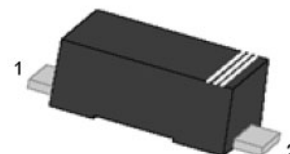


DESCRIPTION:

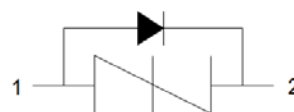
Pxxx1FAP thyristors are a type of semiconductor component. They are designed for transient surge protection.

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.
- ✧ UL 497B item recognized. (File No.: E480698).
- ✧ IEC61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact).
- ✧ Non degenerative.



SOD-123FL



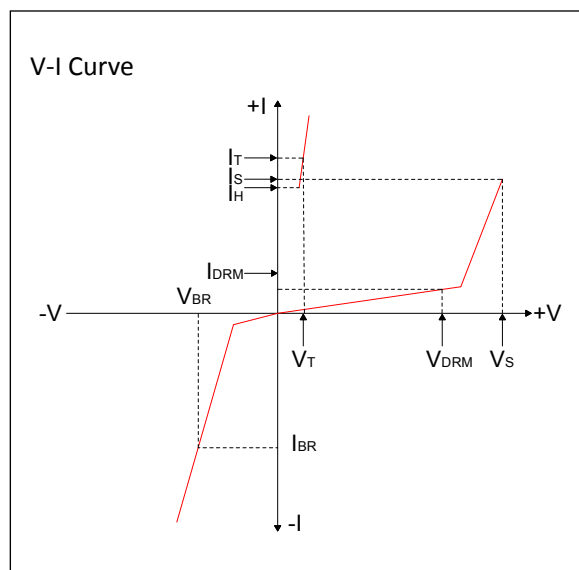
Symbol

ABSOLUTE MAXIMUM RATINGS($T_A=25^\circ\text{C}$, RH=45%-75%, unless otherwise noted)

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

ELECTRICAL CHARACTERISTICS($T_A=25^\circ\text{C}$)

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



MARKING



1A32 : Device Marking Code

ELECTRICAL CHARACTERISTICS($T_A=25^{\circ}\text{C}$, continued)

Part Number	$I_{\text{DRM}}@V_{\text{DRM}}$ PIN2-1		$I_{\text{DRM2}}^{\text{①}}@V_{\text{DRM}}$ PIN2-1		$V_s^{\text{②}}@I_s$ PIN2-1		$V_T@I_T$ PIN2-1		I_H PIN2-1	$C_o^{\text{③}}$ PIN2-1	$V_{\text{BR}}@I_{\text{BR}}$ PIN1-2		Marking
	μA	V	μA	V	V	mA	V	A	mA	pF	V	mA	
	max		max		max	max	max	max	max	max	max	max	
P0321FAP	1	28	50	28	40	200	1.8	2.2	30	80	18	1	1A32
P0401FAP	1	33	50	33	48	200	1.8	2.2	30	80	18	1	1A40
P0501FAP	1	53	50	53	60	200	1.8	2.2	30	80	18	1	1A50
P0641FAP	1	60	50	60	80	200	1.8	2.2	30	80	18	1	1A64
P0721FAP	1	75	80	75	88	200	1.8	2.2	50	80	18	1	1A72
P0901FAP	1	85	80	85	100	200	1.8	2.2	50	80	18	1	1A90
P1101FAP	1	95	80	95	115	200	1.8	2.2	50	80	18	1	1A110
P1301FAP	1	120	80	120	140	200	1.8	2.2	50	80	18	1	1A130
P1801FAP	1	175	80	175	210	200	1.8	2.2	50	80	18	1	1A180
P2501FAP	1	220	80	220	250	200	1.8	2.2	50	80	18	1	1A250

① I_{DRM2} is measured at $T_A=150^{\circ}\text{C}$

② V_s is measured at 100kV/s

③ Off-state capacitance is measured in $V_{\text{DC}}=2\text{V}$, $V_{\text{RMS}}=1\text{V}$, $f=1\text{MHz}$

SURGE RATINGS

Series	$I_{\text{PP}}(\text{A})_{\text{min}}$			
	2/10 μs	8/20 μs	10/360 μs	10/1000 μs
A	150	150	70	50

ORDERING INFORMATION

P	032	1	F	A	P
Series code P: SIDAC	Median voltage	Uni-direction	Package type:SOD-123FL	Surge ratings	For customer

SOLDERING PARAMETERS

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

FIG.1: $t_r \times t_d$ pulse waveform

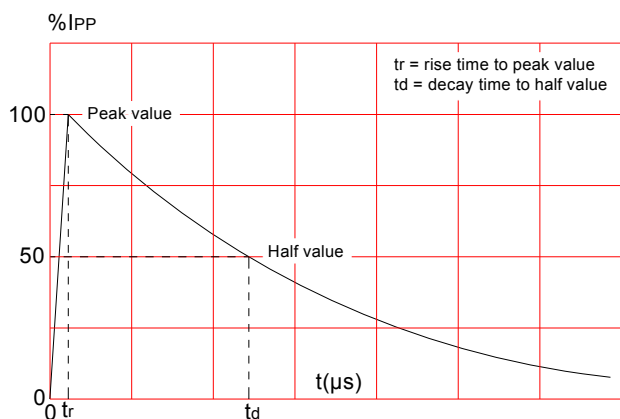


FIG.2: Reflow condition

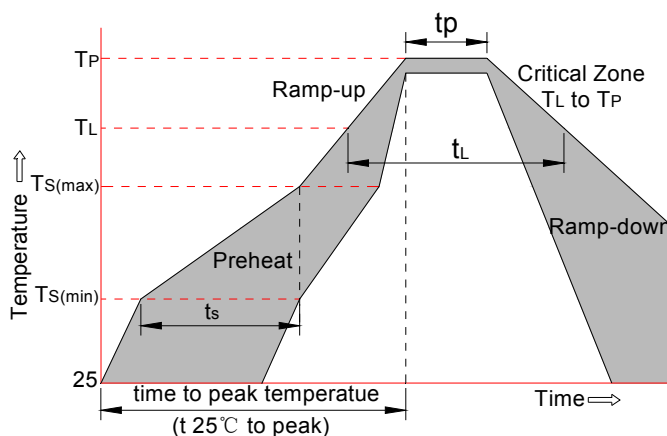


FIG.3: Normalized V_s change vs. junction temperature

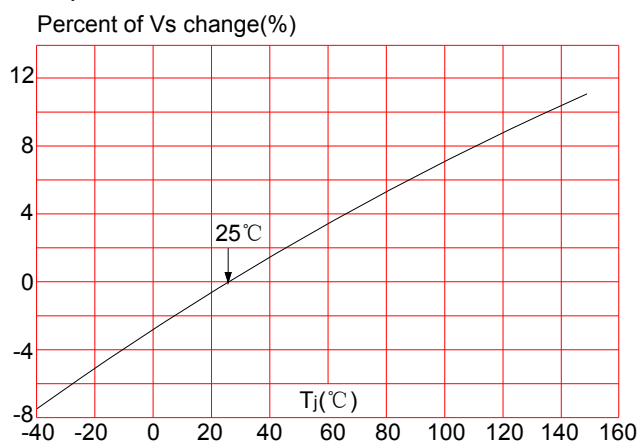
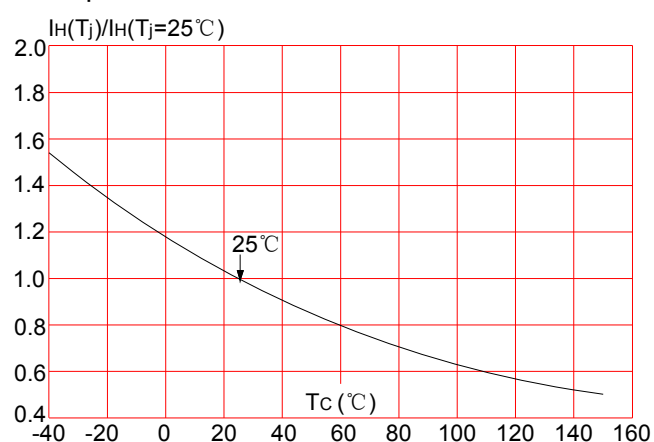
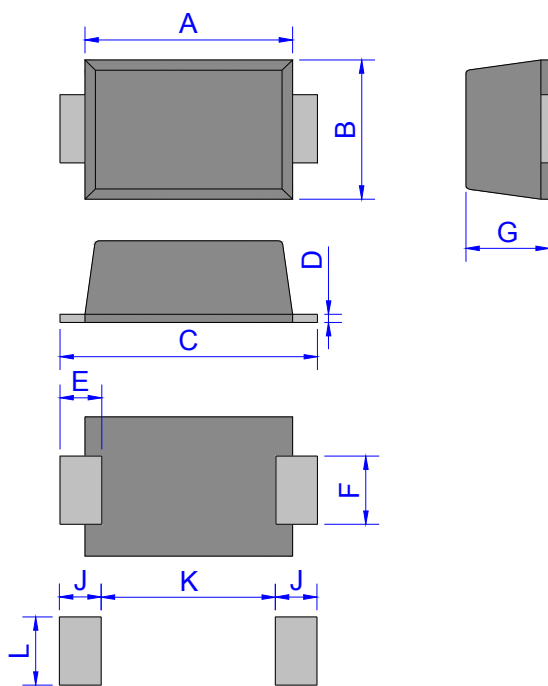


FIG.4: Normalized DC holding current vs. case temperature



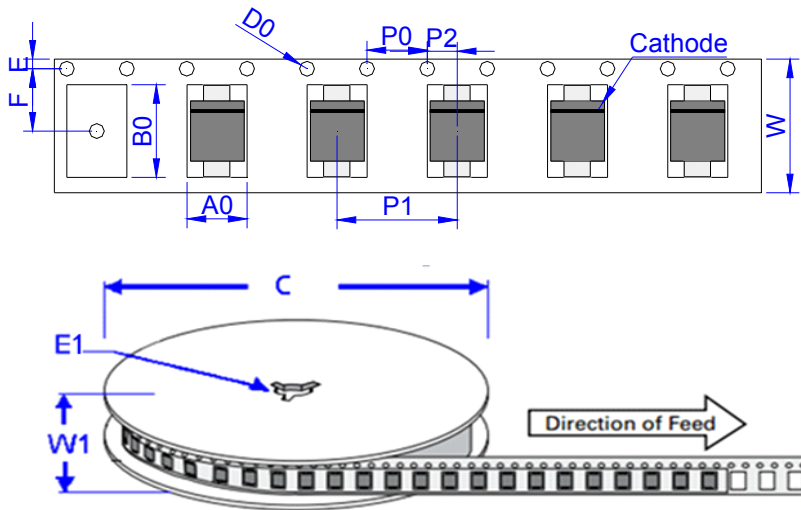
PACKAGE MECHANICAL DATA



SOD-123FL

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	0.70	1.00	0.028	0.039
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
Pxxx1FAP	0.0144	3000	150,000	7 inch reel pack