



»» Features

- Middle voltage DC load control.
- High performance power relay for xEV vehicle.
- Complies with RoHS-Directive 2011/65/EU.

»» Type List

Terminal style	Contact form	Designation (provided with)	
		Flux tight	Flanged cover (Flux tight)
Plug-in terminal	1A (SPDM)	MV021-1AH-C	-----
PCB terminal		MV021P-1AH-C	-----
Screw terminal		-----	MV021S1-1AH-C1

»» Ordering Information

MV021 - 1A H - C
 1 2 3 4 5 6

- | | |
|--|---|
| <p>1. MV021 -- Basic series designation</p> <p>2. Blank -- Plug-in terminal
P -- PCB terminal
S1 -- Screw terminal (M6)</p> <p>3. 1A -- Form A, single-pole, double-make (SPDM)</p> <p>4. H -- Contact material Ag alloy</p> | <p>5. C -- Flux tight
V -- Sealed type
S -- Sealed type washable
C1 -- Flanged cover (Flux tight)
V1 -- Flanged cover (Sealed type)
S1 -- Flanged cover (Sealed type washable)</p> <p>6. <input type="checkbox"/> -- Coil voltage (please refer to the coil rating data for the availability)</p> |
|--|---|

»» Contact Rating

Rated load (Resistive)	150A 60VDC
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»» Coil Rating (DC)

Rated voltage (V)	Rated current ±10 % at 23°C (mA)	Coil resistance ±10 % at 23°C (Ω)	Pick up voltage (Max.) at 23°C	Drop out voltage (Min.) at 23°C	Max. continuous voltage at 23°C ⁽¹⁾	Power consumption at rated voltage
12	266.7	45	75 % of rated voltage	5 % of rated voltage	110 % of rated voltage	approx. 3.2W
24	133.3	180				
48	66.6	720				

Notes : (1) Without continuous contact current.

»» Specification

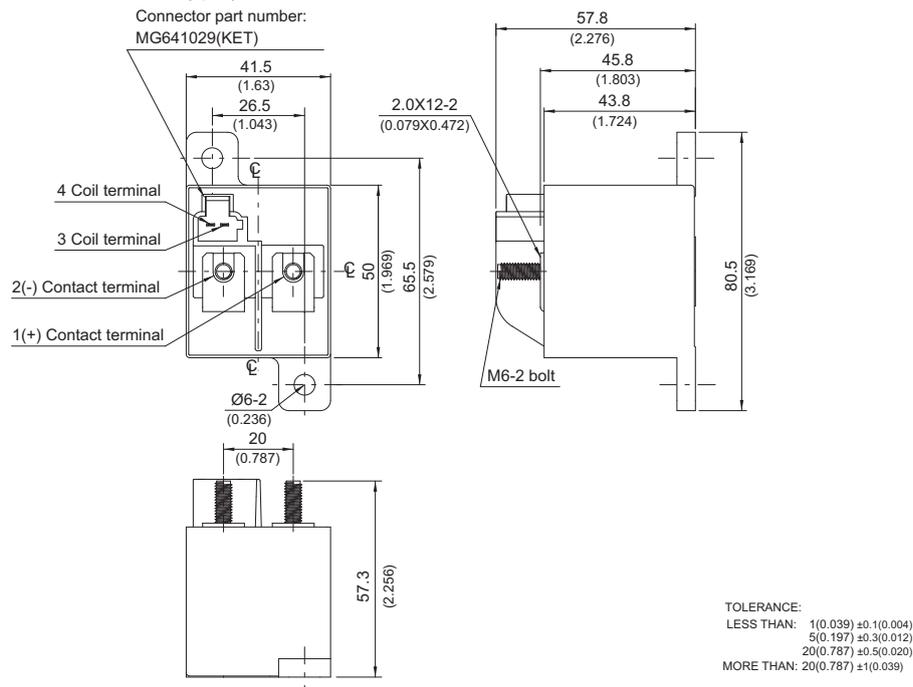
Contact material	Ag alloy	
Voltage drop ⁽¹⁾	Typ.10 mV at 10A	
Operate time ⁽¹⁾	50ms Max.	
Release time ⁽¹⁾	30ms Max.	
Insulation resistance ⁽¹⁾	100MΩ Min. (DC 500V)	
Dielectric strength ⁽¹⁾	Between open contact	: AC 1000V, 50/60Hz 1 min.
	Between contact and coil	: AC 4000V, 50/60Hz 1 min.
Vibration resistance	Operating extremes	10~500Hz, 5.0G
	Damage limits	10~500Hz, 5.0G
Shock resistance	Operating extremes	10G
	Damage limits	100G

Life expectancy	Mechanical		1,000,000 ops. (frequency 9,000 ops./hr)
	Electrical	Rated switching capacity (Resistive)	150A 60VDC: 1,000 ops. (frequency 180 ops./hr)
		Overload switching capacity	180A 60VDC: 5 ops.
		Short term carrying current	200A 60sec.; 350A 5sec.
Operating ambient temperature	-40~+70°C (no freezing)		
Weight	Approx. 180g, 185g (flanged cover)		

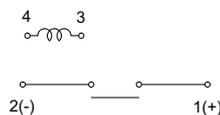
- Notes :
- (1) Initial value. Operate and release time excluding contact bounce.
 - (2) Load sides with polarities (+) and (-).
 - (3) Unless otherwise specified, all tests are under room temperature and humidity.
 - (4) Consider the heat of PCB is necessary, please check the actual condition of PCB.
 - (5) Applying no diode to this relay. The life expectancy will be lower when a diode is used. To use a varistor (ZNR) could absorb the coil surge of relay that is recommended.
 - (6) Do not use the relay exceeding the coil rating, contact rating and life expectancy, or this may cause the risk of overheating.
 - (7) To assure optimum performance, avoid the relay from dropping, hitting, or other unnecessary shocks.
 - (8) Take care to avoid cross connections as they may cause malfunctions or overheating.
 - (9) To avoid mounting the relay in strong magnetic fields (near a transformer or magnet) or close to an object that radiates heat.
 - (10) Do not switch the contacts without any load as the contact resistance may become increased rapidly.
 - (11) Always keep the oils and fats kind from the main terminal parts.
 - (12) Use suitable harnesses and bus bars according to the current as below:
150A type : Min. 50 mm²
 - (13) To avoid unexpected damage, when tightening a screw, use no exceeding specified torque range as below:
M5 screw : 4.5 ~ 5 N.m
M6 screw : 6 ~ 8 N.m
 - (14) Please contact Song Chuan for the detailed information.

»» Outline Dimensions

◆ Screw terminal (-C1,V1,S1 cover type)



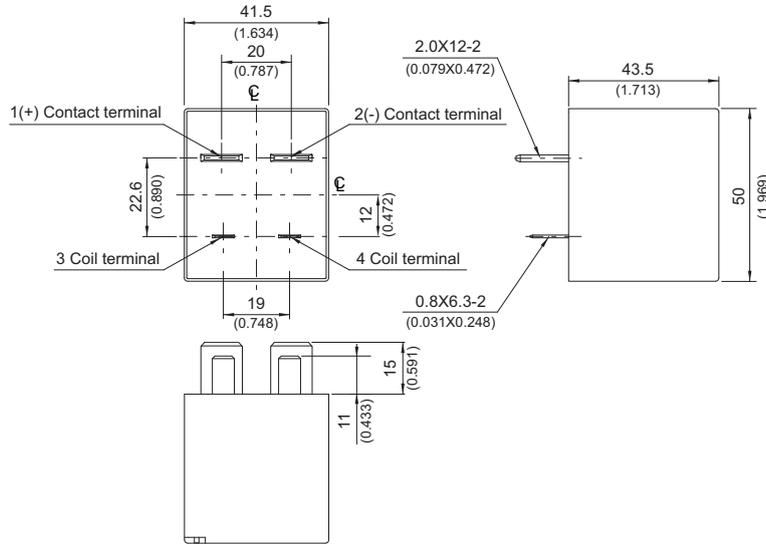
»» Wiring Diagram (Top view)



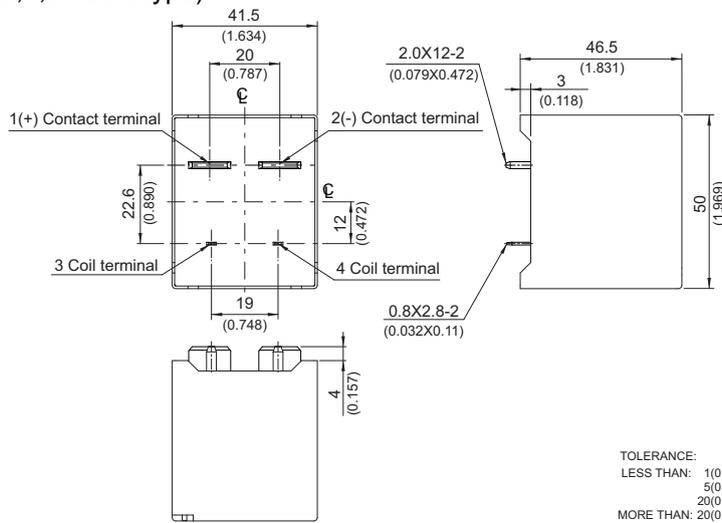
Load sides with polarities (+) and (-).

»» Outline Dimensions

◆ Plug-in terminal (-C,V,S cover type)

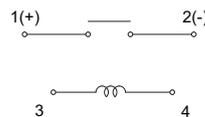


◆ PCB terminal (-C,V,S cover type)



TOLERANCE:
 LESS THAN: 1(0.039) ±0.1(0.004)
 5(0.197) ±0.3(0.012)
 20(0.787) ±0.5(0.020)
 MORE THAN: 20(0.787) ±1(0.039)

»» Wiring Diagram (Bottom view)



Load sides with polarities (+) and (-).

»» PC Board Layout (Bottom view)

