

FM2020-T7B THRU FM20200-T7B**List**

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FM2020-T7B THRU FM20200-T7B

20.0A Surface Mounted Schottky Barrier Rectifiers 20V-200V

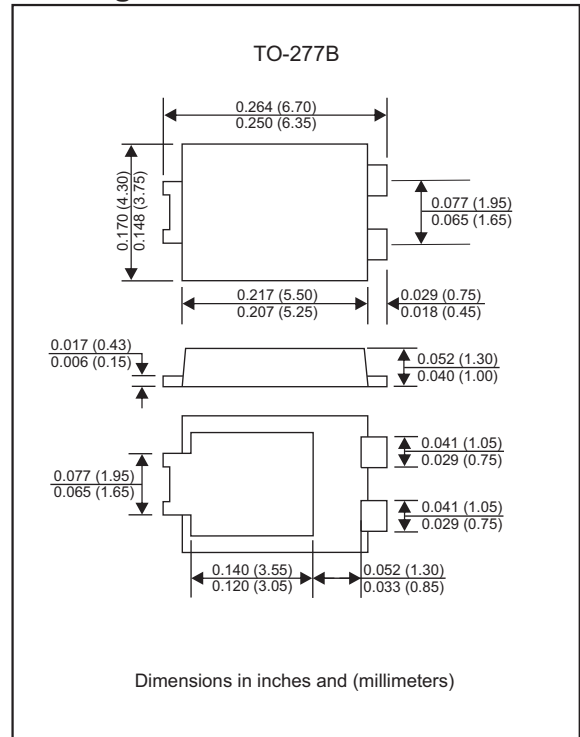
Features

- For surface mounted applications
- Built-in strain relief, ideal for automated placement.
- Low reverse leakage
- High forward surge current capability
- Lead free finish, RoHS compliant
- Suffix "-H" indicates Halogen free parts, ex. FM2020-T7B-H

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, TO-277B
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Polarity symbol marking on body
- Mounting Position : Any
- Weight : Approximated 0.092gram

Package outline



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

Parameter	Symbols	FM2020-T7B	FM2040-T7B	FM2060-T7B	FM2080-T7B	FM20100-T7B	FM20150-T7B	FM20200-T7B	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
Continuous reverse voltage	V_R	20	40	60	80	100	150	200	V
Average forward rectified current	I_o	20.0							A
Non-repetitive peak forward surge current 8.3ms single half sine-wave	I_{FSM}	250							A
Operating junction temperature range	T_J	-55 to +150							$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150							$^{\circ}\text{C}$

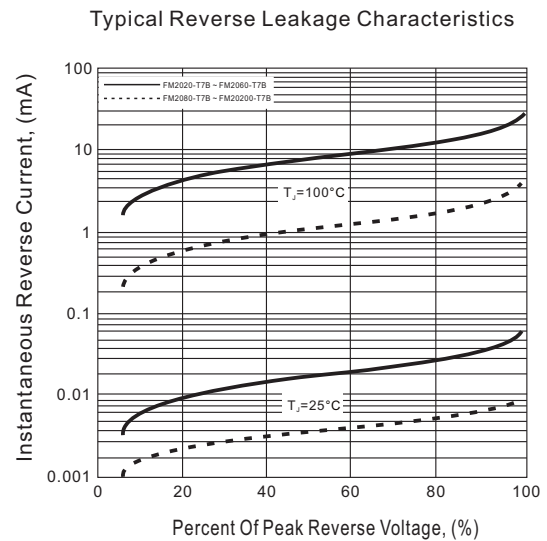
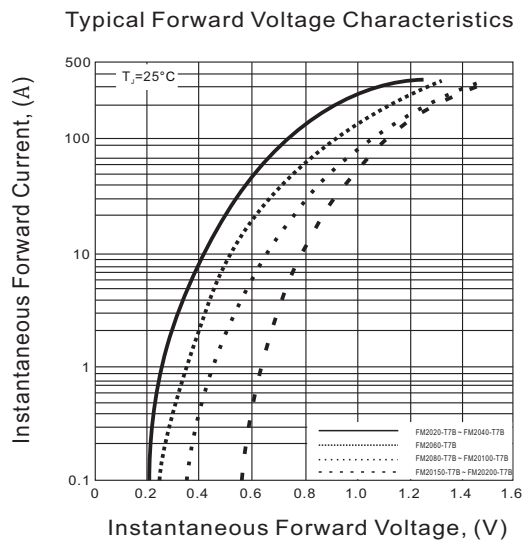
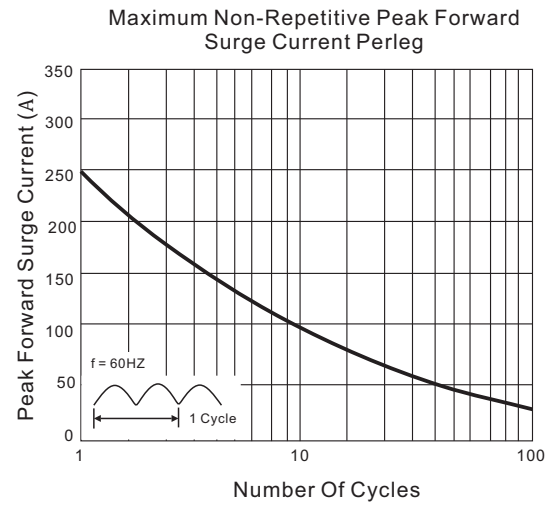
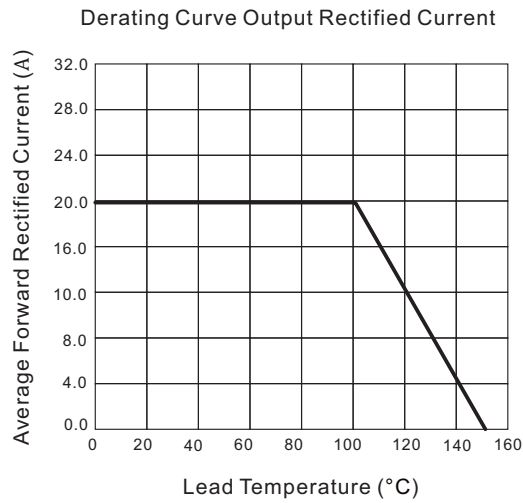
Maximum electrical characteristics (AT $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbols	FM2020-T7B	FM2040-T7B	FM2060-T7B	FM2080-T7B	FM20100-T7B	FM20150-T7B	FM20200-T7B	Unit
Forward voltage at $I_F=20.0A$	V_F	0.55		0.70	0.85		0.95		V
Reverse current at rated V_R $T_J=25^{\circ}C$ $T_J=125^{\circ}C$	I_R	0.1 50			0.005 10				mA

Thermal characteristics

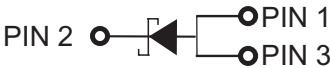
Parameter	Symbols	FM2020-T7B	FM2040-T7B	FM2060-T7B	FM2080-T7B	FM20100-T7B	FM20150-T7B	FM20200-T7B	Unit
Typical thermal resistance junction to ambient	$R_{\theta JA}$	60.0							$^{\circ}\text{C}/\text{W}$

Rating and characteristic curves (FM2020-T7B THRU FM20200-T7B)



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Pinning information

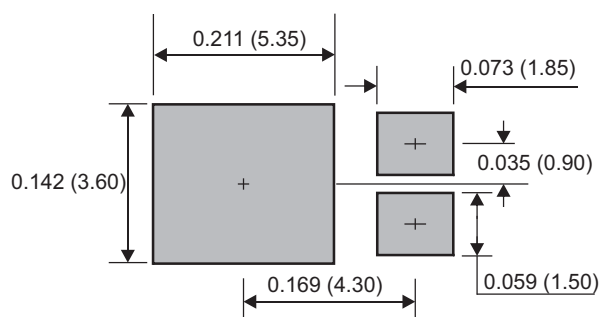
Pin	Simplified outline	Symbol
PIN 1 anode PIN 3 anode PIN 2 cathode		

Marking

Type Number	Marking Code
FM2020-T7B	SS2020
FM2040-T7B	SS2040
FM2060-T7B	SS2060
FM2080-T7B	SS2080
FM20100-T7B	SS20100
FM20150-T7B	SS20150
FM20200-T7B	SS20200

Suggested solder pad layout

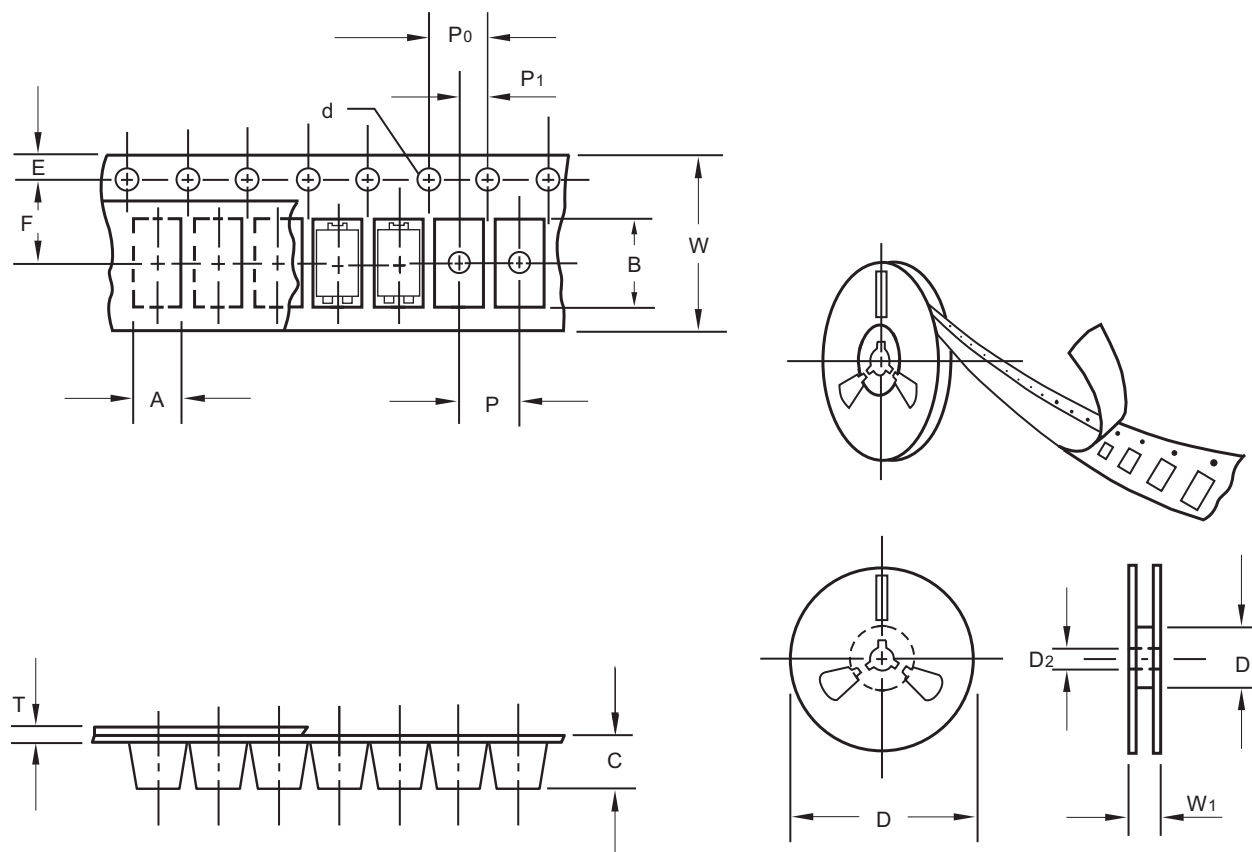
TO-277B



Dimensions in inches and (millimeters)

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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	D1	min	50.00
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	7.50
Punch hole pitch	P	0.1	8.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.25
Tape width	W	0.3	12.00
Reel width	W1	1.0	14.00

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

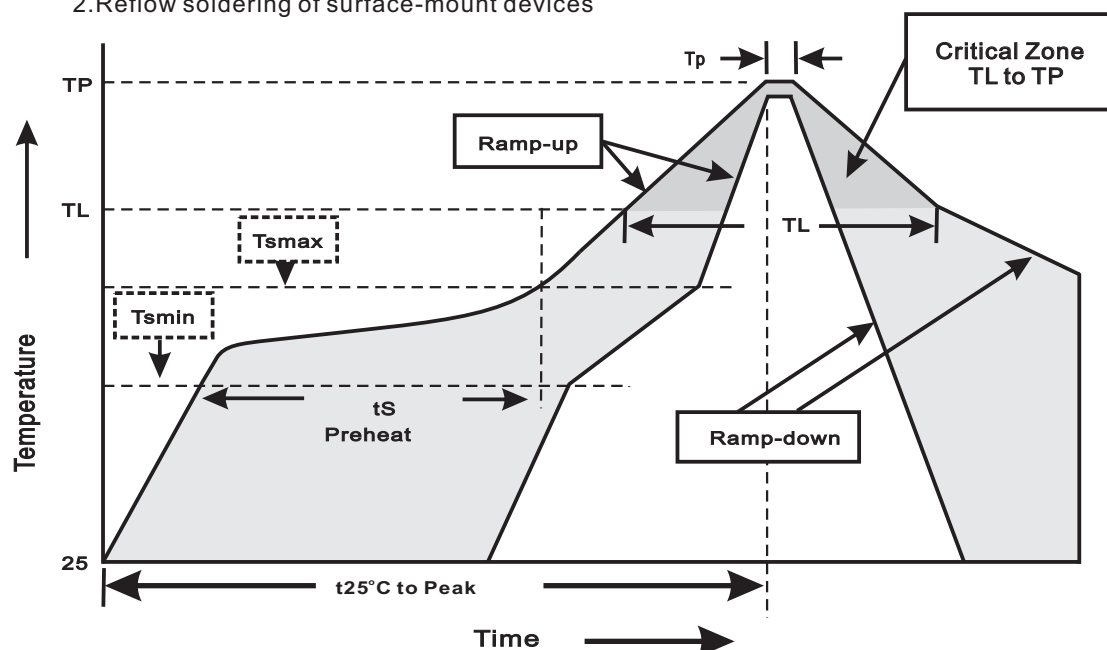
FM2020-T7B THRU FM20200-T7B

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	335*335*38	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(T _{smin}) -Temperature Max(T _{smax}) -Time(min to max)(t _s)	150°C 200°C 60~120sec
T _{smax} 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

FM2020-T7B THRU FM20200-T7B**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 $T_J = 150^{\circ}\text{C}$ 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 $+125^{\circ}\text{C}$ 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 175°C for 1000 hrs.	MIL-STD-750D METHOD-1031