PCB Mount

Panel Mount

DIN Rail Mount

Motor Reversing Module

Intelligent SSR

SSR Accessories

Panel Mount

KMRD

DC Motor Reversing Module

CE

DESCRIPTION

KMRD, the DC motor reversing module, is a solid state relay which is specially designed for DC motor reversing control with built-in logic interlock circuit and built-in turn-on delay circuit, which can prevent the module being damaged due to misoperation or the MOSFET can not be turned off in time during the reversing process, and guarantee the safety of the power supply system and the motor and its power module under the condition that the minimum reversing switching time must fulfill the requirements specified on this datasheet. Meanwhile the module also has built-in RC snubber circuit, which improves the operation reliability of the module.

The rated output current of the module is 20A. And it must be derated for being used under high temperature environment, otherwise the module will be damaged due to overheating; meanwhile a dichromatic LED is equipped for indicating the operating status.

FEATURES

◆ Photoelectric isolation

◆ LED status indicator

◆ Dielectric strength 2000V

◆ Built-in RC snubber circuit

◆ Built-in logic interlock circuit

◆ Used for dry DC motor reversing control

PRECAUTIONS

1. If the load connected to the module will produce high surge current, please assure that the module is able to resist the surge current value.

2. The surge current value shown on this datasheet is the non-repetitive peak value of the surge current of the module.

3. Please ensure that the module can withstand the transient voltage in case the output load (e.g. motors) may generate the high shock voltage.

4. The transient voltage value shown on this datasheet is the non-repetitive peak value of the transient voltage.

5. The minimum reversing switching time given by the user must fulfill the requirements specified on this datasheet.

6. Please pay special attention to the actual load current and the ambient temperature. When the ambient temperature is high, the load current must be derated. Please refer to the curve of Max. Load Current vs. Ambient Temperature for derating.

PRECAUTIONS

7. Tighten the module screw terminals properly. If the screws are loose, the module would be damaged by heat generated from connection. Please refer to the recommended screw mounting torque as follows: the output screw mounting torque range is 0.98~1.37 N·m, and the input screw mounting torque range is 0.58~0.98N·m.

8. It is recommended to use the matched heatsink made by Keysolu. If the user needs to use the home-made heatsinks, please ensure that the temperature of the module base must not exceed 85°C.

9. Please do not use the module exceeding the limitation which is specified on this datasheet.

SELECTION GUIDE

KMRD/	D-	24	D	20	-L	(XXX)
TYPE	Control voltage	Load voltage	Switching mode	Load current	LED indicator	Customer special code
	D: 8~32VDC	24: 24VDC	D: DC output	20: 20A	L: Included	

INPUT SPECIFICATIONS (Ta = 25°C)

Control voltage range	8~32VDC
Must turn-on voltage	8VDC
Must turn-off voltage	1VDC
Max. input current	15mA
Max. reverse protection voltage	-32VDC

OUTPUT SPECIFICATIONS (Ta = 25°C)

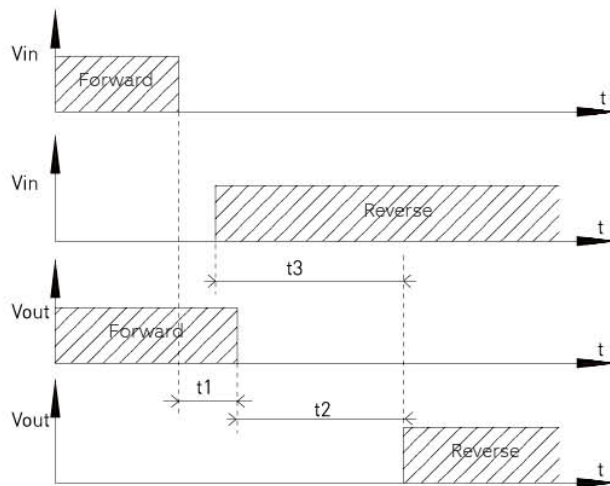| Load current	20A
Load voltage range	24VDC Max.
Max. transient voltage	50Vd.c.
Max. on-state voltage drop	1V.d.c
Min. load current	100mA
Max. off-state leakage current	5mA
Min. off-state dv/dt	200V/µs
Reversing switching time (please refer to time sequence diagram t2)	150ms Typ.
Max. turn-off time	15ms Max.
Max. surge current	250 Apk

GENERAL SPECIFICATIONS (Ta = 25°C)

Dielectric strength (input/output)	2000VAC, 50Hz/60Hz, 1min
Insulation resistance	1000MΩ (500VDC)
Max. capacitance (input/output)	10pF
Operating temperature	-30～80°C
Storage temperature	-30～100°C
Ambient humidity	45%～85% RH
Termination	Screw
Installation method	Panel mount
Unit weight	Approx. 335g
Operation status indication	Forward: Green
	Reverse: Red

OUTLINE DIMENSIONS & WIRING DIAGRAM
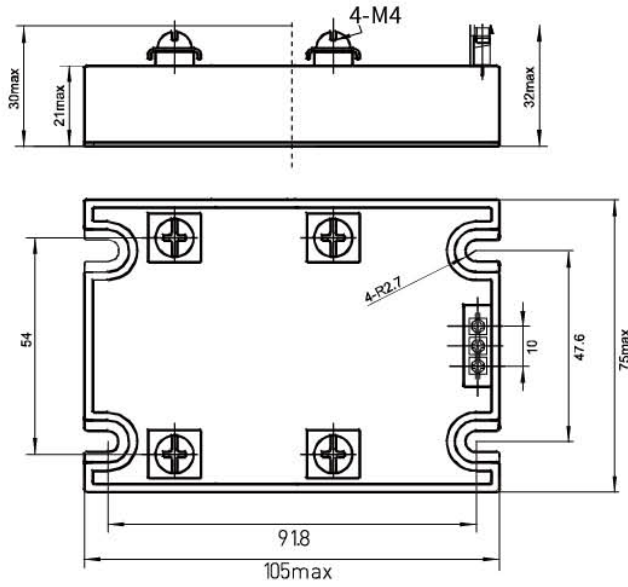
Unit: mm

Time Sequence Diagram

Remark:

t1: Turn-off time

t2: Switching time
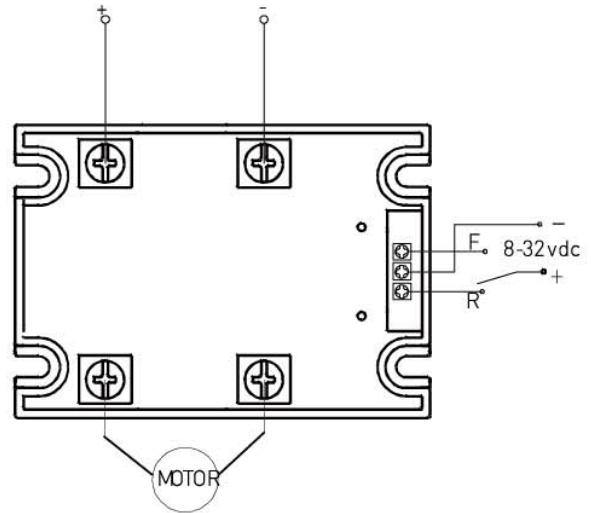(given by the user's program)

t3: Turn-on delay time

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OUTLINE DIMENSIONS & WIRING DIAGRAM

Outline Dimensions

4-M4

30max
21max
32max

4-R2.7

54
47.6
10
75max

91.8
105max

Wiring Diagram

+ −

F
R
8-32vdc
−
+

MOTOR

CHARACTERISTIC CURVES

Max. Load Current vs. Ambient Temperature

Load current (RMS)(A)

30
25
20
15
10
5
4

-30 -20   0   20   40   60   80 100

Ambient Temperature (°C)
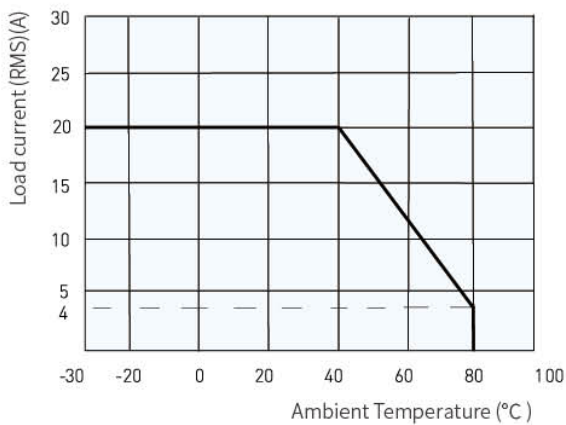
Max. Permissible Non-repetitive Peak Surge Current vs. Continuance Time

Peak Surge Current/Rated Current (%)

250
200
150
100
50
0

10   100   1000

Energizing Continuance Time (ms)