

PVA V2

rev. A

Ref. / PS-PVA-346

Page 1 / 9

Approvals:

Laurent Kubat Engineering Manager	Date
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Revision record:

Revision	Date	Comments
-	July 9 th 2013	Creation (<i>According to ECR 9933</i>)
A	February 5 th 2014	Update: (<i>According to ECR 10671</i>) <ul style="list-style-type: none">- PVA 2.2N: version cancelled- Rc: value after test with electrical load on PVA2 added- PVA2 OA H2 1.7N: end travel height updated- Travel : "initial values and values after soldering process" added- Soldering process: remark on PVA positioning added

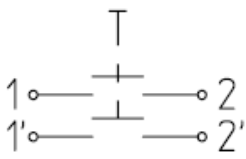
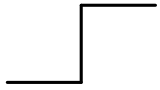
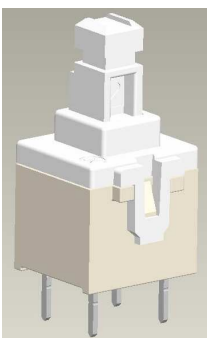
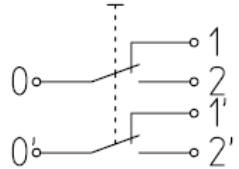
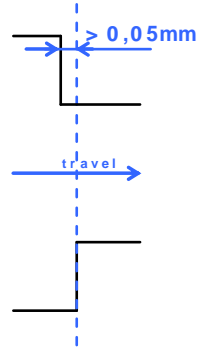
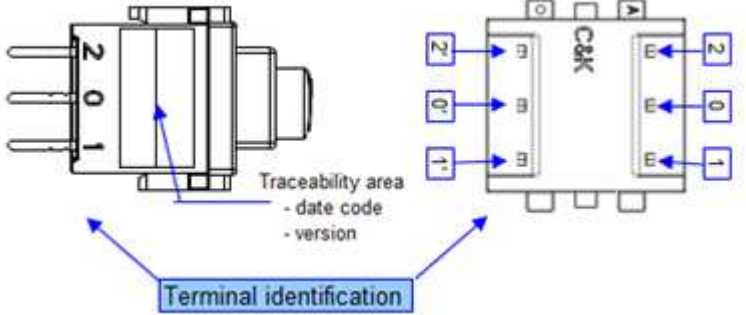
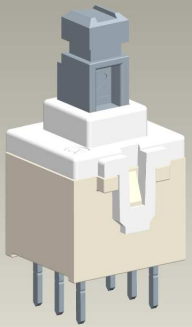
Summary:

1. Description / Main Features
2. Designation
3. Construction
4. Electrical data
5. Mechanical data
6. Physical data
7. Operating environment
8. Additional data : storage and handling environment
9. Additional data : process environment
10. Applicable norms

Note: This specification, attached documents and attached drawings cannot be communicated to anybody without written agreement of C&K.

1 - Description

PVA (Push Vertical Actuation)

<p>• PVA1</p>	<p>PVA with 2 make-contacts (DPST: Double Pole Single Throw)</p>  <p>Circuit diagram</p> <p>Cts 1-2 ON & Cts 1'-2' OFF</p>  <p>Actuating diagram</p>	 <p>PVA1 H1</p>
<p>• PVA2</p>	<p>PVA with 2 changeover contacts (DPDT: Double Pole Double Throw) transient state : without overlap</p>  <p>Circuit diagram</p> <p>Cts 0-1 ON & Cts 0'-1' OFF</p>  <p>Actuating diagram</p> 	 <p>PVA2 H1</p>

2 - Designation			
			PVA □□□□□□ □ □□□□ V2
Required parameters for PVA reference	Series (1 digit)	See §1 – Description	
	Mechanical function (2 digits)	<ul style="list-style-type: none"> EE : Push-push OA : Momentary 	
	Total height (2 digits)	<ul style="list-style-type: none"> H1: 17.5 mm H2: 23 mm H3: 20.5 mm H4: 15 mm H5: 13 mm (momentary and PVA2 only) 	
Optional parameters for PVA reference	Operating force (3 digits)	<ul style="list-style-type: none"> 1.2 N (PVA1) 1.7 N (PVA2) 3.5 N 	
	Terminals (0 or 3 digits)	<ul style="list-style-type: none"> None: standard THT terminals SNA : Snap-in-terminals 	
Button must be ordered separately / Shipped in bulk □□□□			
Required parameters for PVA Button reference	Button (2 digits)	<ul style="list-style-type: none"> PE : rectangular shape PV : cylindrical shape 	
	Button color (2 digits)	For PE & PV buttons : <ul style="list-style-type: none"> RD : Red GY : Gray GN : Green BK : Black YE : Yellow BU : Blue WH : White 	

PVA V2

rev. A

Ref. / PS-PVA-346

Page 4 / 9

Main Features

- Self cleaning contacts
- Terminal plating: LFS
- ROHS Compliance
- Compatible with THT lead free process.
- Marking :
On product and on packaging box.

3 - Construction

Function	<ul style="list-style-type: none"> • Momentary action (OA) • Push-Push (EE)
Contact type	<ul style="list-style-type: none"> • PVA1: 2 make contacts (DPST) • PVA2: 2 change over contacts (DPDT), Non Shorting
Terminals	Through hole

4 - Electrical data

	Contact plating : Ag
Min/max power	100 mW – 3W
Min/max voltage	2 Vdc – 32 Vdc
Min/max current	1mA – 100 mA
Dielectric strength	<ul style="list-style-type: none"> • PVA1 ≥ 1000 Vrms • PVA2 ≥ 750 Vrms
Contact resistance	<ul style="list-style-type: none"> • Initial measurement : ≤ 100 mΩ • After test : ≤ 150 mΩ • After test with electrical load : <ul style="list-style-type: none"> - PVA1 ≤ 1 Ω - PVA2 ≤ 2 Ω
Insulation resistance	<ul style="list-style-type: none"> • Initial measurement : $R_i \geq 100$ MΩ (500 VDC - 60 s \pm 5) • After damp heat : $R_i \geq 10$ MΩ
Bounce time	≤ 3 ms

5 - Mechanical data

Travel	According to table pages 6 to 9
Switching force (Fa)	According to table pages 6 to 9
Overload Z direction	40 N max (One cycle only)
Overload X,Y directions	20 N max (One cycle only)
Resistance to button extraction	For PVA EE type in actuated position : 10 N max For all PVA types in rest position : 30 N max

6 - Physical data

Dimensions & layout	According to product drawing # <ul style="list-style-type: none"> • PVA1 type : CU Y17P1M000FP • PVA2 type : CU Y17P2M000FP
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7 - Operating environment

Operating temperatures	- 40°C / + 85°C (+ 70°C with button)
Climatic category	40/085/21
Operating life	According to table pages 6 to 9
Vibrations	10-500 Hz / 10 g / 3 axis / 2 h per axis According to NF EN 60068-2-6
Mechanical shocks	½ sinusoidal / 30 g / 18 ms 3 shocks in each direction of the 3 axis According to NF EN 60068-2-27

PVA V2

rev. A

Ref. / PS-PVA-346

Page 5 / 9

8 - Additional data : storage and handling environment

	Bulk packaging
Packaging conditions	<ul style="list-style-type: none">• PVA with H1, H4 or H5 actuator: 1500 pieces per box• PVA with H2 or H3 actuator: 1200 pieces per box
Transport conditions	According to specification NF H00-060
Storage temperatures	- 40°C / + 85°C

9 - Additional data : process environment

	Wave soldering, compatible with lead free soldering profile (according to C&K Procedure : PS-LF-002)
Soldering process	Manual soldering : 350°C / 3s <i>Remark: Customer should ensure flat maintaining of the PVA switch on the PCB to avoid gap creation once soldered.</i>
Washing process	No washing
IP code	Standard sealing grade : IP40
Moisture Sensitivity Level	MSL : 2 According to JEDEC J-STD-020

10 - Applicable norms

Testing procedure (C&K spec)	Proc-essai 16 <i>Except requirements included in this spec.</i>
Legal norm (EHS)	C&K procedure



PRODUCT SPECIFICATION

February 2014

PVA V2

rev. A

Ref. / PS-PVA-346

Page 6 / 9

Designation	Part N°	Ct type	Function	Terminals	Operating force Fa (N)	Operating life (1 cycle= rest/actuate d/rest)	Travel (mm) : Initial status values*			
							Switch height	Electrical travel/PCB*	Active position switch height / PCB*	End travel height/PCB*
PVA1	Drawing number	Y17P1M000FP								
PVA1 EE H1 1.2N V2	Y17P11111FP	DPST	Push-Push	Standard	1.2 ±25%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.25	15.99 +0.3/-0.1	15.34 +0/-0.3
PVA1 EE H1 1.2N SNA V2	Y17P11112FP	DPST	Push-Push	Snap-in	1.2 ±25%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.25	15.99 +0.3/-0.1	15.34 +0/-0.3
PVA1 EE H1 3.5N V2	Y17P11141FP	DPST	Push-Push	Standard	3.5 ±15%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.25	15.99 +0.3/-0.1	15.34 +0/-0.3
PVA1 EE H1 3.5N SNA V2	Y17P11142FP	DPST	Push-Push	Snap-in	3.5 ±15%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.25	15.99 +0.3/-0.1	15.34 +0/-0.3
PVA1 EE H2 1.2N V2	Y17P11211FP	DPST	Push-Push	Standard	1.2 ±25%	≥ 1.10 ⁵	23.04 ±0.2	22.24 ±0.25	21.49 +0.3/-0.1	20.84 +0/-0.3
PVA1 EE H2 1.2N SNA V2	Y17P11212FP	DPST	Push-Push	Snap-in	1.2 ±25%	≥ 1.10 ⁵	23.04 ±0.2	22.24 ±0.25	21.49 +0.3/-0.1	20.84 +0/-0.3
PVA1 EE H2 3.5N V2	Y17P11241FP	DPST	Push-Push	Standard	3.5 ±15%	≥ 1.10 ⁵	23.04 ±0.2	22.24 ±0.25	21.49 +0.3/-0.1	20.84 +0/-0.3
PVA1 EE H3 1.2N V2	Y17P11311FP	DPST	Push-Push	Standard	1.2 ±25%	≥ 1.10 ⁵	20.54 ±0.2	19.74 ±0.25	18.99 +0.3/-0.1	18.34 +0/-0.3
PVA1 EE H3 3.5N SNA V2	Y17P11342FP	DPST	Push-Push	Snap-in	3.5 ±15%	≥ 1.10 ⁵	20.54 ±0.2	19.74 ±0.25	18.99 +0.3/-0.1	18.34 +0/-0.3
PVA1 EE H3 3,5N V2	Y17P11341FP	DPST	Push-Push	Standard	3.5 ±15%	≥ 1.10 ⁵	20.54 ±0.2	19.74 ±0.25	18.99 +0.3/-0.1	18.34 +0/-0.3
PVA1 EE H4 1.2N V2	Y17P11411FP	DPST	Push-Push	Standard	1.2 ±25%	≥ 1.10 ⁵	14.9 ±0.2	14.10 ±0.25	13.35 +0.3/-0.1	12.7 +0/-0.3
PVA1 EE H4 1.2N SNA V2	Y17P11412FP	DPST	Push-Push	Snap-in	1.2 ±25%	≥ 1.10 ⁵	14.9 ±0.2	14.10 ±0.25	13.35 +0.3/-0.1	12.7 +0/-0.3
PVA1 EE H4 3.5N V2	Y17P11441FP	DPST	Push-Push	Standard	3.5 ±15%	≥ 1.10 ⁵	14.9 ±0.2	14.10 ±0.25	13.35 +0.3/-0.1	12.7 +0/-0.3
PVA1 EE H4 3.5N SNA V2	Y17P11442FP	DPST	Push-Push	Snap-in	3.5 ±15%	≥ 1.10 ⁵	14.9 ±0.2	14.10 ±0.25	13.35 +0.3/-0.1	12.7 +0/-0.3

* Values after Soldering process : Upper limit increased of 0.1 mm



PRODUCT SPECIFICATION

February 2014

PVA V2

rev. A

Ref. / PS-PVA-346

Page 7 / 9

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							Switch height	Electrical travel/PCB*	Active position switch height / PCB*	End travel height/PCB*
PVA1 OA H1 1.2N V2	Y17P12111FP	DPST	Momentary	Standard	1.2 ±25%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.25	-	15.34 +0/-0.3
PVA1 OA H1 1.2N SNA V2	Y17P12112FP	DPST	Momentary	Snap-in	1.2 ±25%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.25	-	15.34 +0/-0.3
PVA1 OA H1 3.5N V2	Y17P12141FP	DPST	Momentary	Standard	3.5 ±15%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.25	-	15.34 +0/-0.3
PVA1 OA H1 3.5N SNA V2	Y17P12142FP	DPST	Momentary	Snap-in	3.5 ±15%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.25	-	15.34 +0/-0.3
PVA1 OA H2 1.2N V2	Y17P12211FP	DPST	Momentary	Standard	1.2 ±25%	≥ 1.10 ⁵	23.04 ±0.2	22.24 ±0.25	-	20.84 +0/-0.3
PVA1 OA H2 1.2N SNA V2	Y17P12212FP	DPST	Momentary	Snap-in	1.2 ±25%	≥ 1.10 ⁵	23.04 ±0.2	22.24 ±0.25	-	20.84 +0/-0.3
PVA1 OA H3 1.2N V2	Y17P12311FP	DPST	Momentary	Standard	1.2 ±25%	≥ 1.10 ⁵	20.54 ±0.2	19.74 ±0.25	-	18.34 +0/-0.3
PVA1 OA H3 1.2N SNA V2	Y17P12312FP	DPST	Momentary	Snap-in	1.2 ±25%	≥ 1.10 ⁵	20.54 ±0.2	19.74 ±0.25	-	18.34 +0/-0.3
PVA1 OA H3 3.5N V2	Y17P12341FP	DPST	Momentary	Standard	3.5 ±15%	≥ 1.10 ⁵	20.54 ±0.2	19.74 ±0.25	-	18.34 +0/-0.3
PVA1 OA H4 1.2N SNA V2	Y17P12412FP	DPST	Momentary	Snap-in	1.2 ±25%	≥ 1.10 ⁵	14.9 ±0.2	14.10 ±0.25	-	12.7 +0/-0.3
PVA1 OA H4 1.2N V2	Y17P12411FP	DPST	Momentary	Standard	1.2 ±25%	≥ 1.10 ⁵	14.9 ±0.2	14.10 ±0.25	-	12.7 +0/-0.3
PVA1 OA H4 3.5N V2	Y17P12441FP	DPST	Momentary	Standard	3.5 ±15%	≥ 1.10 ⁵	14.9 ±0.2	14.10 ±0.25	-	12.7 +0/-0.3
PVA2 Drawing number Y17P2M000FP										
PVA2 EE H1 1.7N V2	Y17P21121FP	DPDT Without overlap	Push-Push	Standard	1.7 ±25%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.35	15.99 +0.3/-0.1	15.34 +0/-0.3
PVA2 EE H1 1.7N SNA V2	Y17P21122FP	DPDT Without overlap	Push-Push	Snap-in	1.7 ±25%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.35	15.99 +0.3/-0.1	15.34 +0/-0.3

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PRODUCT SPECIFICATION

February 2014

PVA V2

rev. A

Ref. / PS-PVA-346

Page 8 / 9

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							Switch height	Electrical travel/PCB*	Active position switch height / PCB*	End travel height/PCB*
PVA2 EE H1 3.5N V2	Y17P21141FP	DPDT Without overlap	Push-Push	Standard	3.5 ±15%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.35	15.99 +0.3/-0.1	15.34 +0/-0.3
PVA2 EE H1 3.5N SNA V2	Y17P21142FP	DPDT Without overlap	Push-Push	Snap-in	3.5 ±15%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.35	15.99 +0.3/-0.1	15.34 +0/-0.3
PVA2 EE H2 1.7N V2	Y17P21221FP	DPDT Without overlap	Push-Push	Standard	1.7 ±25%	≥ 1.10 ⁵	23.04 ±0.2	22.24 ±0.35	21.49 +0.3/-0.1	20.84 +0/-0.3
PVA2 EE H2 1.7N SNA V2	Y17P21222FP	DPDT Without overlap	Push-Push	Snap-in	1.7 ±25%	≥ 1.10 ⁵	23.04 ±0.2	22.24 ±0.35	21.49 +0.3/-0.1	20.84 +0/-0.3
PVA2 EE H2 3.5N V2	Y17P21241FP	DPDT Without overlap	Push-Push	Standard	3.5 ±15%	≥ 1.10 ⁵	23.04 ±0.2	22.24 ±0.35	21.49 +0.3/-0.1	20.84 +0/-0.3
PVA2 EE H3 1.7N V2	Y17P21321FP	DPDT Without overlap	Push-Push	Standard	1.7 ±25%	≥ 1.10 ⁵	20.54 ±0.2	19.74 ±0.35	18.99 +0.3/-0.1	18.34 +0/-0.3
PVA2 EE H3 1.7N SNA V2	Y17P21322FP	DPDT Without overlap	Push-Push	Snap-in	1.7 ±25%	≥ 1.10 ⁵	20.54 ±0.2	19.74 ±0.35	18.99 +0.3/-0.1	18.34 +0/-0.3
PVA2 EE H3 3.5N V2	Y17P21341FP	DPDT Without overlap	Push-Push	Standard	3.5 ±15%	≥ 1.10 ⁵	20.54 ±0.2	19.74 ±0.35	18.99 +0.3/-0.1	18.34 +0/-0.3
PVA2 EE H4 1.7N V2	Y17P21421FP	DPDT Without overlap	Push-Push	Standard	1.7 ±25%	≥ 1.10 ⁵	14.9 ±0.2	14.1 ±0.35	13.35 +0.3/-0.1	12.7 +0/-0.3
PVA2 EE H4 1.7N SNA V2	Y17P21422FP	DPDT Without overlap	Push-Push	Snap-in	1.7 ±25%	≥ 1.10 ⁵	14.9 ±0.2	14.1 ±0.35	13.35 +0.3/-0.1	12.7 +0/-0.3
PVA2 EE H4 3.5N SNA V2	Y17P21442FP	DPDT Without overlap	Momentary	Snap-in	3.5 ±15%	≥ 1.10 ⁵	14.9 ±0.2	14.1 ±0.35	13.35 +0.3/-0.1	12.7 +0/-0.3
PVA2 OA H1 1.7N V2	Y17P22121FP	DPDT Without overlap	Momentary	Standard	1.7 ±25%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.35	-	15.34 +0/-0.3
PVA2 OA H1 1.7N SNA V2	Y17P22122FP	DPDT Without overlap	Momentary	Snap-in	1.7 ±25%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.35	-	15.34 +0/-0.3
PVA2 OA H1 3.5N V2	Y17P22141FP	DPDT Without overlap	Momentary	Standard	3.5 ±15%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.35	-	15.34 +0/-0.3

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February 2014

PVA V2

rev. A

Ref. / PS-PVA-346

Page 9 / 9

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PVA2 OA H1 3.5N SNA V2	Y17P22142FP	DPDT Without overlap	Momentary	Snap-in	3.5 ±15%	≥ 1.10 ⁵	17.54 ±0.2	16.74 ±0.35	-	15.34 +0/-0.3
PVA2 OA H2 1.7N V2	Y17P22221FP	DPDT Without overlap	Momentary	Standard	1.7 ±25%	≥ 1.10 ⁵	23.04 ±0.2	22.24 ±0.35	-	20.84 +0/-0.3
PVA2 OA H3 1.7N V2	Y17P22321FP	DPDT Without overlap	Momentary	Standard	1.7 ±25%	≥ 1.10 ⁵	20.54 ±0.2	19.74 ±0.35	-	18.34 +0/-0.3
PVA2 OA H3 3.5N V2	Y17P22341FP	DPDT Without overlap	Momentary	Standard	3.5 ±15%	≥ 1.10 ⁵	20.54 ±0.2	19.74 ±0.35	-	18.34 +0/-0.3
PVA2 OA H4 1.7N V2	Y17P22421FP	DPDT Without overlap	Momentary	Standard	1.7 ±25%	≥ 1.10 ⁵	14.9 ±0.2	14.1 ±0.35	-	12.7 +0/-0.3
PVA2 OA H4 1.7N SNA V2	Y17P22422FP	DPDT Without overlap	Momentary	Snap-in	1.7 ±25%	≥ 1.10 ⁵	14.9 ±0.2	14.1 ±0.35	-	12.7 +0/-0.3
PVA2 OA H4 3.5N V2	Y17P22441FP	DPDT Without overlap	Momentary	Standard	3.5 ±15%	≥ 1.10 ⁵	14.9 ±0.2	14.1 ±0.35	-	12.7 +0/-0.3
PVA2 OA H5 1.7N V2	Y17P22521FP	DPDT Without overlap	Momentary	Standard	1.7 ±25%	≥ 1.10 ⁵	13 ±0.2	11.9 ±0.35	-	11.0 +0/-0.4
PVA2 OA H5 1.7N SNA V2	Y17P22522FP	DPDT Without overlap	Momentary	Snap-in	1.7 ±25%	≥ 1.10 ⁵	13 ±0.2	11.9 ±0.35	-	11.0 +0/-0.4
PVA2 OA H5 3.5N V2	Y17P22541FP	DPDT Without overlap	Momentary	Standard	3.5 ±15%	≥ 1.10 ⁵	13 ±0.2	11.9 ±0.35	-	11.0 +0/-0.4

* Values after Soldering process : Upper limit increased of 0.1 mm

Button	Drawing N°
PE	285-0102-000
PV	285-0105-000