

FM551V-FL-Q1

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FM551V-FL-Q1

500mA Surface Mount Small Signal Schottky Diode-30V

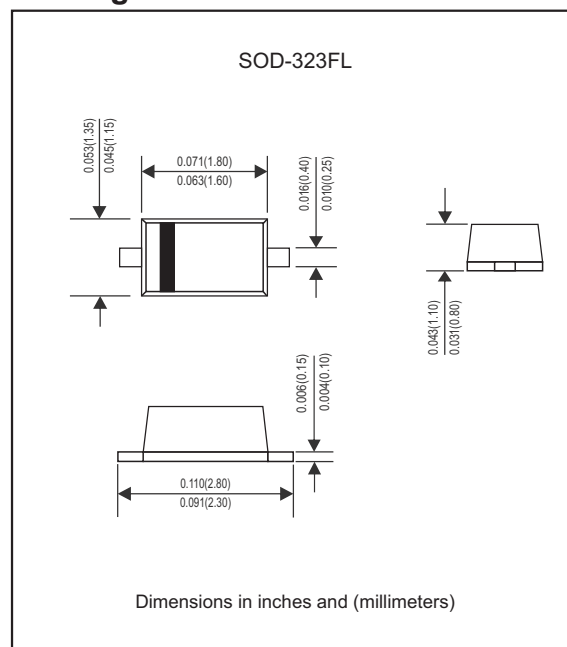
Features

- Small surface mounting type
- Ultra low VF
- High reliability
- Lead-free parts meet RoHS requirements
- Qualified to AEC-Q101 standards for high reliability
- Suffix "-H" indicates Halogen free parts, ex. FM551V-FL-Q1-H

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-323FL
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any
- Weight : Approximated 0.005 gram

Package Outline



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

Parameter	Symbol	Value	Unit
Peak reverse voltage	V_{RM}	30	V
DC reverse voltage	V_R	20	V
Mean rectifying current	I_O	500	mA
Peak forward surge current (60Hz for 1cycle)	I_{FSM}	2	A
Maximum operating junction temperature	T_J	+125	$^\circ\text{C}$
Storage temperature range	T_{STG}	-40 to +125	$^\circ\text{C}$

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

Parameter	Conditions	Symbol	Max.	Unit
Forward voltage	$I_F = 100\text{ mA}$ $I_F = 500\text{ mA}$	V_F	0.36 0.47	V
Reverse leakage current	$V_R = 20\text{ V}$	I_R	100	μA

Rating and characteristic curves (FM551V-FL-Q1)

FIG.1 POWER DERATING CURVE

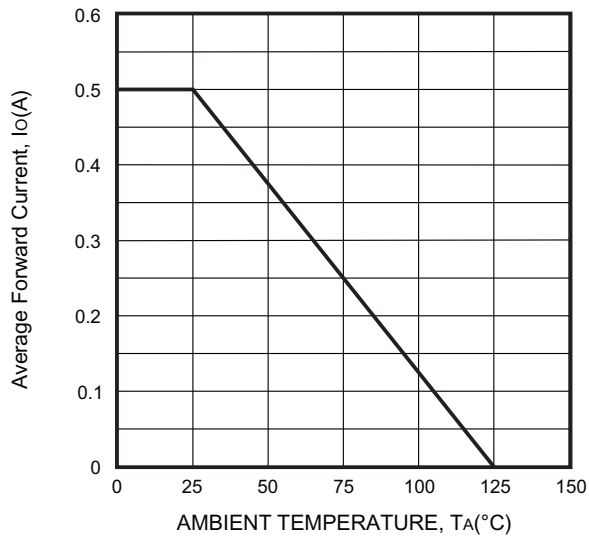


FIG.2 TYPICAL FORWARD CHARACTERISTICS

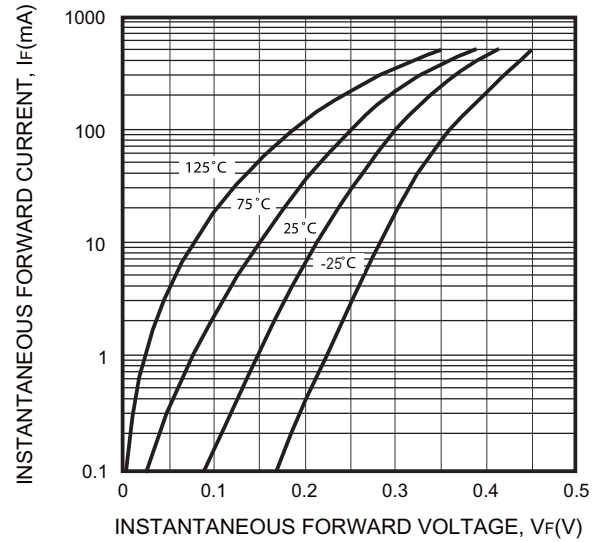


FIG.3 TYPICAL REVERSE CHARACTERISTICS

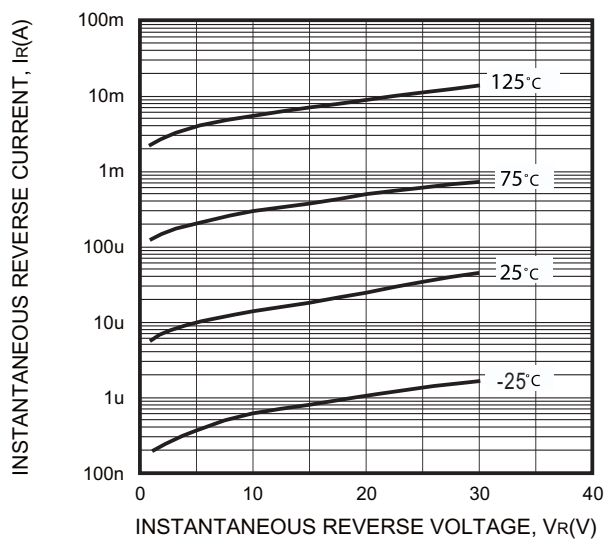
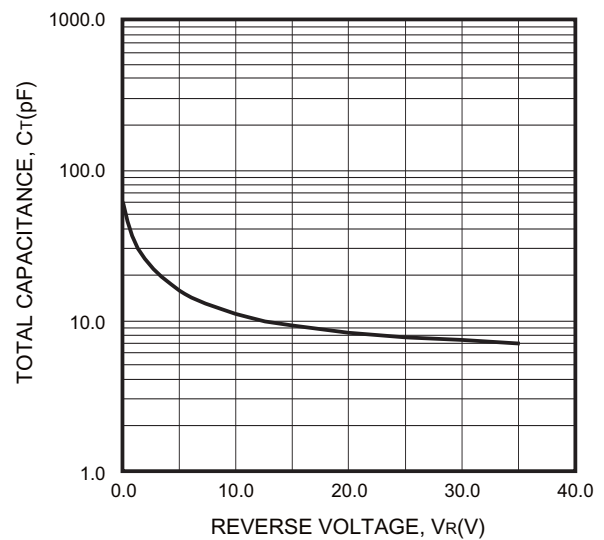


FIG.4 TYPICAL TOTAL CAPACITANCE VS. REVERSE VOLTAGE

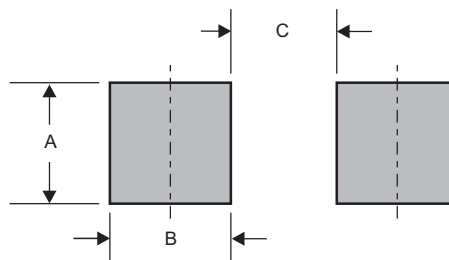


FM551V-FL-Q1**Pinning information**

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code
FM551V-FL-Q1	D

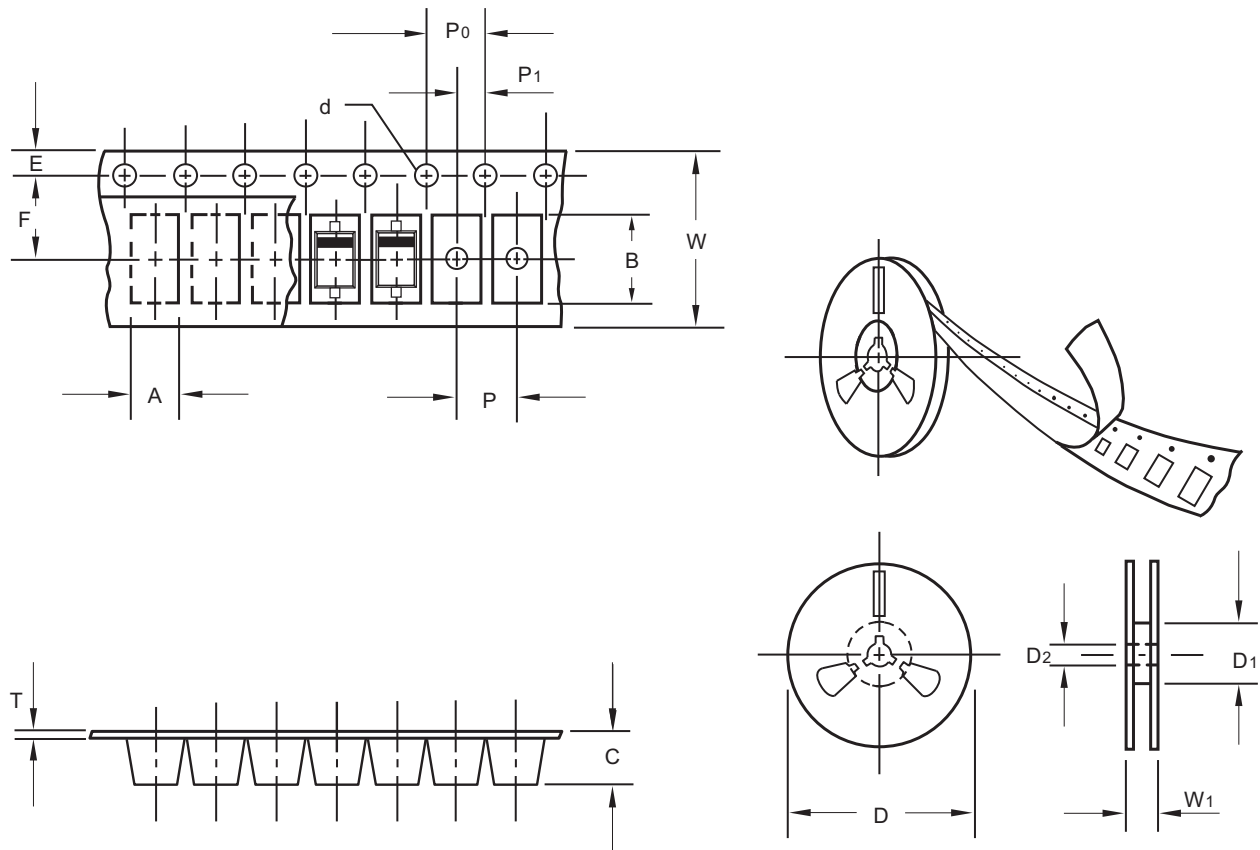
Suggested solder pad layout

Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-323FL	0.033 (0.83)	0.027 (0.70)	0.057 (1.45)

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Packing information



unit:mm

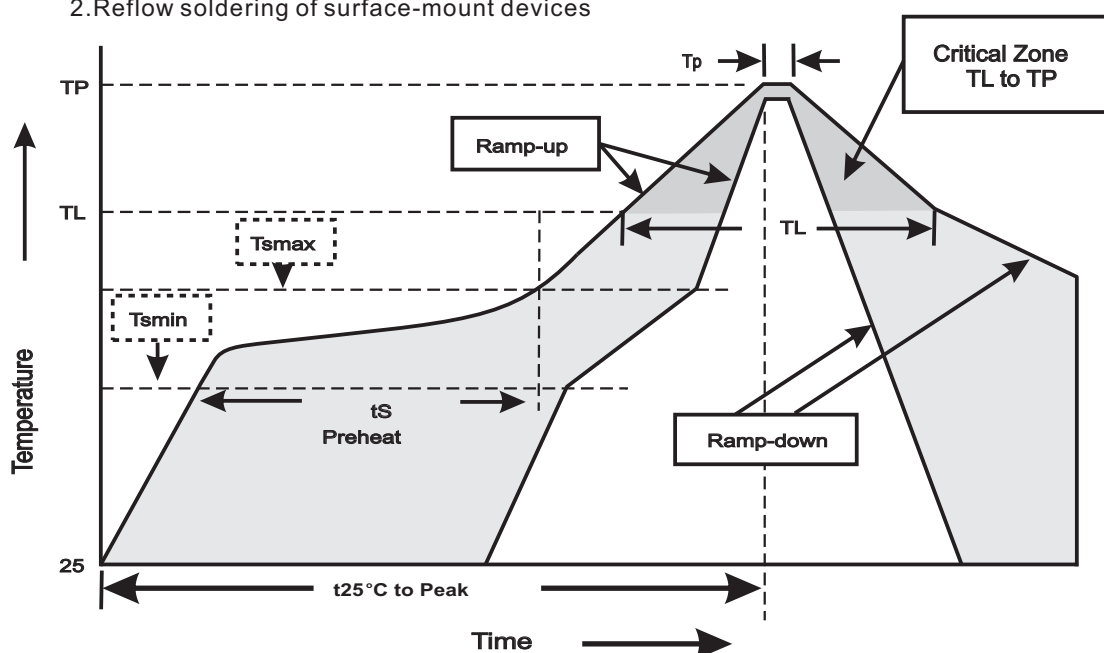
Item	Symbol	Tolerance	SOD-323FL
Carrier width	A	0.1	1.45
Carrier length	B	0.1	2.75
Carrier depth	C	0.1	0.97
Sprocket hole	d	0.1	1.55
13" Reel outside diameter	D	2.0	-
13" Reel inner diameter	D1	min	-
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	min	62.00
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Carrier thickness	T	0.02	0.21
Tape width	W	0.1	8.00
Reel width	W1	1.0	11.40

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

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)
SOD-323FL	7"	3,000	4.0	30,000	183*183*123	178	382*257*387	240,000	8.0

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



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	$<6^{\circ}\text{C}/\text{sec}$
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	$V_{BR}=V_{BR\ NOM}*80\%$ ($T_j=150^{\circ}C$) Test Duration:1000hrs	JESD22-A108
3. High Temperature Storage Life	$T_a=125^{\circ}C$ Test Duration: 1000hrs	JESD22 A-103
4. Temperature Cycle	$-55^{\circ}C$ (15min) to $150^{\circ}C$ (15min) Test Cycles: 1000cycles	JESD22 A-104
5. Autoclave	$P=2atm$ $T_a=121^{\circ}C$ RH=100% Test Duration:96hrs	JESD22 A-102
6. Solderability	$245\pm5^{\circ}C$ for 5sec	J-STD-002
7. Moisture Resistance	$T_a=85^{\circ}C$ /85% Relative humidity Test Duration:1000hrs	MIL-STD-750E METHOD 1021.2
8. Resistance To Solder Heat	$260\pm5^{\circ}C$ for 10sec	JESD22 B-106
9. High Temperature High Humidity Reverse Bias	$T_a=85^{\circ}C$, 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