

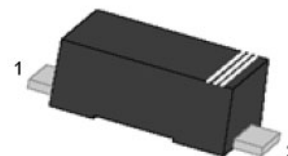


## Pxxx1FAP TSS

Rev.1.2

### DESCRIPTION:

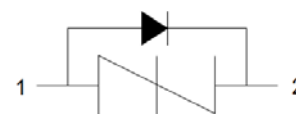
Pxxx1FAP thyristors are a type of semiconductor component. They are designed for transient surge protection.



SOD-123FL

### 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) ±30kV (air), ±30kV (contact).
- ✧ Non degenerative.



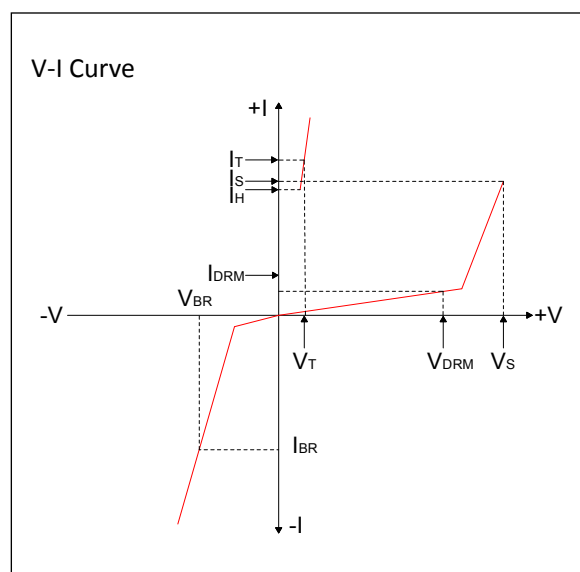
Symbol

### ABSOLUTE MAXIMUM RATINGS(T<sub>A</sub>=25°C, RH=45%-75%, unless otherwise noted)

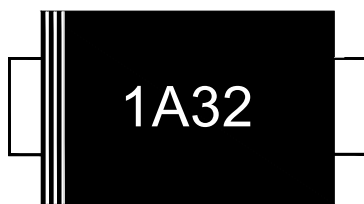
Parameter	Symbol	Value	Unit
Storage temperature range	T <sub>STG</sub>	-60 to +150	°C
Operating junction temperature range	T <sub>J</sub>	-40 to +150	°C
Repetitive peak pulse current@10/1000µs	I <sub>PP</sub>	50	A
Typical thermal resistance junction to ambient	R <sub>θJA</sub>	220	°C/W

### ELECTRICAL CHARACTERISTICS(T<sub>A</sub>=25°C)

Symbol	Parameter
V <sub>DRM</sub>	Peak off-state voltage
I <sub>DRM</sub>	Off-state current
V <sub>S</sub>	Switching voltage
I <sub>S</sub>	Switching current
V <sub>T</sub>	On-state voltage
I <sub>T</sub>	On-state current
I <sub>H</sub>	Holding current
C <sub>O</sub>	Off-state capacitance
V <sub>BR</sub>	Reverse breakdown voltage
I <sub>BR</sub>	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
	$\mu\text{A}$	V	$\mu\text{A}$	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  $I_{\text{DRM2}}$  is measured at  $T_A=150^{\circ}\text{C}$ ②  $V_s$  is measured at 100kV/s③ 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 $\mu\text{s}$	8/20 $\mu\text{s}$	10/360 $\mu\text{s}$	10/1000 $\mu\text{s}$
A	150	150	70	50

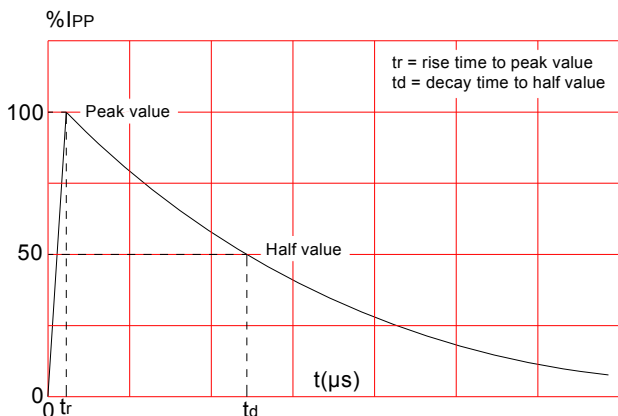
**ORDERING INFORMATION**

<p><b>P</b></p> <p>Series code P: SIDAC</p>	<p><b>032</b></p> <p>Median voltage</p>	<p><b>1</b></p> <p>Uni-direction</p>	<p><b>F</b></p> <p>Package type: SOD-123FL</p>	<p><b>A</b></p> <p>Surge ratings</p>	<p><b>P</b></p> <p>For customer</p>
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**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) (ts)	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: tr × td pulse waveform**



**FIG.2: Reflow condition**

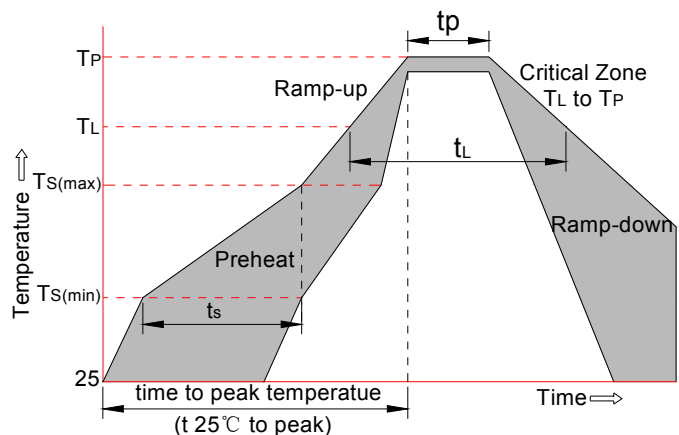


FIG.3: Normalized Vs change vs. junction temperature

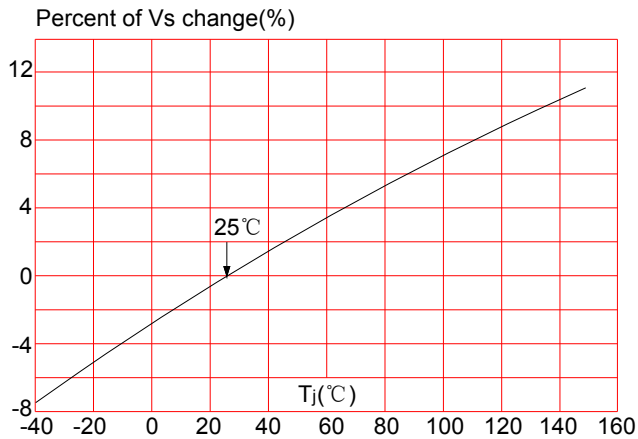
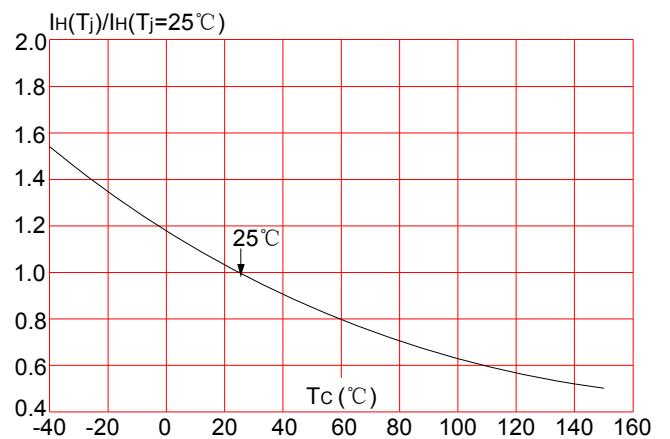
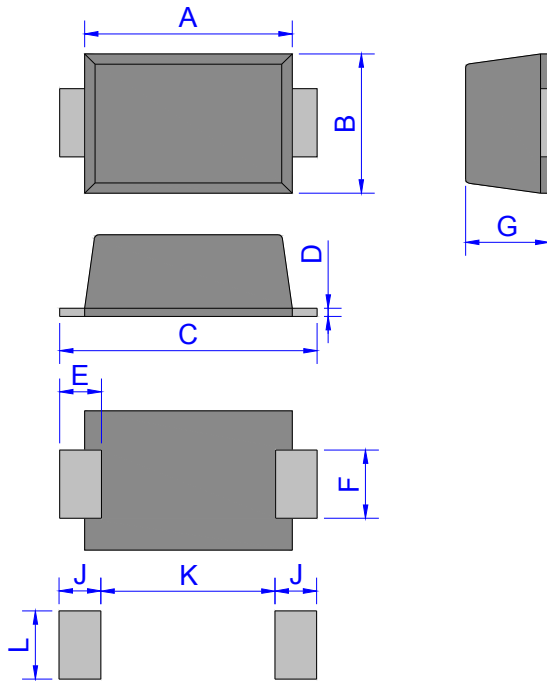


FIG.4: Normalized DC holding current vs. case temperature



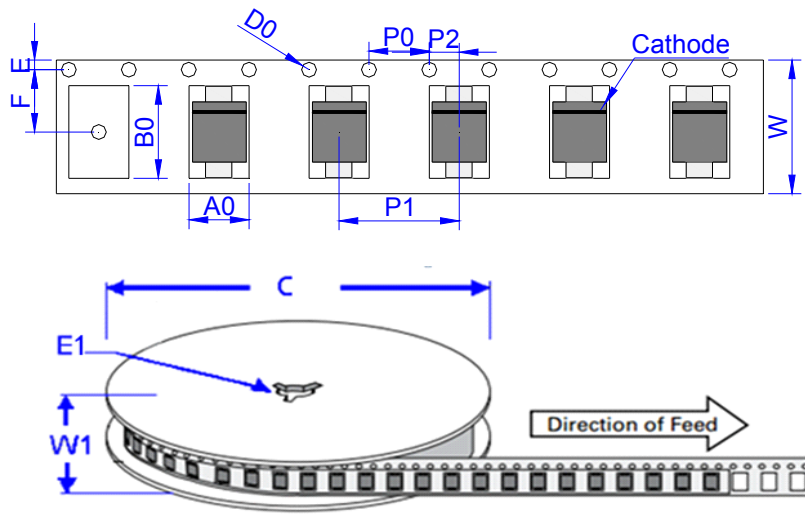
PACKAGE MECHANICAL DATA



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

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