

# DIP 14 SERIES REED RELAYS

MSS2 ■ MSS7 ■ PRMA ■ DSS7 ■ PRME ■ MVS2 ■ MVS7



## DESCRIPTION

CP Clare's epoxy molded DIP 14 Series offers a variety of contacts and schematics to meet the needs of a wide range of applications. It features the MVS2/MVS7 models designed for high reliability. The MSS2/7 DIPs are 1 form A relays equipped with the MYAD® all-position mounting switch. With switching up to 50 Watts and a 4000V isolation option, the DIP 14 Series is a relay package that allows for automatic insertion directly on PCBs as well as insertion into standard 14 pin DIP sockets.

## FEATURES

- All position mercury contacts on some models
- Stable contact resistance over life
- 4000 Vac input-output isolation
- Bounce free operation
- High insulation resistance
- Switching speed of 300 Hz
- Long life > 1 billion operations
- Epoxy molded for automatic board processing

## APPLICATIONS

- Automatic test equipment
- Process control
- Industrial
- Telecom
- Datacom
- High-end security systems
- Signaling
- Metering

## APPROVALS

- UL approval (DSS7 & PRMA)
- BSI approval (DSS7 & MSS7)
- BS EN 60950 approval (MVS7)
- CSA approval (PRMA)
- FCC68 approval (MSS2 & MSS7)

## RATINGS @ 25°C

Parameter	Min	Typ	Max	Unit
Switching Voltage				
PRMA/PRME/DSS7			200	Volts
PRMA Form C			100	Volts
MSS2/MSS7			500	Volts
MVS2/MVS7			1000	Volts
Switching Current				
PRMA/PRME/DSS7			0.5	Amps
PRMA Form C			0.25	Amps
MSS2/MSS7/MVS2/MVS7			2	Amps
Carry Current				
PRMA/PRME/DSS7			2	Amps
PRMA Form C			0.4	Amps
MSS2/MSS7			3	Amps
MVS2/MVS7			3	Amps
Switching Frequency				
PRMA/PRME/DSS7			500	Hz
PRMA Form C			50	Hz
MSS2/MSS7/MVS2/MVS7			200	Hz
Contact Resistance				
PRMA/PRME/DSS7			150	mΩ
PRMA Form C			200	mΩ
MSS2/MSS7/MVS2/MVS7			100	mΩ

(See detailed specifications for more information.)

### SPECIFICATIONS

All parameters are at 25°C unless otherwise stated.  
Operate voltage, release voltage, and coil resistance will change approximately 0.4%/°C as ambient temperature varies.

<b>MSS2</b>	<b>MSS7</b>	<b>PRMA</b>
Molded 8-pin	Molded 4-pin	Molded 8-pin
All position	All position	Form C
Wetted contacts	Wetted contacts	Dry Reed

Parameter	Conditions	Symbol	Min	Typ	Max	Min	Typ	Max	Min	Typ	Max	Units
<b>Contact Ratings</b>												
Switching Voltage	Max DC/PeakAC Resistive	V <sub>L</sub>			500			500			100	Volts
Switching Current	Max DC/PeakAC Resistive	I <sub>L</sub>			2			2			0.25	Amps
Carry Current	Max DC/PeakAC Resistive	I <sub>c</sub>			3			3			0.4	Amps
Contact Rating	Max DC/PeakAC Resistive				50			50			3	Watts
Life Expectancy	Signal Level 1.0 V 10mA Rated Loads <sup>1</sup>			200			200			20		x10 <sup>6</sup> Ops
Static Contact Resistance	50mV, 10mA	CR		40	100		65	100			200	mΩ
Dynamic Contact Resistance	.5V, 50mA at 100 Hz, 1.5 msec	DCR		N/A			N/A			N/A		mΩ
Contact Material				Hg			Hg			Rh		
Hg Content				16			16			N/A		mgrams
<b>Relay Specifications</b>												
Insulation Resistance	Between all isolated pins at 100V, 25°C, 40% RH	IR	10 <sup>8</sup>	10 <sup>10</sup>		10 <sup>8</sup>	10 <sup>10</sup>		10 <sup>9</sup>	10 <sup>10</sup>		Ω
Capacitance	Across Open Contacts			1.5	2		1.2	2		2.5	3	pF
	Open Contact to Coil			3	4		3	4		3	3	pF
Dielectric Strength	Between Contacts		1400			2000			250			VDC/Peak AC
	Contacts to Coil	I/O	1400			5600			1400			VDC/Peak AC
Operate Time, including bounce (PRMA only)	At Nominal Coil Voltage 10Hz Square Wave	T <sub>OP</sub>		1.2	1.75		1.2	1.75		1.5	2	ms
Release Time	Zener-Diode Suppression	T <sub>REL</sub>		1	1.50		1	1.50		1.5	3	ms
<b>Environmental Ratings</b>												
Storage Temperature		T <sub>A</sub>	-40		+105	-40		+105	-40		+105	°C
Operating Temperature		T <sub>O</sub>	-38		+75	-38		+75	-40		+80	°C
Soldering Temperature	Applied to pins, 5 sec. max.			260			260			260		°C
Vibration Resistance (Survival)	10 Hz - 500 Hz (5 Hz - 500 Hz for PRMA)	G			10			10			10	Gs
Shock Resistance (Survival)	11±1ms, 1/2 Sine Wave	S			30			30			50	Gs
Weight				2.3			2.3			1.5		grams

<sup>1</sup> Refer to life graphs

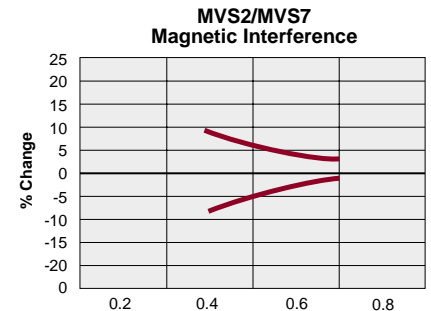
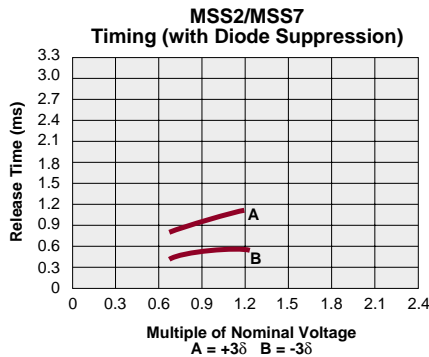
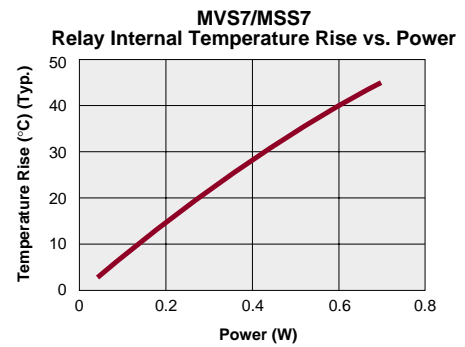
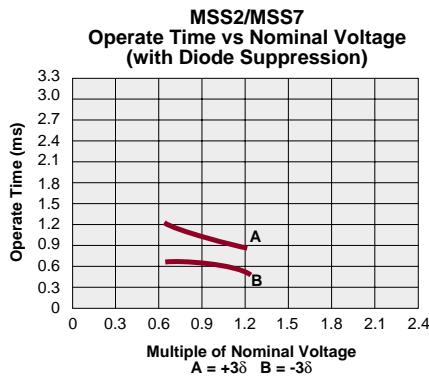
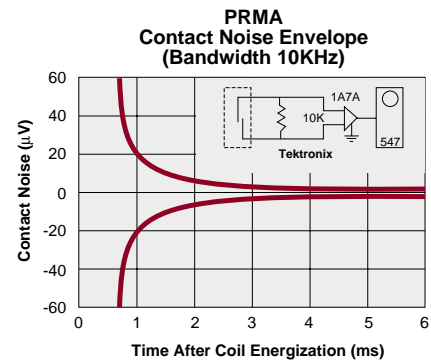
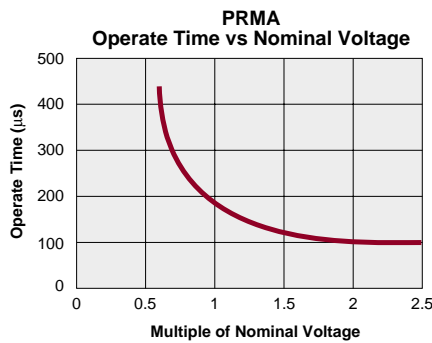
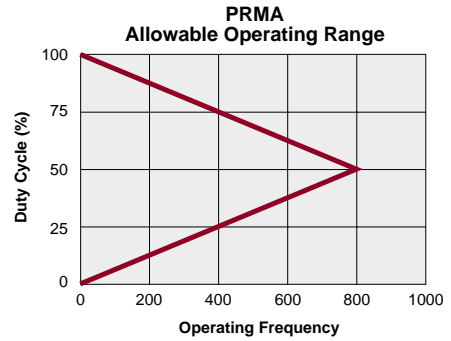
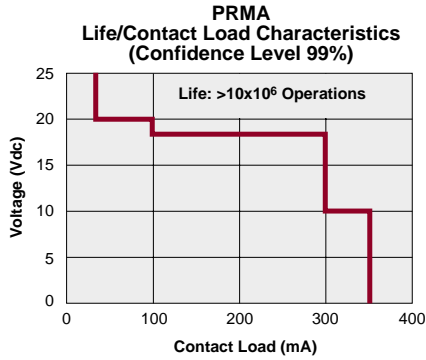
# DIP 14 SERIES REED RELAYS

MSS2 ■ MSS7 ■ PRMA ■ DSS7 ■ PRME ■ MVS2 ■ MVS7

## COIL SPECIFICATIONS

	Contact Form	Coil Voltage			Coil Resistance			Operate Voltage			Release Voltage			Nominal Input Power		
Units		Volts			Ω			Volts			Volts			mW		
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	Min	Typ	Max
MSS2 1A05	1 Form A		5	11	126	140	154	0.5		3.75	0.5		3.75			179
MSS2 1A12	1 Form A		12	21	450	500	550	1		9	1		9			288
MSS2 1A24	1 Form A		24	44	1935	2150	2365	2		18	2		18			268
MSS7 1A05	1 Form A		5	11	126	140	154	0.5		3.75	0.5		3.75			179
MSS7 1A12	1 Form A		12	21	450	500	550	1		9	1		9			288
MSS7 1A24	1 Form A		24	43	1935	2150	2365	2		18	2		18			268
PRMA 1A05	1 Form A		5	21	450	500	550	0.8		3.75	0.8		3.75			50
PRMA 1A12	1 Form A		12	30	900	1000	1100	1		9	1		9			144
PRMA 1A24	1 Form A		24	44	1935	2150	2365	2		18	2		18			268
PRMA 1B05	1 Form B		5	6	450	500	550	0.8		3.75	0.8		3.75			50
PRMA 1B12	1 Form B		12	14.5	900	1000	1100	1		9	1		9			144
PRMA 1B24	1 Form B		24	29	1935	2150	2365	2		18	2		18			268
PRMA 1C05	1 Form C		5	12	180	200	220	0.8		3.75	0.8		3.75			125
PRMA 1C12	1 Form C		12	18	450	500	550	1		9	1		9			288
PRMA 1C24	1 Form C		24	32	1935	2150	2365	2		18	2		18			268
PRMA 2A05	2 Form A		5	11	126	140	154	0.8		3.75	0.8		3.75			179
PRMA 2A12	2 Form A		12	21	450	500	550	1		9	1		9			288
PRMA 2A24	2 Form A		24	44	1935	2150	2365	2		18	2		18			268
PRMA 10037	1 Form A		5	15	342	380	418	0.8		3.75	0.8		3.75			66
PRMA 10038	1 Form A		12	19	477	530	583	1		9	1		9			272
PRMA 10039	1 Form A		24	32	1800	2000	2200	2		18	2		18			288
DSS7 1A05	1 Form A		5	21	450	500	550	0.8		3.75	0.8		3.75			50
DSS7 1A12	1 Form A		12	30	900	1000	1100	1		9	1		9			144
DSS7 1A24	1 Form A		24	44	1935	2150	2365	2		18	2		18			268
PRME 25005	1 Form A		5	19	450	500	550	0.8		3.8	0.8		3.8			50
PRME 15005	1 Form A		5	15	342	380	418	1		3.5	1		3.5			66
PRME 15002	1 Form A		12	19	477	530	583	1		8	1		8			272
PRME 15003	1 Form A		24	32	1800	2000	2200	2		16	2		16			288
MVS2 1A05(A,B)	1 Form A		5	7	94.5	105	116	0.5		3.75	0.5		3.75			238
MVS2 1A12(A,B)	1 Form A		12	15	450	500	550	1		9	1		9			288
MVS2 1A24(A,B)	1 Form A		24	30	1935	2150	2365	2		18	2		18			268
MVS7 1A05(S)	1 Form A		5	7	94.5	105	116	0.5		3.75	0.5		3.75			238
MVS7 1A12(S)	1 Form A		12	15	450	500	550	1		9	1		9			288
MVS7 1A24(S)	1 Form A		24	30	1935	2150	2365	2		18	2		18			268

## PERFORMANCE GRAPHS



X = Distance (in.) between centers of adjacent relays.  
(For distance between relay bodies, subtract .400)

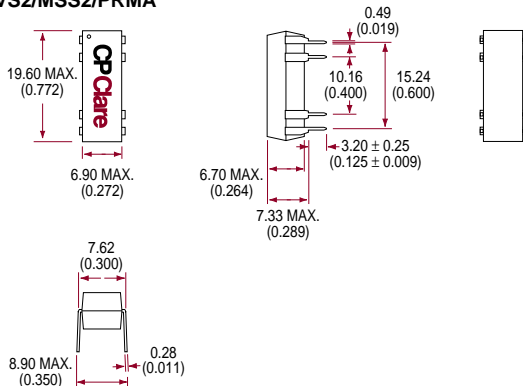
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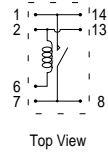
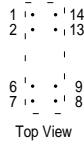
## MECHANICAL DIMENSIONS

mm  
(inches)

### MVS2/MSS2/PRMA

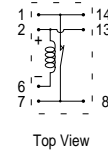


### PRMA 1A



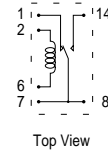
Options:  
Diode - pin #2 is positive  
Electrostatic shield - pin 9

### PRMA 1B



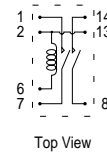
Options:  
Diode - pin #2 is positive  
Electrostatic shield - pin 9

### PRMA 1C



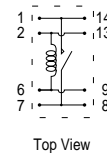
Options:  
Diode - pin #2 is positive  
Electrostatic shield - pin 9

### PRMA 2A

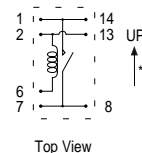


Options:  
Diode - pin #2 is positive  
Electrostatic shield - pin 9

### PRMA 10037/10038/10039

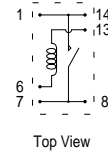
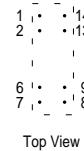
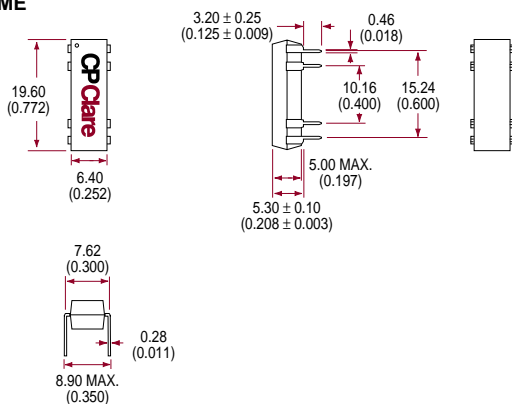


### MVS2/MSS2



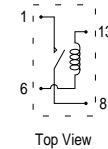
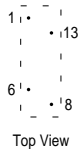
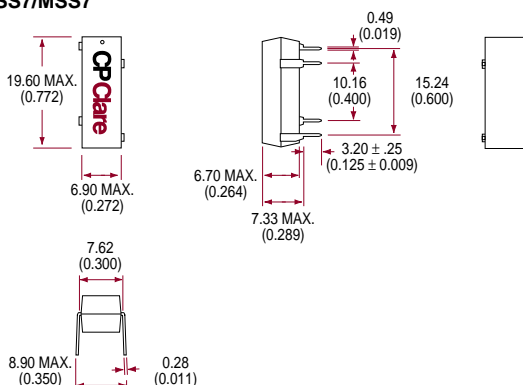
\* MVS2 only must be mounted vertically with pin #1 UP.

### PRME



Options:  
Diode - pin #13 is positive  
Electrostatic shield - pin 9

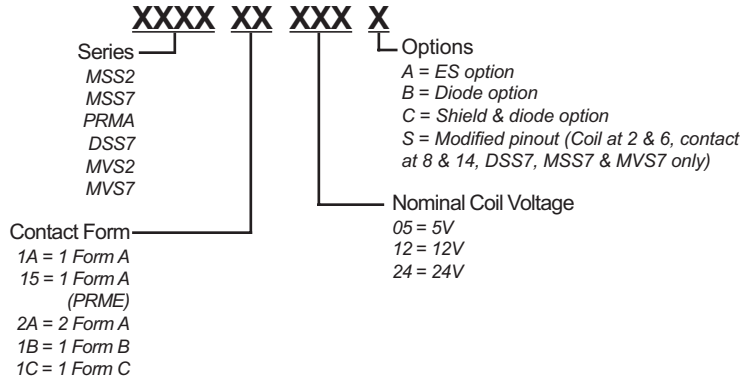
### DSS7/MSS7



MVS7 must be mounted vertically. Pin #1 is up.

## ORDERING INFORMATION

A complete part number is represented by the digits below. For example, the MVS21A05 is a model 2 MVS relay with a 1 Form A contact form, a nominal voltage of 5V and no extra options.



### Ordering Information Special Schematics

PRME 25005  
PRME 15005  
PRME 15002  
PRME 15003

PRMA 10037  
PRMA 10038  
PRMA 10039

*These represent full part numbers.*