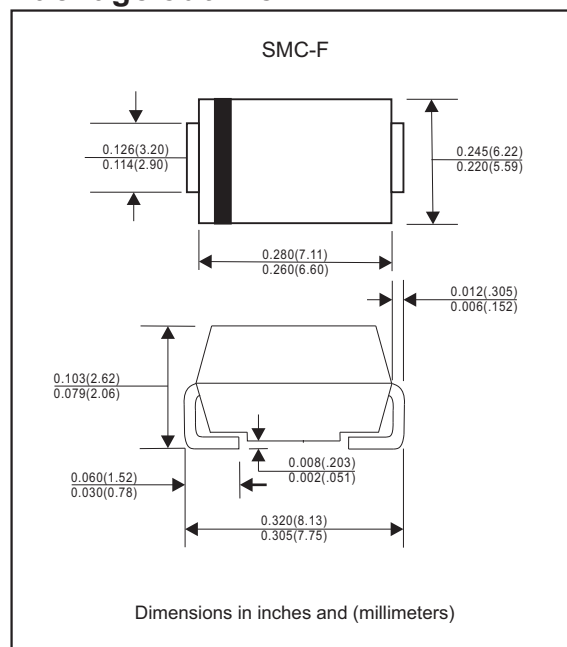
Features

- Guardring die construction
- Low profile package
- Low power losses, high efficiency operation
- High current capability
- Low forward voltage drop
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free parts, ex. FM520-CF-H

Mechanical data

- Epoxy: UL94-V0 rated flame retardant
- Case : Molded plastic, DO-214AB / SMC-F
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.23 gram

Package outline



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

PARAMETER	SYMBOLS	FM520-CF	FM540-CF	FM560-CF	FM580-CF	FM5100-CF	FM5150-CF	FM5200-CF	UNIT
Repetitive peak reverse voltage	V _{RRM}	20	40	60	80	100	150	200	V
RMS voltage	V _{RMS}	14	28	42	56	70	105	140	V
DC blocking voltage	V _{DC}	20	40	60	80	100	150	200	V
Average forward rectified current	I _O	5.0							A
Non-repetitive peak forward surge current 8.3ms single half sine-wave	I _{FSM}	120							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	FM520-CF	FM540-CF	FM560-CF	FM580-CF	FM5100-CF	FM5150-CF	FM5200-CF	UNIT
Maximum forward voltage at IF=5.0A	VF	0.55		0.70	0.85		0.95		V
Maximum DC reverse current at TJ =25°C at rated DC blocking voltage at TJ =100°C	IR	0.15 50			0.05 10				mA

Thermal Characteristics

PARAMETER	SYMBOLS	FM520-CF	FM540-CF	FM560-CF	FM580-CF	FM5100-CF	FM5150-CF	FM5200-CF	UNIT
Typical thermal resistance junction to ambient	$R_{\theta JA}$	45							$^{\circ}\text{C/W}$

Rating and characteristic curves (FM520-CF THRU FM5200-CF)

FIG.1-TYPICAL FORWARD CURRENT DERATING CURVE

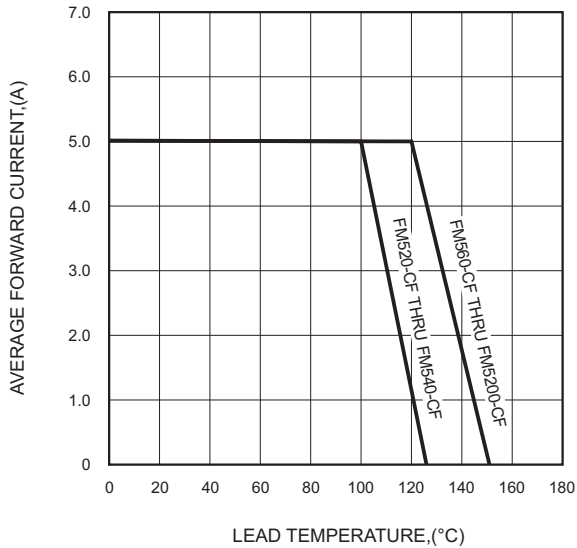


FIG.2-TYPICAL FORWARD CHARACTERISTICS

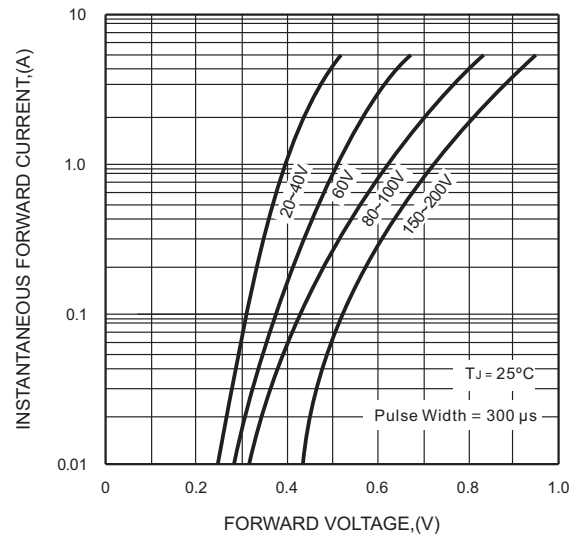


FIG.3-MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

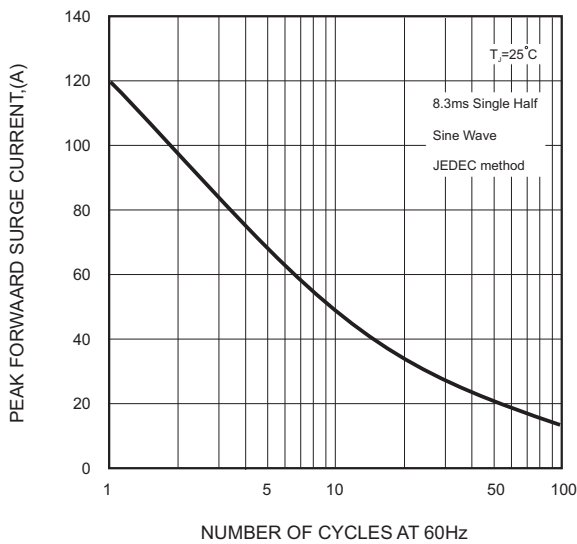
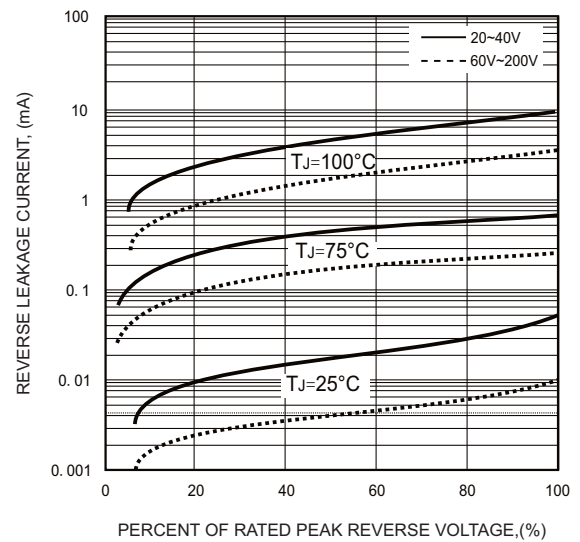


FIG.4-TYPICAL REVERSE CHARACTERISTICS



FM520-CF THRU FM5200-CF

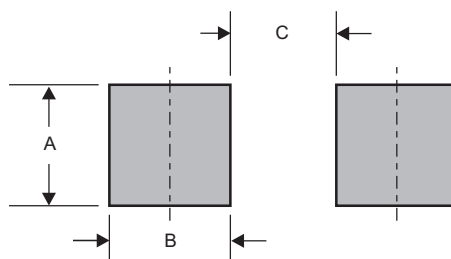
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
FM520-CF	SS52
FM540-CF	SS54
FM560-CF	SS56
FM580-CF	SS58
FM5100-CF	SS510
FM5150-CF	SS515,SS5150
FM5200-CF	SS520,SS5200

Suggested solder pad layout

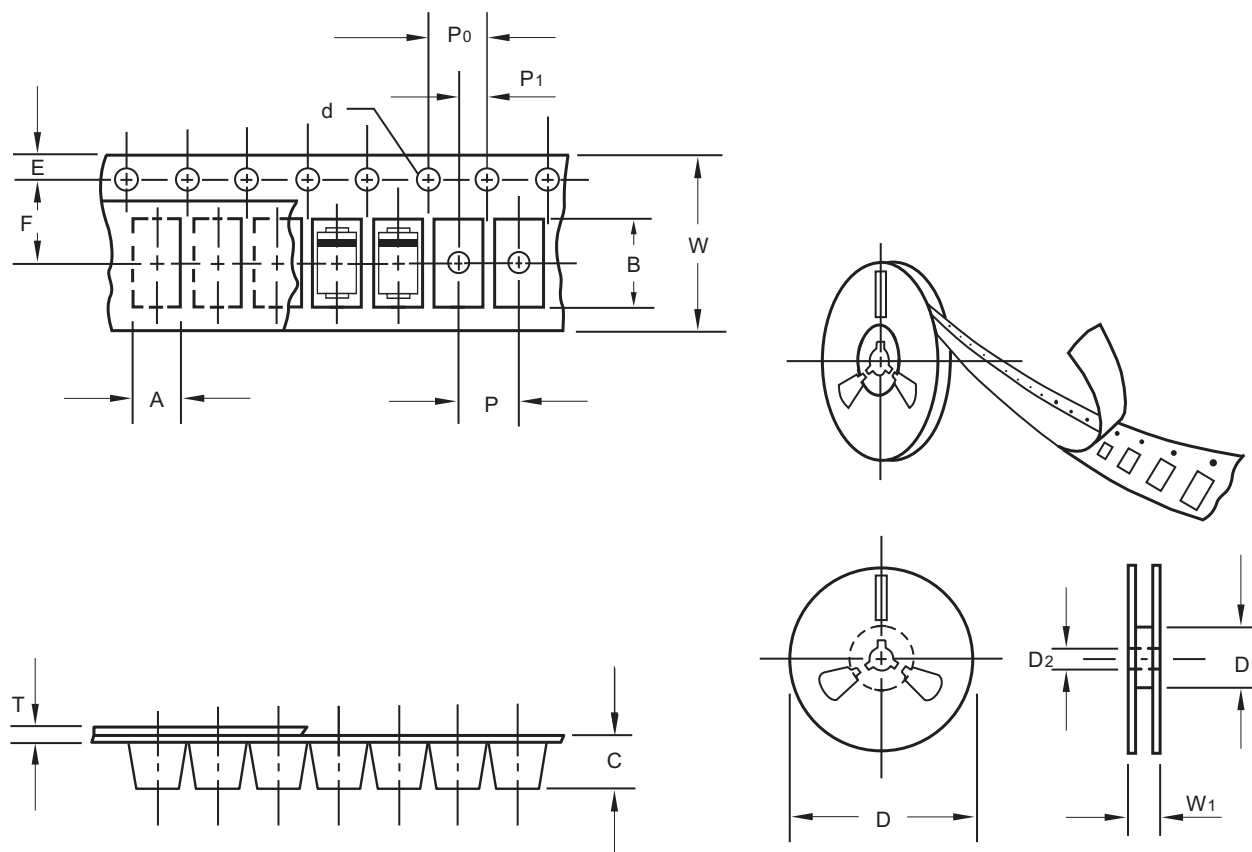


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SMC-F	0.132 (3.30)	0.100 (2.50)	0.176(4.40)

FM520-CF THRU FM5200-CF

Packing information



unit:mm

Item	Symbol	Tolerance	SMC-F
Carrier width	A	0.1	6.05
Carrier length	B	0.1	8.31
Carrier depth	C	0.1	2.54
Sprocket hole	d	0.1	1.55
13" Reel outside diameter	D	2.0	330.00
13" Reel inner diameter	D ₁	min	50.00
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D ₁	min	62.00
Feed hole diameter	D ₂	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	7.50
Punch hole pitch	P	0.1	8.00
Sprocket hole pitch	P ₀	0.1	4.00
Embossment center	P ₁	0.1	2.00
Overall tape thickness	T	0.1	0.25
Tape width	W	0.1	16.00
Reel width	W ₁	1.0	18.00

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

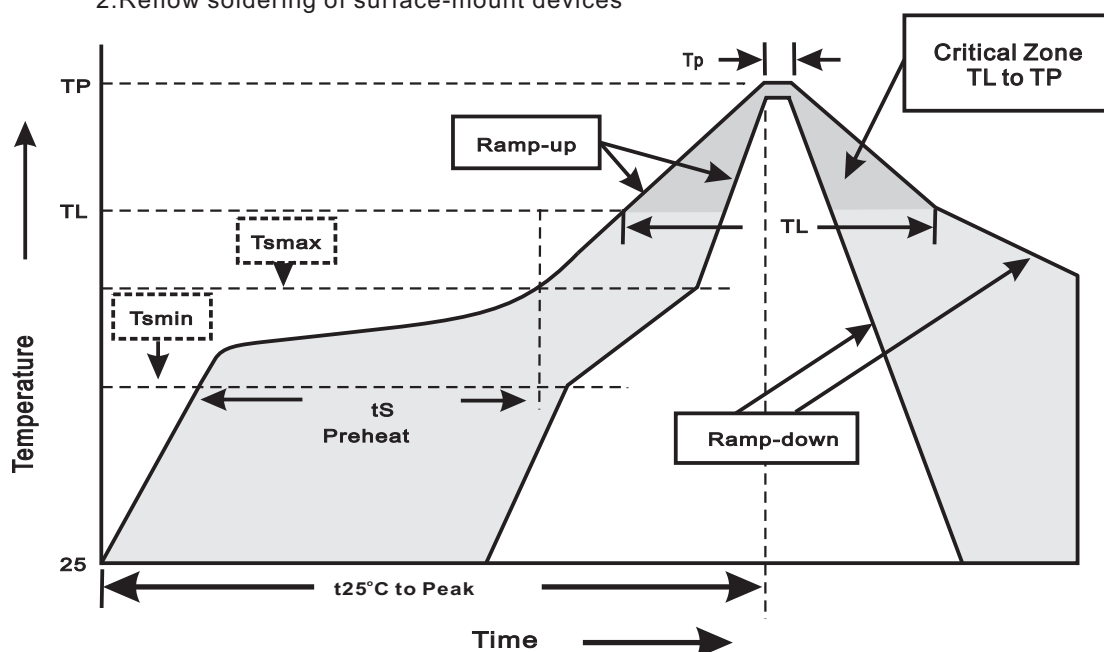
FM520-CF THRU FM5200-CF

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)
SMC-F	13"	3,000	8.0	6,000	335*335*38	330	350*330*360	48,000	18.0

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 _{smmin}) -Temperature Max(T _{smmax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smmax} 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

FM520-CF THRU FM5200-CF

High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at $260 \pm 5^\circ\text{C}$ for $10 \pm 2\text{sec.}$	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