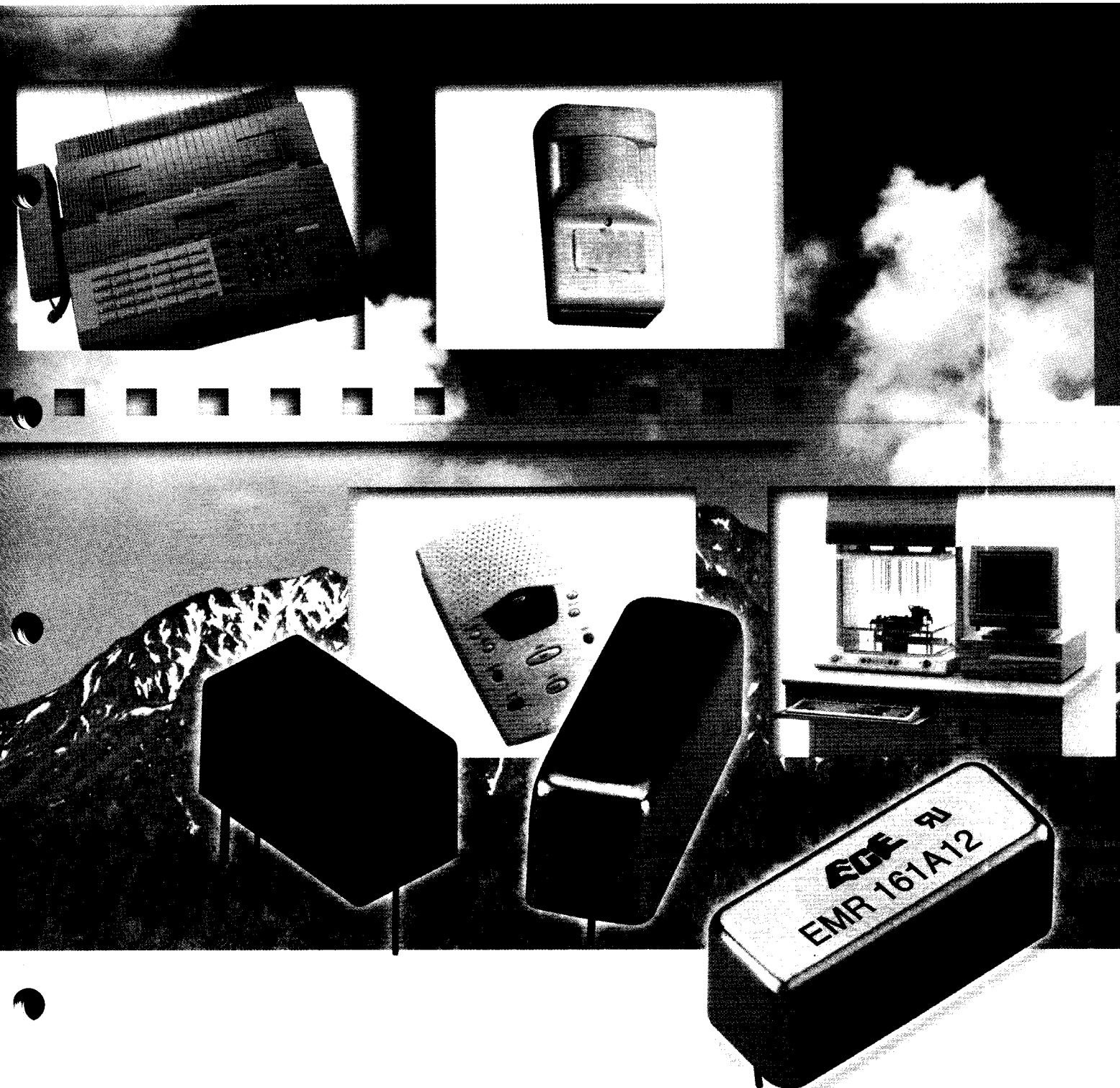


CONVENTIONAL TYPE REED RELAY

LINE SENSE REED RELAY

EMR SERIES



EMR18 SERIES LINE SENSE REED RELAY

NEW

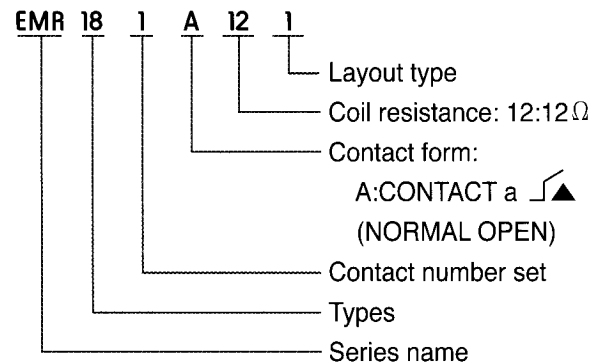
EMR18 SERIES

Contact Form	1A	Timing (at nominal IDC, 25Hz drive, 50% duty cycle with diode suppression)	
Contact Rating		Operate time, maximum(Including Bounce)	1.0ms
Maximum switching power	10 VA	Release time, maximum	0.5ms
Maximum switching voltage	100 VDC	Dielectric Voltage	
Maximum switching current	0.5A	Coil to contact	3000 VAC
Maximum carry current	1.0A	Across contacts	150 VDC
Contact Resistance, Initial	150 mΩ	Shock Resistance	30G Min.
Contact Material	Rhodium	Electrical Life at Rated Load	10 ⁶
Life Expectancy (Contact) (signal level load ref 10 VDC,10mA)	10x10 ⁶	Temperature Range	-10°C to +60°C
Insulation Resistance (Ω)	100x10 ⁶		

FEATURES

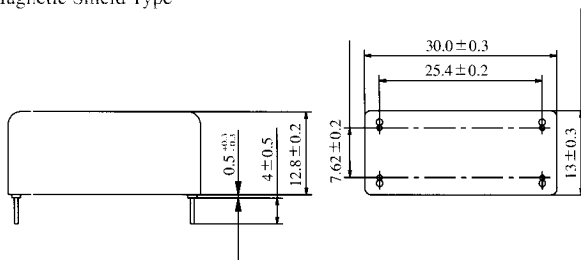
1. Low coil resistance.
2. Less than 15 mA Pull-in current possible.
3. Coil-contact isolation voltage up to 4250VDC/3000VAC.
4. Position of pin is optional.
5. Wide operation current and low power consumption.
6. A sealed metal outer case is used to prevent interference by magnetic field and also to protect the coil during PCB assembly.
7. This product of line sense reed relay are designed for use as telephone line busy detectors.

PART NUMBERING SYSTEM

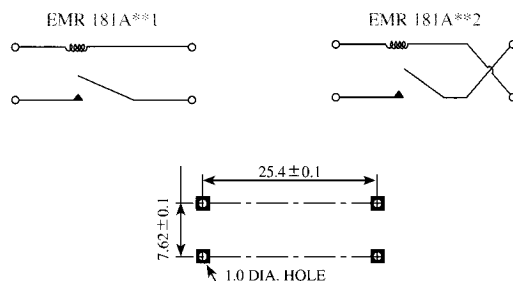


DIMENSIONS

UNIT:mm

 EMR18 (FORM 1A)
Magnetic Shield Type


Wiring Diagram and PCB Layout (Top View)



Part Number	Coil Resistance (Ohms+/-10%)	Nominal Input Power (mW)	Nominal Current (mA)	Must Operate Current (mA)	Must Release Current (mA)	Maximum Current (mA)
EMR181A071/2	7	2.8	20	15	5	200
EMR181A091/2	9	3.6	20	15	5	200
EMR181A121/2	12	4.8	20	15	5	200
EMR181A151/2	15	6.0	20	15	5	200
EMR181A181/2	18	7.2	20	15	5	200

EMR SERIES CONVENTIONAL TYPE REED RELAY

SERIES	TYPES	CONTACT FORM	CONTACT MATERIAL	MAXIMUM SWITCHING				NOMINAL INPUT POWER(mW) REFERENCE 5V VERSION	OPERATE TIME(ms TYPICAL)	LIFE AT SIGNAL(10VDC/10mA) LEVEL LOADS (NO. OPERATIONS)	BREAKDOWN COIL TO CONTACT(VAC)	BREAKDOWN ACROSS CONTACTS(VDC)	ELECTRICAL LIFE AT RATED LOAD	PACKAGE TYPE	CAN BE FOUND IN THIS SECTION OF BROCHURE	PAGE
				POWER(VA)	VOLTAGE(VDC)	CURRENT(A)	MAX.CARRY CURRENT(A)									
EMR	01	1A,1B	RHODIUM	10	100	0.5	1.0	50	1.0	10x10 ⁶	500	200	10x10 ⁶	OPEN	PITCH 20.32+2.54mm	12
	02	1A,1B	RHODIUM	10	100	0.5	1.0	50	1.0	10x10 ⁶	500	200	10x10 ⁶	METAL	PITCH 20.32+2.54mm	12
	03	1A,1B	RHODIUM	10	100	0.5	1.0	50	1.0	10x10 ⁶	500	200	10x10 ⁶	PLASTIC	PITCH 20.32+2.54mm	12
	07	2A,2B	RHODIUM	10	100	0.5	1.0	50	1.0	10x10 ⁶	500	200	10x10 ⁶	PLASTIC	PITCH 22.86mm	15
	09	1C	RHODIUM	3	30	0.2	0.5	50	1.0	10x10 ⁶	500	200	10x10 ⁶	PLASTIC	PITCH 22.86mm	13
	10	1C	RHODIUM	3	30	0.2	0.5	50	1.0	10x10 ⁶	500	200	10x10 ⁶	METAL	PITCH 19.42+0.9mm	13
	11	1C	RHODIUM	3	30	0.2	0.5	50	1.0	10x10 ⁶	500	200	10x10 ⁶	PLASTIC	PITCH 19.42+0.9mm	13
	12	1A,1B	RHODIUM	10	100	0.5	1.0	50	1.0	10x10 ⁶	500	200	10x10 ⁶	METAL	SIP TYPE PITCH 5.08+10.16+5.08mm	14
	13	1A,1B	RHODIUM	10	100	0.5	1.0	50	1.0	10x10 ⁶	500	200	10x10 ⁶	PLASTIC	SIP TYPE PITCH 5.08+10.16+5.08mm	14
	15	1A	RHODIUM	1	24	0.1	0.3	50	1.0	10x10 ⁶	500	150	10x10 ⁶	PLASTIC	PITCH 12.7mm	15
	16	1A	RHODIUM	10	100	0.5	1.0	50	1.0	10x10 ⁶	1500	200	10x10 ⁶	METAL	SIP TYPE PITCH 5.08+10.16+5.08mm	14
	17	1A	RHODIUM	25	200	1.5	2.5	50	1.0	10x10 ⁶	3750	350	10x10 ⁶	PLASTIC	SIP TYPE PITCH 10.16+10.16+10.16mm	15
	18	1A	RHODIUM	10	100	0.5	1.0	NOT APPLICABLE	1.0	10x10 ⁶	3000	150	10x10 ⁶	METAL	PITCH 25.4mm	10
	19															
	20															

FEATURES

1. 2.54 mm IC terminal arrangement.
2. High switching speed and low bounce time.
3. Use gas tube sealed switch to prevent dust, gas and humidity influence.
4. Wide operate voltage range and low power consumption.
5. Ideal for use on cordless telephone, multifunction telephone, modem, burglar alarm etc..

PART NUMBERING SYSTEM

EMR 01 1 A 08

Nominal voltage: 08:8VDC

Contact form:

A:CONTACT a  (NORMAL OPEN)

B:CONTACT b  (NORMAL CLOSE)

C:CONTACT c 

Contact number set

Types

Series name

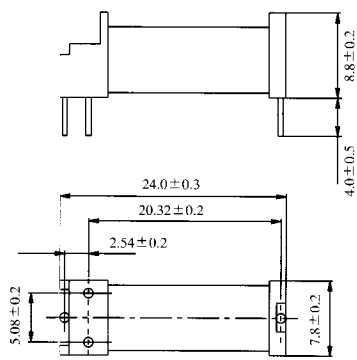
Types	01	02	03
Contact Form	1A,1B	1A,1B	1A,1B
Contact Rating			
Maximum switching power	10 VA	10 VA	10 VA
Maximum switching voltage	100 VDC	100 VDC	100 VDC
Maximum switching current	0.5A	0.5A	0.5A
Maximum carry current	1.0A	1.0A	1.0A
Contact Resistance, Initial	150 mΩ	150 mΩ	150 mΩ
Contact Material	Rhodium	Rhodium	Rhodium
Life Expectancy signal level load (ref 10 VDC,10mA)	10x10 ⁶	10x10 ⁶	10x10 ⁶
Timing (at nominal VDC, 25Hz drive, 50% duty cycle with diode suppression)			
Operate time, maximum (Including Bounce)	1.0 ms	1.0 ms	1.0 ms
Release time, maximum	0.5 ms	0.5 ms	0.5 ms
Dielectric Voltage			
Coil to contact	500 VAC	500 VAC	500 VAC
Across contacts	200 VDC	200 VDC	200 VDC
Insulation Resistance (Ω)	100x10 ⁶	100x10 ⁶	100x10 ⁶
Temperature Range	-10°C to +60°C	-10°C to +60°C	-10°C to +60°C
Shock Resistance	30G Min.	30G Min.	30G Min.
Electrical Life at Rated Load	10 ⁶	10 ⁶	10 ⁶

DIMENSIONS

UNIT:mm

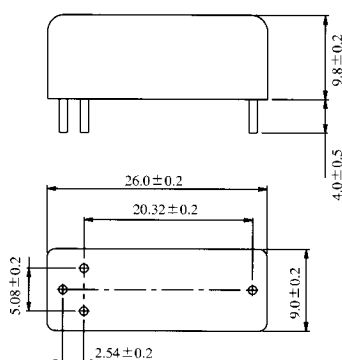
EMR01 (FORM 1A,1B)

Open Type



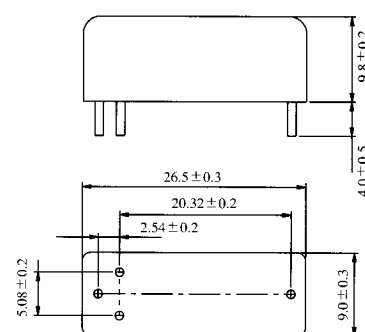
EMR02 (FORM 1A,1B)

Magnetic Shield Type



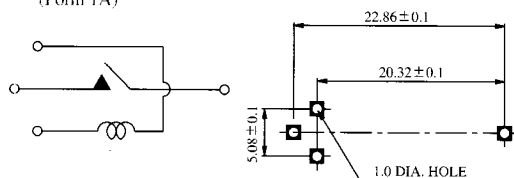
EMR03 (FORM 1A,1B)

Plastic Cap Type

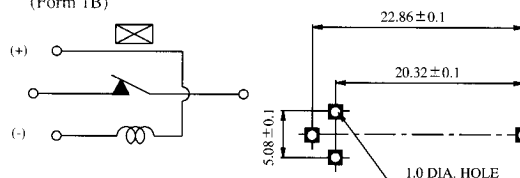


Wiring Diagram and PCB Layout (Top View)

(Form 1A)



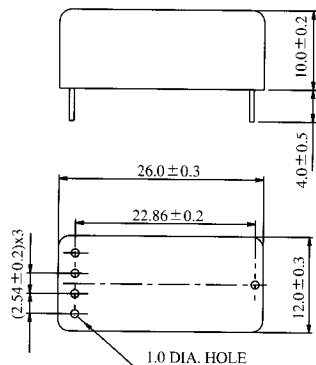
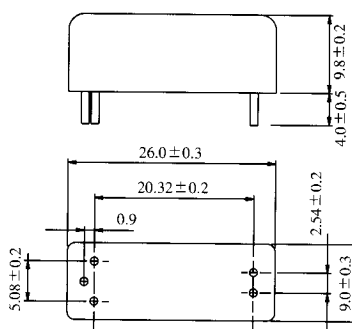
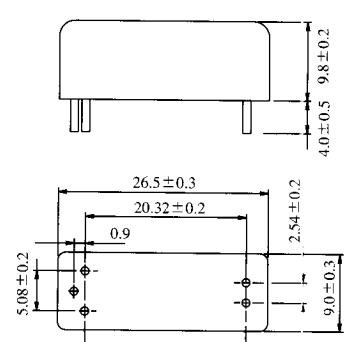
(Form 1B)



Types	09	10	11
Contact Form	1C	1C	1C
Contact Rating			
Maximum switching power	3 VA	3 VA	3 VA
Maximum switching voltage	30 VDC	30 VDC	30 VDC
Maximum switching current	0.2A	0.2A	0.2A
Maximum carry current	0.5A	0.5A	0.5A
Contact Resistance, Initial	150 mΩ	150 mΩ	150 mΩ
Contact Material	Rhodium	Rhodium	Rhodium
Life Expectancy			
signal level load (ref 10 VDC, 10mA)	10x10 ⁶	10x10 ⁶	10x10 ⁶
Timing (at nominal VDC, 25Hz drive, 50% duty cycle with diode suppression)			
Operate time, maximum (Including Bounce)	1.0 ms	1.0 ms	1.0 ms
Release time, maximum	0.5 ms	0.5 ms	0.5 ms
Dielectric Voltage			
Coil to contact	500 VAC	500 VAC	500 VAC
Across contacts	200 VDC	200 VDC	200 VDC
Insulation Resistance (Ω)	100x10 ⁶	100x10 ⁶	100x10 ⁶
Temperature Range	-10°C to +60°C	-10°C to +60°C	-10°C to +60°C
Shock Resistance	30G Min.	30G Min.	30G Min.
Electrical Life at Rated Load	10 ⁶	10 ⁶	10 ⁶

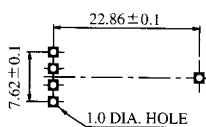
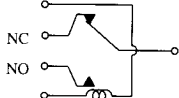
DIMENSIONS

UNIT:mm

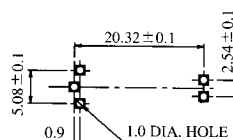
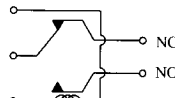
EMR09 (FORM 1C)
Plastic Cap TypeEMR10 (FORM 1C)
Magnetic Shield TypeEMR11 (FORM 1C)
Plastic Cap Type

Wiring Diagram and PCB Layout (Top View)

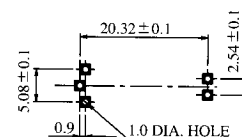
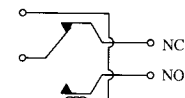
EMR 09 (Form 1C)



EMR10 (FORM 1C)



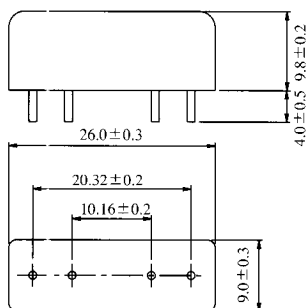
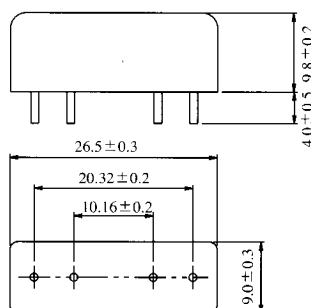
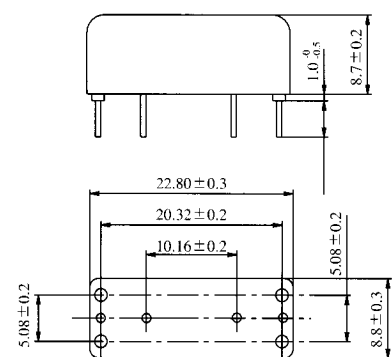
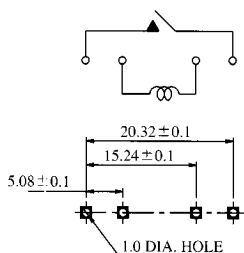
EMR11 (FORM 1C)



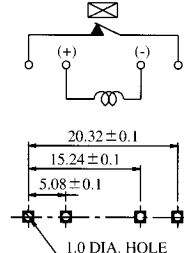
Types	12	13	16
Contact Form	1A, 1B	1A, 1B	1A
Contact Rating			E155181(R)
Maximum switching power	10 VA	10 VA	10 VA
Maximum switching voltage	100 VDC	100 VDC	100 VDC
Maximum switching current	0.5A	0.5A	0.5A
Maximum carry current	1.0A	1.0A	1.0A
Contact Resistance, Initial	150 mΩ	150 mΩ	150 mΩ
Contact Material	Rhodium	Rhodium	Rhodium
Life Expectancy signal level load (ref 10 VDC,10mA)	10x10 ⁶	10x10 ⁶	10x10 ⁶
Timing (at nominal VDC, 25Hz drive, 50% duty cycle with diode suppression)			
Operate time, maximum (Including Bounce)	1.0 ms	1.0 ms	1.0 ms
Release time, maximum	0.5 ms	0.5 ms	0.5 ms
Dielectric Voltage			
Coil to contact	500 VAC	500 VAC	1500 VAC
Across contacts	200 VDC	200 VDC	200 VDC
Insulation Resistance (Ω)	100x10 ⁶	100x10 ⁶	100x10 ⁶
Temperature Range	-10°C to +60°C	-10°C to +60°C	-10°C to +60°C
Shock Resistance	30G Min.	30G Min.	30G Min.
Electrical Life at Rated Load	10 ⁶	10 ⁶	10 ⁶

DIMENSIONS

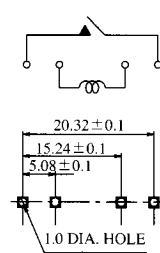
UNIT:mm

EMR12 (FORM 1A,1B)
Magnetic Shield TypeEMR13 (FORM 1A,1B)
Plastic Cap TypeEMR16 (FORM 1A)
Magnetic Shield TypeWirir g Diagram and PCB Layout (Top View)
(Form 1A)

(FORM 1B)



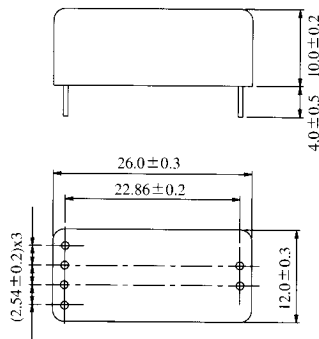
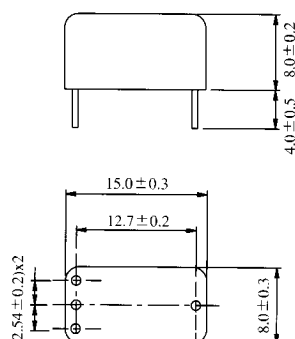
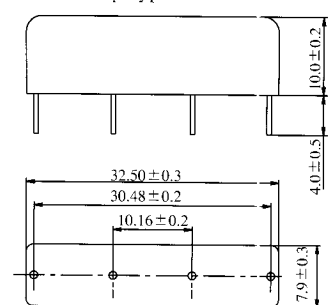
EMR16 (FORM 1A)



Types	07	15	17
Contact Form	2A, 2B	1A	1A
Contact Rating			
Maximum switching power	10 VA	1 VA	25 VA
Maximum switching voltage	100 VDC	24 VDC	200 VDC
Maximum switching current	0.5A	0.1A	1.5A
Maximum carry current	1.0A	0.3A	2.5A
Contact Resistance, Initial	150 mΩ	150 mΩ	150 mΩ
Contact Material	Rhodium	Rhodium	Rhodium
Life Expectancy signal level load (ref 10 VDC, 10mA)	10x10 ⁶	10x10 ⁶	10x10 ⁶
Timing (at nominal VDC, 25Hz drive, 50% duty cycle with diode suppression)			
Operate time, maximum (Including Bounce)	1.0 ms	1.0 ms	1.0 ms
Release time, maximum	0.5 ms	0.5 ms	0.5 ms
Dielectric Voltage			
Coil to contact	500 VAC	500 VAC	3750 VAC
Across contacts	200 VDC	150 VDC	350 VDC
Insulation Resistance (Ω)	100x10 ⁶	100x10 ⁶	100x10 ⁶
Temperature Range	-10°C to+ 60°C	-10°C to+ 60°C	-10°C to+ 60°C
Shock Resistance	30G Min.	30G Min.	30G Min.
Electrical Life at Rated Load	10 ⁶	10 ⁶	10 ⁶

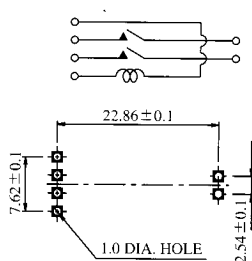
DIMENSIONS

UNIT:mm

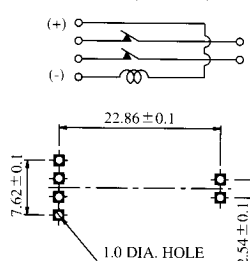
EMR07 (FORM 2A,2B)
Plastic Cap TypeEMR15 (FORM 1A)
Plastic Cap TypeEMR17 (FORM 1A)
Plastic Cap Type

Wiring Diagram and PCB Layout (Top View)

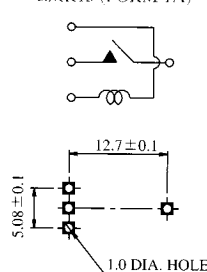
EMR07 (Form 2A)



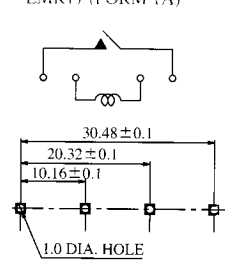
EMR07 (Form 2B)



EMR15 (FORM 1A)



EMR17 (FORM 1A)



Part Number	Nominal Voltage (VDC)	Coil Resistance (Ohms+/-10%)	Nominal Input Power (mW)	Must Operate Voltage (VDC)	Must Release Voltage (VDC)	Maximum Voltage (VDC)
EMR011A03	3	500	18	2.4	0.8	11.0
EMR011A05	5	500	50	3.2	0.8	11.0
EMR011A06	6	500	72	3.8	0.8	11.0
EMR011A08	8	700	92	6.0	0.8	18.0
EMR011A09	9	700	116	6.0	0.8	18.0
EMR011A12	12	1050	138	8.0	0.8	22.0
EMR011A24	24	2080	277	16.0	0.8	32.0
EMR011B03	3	500	18	2.4	0.8	3.6
EMR011B05	5	500	50	3.75	0.8	6.0
EMR011B06	6	500	72	4.5	0.8	7.2
EMR011B08	8	700	92	6.0	0.8	9.6
EMR011B09	9	700	116	6.75	0.8	10.8
EMR011B12	12	1050	138	9.0	0.8	14.4
EMR011B24	24	2080	277	18.0	0.8	28.8
EMR021A03	3	500	18	2.4	0.8	11.0
EMR021A05	5	500	50	3.2	0.8	11.0
EMR021A06	6	500	72	3.8	0.8	11.0
EMR021A08	8	700	92	6.0	0.8	18.0
EMR021A09	9	700	116	6.0	0.8	18.0
EMR021A12	12	1050	138	8.0	0.8	22.0
EMR021A24	24	2080	277	16.0	0.8	32.0
EMR021B03	3	500	18	2.4	0.8	3.6
EMR021B05	5	500	50	3.75	0.8	6.0
EMR021B06	6	500	72	4.5	0.8	7.2
EMR021B08	8	700	92	6.0	0.8	9.6
EMR021B09	9	700	116	6.75	0.8	10.8
EMR021B12	12	1050	138	9.0	0.8	14.4
EMR021B24	24	2080	277	18.0	0.8	28.8
EMR031A03	3	500	18	2.4	0.8	11.0
EMR031A05	5	500	50	3.2	0.8	11.0
EMR031A06	6	500	72	3.8	0.8	11.0
EMR031A08	8	700	92	6.0	0.8	18.0
EMR031A09	9	700	116	6.0	0.8	18.0
EMR031A12	12	1050	138	8.0	0.8	22.0
EMR031A24	24	2080	277	16.0	0.8	32.0
EMR031B03	3	500	18	2.4	0.8	3.6
EMR031B05	5	500	50	3.75	0.8	6.0
EMR031B06	6	500	72	4.5	0.8	7.2
EMR031B08	8	700	92	6.0	0.8	9.6
EMR031B09	9	700	116	6.75	0.8	10.8
EMR031B12	12	1050	138	9.0	0.8	14.4
EMR031B24	24	2080	277	18.0	0.8	28.8

Part Number	Nominal Voltage (VDC)	Coil Resistance (Ohms+/-10%)	Nominal Input Power (mW)	Must Operate Voltage (VDC)	Must Release Voltage (VDC)	Maximum Voltage (VDC)
EMR091C03	3	500	18	2.4	0.8	11.0
EMR091C05	5	500	50	3.2	0.8	11.0
EMR091C06	6	500	72	3.8	0.8	11.0
EMR091C08	8	700	92	6.0	0.8	18.0
EMR091C09	9	700	116	6.0	0.8	18.0
EMR091C12	12	1050	138	8.0	0.8	22.0
EMR091C24	24	2080	277	16.0	0.8	32.0
EMR101C03	3	500	18	2.4	0.8	11.0
EMR101C05	5	500	50	3.2	0.8	11.0
EMR101C06	6	500	72	3.8	0.8	11.0
EMR101C08	8	700	92	6.0	0.8	18.0
EMR101C09	9	700	116	6.0	0.8	18.0
EMR101C12	12	1050	138	8.0	0.8	22.0
EMR101C24	24	2080	277	16.0	0.8	32.0
EMR111C03	3	500	18	2.4	0.8	11.0
EMR111C05	5	500	50	3.2	0.8	11.0
EMR111C06	6	500	72	3.8	0.8	11.0
EMR111C08	8	700	92	6.0	0.8	18.0
EMR111C09	9	700	116	6.0	0.8	18.0
EMR111C12	12	1050	138	8.0	0.8	22.0
EMR111C24	24	2080	277	16.0	0.8	32.0
EMR121A03	3	500	18	2.4	0.8	11.0
EMR121A05	5	500	50	3.2	0.8	11.0
EMR121A06	6	500	72	3.8	0.8	11.0
EMR121A08	8	700	92	6.0	0.8	18.0
EMR121A09	9	700	116	6.0	0.8	18.0
EMR121A12	12	1050	138	8.0	0.8	22.0
EMR121A24	24	2080	277	16.0	0.8	32.0
EMR121B03	3	500	18	2.4	0.8	3.6
EMR121B05	5	500	50	3.75	0.8	6.0
EMR121B06	6	500	72	4.5	0.8	7.2
EMR121B08	8	700	92	6.0	0.8	9.6
EMR121B09	9	700	116	6.75	0.8	10.8
EMR121B12	12	1050	138	9.0	0.8	14.4
EMR121B24	24	2080	277	18.0	0.8	28.8
EMR131A03	3	500	18	2.4	0.8	11.0
EMR131A05	5	500	50	3.2	0.8	11.0
EMR131A06	6	500	72	3.8	0.8	11.0
EMR131A08	8	700	92	6.0	0.8	18.0
EMR131A09	9	700	116	6.0	0.8	18.0
EMR131A12	12	1050	138	8.0	0.8	22.0
EMR131A24	24	2080	277	16.0	0.8	32.0

Part Number	Nominal Voltage (VDC)	Coil Resistance (Ohms+/-10%)	Nominal Input Power (mW)	Must Operate Voltage (VDC)	Must Release Voltage (VDC)	Maximum Voltage (VDC)
EMR131B03	3	500	18	2.4	0.8	3.6
EMR131B05	5	500	50	3.75	0.8	6.0
EMR131B06	6	500	72	4.5	0.8	7.2
EMR131B08	8	700	92	6.0	0.8	9.6
EMR131B09	9	700	116	6.75	0.8	10.8
EMR131B12	12	1050	138	9.0	0.8	14.4
EMR131B24	24	2080	277	18.0	0.8	28.8
EMR161A03	3	500	18	2.4	0.8	11.0
EMR161A05	5	500	50	3.2	0.8	11.0
EMR161A06	6	500	72	3.8	0.8	11.0
EMR161A08	8	700	92	6.0	0.8	18.0
EMR161A09	9	700	116	6.0	0.8	18.0
EMR161A12	12	1050	138	8.0	0.8	22.0
EMR161A24	24	2080	277	16.0	0.8	32.0
EMR072A03	3	500	18	2.4	0.8	11.0
EMR072A05	5	500	50	3.2	0.8	11.0
EMR072A06	6	500	72	3.8	0.8	11.0
EMR072A08	8	700	92	6.0	0.8	18.0
EMR072A09	9	700	116	6.0	0.8	18.0
EMR072A12	12	1050	138	8.0	0.8	22.0
EMR072A24	24	2080	277	16.0	0.8	32.0
EMR072B03	3	500	18	2.4	0.8	3.6
EMR072B05	5	500	50	3.75	0.8	6.0
EMR072B06	6	500	72	4.5	0.8	7.2
EMR072B08	8	700	92	6.0	0.8	9.6
EMR072B09	9	700	116	6.75	0.8	10.8
EMR072B12	12	1050	138	9.0	0.8	14.4
EMR072B24	24	2080	277	18.0	0.8	28.8
EMR151A03	3	500	18	2.4	0.8	3.6
EMR151A05	5	500	50	4.0	0.8	6.0
EMR151A06	6	500	72	4.8	0.8	7.2
EMR151A08	8	700	92	6.4	0.8	9.6
EMR151A09	9	700	116	7.2	0.8	10.8
EMR151A12	12	1050	138	9.6	0.8	14.4
EMR151A24	24(18)	2080	277	14.4	0.8	28.8
EMR171A03	3	500	18	2.4	0.8	11.0
EMR171A05	5	500	50	3.2	0.8	11.0
EMR171A06	6	500	72	3.8	0.8	11.0
EMR171A08	8	700	92	6.0	0.8	18.0
EMR171A09	9	700	116	6.0	0.8	18.0
EMR171A12	12	1050	138	8.0	0.8	22.0
EMR171A24	24	2080	277	16.0	0.8	32.0

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