SFM101-T7B Thru SFM108-T7B

List

SFM101-T7B Thru SFM108-T7B

10.0A Surface Mount
Super Fast Rectifiers 50-600V

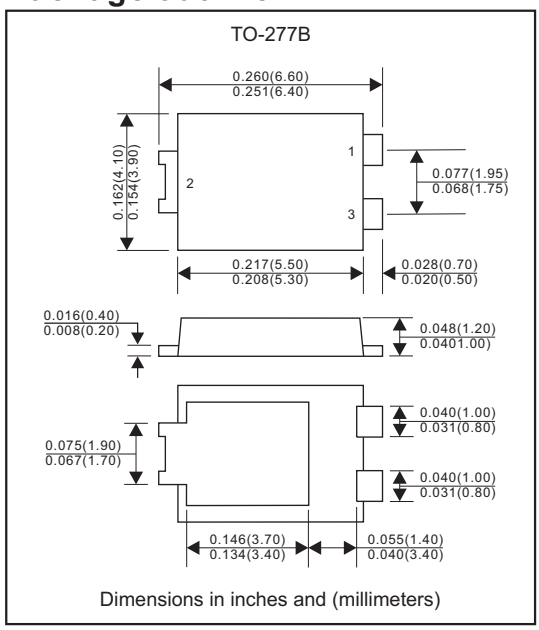
Features

- Super fast switching for high efficiency.
- Low leakage current.
- High surge current capability.
- Glass passivated chip junction.
- Lead free parts, RoHS requirements.
- Suffix "-H" indicates Halogen free parts, ex. SFM101-T7B-H.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, TO-277B
- Terminals: Plated terminals, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight:0.092 grams(approx.)

Package outline



Dimensions in inches and (millimeters)

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

PARAMETER	SYMBOLS	SFM101-T7B	SFM102-T7B	SFM103-T7B	SFM104-T7B	SFM105-T7B	SFM106-T7B	SFM107-T7B	SFM108-T7B	UNIT
Repetitive peak reverse voltage	V_{RRM}	50	100	150	200	300	400	500	600	V
RMS voltage	V_{RMS}	35	70	105	140	210	280	350	420	V
Continuous reverse voltage	V_R	50	100	150	200	300	400	500	600	V
Average forward rectified current	I_O	10								A
Peak forward surge current 8.3ms single half sine-wave(JEDEC method)	I_{FSM}	150								A
Typical Junction capacitance (Note 1)	C_J	140.0								pF
Operating junction temperature range	T_J	-55 to +150								°C
Storage temperature range	T_{STG}	-55 to +150								°C

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

PARAMETER	SYMBOLS	SFM101-T7B	SFM102-T7B	SFM103-T7B	SFM104-T7B	SFM105-T7B	SFM106-T7B	SFM107-T7B	SFM108-T7B	UNIT
Forward voltage at I_F=10.0A	V_F	0.95				1.25		1.8		V
Reverse current at rated V_R T_A=25°C T_A=125°C	I_R	5.0 500								uA
Reverse recovery time (Note 2)	Trr	35						40		ns

Thermal characteristics

PARAMETER	SYMBOLS	SFM101-T7B	SFM102-T7B	SFM103-T7B	SFM104-T7B	SFM105-T7B	SFM106-T7B	SFM107-T7B	SFM108-T7B	UNIT
Typical thermal resistance junction to ambient	$R_{\theta JA}$	47.0								°C/W

Note : 1. Measured at 1MHz and applied reverse voltage of 4.0V D.C.
2. Reverse recovery time test condition I_F = 0.5A, I_R = 1.0A, Irr = 0.25A

Rating and characteristic curves(SFM101-T7B Thru SFM108-T7B)

Fig.1 TYPICAL FORWARD CHARACTERISTICS

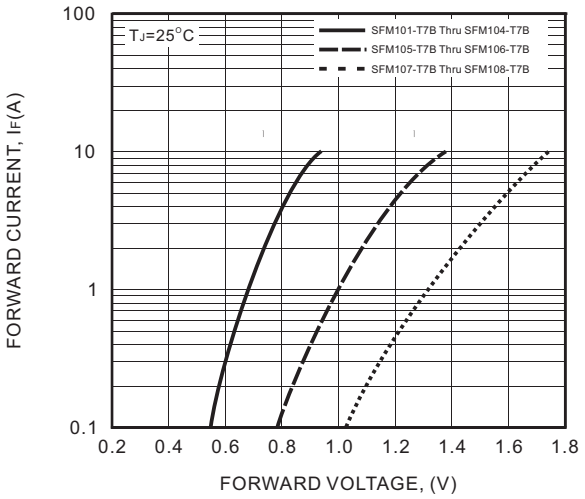


Fig.2 MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

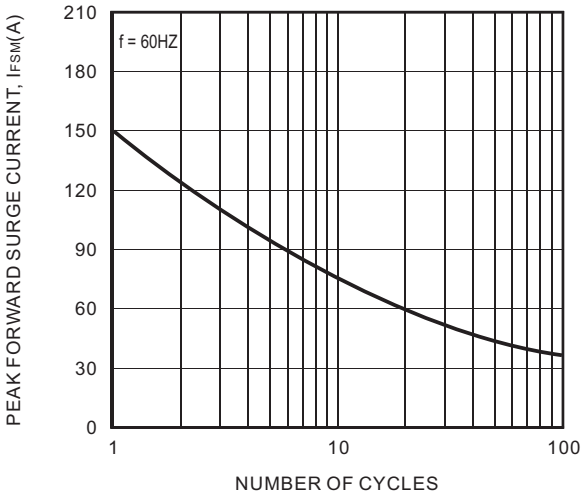


Fig.3 TYPICAL REVERSE LEAKAGE CHARACTERISTICS

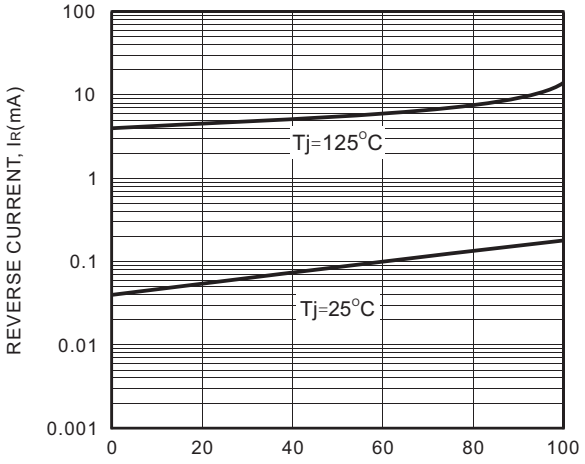
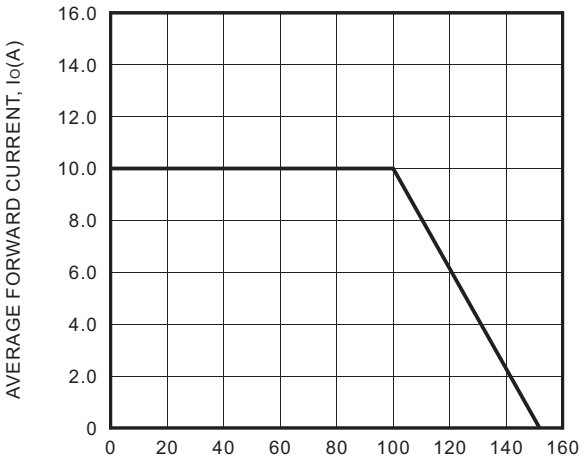


Fig.4 TYPICAL FORWARD CURRENT DERATING CURVE



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Pinning information

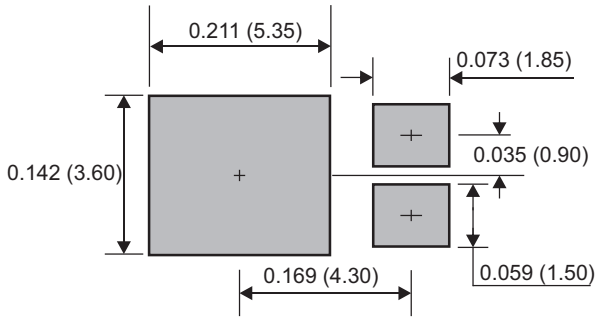
Pin	Simplified outline	Symbol
PIN 1 anode PIN 3 anode PIN 2 cathode		

Marking

Type number	Marking code
SFM101-T7B	ES10A
SFM102-T7B	ES10B
SFM103-T7B	ES10C
SFM104-T7B	ES10D
SFM105-T7B	ES10F
SFM106-T7B	ES10G
SFM107-T7B	ES10H
SFM108-T7B	ES10J

Suggested solder pad layout

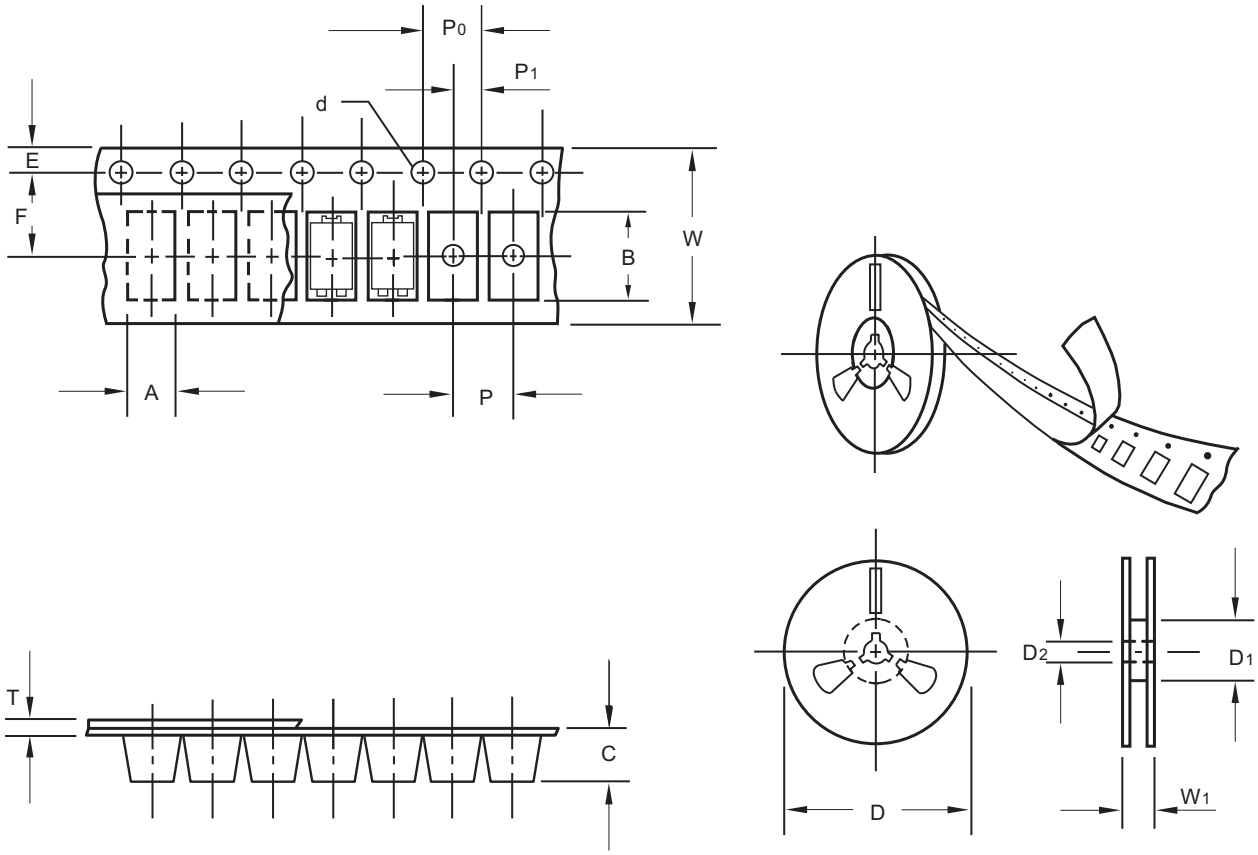
TO-277B



Dimensions in inches and (millimeters)

SFM101-T7B Thru SFM108-T7B

Packing information



unit:mm

Item	Symbol	Tolerance	TO-277B
Carrier width	A	0.1	4.40
Carrier length	B	0.1	6.90
Carrier depth	C	0.1	1.30
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	0.3	12.00
Reel width	W_1	1.0	14.00

Note:Devices are packed in accor dance with EIA standar RS-481-A and specifications listed above.

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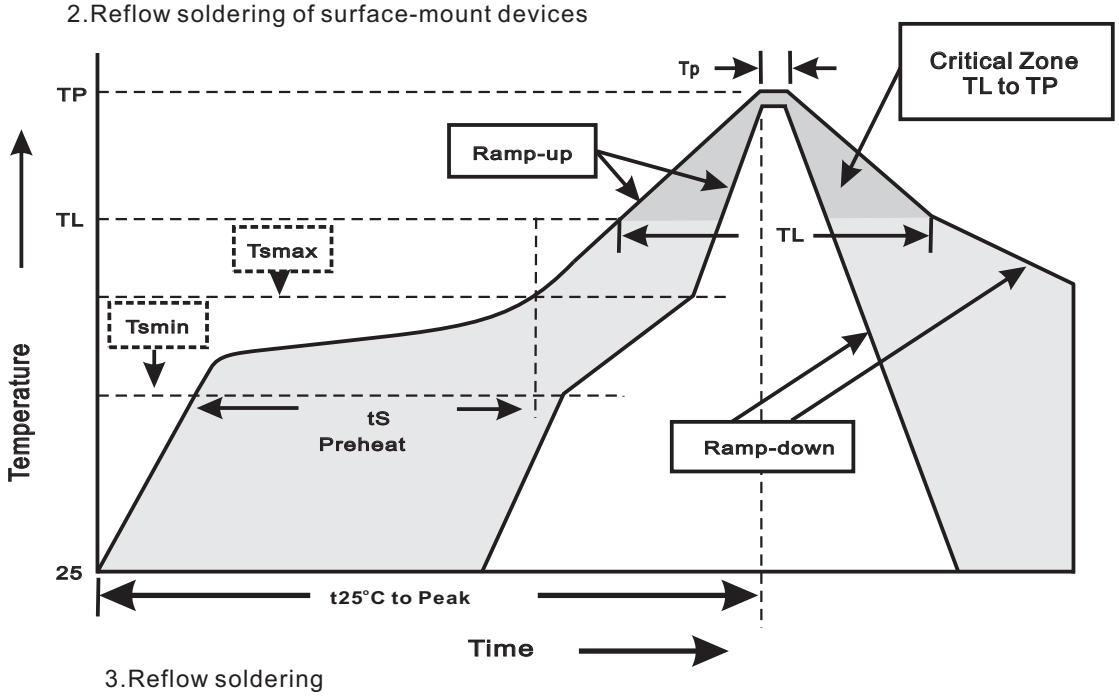
Reel packing

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)
TO-277B	13"	5,000	8.0	10,000	337*337*37	330	350*330*360	80,000	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(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax 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	<3°C/sec
Time 25°C to Peak Temperature	<6minutes

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High reliability test capabilities

Item Test	Conditions	Reference
1. Solder Resistance	at 260±5°C for 10±2sec. immerse body into solder 1/16"±1/32"	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°C for 168 hrs.	MIL-STD-750D METHOD-1038
4. Forward Operation Life	Rated average rectifier current at T_A=25°C for 500hrs.	MIL-STD-750D METHOD-1027
5. Intermittent Operation Life	T_A = 25°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°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°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