

FM160-NFLT

List

List.....	1
Package outline.....	2
Features.....	2
Mechanical data.....	2
Maximum ratings	2
Electrical characteristics.....	2
Rating and characteristic curves.....	3
Pinning information.....	4
Marking.....	4
Suggested solder pad layout.....	4
Package Information.....	5
Reel packing.....	6
Suggested thermal profiles for soldering processes.....	6
High reliability test capabilities.....	7

FM160-NFLT

1.0A 60V Schottky Barrier Rectifier

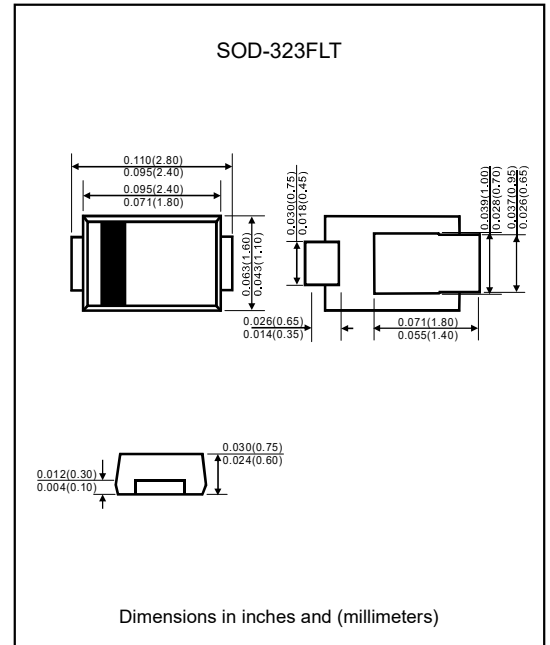
Features

- Low forward voltage drop.
- High forward surge current capability.
- Metal silicon junction, majority carrier conduction.
- High temperature soldering guaranteed: 260°C@10s.
- Lead-free parts meet RoHS requirements.
- Suffix "-H" indicates Halogen-free parts, ex. FM160-NFLT-H.

Mechanical data

- Epoxy:UL94-V0 rated flame retardant.
- Case : Molded plastic, SOD-323FLT.
- Terminals : Matte tin plated leads, solderable per J-STD-002, and JESD22-B102.
- Polarity : Indicated by cathode band.
- Mounting Position : Any.

Package Outline



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

Parameter	Symbol	Value	Unit
Peak repetitive reverse voltage	V_{RRM}	60	V
RMS Reverse voltage	V_{RMS}	42	V
DC Blocking voltage	V_{DC}	60	V
Forward current	$I_{F(AV)}$	1	A
Peak forward surge current, 8.3ms single half sine wave	I_{FSM}	25	A
Junction temperature	T_J	+125	$^\circ\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^\circ\text{C}$
Thermal resistance from junction to ambient (Note 1)	$R_{\theta JA}$	88	$^\circ\text{C/W}$
Thermal resistance from junction to case (Note 1)	$R_{\theta JC}$	35	
Thermal resistance from junction to lead (Note 1)	$R_{\theta JL}$	22	

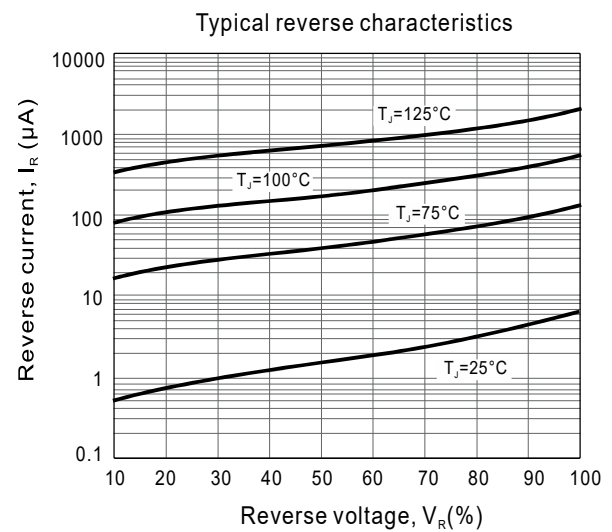
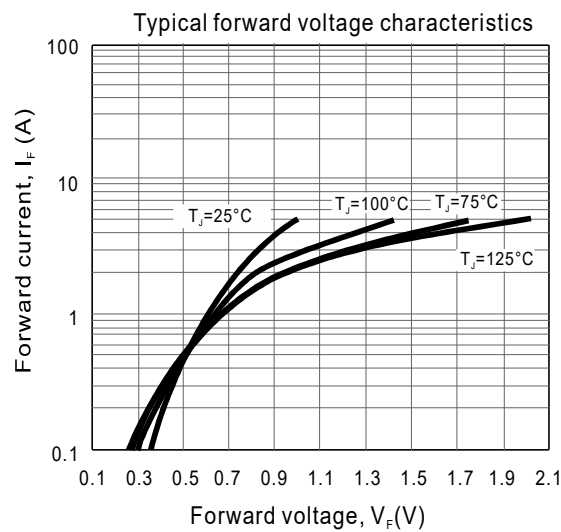
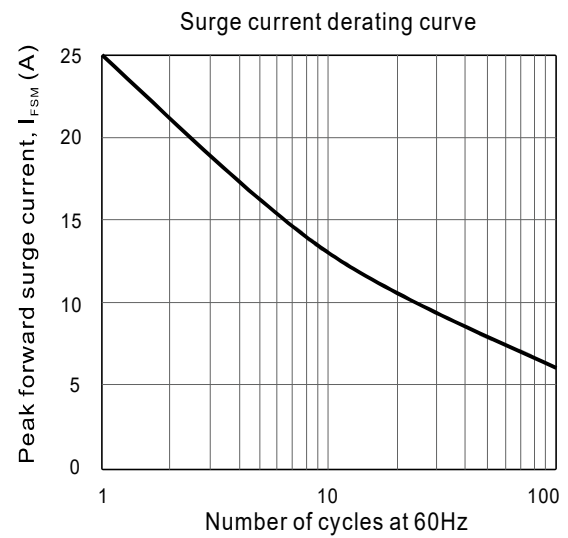
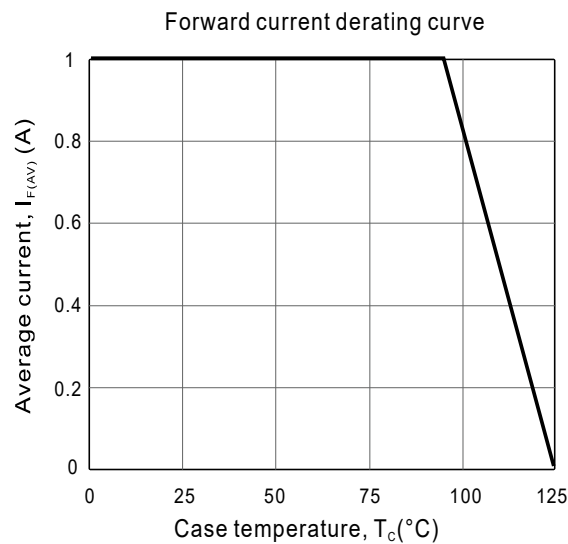
Electrical characteristics

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Forward voltage (Note 1)	$I_F=1\text{A}$, $T_A=25^\circ\text{C}$	V_F			0.7	V
Reverse leakage current (Note 2)	Rated V_R , $T_J=25^\circ\text{C}$	I_R			100	μA
	Rated V_R , $T_J=100^\circ\text{C}$				10	mA

Note : 1. Pulse test: 300 μs pulse width, 1% duty cycle.
2. Pulse test: pulse width 40ms.

FM160-NFLT

Rating and characteristic curves



FM160-NFLT

Pinning information

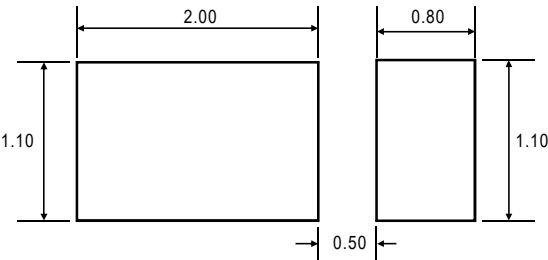
Pin	Simplified outline	Symbol
Pin1 Cathode Pin2 Anode		

Marking

Type number	Marking code
FM160-NFLT	16

Suggested solder pad layout

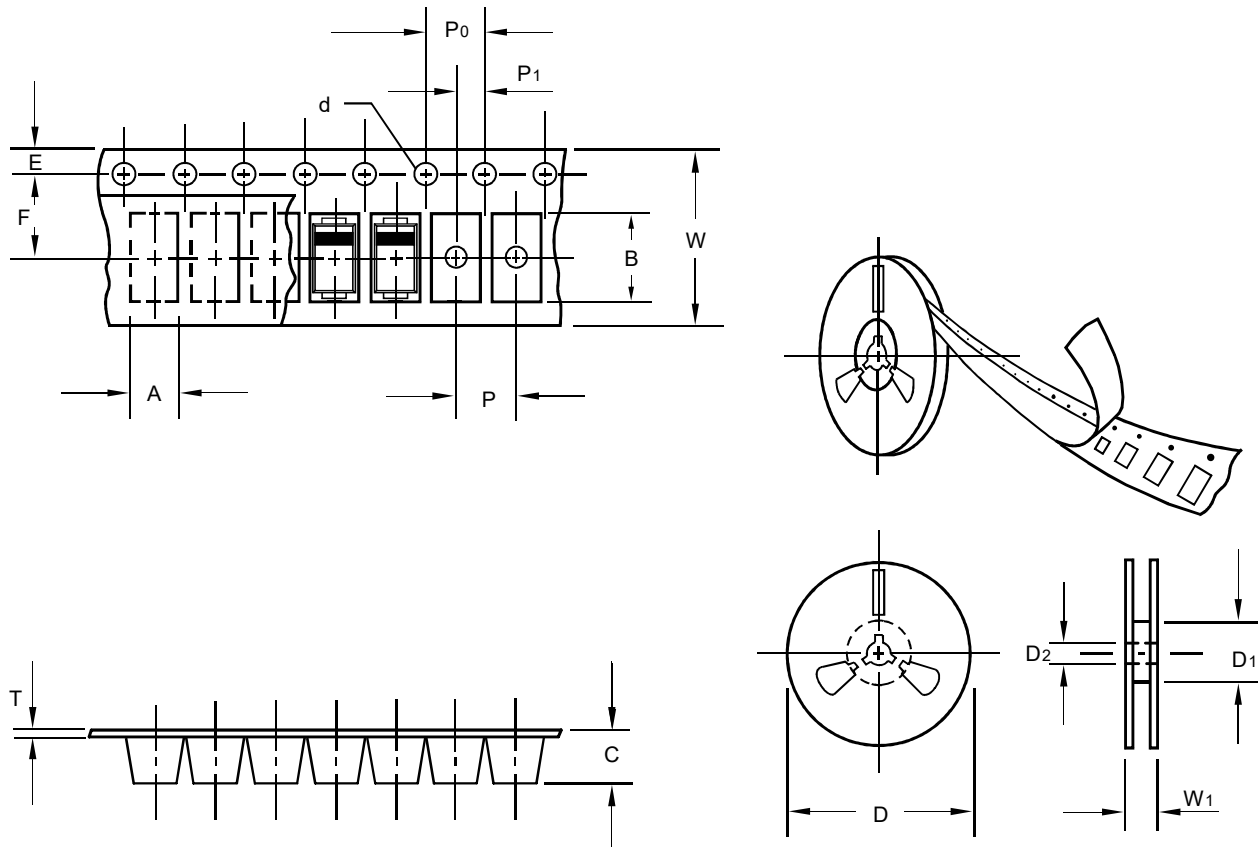
SOD-323FLT



Dimensions in millimeters

FM160-NFLT

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	D ₁	min	-
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	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P ₀	0.1	4.00
Embossment center	P ₁	0.1	2.00
Carrier thickness	T	0.02	0.21
Tape width	W	0.1	8.00
Reel width	W ₁	1.0	11.40

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

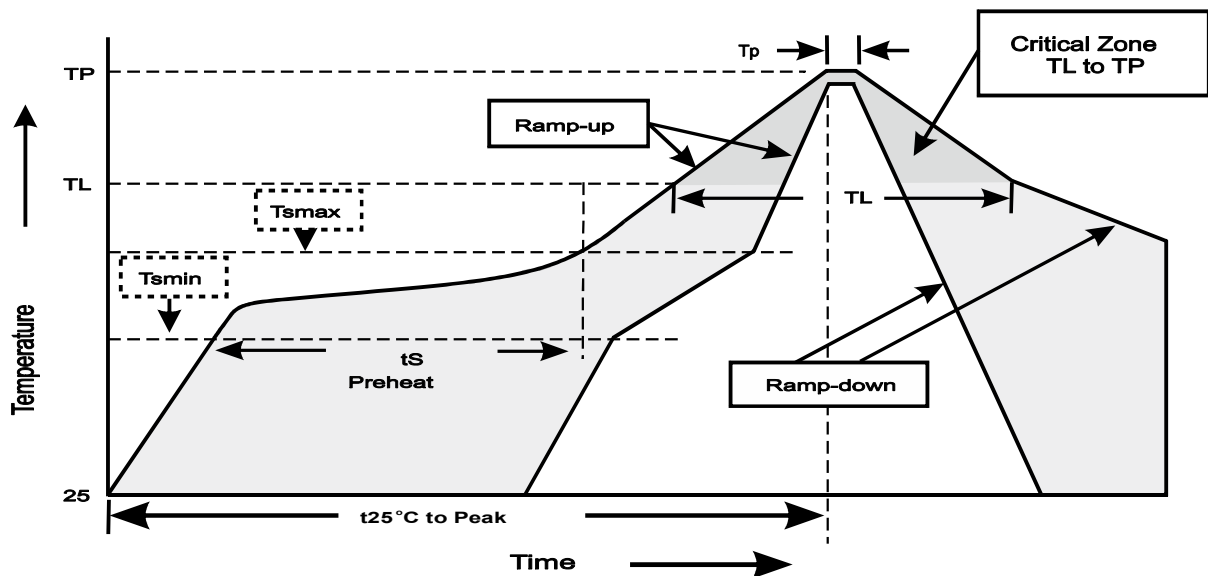
FM160-NFLT

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

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

FM160-NFLT

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