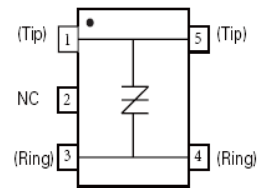


DESCRIPTION:

UP0120A thyristors are a type of semiconductor component. They are designed in applications, modems, telephones, line cards, answering machines, FAX machines, SLICs, T1/E1, xDSL, PBXs and more.



SOT23-5



Symbol

FEATURES:

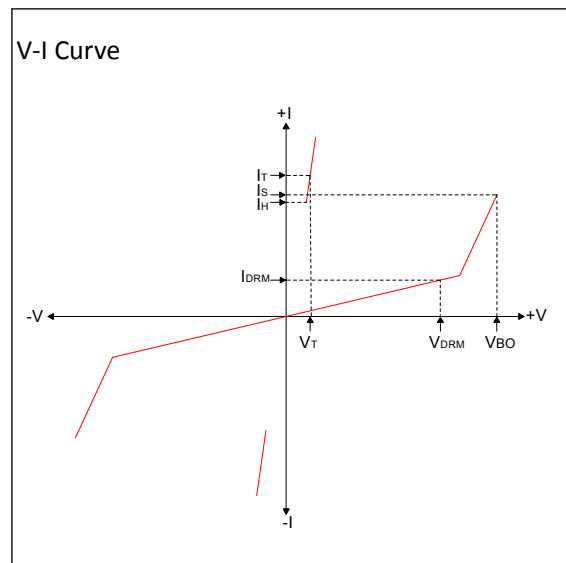
- Excellent capability of absorbing transient surge.
- Quick response to surge voltage (ns Level).
- Eliminates overvoltage caused by fast rising transients.
- Moisture sensitivity level: Level 1.
- Non degenerative.
- Bidirectional transient voltage protection.

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

Parameter Sy	mbol	Value	Unit
Storage temperature range	T_{STG}	-60 to +150	$^{\circ}\text{C}$
Operating junction temperature range	T_J	-40 to +125	$^{\circ}\text{C}$

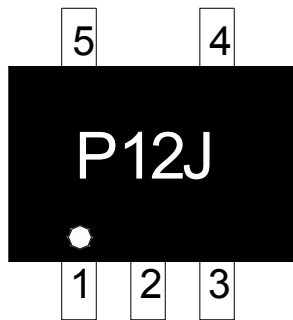
ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$, RH=45%~75%, unless otherwise noted)

Symbol	Parameter
V_{DRM}	Peak off-state voltage
I_{DRM}	Off-state current
V_{BO}	Switching voltage
I_{BO}	Switching current
V_T	On-state voltage
I_T	On-state current
I_H	Holding current
C_O	Off-state capacitance



UPxxxxA Series

MARKING



P12J: Device Marking Code

○: Pin 1 inductor

ELECTRICAL CHARACTERISTICS (T_A=25°C, continued)

Part Number	I _{DRM} @V _{DRM}		V _(BO) ^① @ I _(BO)		V _T @ I _T		I _H	C _O ^②	ΔC ^③
	μA	V	V	mA	V	A	mA	pF	pF
	min		max	max	max		min	Typ	Typ
UP0120A	1	12	20	500	4	2.2	20	6	2.5

① V_(BO) is measured at 100KV/s.

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

③ Delta-capacitance is measured in f=1MHz, V_{RMS}=1V, V_{DC}=1V to V_{DRM}

SURGE RATINGS (Temperature range: -40 ~+85°C)

Series	I _{PP} (A) min			
	2×10μs	1.2×50/ 8×20μs	10×700/ 5×310μs	10×1000μs
P12J	60	40	25	18

ORDERING INFORMATION

<p>UP</p> <p>Series code</p>	<p>0120</p> <p>Voltage: V_D/V_R</p>	<p>A</p> <p>Surge ratings: 1.0KV(10/700μs)</p>
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UPxxxxA Series

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

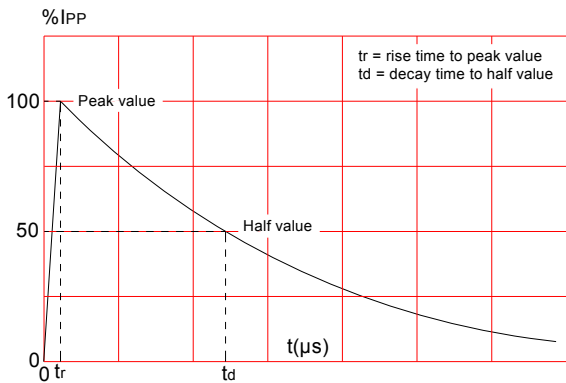


FIG.3: Normalized V_s change vs. junction temperature

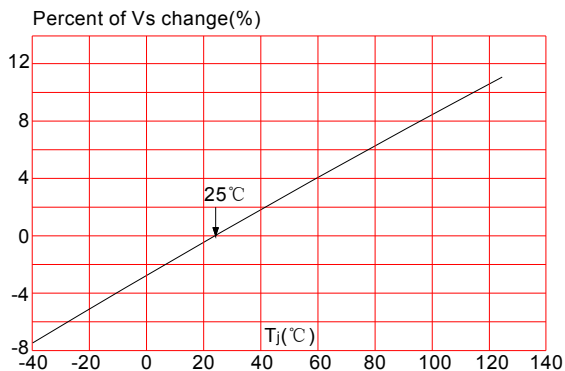


FIG.2: Reflow condition

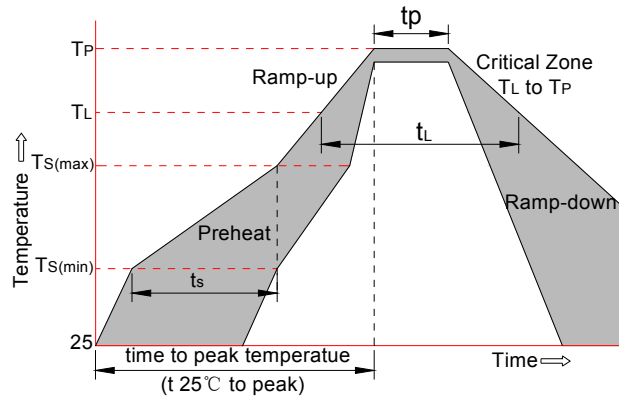
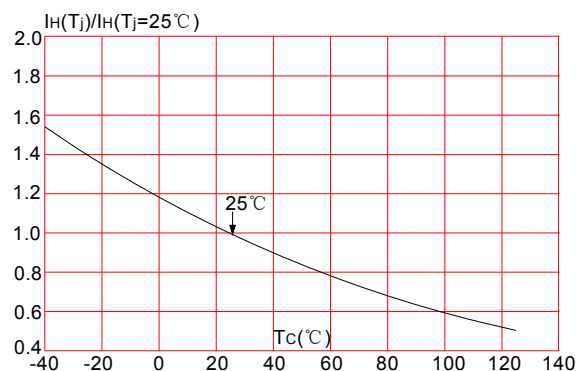
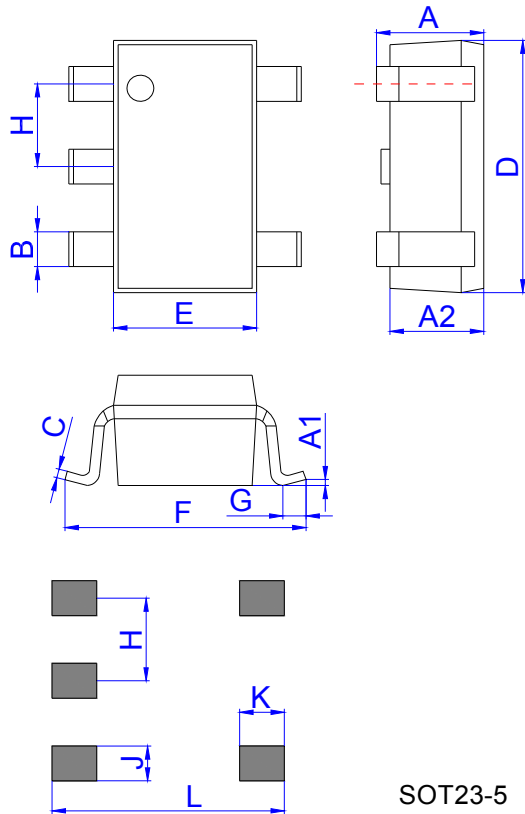


FIG.4: Normalized DC holding current vs. case temperature



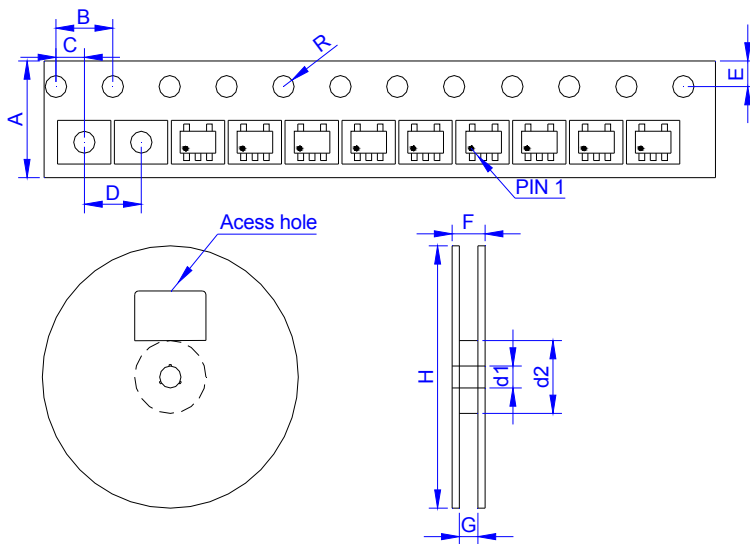
UPxxxxA Series

PACKAGE MECHANICAL DATA



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.90	1.45	0.035	0.057
A1	0	0.10	0	0.004
A2	0.90	1.30	0.035	0.051
B	0.35	0.5	0.014	0.020
C	0.09	0.2	0.004	0.008
D	2.80	3.00	0.110	0.118
E	1.50	1.75	0.059	0.069
F	2.60	3.00	0.102	0.118
G	0.10	0.60	0.004	0.024
H	-	0.95	-	0.037
J	-	0.60	-	0.024
K	-	1.20	-	0.047
L	-	3.50	-	0.138

TAPE AND REEL SPECIFICATION-SOT23-5



Ref.	Dimensions	
	Millimeters	Inches
A	8.00	0.315
B	4.00	0.157
C	2.00	0.079
D	4.00	0.157
d1	13.00	0.512
d2	60.00	2.362
E	1.75	0.069
R	1.50	0.059
F	14.40	0.567
G	8.40	0.331
H	180.00	7.087

OUTLINE	PACKAGE TYPE	QUANTITY	DESCRIPTION
TAPING	SOT23-5	3,000	7 inch Reel Pack