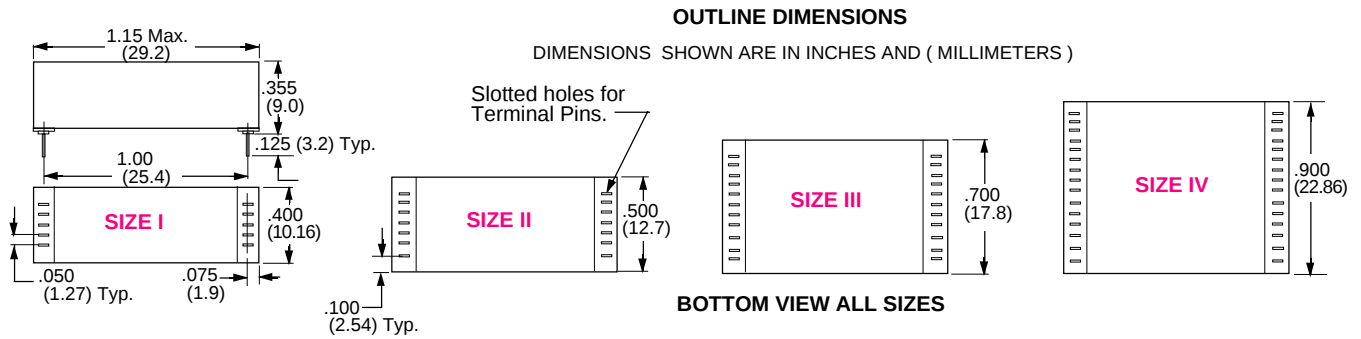
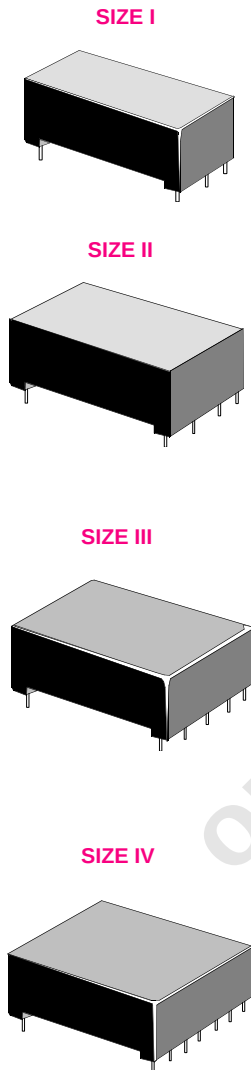


GENERAL SPECIFICATIONS MINIATURE REED RELAYS

MINIATURE
REED



STANDARD PRINTED CIRCUIT RELAY HAS 1.00" X 0.1" GRID SPACING

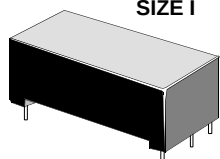


RELAY CLASS	101/193	104/193	131	134
CONTACT CONFIGURATION:	SPST-NO SPST-NO Latching (SPST-NO) 3PST-NO Latching up to 6PST-NO	SPDT, DPDT for 104 Series SPDT,DPDT, 3PDT,4PDT (193 Series)	SPST-NO or DPST-NO Mercury	Mercury (SPDT) Mercury DPDT
CONTACT RATING MAX. (Resistive Load) SWITCHING VOLTAGE MAX. SWITCHING CURRENT MAX. CARRY CURRENT MAX.	10 VA 200DC/130 AC 0.5 AMPS 2 AMPS	4VA 100 VDC 0.5 AMPS 1 AMPS	50VA 500 VDC 2 AMPS 3 AMPS	50VA 500 VDC 2 AMPS 3 AMPS
INITIAL CONTACT RESISTANCE (IN MILLIOHMS):	200 Milliohms Max.		100 Milliohms Max. Contact resistance Stability $\pm 10\%$ over Life.	
INSULATION RESISTANCE (Ohms) TESTED AT 100 VDC:	10 ⁹ Min.		10 ¹⁰ Min.	10 ¹⁰ Min.
DIELECTRIC STRENGTH: MIN. ACROSS OPEN CONTACTS: MIN. BETWEEN MUTUALLY INSULATED POINTS:	200 VDC		1000 VDC	1000 VDC
	500 VDC		1000 VDC	1000 VDC
CAPACITANCE: (non-shielded relay) ACROSS OPEN CONTACTS: OPEN CONTACTS TO COIL: CLOSED CONTACTS TO COIL:	3pf Typical Form "A" 2.0 pF Typ. Form "C" 3.0pF Typ.		.3pF 2.0 pF 3.0pF	.9pF 2.0 pF 2.5pF
TEMPERATURE: MAX. AMBIENT OPERATING (°C)	85 °C or (120 °C -70° x [Coil Power]) whichever is lower			
TEMPERATURE: MIN. AMBIENT OPERATING (°C)	- 40°C		- 37°C	
STORAGE TEMPERATURE:	- 60°C to + 105°C		- 40°C to + 105°C	
MOUNTING POSITION:	ANY		Vertical $\pm 15^\circ$	
LIFE AT RATED LOAD: With appropriate Contact protection (End of life 1 Ohm)	10 Million Operations 100 Million Operations at Low level		40 x 10 ⁸ 3 x 10 ⁸ at low level	50 x 10 ⁸ 5 x 10 ⁸ at low level
OPERATE TIME: (Typical- in Micro-Sec.))	1.0 mS, for N.O. 1.0 mS, for N.C.		2.0 mS, for N.O.	2300 μ S 2000 μ S
TYPICAL RELEASE TIME: (in Micro-Sec.) Diode Suppression: No Suppression:	1.0 mS, for N.O. 1.5 mS, for N.C.		1.0 mS for NO 1.5 mS for NC	2.0 mS 2.5 mS
PACKAGING:	Dust covered, Epoxy Encapsulated is Standard.			

MINIATURE REED

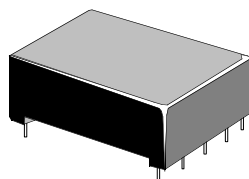
CLASS 101 DRY MINIATURE REED RELAY

SIZE I

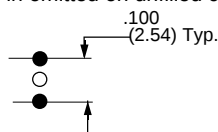


PIN SPACING OF 0.100" IS STANDARD. PIN SPACING OF 0.150 IS AVAILABLE ON SPECIAL ORDER. ALSO AVAILABLE ARE MODELS WITH ELECTROSTATIC SHIELDS. CONSULT FACTORY FOR PART NUMBERS. NON-STANDARD SCHEMATICS AND PIN-OUTS CAN ALSO BE PRODUCED FOR SPECIFIC CUSTOMER REQUIREMENTS.

Spacing between filled in circles in schematics are on a .100 Grid Pattern. Pin omitted on unfilled circles.



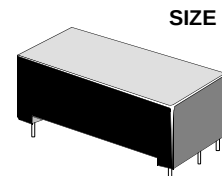
SIZE III



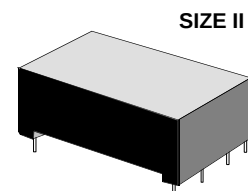
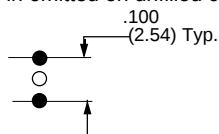
CASE SIZE	CIRCUIT DIAGRAM TOP VIEW	PART NUMBERS	COIL MEASURED AT 25°C					MAX. CONTACT RATING		
			NOMINAL INPUT VOLTAGE	MAXIMUM PULL-IN	MINIMUM DROPOUT	NOMINAL RESISTANCE (OHMS)	NOMINAL POWER (mW)	MAX. SWITCHING LOAD	SWITCHING CURRENT & VOLTAGE	CARRY CURRENT
SPST-NO										
I		W101MPCX-2 W101MPCX-3	12 24	9.0 18.0	1.0 2.0	1400 3300	102 175	10 VA	0.5 AMP 200 VDC	2 AMPS
3PST-NO										
III		W101MPCX-5 W101MPCX-6 W101MPCX-7	5 12 24	4.0 9.0 18.0	0.5 1.0 2.0	90 430 1500	280 340 380	10 VA	0.5 AMP 200 VDC	2 AMPS
SPST-NO MAGNETIC LATCH										
III		W101LMPCX-16 W101LMPCX-17	5/5 12/12	3.8 9.0 To Set or Reset	- -	425/425 2500/2500	60 60	10 VA	0.5 AMP 200 VDC	2 AMPS

PART NUMBERS SHOWN AVAILABLE THRU STOCKING DISTRIBUTION

PIN SPACING OF 0.100" IS STANDARD. PIN SPACING OF 0.150 IS AVAILABLE ON SPECIAL ORDER. ALSO AVAILABLE ARE MODELS WITH ELECTROSTATIC SHIELDS. CONSULT FACTORY FOR PART NUMBERS. NON-STANDARD SCHEMATICS AND PIN-OUTS CAN ALSO BE PRODUCED FOR SPECIFIC CUSTOMER REQUIREMENTS.



Spacing between filled in circles in schematics are on a .100 Grid Pattern. Pin omitted on unfilled circles.



SPST-NO MERCURY										
1		W131MPCX-3 W131MPCX-4	12 24	9.0 18.0	1.0 2.0	330 1400	435 410	50 VA	2.0 AMP 500 VDC	3 AMPS
DPST-NO MERCURY										
II		W131MPCX-7 W131MPCX-8	12 24	9.0 18.0	1.0 2.0	230 1200	626 480	50 VA	2.0 AMP 500 VDC	3 AMPS

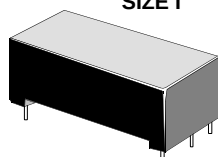
PART NUMBERS SHOWN AVAILABLE THRU STOCKING DISTRIBUTION

For Class 131 allow a minimum of 30 seconds after mounting for excess Mercury to clear from the contacts before using.

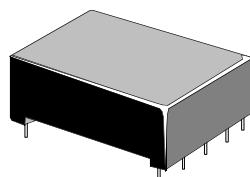
MINIATURE REED

CLASS 104 DRY MINIATURE REED RELAY

SIZE I

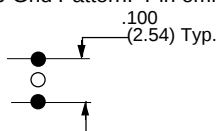


SIZE III



PIN SPACING OF .100" IS STANDARD. PIN SPACING OF .150 IS AVAILABLE ON SPECIAL ORDER. ALSO AVAILABLE ARE MODELS WITH ELECTROSTATIC SHIELDS. CONSULT FACTORY FOR PART NUMBERS. NONSTANDARD SCHEMATICS AND PIN-OUTS CAN ALSO BE PRODUCED FOR SPECIFIC CUSTOMER REQUIREMENTS.

Spacing between filled in circles in schematics are on a .100 Grid Pattern. Pin omitted on unfilled circles.



CASE SIZE	CIRCUIT DIAGRAM TOP VIEW	PART NUMBERS	COIL MEASURED AT 25°C					MAX. CONTACT RATING		
			NOMINAL INPUT VOLTAGE	MAXIMUM PULL-IN	MINIMUM DROPOUT	NOMINAL RESISTANCE (OHMS)	NOMINAL POWER (mW)	MAX. SWITCHING LOAD	SWITCHING CURRENT & VOLTAGE	CARRY CURRENT
SPDT										
I		W104MPCX-3	24	18.0	2.0	2600	220	4 VA	0.25 AMP 100VDC	0.5 AMPS
DPDT										
I		W104MPCX-6	12	9.0	1.0	230	626	4 VA	0.25 AMP 100VDC	0.5 AMPS
DPDT										
I		W104MPCX-149 W104MPCX-150 W104MPCX-151	5 12 24	4.0 9.0 18.0	0.5 1.0 2.0	45 230 1200	556 626 480	4 VA	0.25 AMP 100VDC	0.5 AMPS

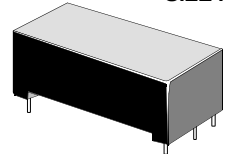
PART NUMBERS SHOWN AVAILABLE THRU STOCKING DISTRIBUTION

CLASS 134 MERCURY

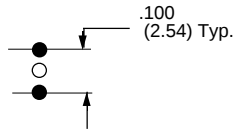
MINIATURE
REED

PIN SPACING OF .100" IS STANDARD. PIN SPACING OF .150 IS AVAILABLE ON SPECIAL ORDER. ALSO AVAILABLE ARE MODELS WITH ELECTROSTATIC SHIELDS. CONSULT FACTORY FOR PART NUMBERS. NONSTANDARD SCHEMATICS AND PIN-OUTS CAN ALSO BE PRODUCED FOR SPECIFIC CUSTOMER REQUIREMENTS.

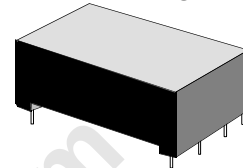
SIZE I



Spacing between filled in circles in schematics are on a .100 Grid Pattern. Pin omitted on unfilled circles.



SIZE II



DPDT MERCURY										
I		W134MPCX-7 W134MPCX-8	5 12	4.0 9.6	0.5 1.0	45 230	560 620	50 VA	1.0 AMP 500 VDC	2.0 AMPS
	DPDT MERCURY WITH CLAMPING DIODE									
	I		W134MPCX-10 W134MPCX-11	5 12	4.0 9.6	1.0 1.0	45 230	560 620	50 VA	1.0 AMP 500 VDC
SPDT MERCURY										
I			W134MPCX-1 W134MPCX-2 W134MPCX-3	5 12 24	4.0 9.0 18.0	0.5 1.0 2.0	60 330 1400	417 435 410	50 VA	1.0 AMP 500 VDC

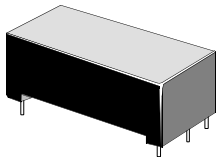
PART NUMBERS SHOWN AVAILABLE THRU STOCKING DISTRIBUTION

For Class 134 allow a minimum of 30 seconds after mounting for excess Mercury to clear from the contacts before using.

MINIATURE REED

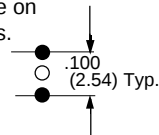
CLASS 193 DRY MINIATURE REED RELAY

SIZE I

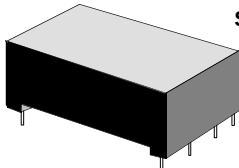


PIN SPACING OF 0.100" IS STANDARD. PIN SPACING OF 0.150 IS AVAILABLE ON SPECIAL ORDER. ALSO AVAILABLE ARE MODELS WITH ELECTROSTATIC SHIELDS. CONSULT FACTORY FOR PART NUMBERS. NONSTANDARD SCHEMATICS AND PIN-OUTS CAN ALSO BE PRODUCED FOR SPECIFIC CUSTOMER REQUIREMENTS.

Spacing between filled in circles in schematics are on .100 Grid Patterns. Pin omitted on unfilled circles.



SIZE II



CASE SIZE	CIRCUIT DIAGRAM (Top View)	PART NUMBERS	COIL MEASURED AT 25°C					MAX. CONTACT RATING		
			NOMINAL INPUT VOLTAGE	MAXIMUM PULL-IN	MINIMUM DROPOUT	NOMINAL RESISTANCE (OHMS)	NOMINAL POWER (mW)	MAX. SWITCHING LOAD	SWITCHING CURRENT & VOLTAGE	CARRY CURRENT
SPST-N.O.										
I		W193RE1A3-5S	5	4.0	0.5	500	50	10 VA	0.5 AMP 200 VDC	2 AMPS
		W193RE1A3-12G	12	9.0	1.0	420	350			
		W193RE1A3-24G	24	18.0	2.0	2300	250			
SPDT										
I		W193RE1C3-5S	5	4.0	0.5	350	70	4 VA	0.5 AMP 100 VDC	1 AMP
		W193RE1C3-12G	12	9.0	1.0	420	350			
		W193RE1C3-24G	24	18.0	2.0	2300	250			
DPST-N.O.										
I		W193RE2A3-6G	5	4.0	0.5	70	360	10 VA	0.5 AMP 200 VDC	2 AMP
		W193RE2A3-12G	12	9.0	1.0	280	500			
		W193RE2A3-24G	24	18.0	2.0	1500	390			
DPDT										
I		W193RE2C3-6G	5	4.0	0.5	70	360	4 VA	0.5 AMP 100 VDC	1 AMP
		W193RE2C3-12G	12	9.0	1.0	280	500			
		W193RE2C3-24G	24	18.0	2.0	1500	390			

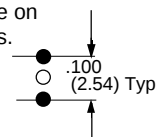
PART NUMBERS SHOWN AVAILABLE THRU STOCKING DISTRIBUTION

CLASS 193 DRY MINIATURE REED RELAY

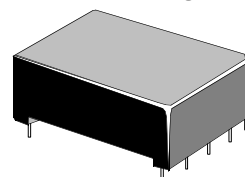
MINIATURE
REED

PIN SPACING OF 0.100" IS STANDARD. PIN SPACING OF 0.150 IS AVAILABLE ON SPECIAL ORDER. ALSO AVAILABLE ARE MODELS WITH ELECTROSTATIC SHIELDS. CONSULT FACTORY FOR PART NUMBERS. NONSTANDARD SCHEMATICS AND PIN-OUTS CAN ALSO BE PRODUCED FOR SPECIFIC CUSTOMER REQUIREMENTS.

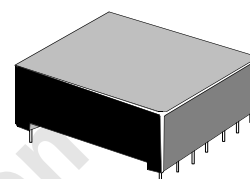
Spacing between filled in circles in schematics are on .100 Grid Patterns. Pin omitted on unfilled circles.



SIZE III



SIZE IV



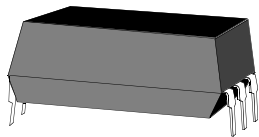
CASE SIZE	CIRCUIT DIAGRAM (Top View)	PART NUMBERS	COIL MEASURED AT 25°C					MAX. CONTACT RATING		
			NOMINAL INPUT VOLTAGE	MAXIMUM PULL-IN	MINIMUM DROPOUT	NOMINAL RESIS-TANCE (OHMS)	NOMINAL POWER (mW)	MAX. SWITCHING LOAD	SWITCHING CURRENT & VOLTAGE	CARRY CURRENT
3PST-N.O.										
III		W193RE3A3-6G	5	4.0	0.5	50	500	10 VA	0.5 AMP 200 VDC	2 AMP
		W193RE3A3-12G	12	9.0	1.0	210	690			
		W193RE3A3-24G	24	18.0	2.0	1150	500			
3PDT										
III		W193RE3C3-6G	5	4.0	0.5	50	500	4 VA	0.5 AMP 100 VDC	1 AMP
		W193RE3C3-12G	12	9.0	1.0	210	690			
		W193RE3C3-24G	24	18.0	2.0	1150	500			
4PST-N.O.										
III		W193RE4A3-6G	5	4.0	0.5	50	500	10 VA	0.5 AMP 200 VDC	2 AMP
		W193RE4A3-12G	12	9.0	1.0	210	690			
		W193RE4A3-24G	24	18.0	2.0	1150	500			
4PDT										
IV		W193RE4C3-6G	5	4.0	0.5	35	720	4 VA	0.5 AMP 100 VDC	1 AMP
		W193RE4C3-12G	12	9.0	1.0	140	1030			
		W193RE4C3-24G	24	18.0	2.0	770	750			

PART NUMBERS SHOWN AVAILABLE THRU STOCKING DISTRIBUTION

SERIES
MR-Y

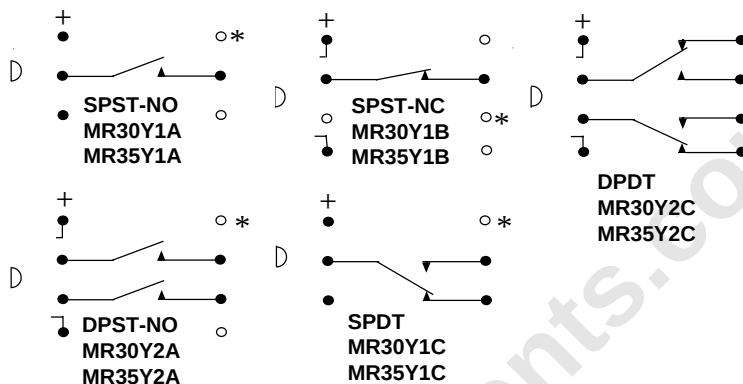
P.C. TERMINAL, MOLDED MINIATURE REED RELAY

The MR-Y Series epoxy molded miniature reed relay has terminal pins on each end and spaced 1 inch apart. It is available with two grid spacings - 0.1 inch or 0.15 inch. Available contacts range from SPST-NO to DPDT configurations. As an option, Mercury reeds are available in limited contact configurations. Lower power coils are also available in addition to optional diode across the coil and electrostatic shielding.



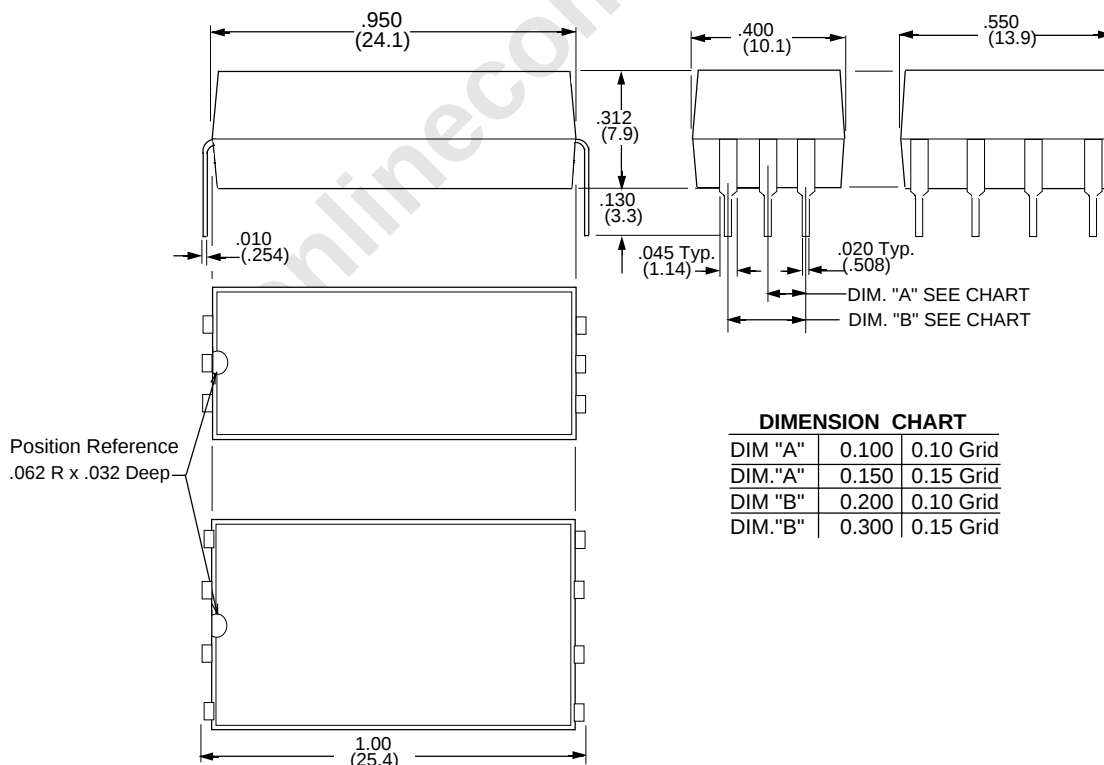
WIRING DIAGRAM

Top View



OUTLINE DIMENSIONS

Dimensions shown are in Inches and (Millimeter)



DIMENSION CHART

DIM "A"	0.100	0.10 Grid
DIM. "A"	0.150	0.15 Grid
DIM "B"	0.200	0.10 Grid
DIM. "B"	0.300	0.15 Grid

P.C. TERMINAL, MOLDED MINIATURE REED RELAY

SERIES
MR-Y

SPECIFICATIONS MR-Y

(Not all Data applies to HG Relays)

Package Material:	Epoxy, molded
Contact Material:	Rhodium
Dielectric Strength:	200 V rms Across Open Contacts 1500 V rms All other points
Insulation Resistance:	1000 Megohms Min.
Capacitance:	0.4 pF typical coil to contacts
Shock Resistance:	50 G's
Vibration Resistance:	20 G's to 2000 Hz
Operate & Release Time:	2 Milliseconds Max.
Life:	10 Million operations at rated load SPST, DPST-NO & NC 100 Million operations no load SPST, DPST-NO & NC 5 Million operations at rated load SPDT, DPDT contacts. 50 Million operations no load, SPDT, DPDT contacts.

COIL DATA

Power Consumption (mW) - Coil Resistance, Nominal Voltage $\pm 10\%$ @ 25°C				
SPST, DPST			SPDT, DPDT	
VDC	OHMS	mW	OHMS	mW
5	150	167	80	313
12	575	250	320	450
24	2150	268	1500	384

CONTACT DATA

Material - Rhodium on Dry Reeds			
Contacts	Max. VDC	Max. mA	VA
SPST-NO	200	500	10
SPST-NC	200	500	10
SPDT, DPDT	28	250	3
SPST-NO (HG)	500	2000	50
SPDT, DPDT(HG)	200	1000	28

Must operate at 80% of nominal voltage @ 25°C

Low Power Coils available:

- Single Pole - 25mW
- Double Pole - 65mW

Magnecraft & Struthers-Dunn

ORDERING CODE

Typical Type No.

MR30Y 2A RV -12D

Series

MR30Y - 0.1 grid, end terminal
Min. P.C. Reed Relay

MR35Y - 0.15 grid, end terminal
Min. P.C. Reed Relay

Contact Arrangements

- 1A - SPST-NO
- 2A - DPST-NO
- 1B - SPST-NC
- 1C - SPDT
- 2C - DPDT

Options

- Electrostatic Shield (see wiring diagrams) - **CODE E**
- Low Power Coils (Dry Reeds Only) - **CODE R**
- Diode across Coil (Observe Polarity) - **CODE V**
- Mercury Reed Contact, position sensitive
SPST-NO or SPDT - **CODE Z**

Coil Voltage (DC only)

DC: 5, 12, 24 (Add "D")

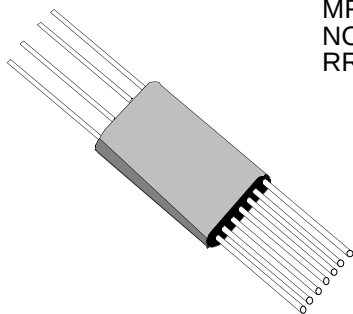
† Polarity must be observed for models with Form "B" contacts or optional Diode.

*Terminal for optional Electrostatic Shield.

HG Contact relays are position sensitive.

SERIES MRR & RR

AXIAL LEAD, SHIELDED REED RELAY



The MRR and RR Series Axial lead epoxy molded reed relays have solid wire leads on each end. They are available with two grid spacings - 0.1 inch for the MRR series and 0.2 inch for the RR series. Available contacts - UP TO 12PST-NO for the MRR series, and 1-4PST-NO or NC for the RR series. The MRR and RR series come with an external Half shield fixed to the body of the relay.

WIRING DIAGRAM (Terminal view)



DIMENSIONAL CHART FOR MRR & RR SERIES RELAYS

SERIES	DIMENSIONS (Inches)							
	A	B	C	D	E	F	G	H
MRR1A	1.062	.425	.425	.500	.500	.028	.028	.018 X .030
MRR2A	± .005	.440	.515					
MRR4A		.535	.810					
RR1A, RR1B	1.875	.655	.655	.875	.500	.035	.035 X .061	.055
RR2A		.670	.840					
RR4AF		.810	1.385					

To convert Inch dimensions to Millimeter use 25.4 x Dimension = Millimeters.

OUTLINE DIMENSIONS

See dimensional chart above

