

Formosa MS

FM1020-T7B-Q1 Thru FM10H200-T7B-Q1

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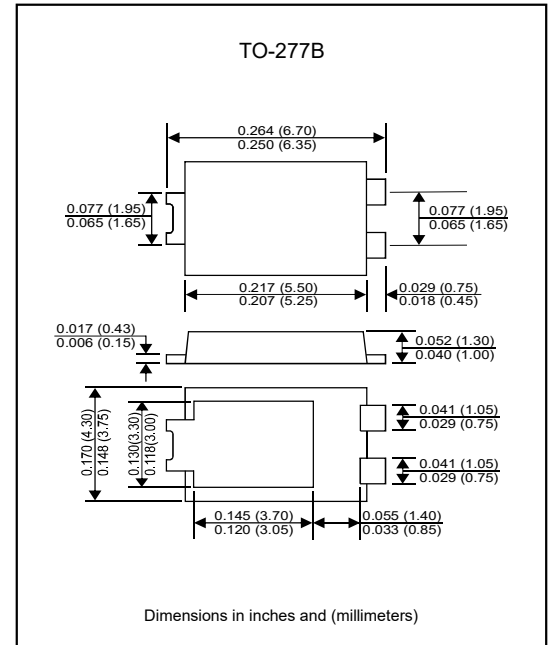
**10.0A Surface Mounted Schottky
Barrier Rectifiers : 20V ~ 200V**

Features

- For surface mounted applications.
- Built-in strain relief, ideal for automated placement.
- Low reverse leakage.
- High forward surge current capability.
- Qualified to AEC-Q101 standards for high reliability.
- Lead free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen free parts, ex. FM1020-T7B-Q1-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 smbl marking on body.
- Mounting Position : Any.

Package outline**Maximum ratings and electrical characteristics** (At TA=25°C, unless otherwise noted.)

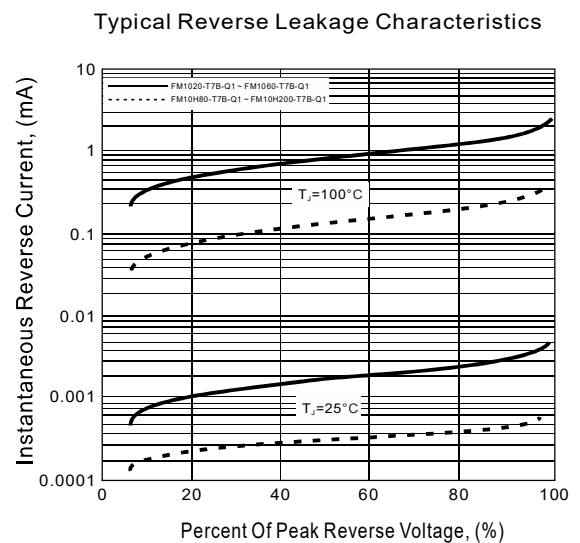
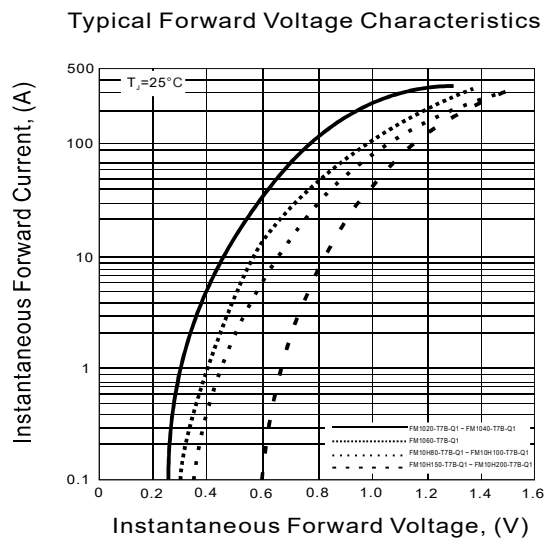
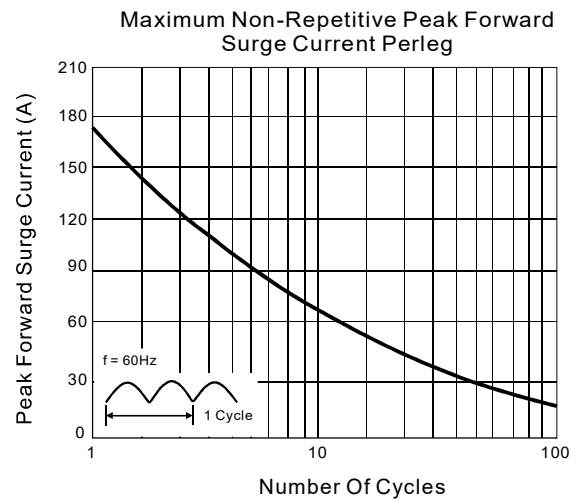
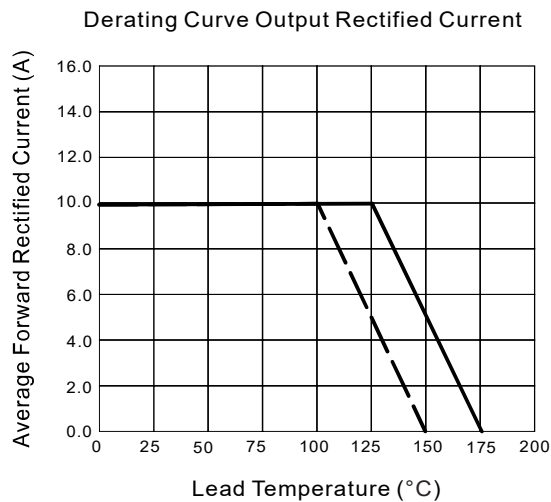
Parameter	Symbol	FM1020 -T7B-Q1	FM1040 -T7B-Q1	FM1060 -T7B-Q1	FM10H80 -T7B-Q1	FM10H100 -T7B-Q1	FM10H150 -T7B-Q1	FM10H200 -T7B-Q1	Unit
Maximum repetitive peak reverse voltage	V _{RRM}	20	40	60	80	100	150	200	V
Maximum RMS voltage	V _{RMS}	14	28	42	56	70	105	140	V
Maximum DC blocking voltage	V _{DC}	20	40	60	80	100	150	200	V
Maximum average forward rectified current at T _L =100°C	I _(AV)	10							A
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I _{FSM}	175							A
Maximum instantaneous forward voltage per diode at 10A	V _F	0.55		0.70	0.85		0.95		V
Maximum DC reverse current (T _A =25°C)	I _R	0.5			0.05				mA
at rated DC blocking voltage (T _A =100°C)		50			10				
Typical thermal resistance	R _{θJA}	60.0							°C/W
Operating junction temperature	T _J	+150			+175				°C
Storage temperature range	T _{STG}	-55 to +150							°C

Note : 1.Single phase half-wave 60Hz,resistive or inductive load, for capacitive load current derate by 20%.

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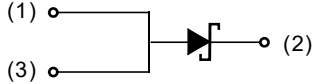
Rating and characteristic curves



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Pinning information

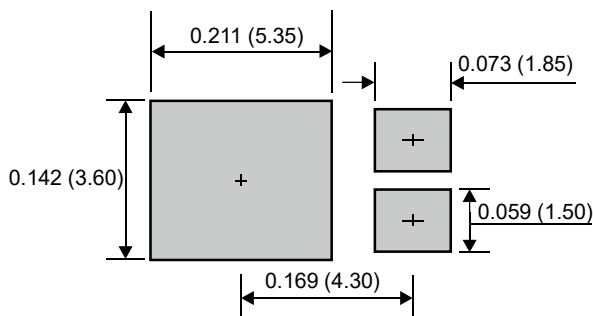
Pin	Simplified outline	Symbol
PIN 1 Anode PIN 3 Anode PIN 2 Cathode		

Marking

Type Number	Marking Code
FM1020-T7B-Q1	SS102V
FM1040-T7B-Q1	SS104V
FM1060-T7B-Q1	SS106V
FM10H80-T7B-Q1	SS108V
FM10H100-T7B-Q1	SS1010V
FM10H150-T7B-Q1	SS1015V
FM10H200-T7B-Q1	SS1020V

Suggested solder pad layout

TO-277B

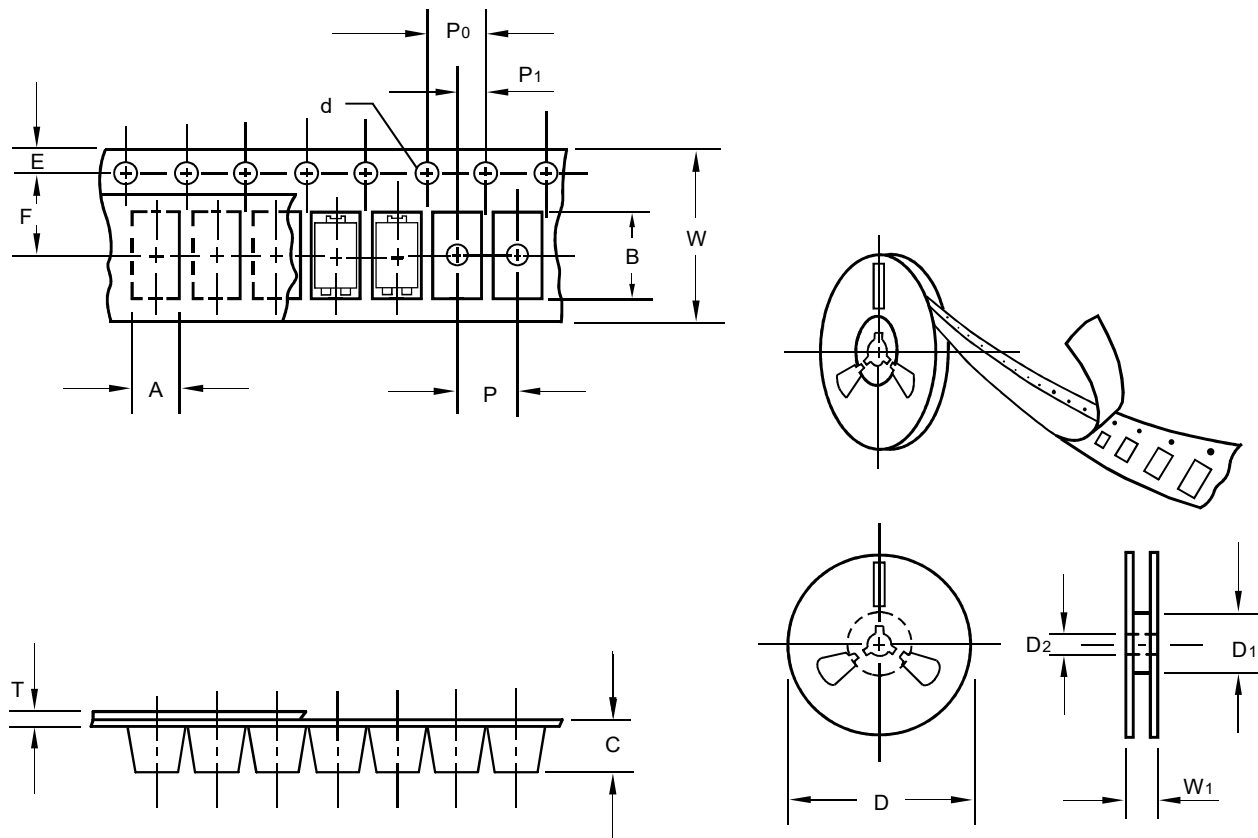


Dimensions in inches and (millimeters)

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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	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 accordance with EIA standard RS-481-A and specifications listed above.

Reel packing

Suggested thermal profiles for soldering processes

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Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	$<3^{\circ}\text{C}/\text{sec}$
Preheat -Temperature Min(T_{min}) -Temperature Max(T_{max}) -Time(min to max)(t_s)	150°C 200°C $60\sim 120\text{sec}$
T_{max} to T_L -Ramp-upRate	$<3^{\circ}\text{C}/\text{sec}$
Time maintained above: -Temperature(T_L) -Time(t_L)	217°C $60\sim 260\text{sec}$
Peak Temperature(T_P)	$255^{\circ}\text{C}-0/+5^{\circ}\text{C}$
Time within 5°C of actual Peak Temperature(t_P)	$10\sim 30\text{sec}$
Ramp-down Rate	$<3^{\circ}\text{C}/\text{sec}$
Time 25°C to Peak Temperature	$<6\text{minutes}$

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High reliability test capabilities

Item Test	Conditions	Reference
1. MSL Preconditioning	24hr bake@125°C+168hrs@85°C /85%RH+3xIR@260°C+1flux immersion+alcohol+DI H2O rinse	JESD22-A113
2. High Temperature Reverse Bias	$V_{BR}=V_{BR\ Nom}*80\%$ ($T_j=150^\circ\text{C}$) Test Duration:1000hrs	JESD22-A108
3. High Temperature Storage Life	$T_a=125^\circ\text{C}$ Test Duration: 1000hrs	JESD22 A-103
4. Temperature Cycle	-55°C (15min) to 150°C (15min) Test Cycles: 1000cycles	JESD22 A-104
5. Autoclave	$P=2\text{atm}$ $T_a=121^\circ\text{C}$ $RH=100\%$ Test Duration:96hrs	JESD22 A-102
6. Solderability	$245\pm5^\circ\text{C}$ for 5sec	J-STD-002
7. Moisture Resistance	$T_a=85^\circ\text{C}/85\%$ Relative humidity Test Duration:1000hrs	MIL-STD-750E METHOD 1021.2
8. Resistance To Solder Heat	$260\pm5^\circ\text{C}$ for 10sec	JESD22 B-106
9. High Temperature High Humidity Reverse Bias	$T_a=85^\circ\text{C}$, 85%RH, with device reverse biased at 80% of rated breakdown voltage up to a maximum of 100V or limit of chamber Test Duration:1000hrs	JESD22-A101