

FM140-NFLT

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FM140-NFLT

1.0A Surface Mount Schottky Barrier Diode 40V

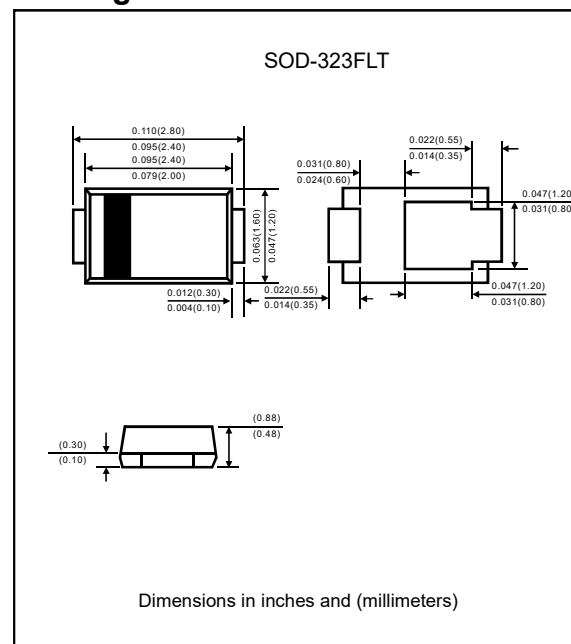
Features

- Low reverse current.
- Low forward voltage.
- High reliability.
- Lead-free parts meet RoHS requirements
- Suffix "-H" indicates Halogen-free parts, ex. FM140-NFLT-H

Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-323FLT
- 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 repetitive reverse voltage	V_{RRM}	40	V
RMS Reverse voltage	V_{RMS}	28	V
Forward current	$I_{F(AV)}$	1	A
Peak forward surge current (8.3ms Single half sine-wave)	I_{FSM}	15	A
Power dissipation	P_D	500	mW
Thermal resistance from junction ambient (Note 1)	$R_{\theta JA}$	250	$^\circ\text{C/W}$
Junction temperature	T_J	150	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$

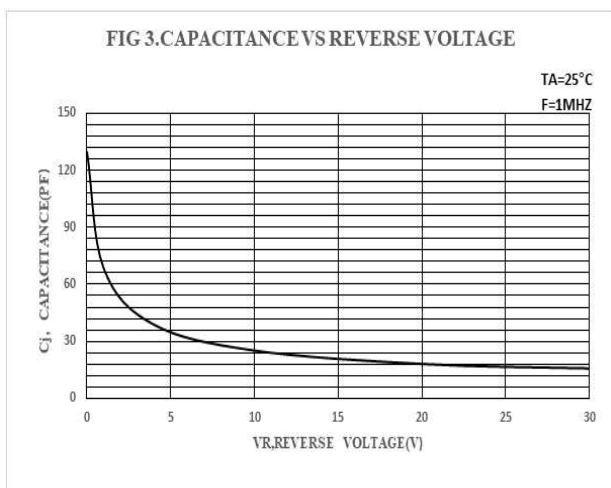
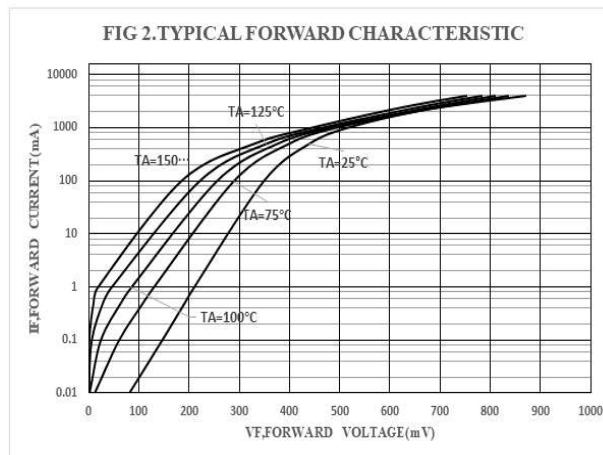
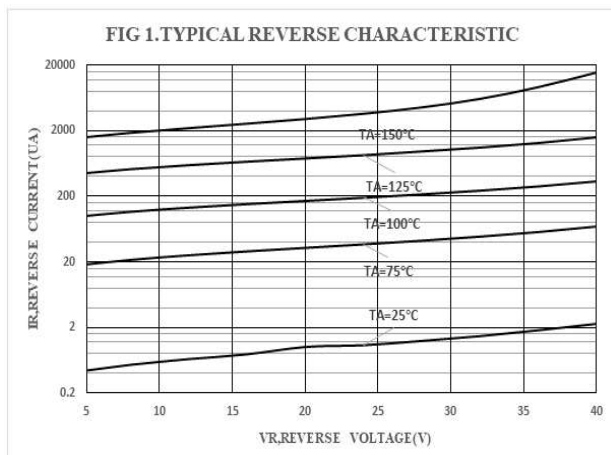
Electrical characteristics (at $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Forward voltage	$I_F=100\text{mA}$	V_F			0.40	V
	$I_F=1\text{A}$				0.56	
	$I_F=3\text{A}$				0.85	
Reverse leakage current	$V_R=20\text{V}$	I_R			150	μA
	$V_R=40\text{V}$				500	
Junction capacitance	$V_R=4\text{V}$, $f=1\text{MHz}$	C_T		39	50	pF

Note 1 : The data tested by surface mounted on FR-4 board with recommended pad layout.

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Rating and characteristic curves



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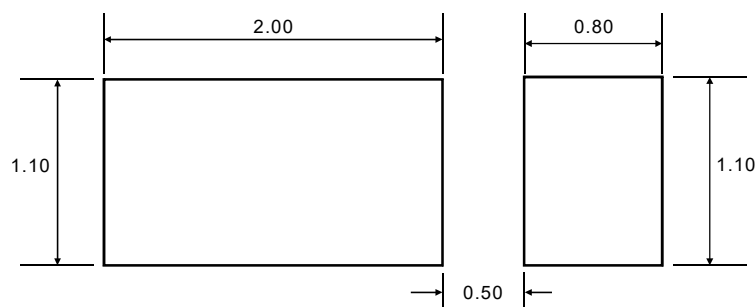
Pinning information

Pin	Simplified outline	Symbol
Pin1 Cathode Pin2 Anode		

Marking



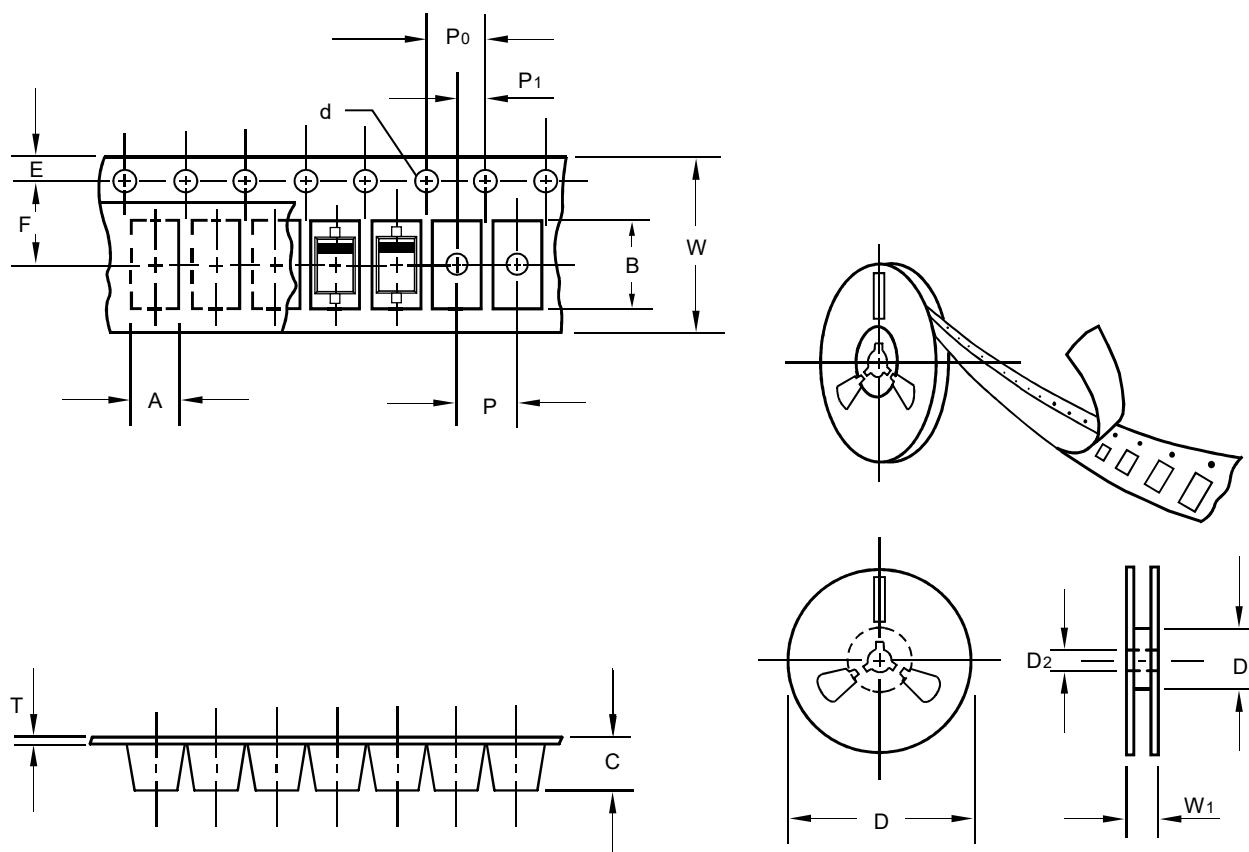
Suggested solder pad layout



Dimensions in millimeters

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Packing information



unit:mm

Item	Symbol	Tolerance	SOD-323FLT
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.

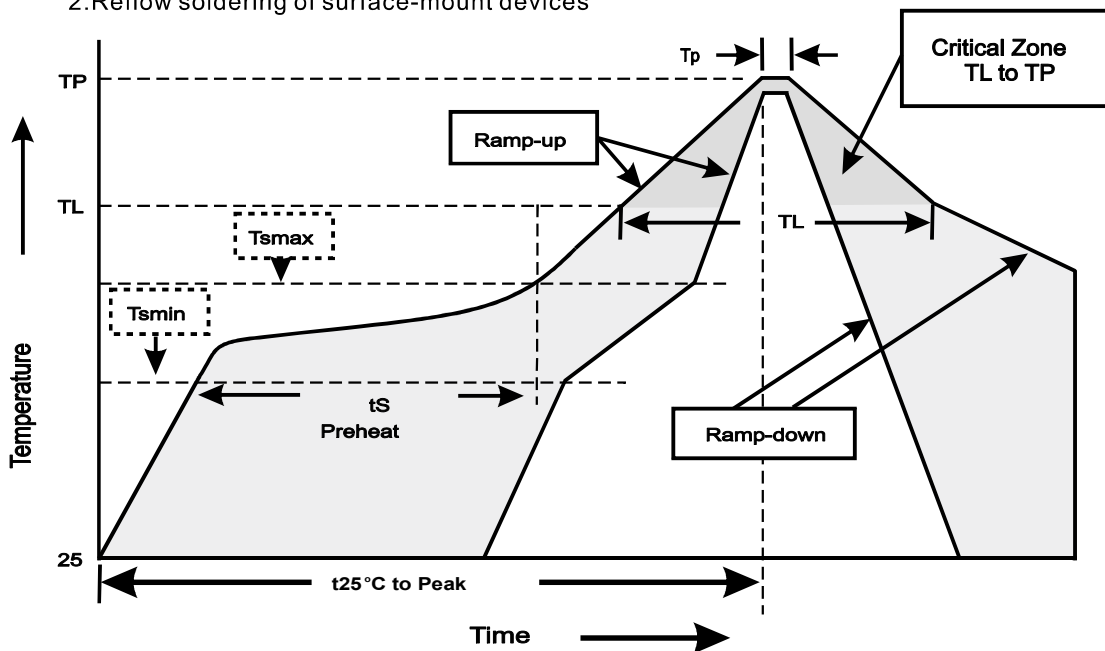
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Reel packing

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

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	<6°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 $260 \pm 5^\circ\text{C}$ 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	Peak Forward Surge Current at 60Hz for 1cycle	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