

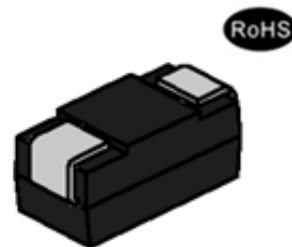


P0220A TSS

Rev.1.3

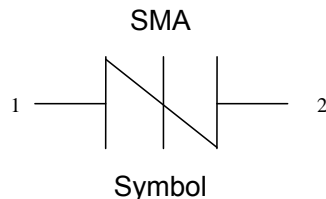
DESCRIPTION:

P0220A thyristors are a type of semiconductor component. This device has been especially designed to protect for low voltage or signal line, as well as power line communication circuit interface, against transient over-voltage.



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.
- ✧ IEC61000-4-2 (ESD) $\pm 30\text{kV}$ (air), $\pm 30\text{kV}$ (contact).
- ✧ Non degenerative.

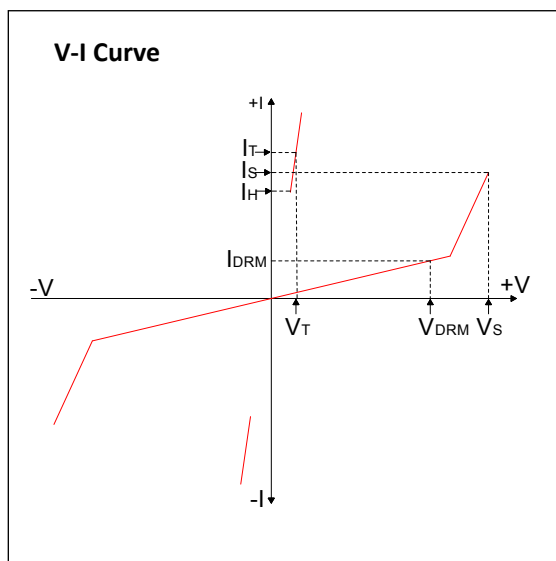


ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Storage temperature range	T_{stg}	-60 to +150	$^\circ\text{C}$
Operating junction temperature range	T_j	-40 to +125	$^\circ\text{C}$
Repetitive peak pulse current@10/1000 μs	I_{PP}	80	A

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



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

Part Number	$I_{\text{DRM}}@V_{\text{DRM}}$		$V_{\text{S}}^{\text{①}}@I_{\text{S}}$		$V_{\text{T}}@I_{\text{T}}$		I_{H}	$C_{\text{O}}^{\text{②}}$	Marking
	μA	V	V	mA	V	A	mA	pF	
	max		max	max	max	max	max	max	
P0220A	5	22	30	800	4	2.2	50	100	P250B

① V_{S} is measured at 100kV/s② 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_{PP} (A) min			
	2/10 μs	8/20 μs	10/700 μs	10/1000 μs
A	250	250	100	80

SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see FIG.2)
Pre Heat	-Temperature Min ($T_{\text{S}(\text{min})}$)	+150 $^\circ\text{C}$
	-Temperature Max($T_{\text{S}(\text{max})}$)	+200 $^\circ\text{C}$
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_{L}) to peak)		3 $^\circ\text{C}/\text{sec}$. Max
$T_{\text{S}(\text{max})}$ to T_{L} - Ramp-up Rate		3 $^\circ\text{C}/\text{sec}$. Max
Reflow	-Temperature(T_{L}) (Liquid us)	+217 $^\circ\text{C}$
	-Temperature(t_{L})	60-150 secs.
Peak Temp (T_{p})		+260(+0/-5) $^\circ\text{C}$
Time within 5 $^\circ\text{C}$ of actual Peak Temp (t_{p})		30 secs. Max
Ramp-down Rate		6 $^\circ\text{C}/\text{sec}$. Max
Time 25 $^\circ\text{C}$ to Peak Temp (T_{P})		8 min. Max
Do not exceed		+260 $^\circ\text{C}$

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

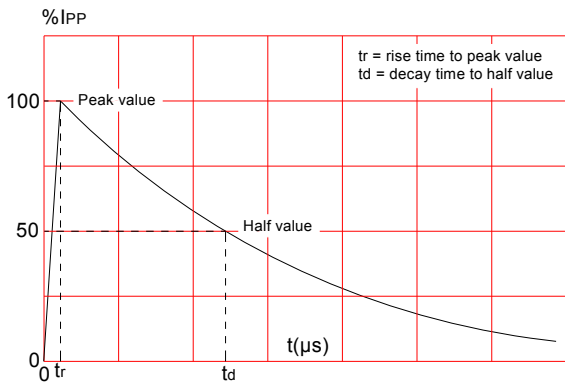


FIG.2: Reflow condition

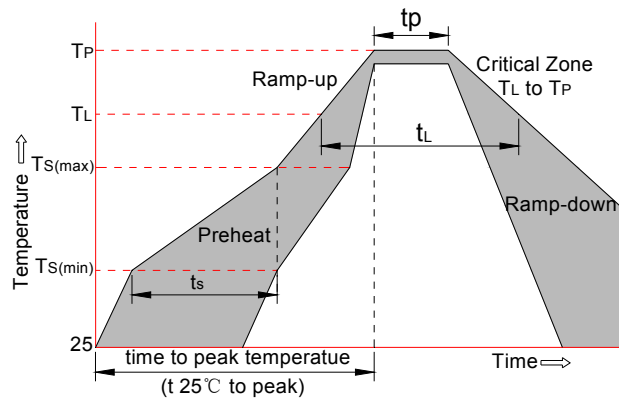


FIG.3: Normalized V_s change vs. junction temperature

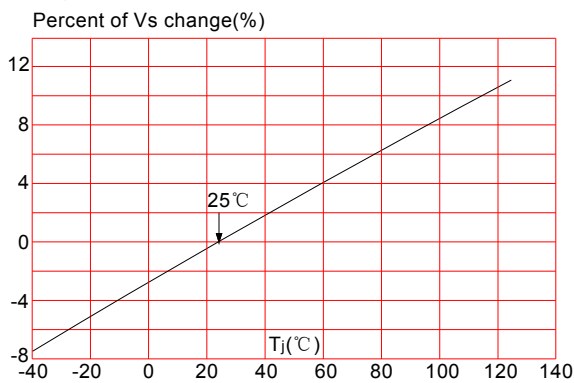
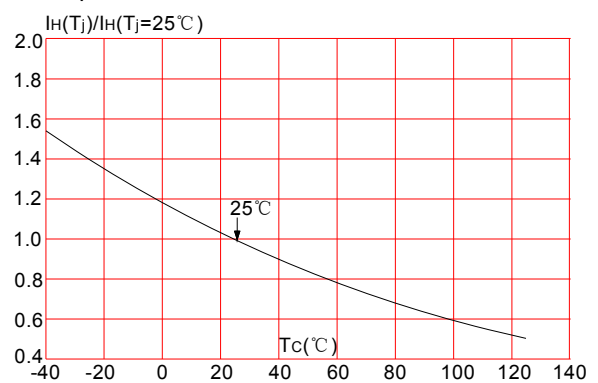
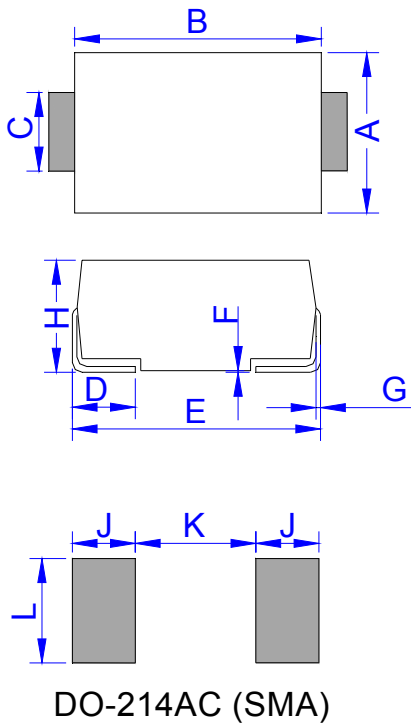


FIG.4: Normalized DC holding current vs. case temperature

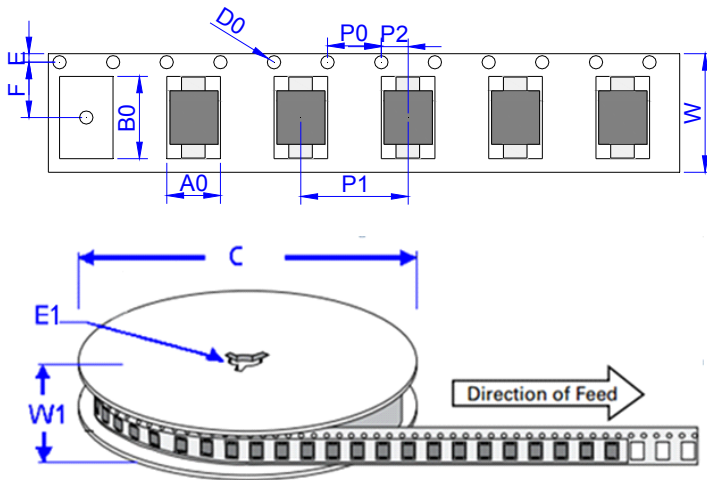


PACKAGE MECHANICAL DATA



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.60	3.00	0.102	0.118
B	4.15	4.65	0.163	0.183
C	1.25	1.65	0.049	0.065
D	0.95	1.52	0.037	0.060
E	4.90	5.30	0.193	0.209
F	0.051	0.203	0.002	0.008
G	0.15	0.31	0.006	0.012
H	2.00	2.44	0.079	0.096
J	2.00		0.079	
K		2.30		0.091
L	1.80		0.071	


TAPE AND REEL SPECIFICATION-SMA



Ref.	Dimensions	
	Millimeters	Inches
A0	2.79 ± 0.3	0.110 ± 0.012
B0	5.33 ± 0.3	0.210 ± 0.012
C	330.0	13.0
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	5.5 ± 0.2	0.217 ± 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	12.0 ± 0.2	0.472 ± 0.008
W1	15.7 ± 2.0	0.618 ± 0.079

PART No.	UNIT WEIGHT (g/PCS) typ.	REEL (PCS)	PER CARTON (PCS)	DESCRIPTION
P0220A	0.066	7,500	120,000	13 inch reel pack

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