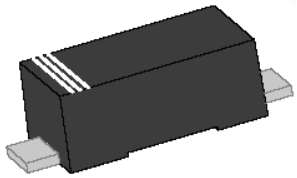
Pxxx1DM TSS

Rev.1.3

DESCRIPTION

Pxxx1DM devices are a type of semiconductor component.
They are designed for transient surge protection.



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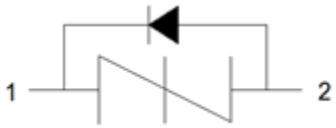


Symbol

FEATURES

- ✧ Excellent capability of absorbing transient surge.
- ✧ Quick response to surge voltage (ns Level).
- ✧ Eliminates overvoltage caused by fast rising transients.
- ✧ Moisture sensitivity level: Level 1.
- ✧ Fails short circuit when surged in excess of ratings.
- ✧ IEC61000-4-2 (ESD) ±30kV (air), ±30kV (contact).
- ✧ Non degenerative.

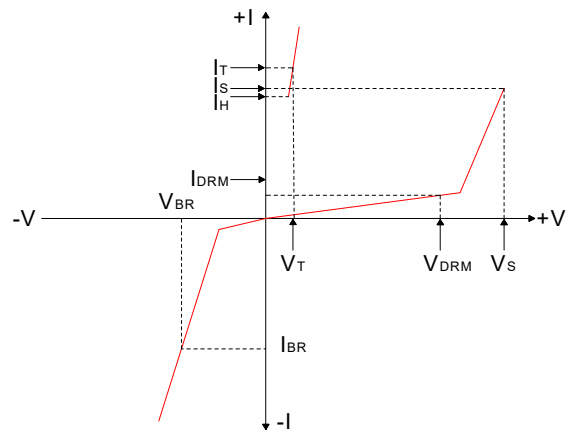
ABSOLUTE MAXIMUM RATINGS(T_A=25℃, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T_{STG}	-60 to +150	℃
Operating junction temperature range	T_J	-40 to +125	℃
Repetitive peak pulse current@10/1000μs	I_{PP}	50	A
Typical thermal resistance junction to ambient	$R_{\theta JA}$	220	℃/W

ELECTRICAL CHARACTERISTICS(T_A=25℃)

Symbol	Parameter
V_{DRM}	Peak off-state voltage
I_{DRM}	Off-state current
V_S	Switching voltage
I_S	Switching current
V_T	On-state voltage
I_T	On-state current
I_H	Holding current
C_O	Off-state capacitance
V_{BR}	Reverse breakdown voltage
I_{BR}	Reverse breakdown current

V-I Curve



MARKING

1DM130: Device Marking Code

ELECTRICAL CHARACTERISTICS(T_A=25℃，continued)

Part Number	I_{DRM}@V_{DRM} PIN2-1		V_S①@I_S PIN2-1		V_T@I_T PIN2-1		I_H PIN2-1	C_O② PIN2-1	V_{BR}@I_{BR} PIN1-2		Marking
	μA	V	V	mA	V	A	mA	pF	V	A	
	max		max	max	max	max	min	max	max	max	
P1301DM	1	120	160	800	5	1.0	120	35	5	1	1DM130
P1801DM	1	170	250	800	5	1.0	120	35	5	1	1DM180

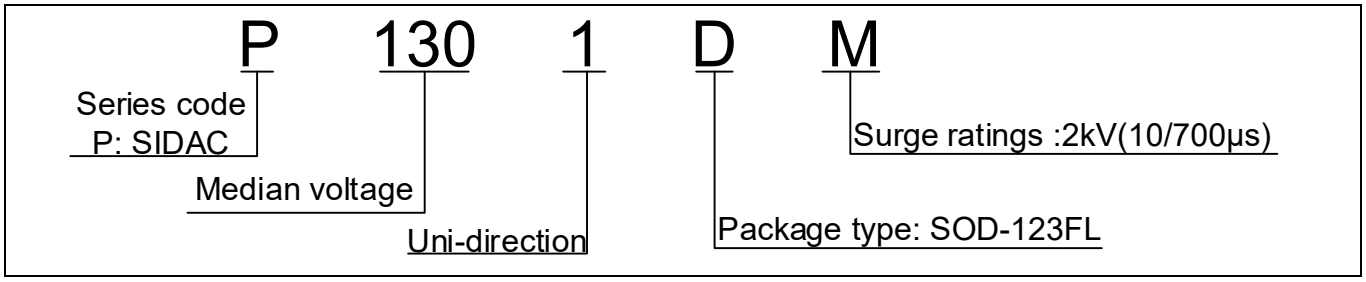
①V_S is measured at 100kV/s

②Off-state capacitance is measured in V_{DC}=2V, V_{RMS}=1V, f=1MHz

SURGE RATINGS

Series	I_{PP} (A) min (PIN2-1)			
	2/10μs	8/20μs	10/360μs	10/1000μs
M	150	150	75	50
Series	I_{PP} (A) min (PIN1-2)			
	2/10μs	8/20μs	10/360μs	10/1000μs
M	150	150	75	50

ORDERING INFORMATION



SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see FIG.2)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L)to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L) (Liquidus)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

FIG.1: tr × td pulse waveform

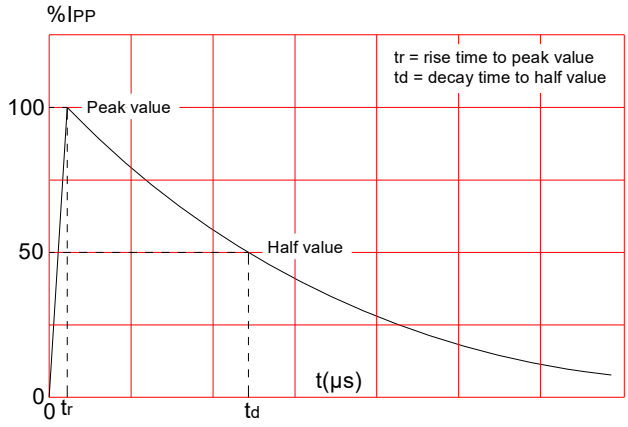


FIG.2: Reflow condition

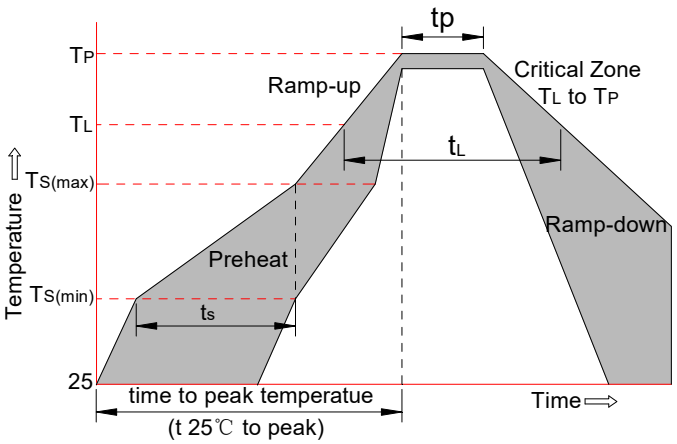


FIG.3: Normalized Vs change vs. junction temperature

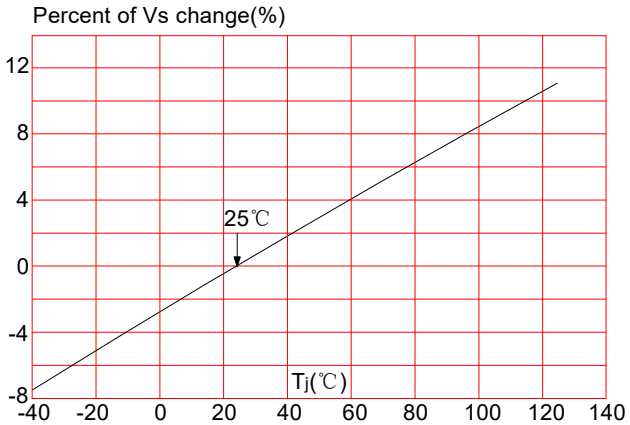
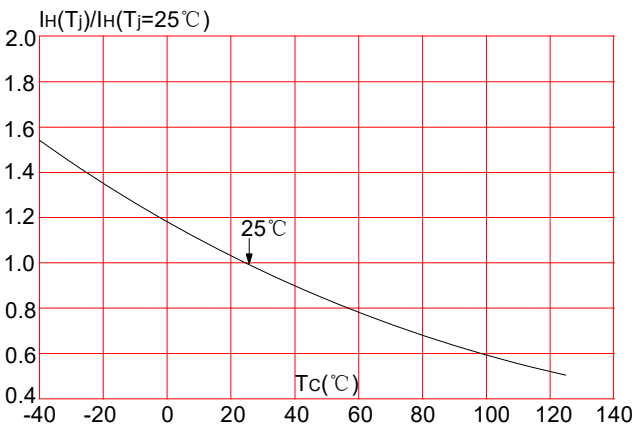
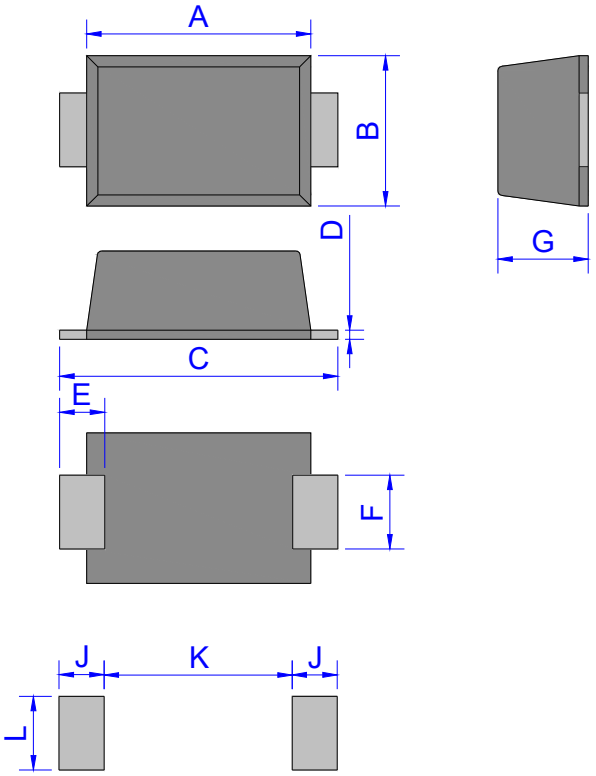


FIG.4: Normalized DC holding current vs. case temperature



PACKAGE MECHANICAL DATA



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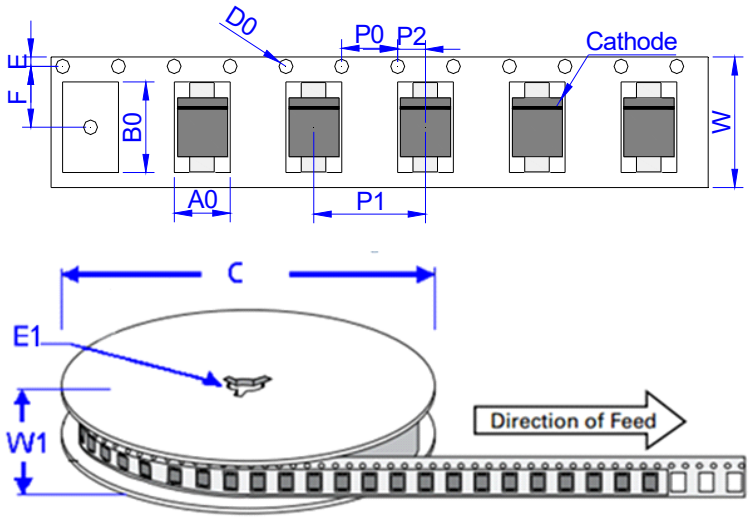
Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.60	3.00	0.102	0.118
B	1.60	2.00	0.063	0.079
C	3.45	3.95	0.136	0.156
D	0.10	0.25	0.004	0.01
E	0.3	0.9	0.012	0.035
F	0.80	1.20	0.031	0.047
G	0.95	1.35	0.037	0.053
J	1.30		0.051	
K		1.70		0.067
L	1.30		0.051	

TAPE AND REEL SPECIFICATION-SOD-123FL



Ref.	Dimensions	
	Millimeters	Inches
A0	1.95 ± 0.3	0.077± 0.012
B0	3.95 ± 0.3	0.156 ± 0.012
C	178	7.0
D0	1.55 ± 0.1	0.061 ± 0.004
E	1.75 ± 0.2	0.069 ± 0.008
E1	13.3 ± 0.3	0.524± 0.012
F	3.50 ± 0.2	0.138 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	4.00 ± 0.2	0.157 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
W	8.0± 0.2	0.315 ± 0.008
W1	11.5 ± 1.0	0.453 ± 0.039

PART No.	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
Pxxx1DM	0.0144	3,000	150,000	7 inch reel pack

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