

## DESCRIPTION

The CUP Series has become a standard in the European relay market due to its versatile switch and schematic options. The staggered pin layout gives more space and allows for higher isolation from pin to pin on the PC board when compared to 1.0"x0.1" relays. Designers have a choice between three switch technologies, the ruthenium sputtered DYAD, the all position mercury wetted MYAD, and the vertically mounting high performance MH4 contact. There is a choice between plastic and metal covers, as well as non-encapsulated types for lower capacitance. The CUPV models offer high input to output isolation and are BS EN 60950 approved.



### FEATURES

- Standard nominal coil voltages include 5, 12, and 24 volts
- Available with plastic and metal can housings
- Designed to meet the most stringent telecommunications specifications on a worldwide basis
- Ideal for optional high isolation between input and output (up to 4000Vrms)

### APPLICATIONS

- Telecom
- Process control
- General purpose electronics
- Industrial
- Security

## SPECIFICATIONS

### CUP E

Switch Type 6  
All Position Wetted Contacts  
MYAD

Switch Type 5  
Wetted Contacts  
MH4

Switch Type 1  
Dry Reed  
DYAD

All parameters are at 25°C unless otherwise stated.

Parameters	Conditions	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Units
<b>Contact Ratings</b>											
Switching Voltage	Max DC/PeakAC Resistive			500			1000			200	Volts
Switching Current	Max DC/PeakAC Resistive			2			2			0.75	Amps
Carry Current	Max DC/PeakAC Resistive			3			3			2	Amps
Contact Rating	Max DC/PeakAC Resistive			50			50			10	Watts
Life Expectancy	Signal Level 1.0V 10mA Rated Loads <sup>1</sup>		300			2000			500		x10 <sup>6</sup>
Static Contact Resistance	50mV, 10mA			100			40			200	mOhms
Contact Material			Hg			Hg			Ru		
Hg Content			16			40			N/A		mgrams
<b>Relay Specifications</b>											
Insulation Resistance	Across Open Contacts Contact to Coil	10 <sup>8</sup> 10 <sup>10</sup>			10 <sup>8</sup> 10 <sup>10</sup>			10 <sup>10</sup> 10 <sup>10</sup>			Ohms Ohms
Capacitance	Across Open Contacts		1.5	2		1	1.5		1	1.5	pF
	Open Contact to Coil		3.5	3.8		2	2.5		2.5	3	pF
	Closed Contact to Coil		7.5	8		5	8		5	5.5	pF
Dielectric Strength	Across Open Contacts Contacts to Coil	1400 2800			2000 2800			350 2800			VDC/Peak VDC/Peak
	Operate Time (no bounce) (bounce included-CUP1)		1.6	2.7			3		0.55	1 <sup>(2)</sup>	ms
Release Time	Zener-Diode Suppression		1.4	1.75		1.5	2.5		0.5	1.3	ms
<b>Environmental Ratings</b>											
Storage Temperature		-40		+105	-40		+105	-40		+105	°C
Operating Temperature		-38		+75	-38		+75	-40		+85	°C
Soldering Temperature				+260			+260			+260	°C
Vibration Resistance (survival)	Applied to pins, 5sec. max 10Hz - 500Hz			10			10			20	Gs
	5Hz - 2000Hz (Sw type 1) 11+/- 1ms, 1/2 Sine Wave			30			30			50	Gs
Shock Resistance (survival)											Gs
Weight (1A)			6.5			6.6			3.8		grams
Weight (2A2B/5A)			13.8			16.7			15.8		grams

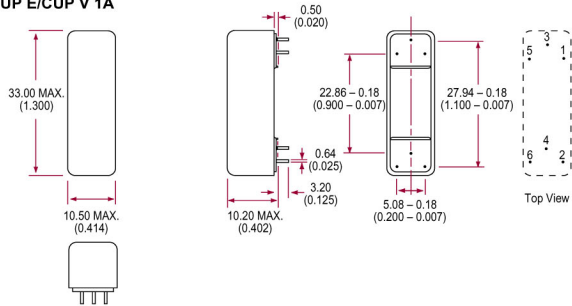
<sup>1</sup> Consult factory for life requirements

<sup>2</sup> 1.5msec. maximum for 4&5 form A relays, 1.5msec. maximum for 5 form A, 2 form B and 2A2B relays

## MECHANICAL DIMENSIONS

DIMENSIONS  
mm  
(inches)

CUP E/CUP V 1A



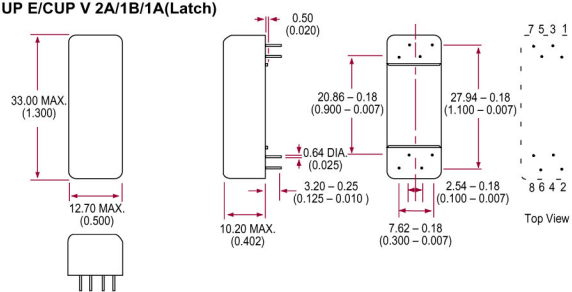
CUP E 1A



CUP V 1A



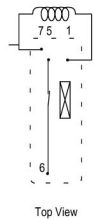
UP E/CUP V 2A/1B/1A(Latch)



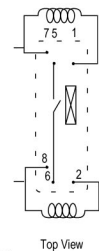
CUP E 2A



CUP E 1B



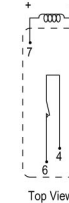
CUP E 1A(Latch)



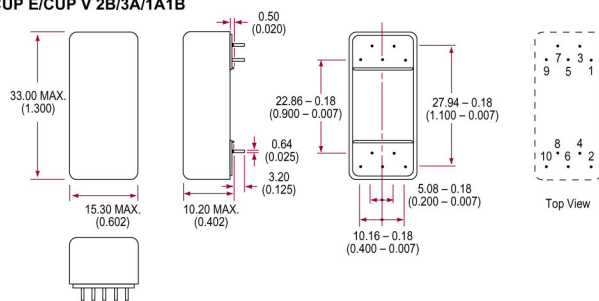
CUP V 2A



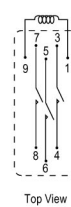
CUP V 1B



CUP E/CUP V 2B/3A/1A1B



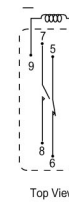
CUP E 3A



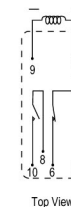
CUP E 2B



CUP E 1A1B



CUP V 1A1B



**Note: Relays with Switch 5 option must be mounted vertically  $\pm 30^\circ$ .**

## COIL SPECIFICATIONS

Units	Contact Form	Coil Voltage			Coil Resistance			Operate Voltage			Release Voltage		
		Volts			Ohms			Volts			Volts		
Conditions					+/- 10% (25°C)			Must operate by (25°C)			Must release by (25°C)		
Part #		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max
CUPV10001	1 Form A		5	12	472	525	577			3.5	0.28		
CUPV10002	1 Form A		12	29	2700	3000	3300			8.4	0.7		
CUPV10025	1 Form A		5	6	99	110	121			3.5	0.25		
CUPV10019	1 Form A		12	14	567	630	693			8.4	0.7		
CUPV10201	1 Form A		5	6	270	300	330			3.5	0.36		
CUPV10202	1 Form A		12	14	1440	1600	1760			8.4	1.0		
CUPV10301	1 Form A		5	6	112	125	137			3.5	0.3		
CUPV10302	1 Form A		12	14	675	750	825			3.4	0.7		
CUPV60003	1 Form A		5	12	126	140	154				0.5		
CUPV60004	1 Form A		12	30	900	1000	1100			3.75	1.4		
CUPV60005	1 Form A		24	49	2070	2300	2530			9	2.2		
CUPV60006	1 Form A		48	97	8073	8970	9867			18	4.4		
										36			
CUPV60201	1 Form A		5	6.5	162	180	198				0.4		
CUPV60202	1 Form A		12	15	990	1100	1210			3.75	1		
CUPV60203	1 Form A		24	30	3816	4240	4664			9	2		
CUPV60204	1 Form A		48	60	12600	14000	15400			18	4		
										36			
CUPV60401	1 Form A		5	10	99	110	121				0.6		
CUPV60402	1 Form A		12	24	540	600	660			3.75	1.5		
CUPV60403	1 Form A		24	48	1440	1600	1760			9	1.3		
CUPV60404	1 Form A		48	94	5580	6200	6820			18	4.8		

## ORDERING INFORMATION

A complete part number is represented by the digits below

**CUP E XXXX X XX**

Series

Package

E = plastic cover fully sealed

Contact Form

001A = 1 Form A    001B = 1 Form B  
 002A = 2 Form A    002B = 2 Form B  
 003A = 3 Form A    1A1B = 1 Form A, 1 Form B  
 004A = 4 Form A    2A2B = 2 Form A, 2 Form B  
 005A = 5 Form A    001L = 1 Form A latching

Nominal Voltage

05 = 5V  
 12 = 12V  
 24 = 24V  
 48 = 48V

Switch Type

1 = DYAD : dry reed  
 5 = MH4: wetted position sensitive  
 6 = MYAD: all position wetted reed

A complete part number is represented by the digits below

**CUP V X 0 X 0 X**

Series

Model

Switch Type

1 = DYAD : dry reed  
 6 = MYAD : all position wetted reed

Nominal Voltage

1 = 5V    2 = 12V  
 3 = 24V    4 = 48V

Contact Form

0 = 1 Form A    3 = 1 Form A, 1 Form B  
 1 = 1 Form A    4 = 2 Form A  
 2 = 1 Form B

Details provided on this datasheet are subject to change without notice

## CUP V

All parameters are at 25°C unless otherwise stated.

Switch Type 1  
DYAD

Switch Type 6  
High Performance  
MYAD

Parameters	Conditions	Min	Typ	Max	Min	Typ	Max	Units
<b>Contact Ratings</b>								
Switching Voltage	Max DC/PeakAC Resistive			200			500	Volts
Switching Current	Max DC/PeakAC Resistive			0.75			2	Amps
Carry Current	Max DC/PeakAC Resistive			2			3	Amps
Contact Rating	Max DC/PeakAC Resistive			10			50	Watts
Life Expectancy	Signal Level 1.0V 10mA Rated Loads <sup>1</sup>	300	500		200	300		x10 <sup>6</sup> Ops x10 <sup>6</sup> Ops
Static Contact Resistance	50mV, 10mA			200			100	mOhms
Contact Material			Ru			Hg		
Hg Content			N/A			16		mgrams
<b>Relay Specifications</b>								
Insulation Resistance	Across Open Contacts Contact to Coil	10 <sup>10</sup> 10 <sup>10</sup>			10 <sup>8</sup> 10 <sup>10</sup>			Ohms Ohms
Capacitance	Across Open Contacts		1.3	2.5		1.5	2	pF
	Open Contact to Coil		3.75	5		3.5	3.8	pF
	Closed Contact to Coil		4	5.5		7.5	8	pF
Dielectric Strength	Between Contacts	350			1400			VDC/Peak
	Contacts to Coil	5600			5600			VDC/Peak
Operate Time (no bounce)	At Nominal Coil Voltage 10Hz Square Wave		0.55	1		1.6	2.7	ms
Release Time	Zener-Diode Suppression		0.6	1		1.4	1.75	ms
<b>Environmental Ratings</b>								
Storage Temperature		-40		+105	-40		+105	°C
Operating Temperature		-40		+85	-38		+75	°C
Soldering Temperature				+260			+260	°C
Vibration Resistance (survival)	Applied to pins, 5sec. max 10Hz - 500Hz						10	Gs
	5Hz - 2000Hz (Sw type 1)			20				Gs
Shock Resistance (survival)	11+/- 1ms, 1/2 Sine Wave			50			30	Gs
Weight			8			6.5		grams
Weight (2A2B/5A)			15.8			13.8		grams

<sup>1</sup>Consult factory for life requirements

## COIL SPECIFICATIONS

Units	Contact Form	Coil Voltage			Coil Resistance			Operate Voltage			Release Voltage		
		Volts			Ohms			Volts			Volts		
Conditions					+/- 10% (25°C)			Must operate by (25°C)			Must release by (25°C)		
Part #		Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max
CUPE011A105	1 Form A		5	12	126	140	154			3.5	0.28		
CUPE001A112	1 Form A		12	29	769	855	940			8.4	0.7		
CUPE001A124	1 Form A		24	57	2956	3285	3613			16.8	1.4		
CUPE002A105 <sup>1</sup>	1 Form A		5	9	63	70	77			3.5	0.25		
CUPE002A112	1 Form A		12	23	400	445	489			8.4	0.65		
CUPE002A124	1 Form A		24	45	1530	1700	1870			16.8	1.30		
CUPE001A505	1 Form A		5	11	94	105	115			3.5	0.5		
CUPE001A512	1 Form A		12	26	558	620	682			8.4	1.2		
CUPE001A524	1 Form A		24	39	1260	1400	1540			16.8	1.9		
CUPE002A505 <sup>2</sup>	1 Form A		5	9	63	70	77			3.5	0.5		
CUPE002A512	1 Form A		12	23	378	420	462			8.4	1.3		
CUPE002A524	1 Form A		24	35	972	1080	1188			16.8	2.2		
CUPE011A605 <sup>3</sup>	1 Form A		5	12	126	140	154			3.5	0.5		
CUPE001A612	1 Form A		12	29	900	1000	1100			9	1.4		
CUPE001A624	1 Form A		24	57	2070	2300	2530			18	2.2		
CUPP002A605	1 Form A		5	9	99	110	121			3.5	0.6		
CUPP002A612	1 Form A		12	23	540	600	660			9	1.5		
CUPP002A624	1 Form A		24	45	1440	1600	1760			18	2.3		

<sup>1</sup>Other contact forms available: 1A, 2A, 3A, 4A, 5A, 1B, 2B, 1A1B, 2A2B, 1L(Latch)

<sup>2</sup>Other contact forms available: 1A, 2A, 3A, 5A, 1B

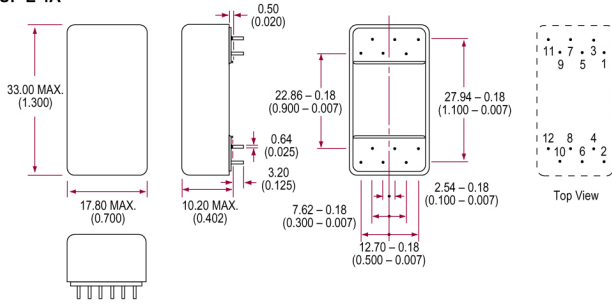
<sup>3</sup>Other contact forms available: 1A, 2A, 3A, 4A, 5A, 1B

Details provided on this datasheet are subject to change without notice

## MECHANICAL DIMENSIONS

**DIMENSIONS**  
mm  
(inches)

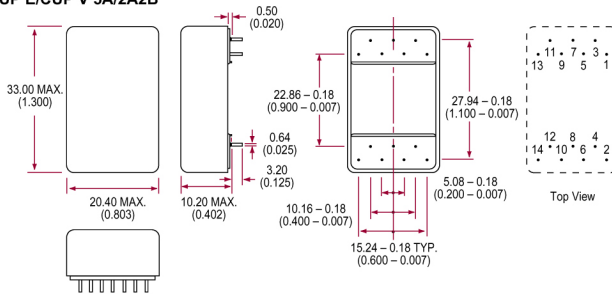
**CUP E 4A**



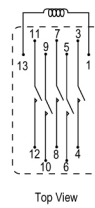
**UP E 4A**



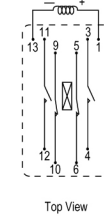
**CUP E/CUP V 5A/2A2B**



**CUP E 5A**



**UP E 2A2B**



**CUP V 2A2B**

