

DIP 14 SERIES REED RELAYS

MSS2 ■ MSS7 ■ MVS2 ■ MVS7



DESCRIPTION

REMtech'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 up to 300Hz
- Long life > 1 billion operations
- Epoxy molded for automatic board processing
- FCC68 compatible (MSS2 & MSS7)

APPLICATIONS

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

RATINGS (@ 25° C)

Parameter	Min	Typ	Max	Unit
Switching Voltage				
MSS2/MSS7			500	Volts
MVS2/MVS7			1000	Volts
Switching Current				
MSS2/MSS7/MVS2/MVS7			2	Amps
Carry Current				
MSS2/MSS7/MVS2/MVS7			3	Amps
Switching Frequency				
MSS2/MSS7/MVS2/MVS7			200	Hz
Contact Resistance				
MSS2/MSS7/MVS2/MVS7			100	mΩ

(See detailed specifications for more information.)

APPROVALS

- EN 60950 certified (MVS7, MSS7)
- UL Recognized

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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.

MSS2
Molded 8 Pin
All position
Wetted contacts

MSS7
Molded 4 Pin
All position
Wetted contacts

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	MIN	TYP	MAX	UNITS
Contact Ratings									
Switching Voltage	Max DC/PeakAC Resistive	VL	-	-	500	-	-	500	Volts
Switching Current	Max DC/PeakAC Resistive	IL	-	-	2	-	-	2	Amps
Carry Current	Max DC/PeakAC Resistive	IC	-	-	3	-	-	3	Amps
Contact Rating	Max DC/PeakAC Resistive		-	-	50	-	-	50	Watts
Life Expectancy	Signal Level 1.0 V 10mA Rated Loads ⁽¹⁾		-	200	-	-	200	-	x10 ⁶ Ops
Static Contact Resistance	50mV, 10mA	CR	-	40	100	-	65	100	mΩ
Dynamic Contact Resistance	.5V, 50mA at 100Hz, 1.5 msec	DCR	-	N/A	-	-	N/A	-	mΩ
Contact Material			-	Hg	-	-	Hg	-	
Hg Content			-	16	-	-	16	-	mgrams
Relay Specifications									
Insulation Resistance	Between all isolated pins at 100V, 25°C, 40% RH	IR	10 ⁸	10 ¹⁰	-	10 ⁸	10 ¹⁰	-	Ω
Capacitance	Across Open Contacts		-	1.5	2	-	1.2	2	pF
Dielectric Strength	Open Contact to Coil		-	3	4	-	3	4	pF
	Between Contacts		1400	-	-	2000	-	-	VDC/Peak AC
Operate Time, including bounce	Contacts to Coil	I/O	1400	-	-	5600	-	-	VDC/Peak AC
	At Nominal Coil Voltage	TOP	-	1.2	1.75	-	1.2	1.75	ms
Release Time	10Hz Square Wave Zener-Diode Suppression	TREL	-	1	1.50	-	1	1.50	ms
Environmental Ratings									
Storage Temperature		TA	-40	-	+105	-40	-	+105	°C
Operating Temperature		TO	-38	-	+75	-38	-	+75	°C
Soldering Temperature	Applied to pins, 5 sec. max.		-	260	-	-	260	-	°C
Vibration Resistance (Survival)	10Hz - 500Hz	G	-	-	10	-	-	10	Gs
Shock Resistance (Survival)	11±1ms, 1/2 Sine Wave	S	-	-	30	-	-	30	Gs
Weight			-	2.3	-	-	2.3	-	grams

⁽¹⁾ Consult factory for life requirements.

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USA 1-877-4REMTECH Europe 32-89-328850 Japan 81-3-3667-3302 Ext. 2419
Hong Kong/China/Korea 852-2880-6773 Taiwan 886-2-2726-2177 Singapore/Far East 65-296-3388

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PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	MIN	TYP	MAX	UNITS
Contact Ratings									
Switching Voltage	Max DC/PeakAC Resistive	VL	-	-	1000 ⁽¹⁾	-	-	1000 ⁽¹⁾	Volts
Switching Current	Max DC/PeakAC Resistive	IL	-	-	2	-	-	2	Amps
Carry Current	Max DC/PeakAC Resistive	IC	-	-	3	-	-	3	Amps
Contact Rating	Max DC/PeakAC Resistive		-	-	50	-	-	50	Watts
Life Expectancy	Signal Level 1.0 V 10mA		1000	-	-	1000	-	-	x10 ⁶ Ops
	50V, 1A		-	2	-	-	2	-	x10 ⁶ Ops
	500V, 100mA		-	50	-	-	50	-	x10 ⁶ Ops
	Rated Loads ⁽²⁾								
Static Contact Resistance	50mV, 10mA	CR	-	-	100	-	-	100	mΩ
Contact Material			-	Hg	-	-	Hg	-	
Hg Content			-	40	-	-	40	-	mgrams
Relay Specifications									
Insulation Resistance	Between all isolated pins at 100V, 25°C, 40% RH	IR	10 ¹⁰	10 ¹²	-	10 ¹⁰	10 ¹²	-	Ω
Capacitance	Across Open Contacts		-	0.7	-	-	0.7	-	pF
	Upper Contact to Coil		-	1.2	-	-	1.5	-	pF
	Closed Contact to Coil		-	3.2	-	-	2.5	-	pF
Dielectric Strength	Open Contacts		1400	-	-	2000	-	-	VDC/Peak AC
	Contacts to Coil	I/O	1400	-	-	5600	-	-	VDC/Peak AC
Operate Time	At Nominal Coil Voltage	T _{OP}	-	1.5	2.5	-	1.5	2.5	ms
Release Time	10Hz Square Wave Zener-Diode Suppression	T _{REL}	-	1	2.5	-	1	2.5	ms
Environmental Ratings									
Storage Temperature		T _A	-40	-	+105	-40	-	+105	°C
Operating Temperature		T _O			+260			+260	°C
Soldering Temperature	Applied to pins, 5 sec. max.		-38	-	+85	-38	-	+85	°C
Vibration Resistance ⁽²⁾ (Survival)	10Hz - 500Hz	G	-	-	10	-	-	10	Gs
Shock Resistance (Survival)	11±1ms, 1/2 Sine Wave	S	-	-	30	-	-	30	Gs
Weight			-	2.1	-	-	2.1	-	grams

⁽¹⁾ Current limited up to 5mA, minimum 20 million operations; for further information, consult factory

⁽²⁾ Consult factory for life requirements.

⁽³⁾ Relay contains mercury wetted contacts and must be mounted vertically. Pin 1 is up.

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MSS2 ■ MSS7 ■ MVS2 ■ MVS7

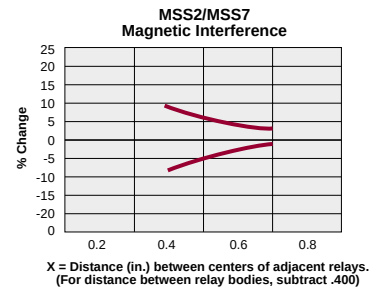
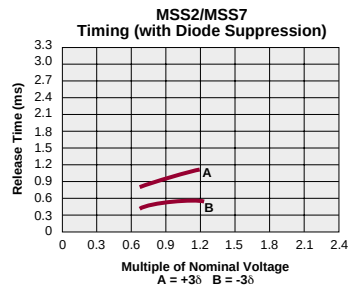
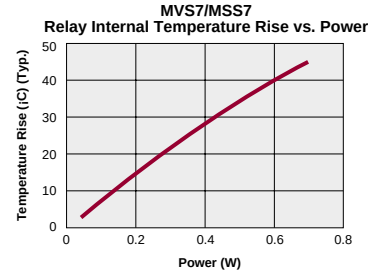
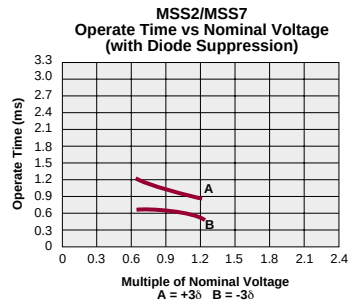
COIL SPECIFICATIONS

Power	Contact Form	Coil Voltage			Coil Resistance			Operate Voltage			Release Voltage			Nominal Input		
Units		Volts			Ω			Volts			Volt			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			3.75	0.5				179	
MSS2 1A12	1-Form-A		12	21	450	500	550			9	1				288	
MSS2 1A24	1-Form-A		24	44	1935	2150	2365			18	2				268	
MSS7 1A05	1-Form-A		5	11	126	140	154			3.75	0.5				179	
MSS7 1A12	1-Form-A		12	21	450	500	550			9	1				288	
MSS7 1A24	1-Form-A		24	43	1935	2150	2365			18	2				268	
MVS2 1A05(A,B)	1-Form-A		5	7	94.5	105	116			3.75	0.5				238	
MVS2 1A12(A,B)	1-Form-A		12	15	450	500	550			9	1				288	
MVS2 1A24(A,B)	1-Form-A		24	30	1935	2150	2365			18	2				268	
MVS7 1A05(S)	1-Form-A		5	7	94.5	105	116			3.75	0.5				238	
MVS7 1A12(S)	1-Form-A		12	15	450	500	550			9	1				288	
MVS7 1A24(S)	1-Form-A		24	30	1935	2150	2365			18	2				268	

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PERFORMANCE GRAPHS



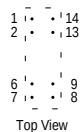
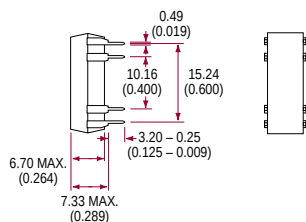
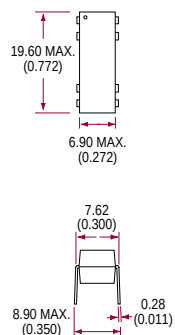
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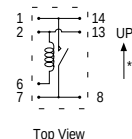
DIMENSIONS
mm
(inches)

MECHANICAL DIMENSIONS

MVS2/MSS2



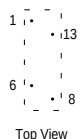
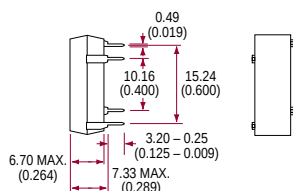
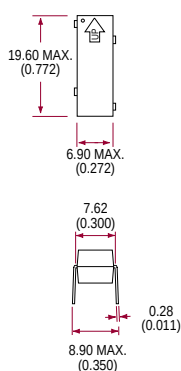
MVS2/MSS2



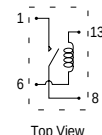
Top View

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

MSS7/MVS7



MSS7/MVS7



Top View

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.

