

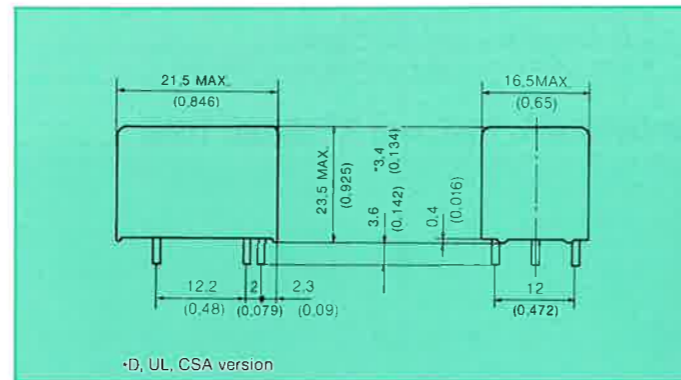


The MR31 Sub-miniature Relay is a small and light-weight "1 Form C Relay" which, in addition to being highly suitable to printed-circuit boards, will also greatly reduce the dimensions and weight of equipment.

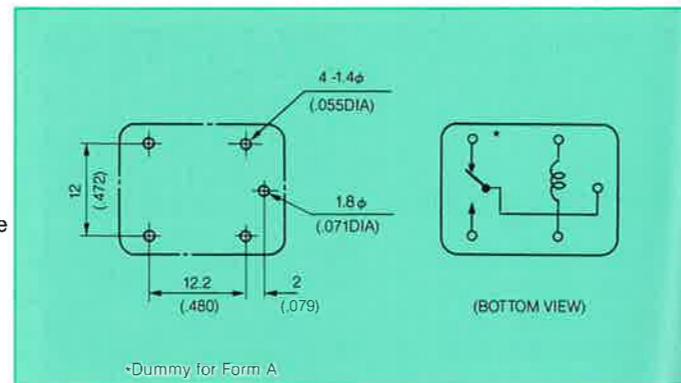
### FEATURES

- Small Size and Light Weight, the MR31 requires the small mounting space and can be soldered directly on a printed-circuit board. Thus, it can widely be used in industrial equipment, consumer products and automobile equipment.
- Wide Contact Rating Range
  - Low power type uses a high reliability contact made of silver nickel alloy with gold plating, and offers a switching range from 1mA to 1A.
  - General type, which has a weld resistant contact and high reliability silver nickel alloy contact ensures a wide switching range from 0.1A to 5A.
  - High power type with a weld and erosion resistant silver oxide complex alloy contact permits high power switching from 1A to 10A.
- Completely Sealed and Flux Tight
  - Being sealed tightly to prevent entry of flux and flushing solvent, the MR31 relay can be automatically soldered on a printed-circuit board is washable (Ultrasonic cleaning is generally not recommended. Confirmation of the condition is required in advance).
- UL Recognized (E73266), CSA Certified (LR48702) for Form C type

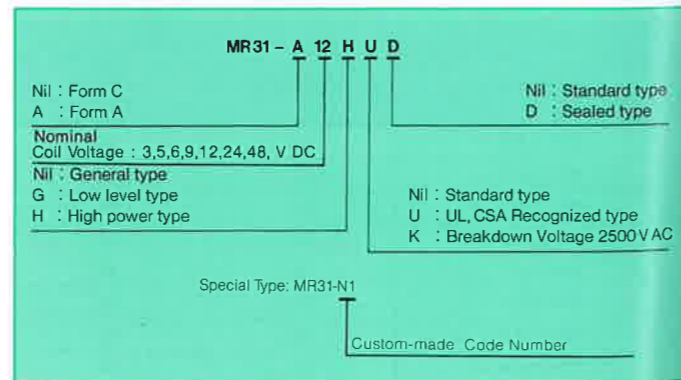
### DIMENSIONS (mm inch)



### PCB PAD LAYOUT and SCHEMATIC (mm inch)



### NUMBERING SYSTEM



### SPECIFICATIONS

Items	Switching Power	Low Level (G type :1A)	General (Standard type:5A)	High Power (H type:10A)
Contact Form		1 Form A	or 1 Form C	
Max Switching Power (Resistive Load)		30W, 120VA	150W, 600VA	300W, 1200VA
Contact Rating	Max. Voltage (Resistive Load)	250 V AC, 30V DC (30 V DC to 250 V DC... Max.switching power)		
	Max. Current (Resistive Load)	1A	5A	10A
	Min. Voltage and Current	1V DC, 1 mA	5V DC, 0.1 A	5V DC, 1A
	Contact Resistance	100mΩ Max. (Initial)	100mΩ Max. (Initial) (Measured at 6V DC, 0.5A)	100mΩ Max. (Initial) (Measured at 6V DC, 2A)
Contact Material		Silver nickel alloy with gold	Silver nickel alloy	Silver oxide complex alloy
Operate Time		15ms Max. (at Nominal Voltage)		
Release Time		10ms Max. (at Nominal Voltage)		
Insulation Resistance		100 MΩ Max. at 500V DC		
Breakdown Voltage	Between Open Contacts	1,000V AC (for 1 minute)		
	Between Contacts and Coil	1,500V AC (for 1 minute)		
Shock Resistance	De-energized Condition	10G		
	Energized Condition	100G		
Vibration Resistance	De-energized Condition	10G (55 Hz)		
	Energized Condition	30G (55 Hz)		
Ambient Temperature		-40°C to +70°C (-40°F to +158°F) Total temperature (Coil temperature rise plus ambient temperature) should be kept less than 105°C (221°F)		
Life Expectancy	Mechanical	10 <sup>7</sup> operations		
	Electrical (at max. load)	10 <sup>5</sup> operations		
Unit Weight		approx. 14g (0.49 oz)		

### RELAY TYPE

Type	Switching Power	Low Level (G type :1A)	General (Standard type :5A)	High Power (H type :10A)
Standard		MR31-( )G	MR31-( )	MR31-( )H
Sealed		MR31-( )GD	MR31-( )D	MR31-( )HD
UL and CSA Recognized		MR31-( )GU	MR31-( )U	MR31-( )HU
UL and CSA Recognized, Sealed		MR31-( )GUD	MR31-( )UD	MR31-( )HUD

### COIL RATING at 25°C (77°F)

Nominal Voltage	Coil Resistance (Ω) (± 10% at 25 °C)	Must Operate Voltage (V DC)	Must Release Voltage (V DC)	Maximum Allowable Voltage (V DC) (at 40 °C)	Nominal Operating Power (W)
V DC	3	25	2.4	3.9	0.36
	5	70	4	6.5	
	6	100	4.8	7.8	
	9	225	7.2	11.7	
	12	400	9.6	15.6	
	24	1600	19.2	31.2	
	48	6400	38.4	62.4	