

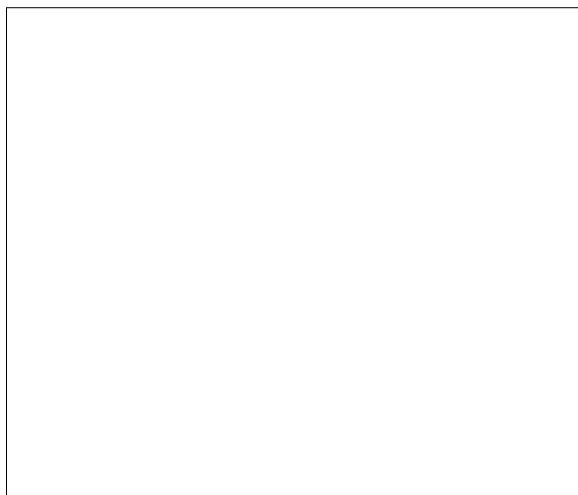
HIGH POWER RELAY

1 POLE—40 A (FOR AUTOMOTIVE APPLICATIONS)

FRL-274 (40A TYPE) SERIES

■ FEATURES

- High current switching and carry by using new conductive materials.
- Suitable for automotive applications such as ABS, power assisted steering, etc.
- High heat resistance
Designed for use in high ambient temperature, such as engine compartment, and able to carry continuous current of 20 A in +125°C.
- New contact material
New contact material formulation which is resistant to welding.



■ ORDERING INFORMATION

[Example] $\frac{\text{FRL-274}}{\text{(a)}}$ $\frac{\text{N}}{\text{(b)}}$ $\frac{\text{D012}}{\text{(c)}}$ $\frac{\text{/ 81}}{\text{(d)}}$ $\frac{\text{C}}{\text{(e)}}$ $\frac{\text{Y}}{\text{(f)}}$ $\frac{\text{-01A}}{\text{(g)}}$ $\frac{\text{-001}}{\text{(h)}}$

(a)	Series Name	FRL-274: FRL-274 Series
(b)	Enclosure	N : Plastic sealed type
(c)	Nominal Voltage	D012 : 12 VDC
(d)	Carrying Current	81 : 40 A type
(e)	Contact Arrangement	A : 1 form A C : 1 form C
(f)	Contact Material	Y : Silver-tin oxide
(g)	Cover Terminal	01A : w/cover, wide terminal width
(h)	Custom Designation	To be assigned custom specification

FRL-274 (40A TYPE) SERIES

■ SPECIFICATIONS

Item		Specifications	
Contact	Arrangement	1 form A , 1 form C	
	Material	Silver-tin oxide	
	Voltage Drop (resistance)	Maximum 300 mV initial (at 5 Amps, 12 VDC) Maximum 500 mV after durability test (at 5 Amps, 12 VDC)	
	Rating	N.O.	12 VDC 40 A (resistive load)
		N.C.	12 VDC 15 A (resistive load)
	Gap	0.4 mm gap	
	Maximum Carrying Current	30 A continuous, 40 A/10 minutes (at 25°C 100% rated coil voltage) 20 A continuous,40 A/10 minutes (at 125°C 100% rated coil voltage)	
	Max. Switching Frequency	Mechanical: 18,000 operations/hour Electrical: 1,800 operations/hour	
Minimum Switching Load (*1) (reference)	0.6 W minimum (50 mA minimum)		
Coil	Power Consumption	Approximately 0.87 W (rated voltage at 20°C)	
	Coil Temperature Rise	Approximately 75 °C. (rated voltage at 20°C)	
	Operating Temperature	-40°C to +125°C (no frost)	
	Storage Temperature	-40°C to +125°C (no frost)	
Insulation	Resistance	Minimum 100 MΩ (at 500 VDC)	
	Dielectric Strength	AC 500 V 1 minimum	
Time Value	Operate (at nominal voltage)	Maximum 10 ms	
	Release (at nominal voltage)	Maximum 5 ms	
Life	Mechanical	10 × 10 ⁶ operations minimum	
	Electrical	250 × 10 ³ operations minimum	
Other	Vibration Resistance	10 to 55 Hz (double amplitude of 1.5 mm)	
	Shock Resistance	Misoperation	100 m/s ²
		Endurance	1,000 m/s ²
	Weight	Approximately 20 g	

*1 Values when switching a resistive load at normal room temperature and humidity and in a clean environment. The minimum applicable load varies with the switching frequency and operating environment.

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COIL DATA CHART

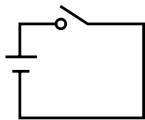
MODEL	Nominal voltage	Coil resistance ($\pm 10\%$) (at 20°C)	Must operate voltage	Thermal resistance
FRL-274ND012/81AY-01A FRL-274ND012/81CY-01A	12 VDC	165Ω	6.3 VDC (at 20°C) 8.0 VDC (at 85°C)	73°C/W

CHARACTERISTIC DATA

1. LIFE TEST (EXAMPLE)

- Test item
16 VDC, 40 A
Motor lock
 2×10^5 operations

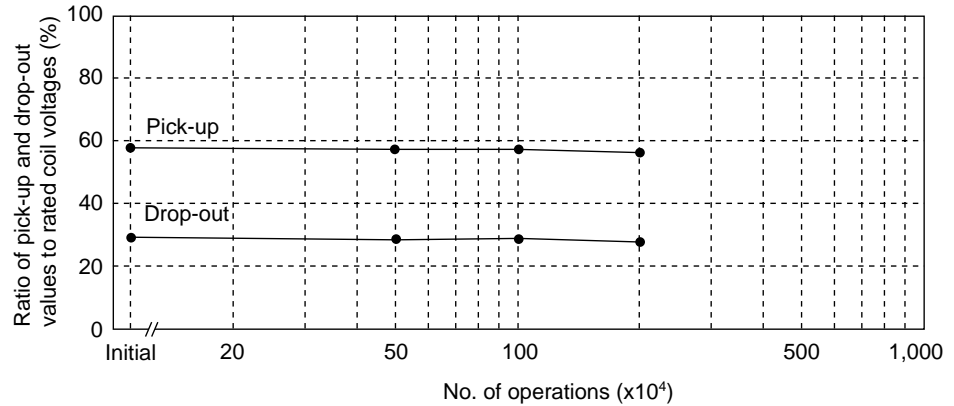
- Test circuit



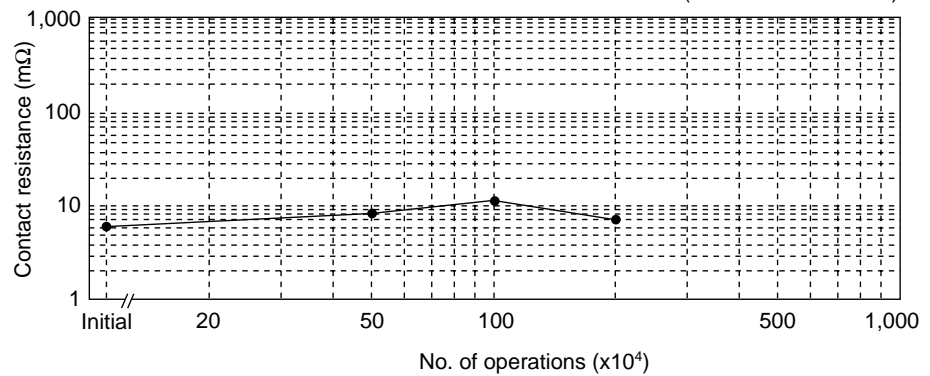
- Circuit wave form



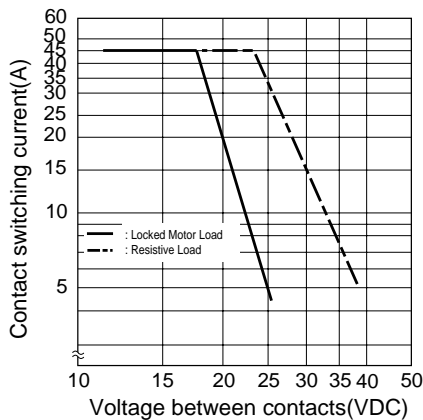
- Shift of pick-up and drop-out voltage



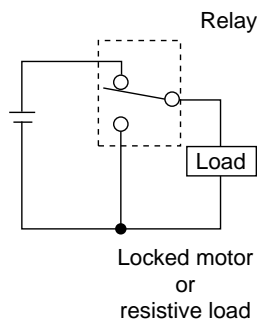
- Shift of contact resistance



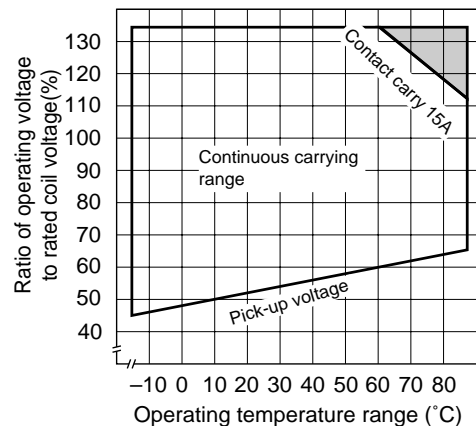
2. MAXIMUM BREAK CAPACITY



- Test circuit

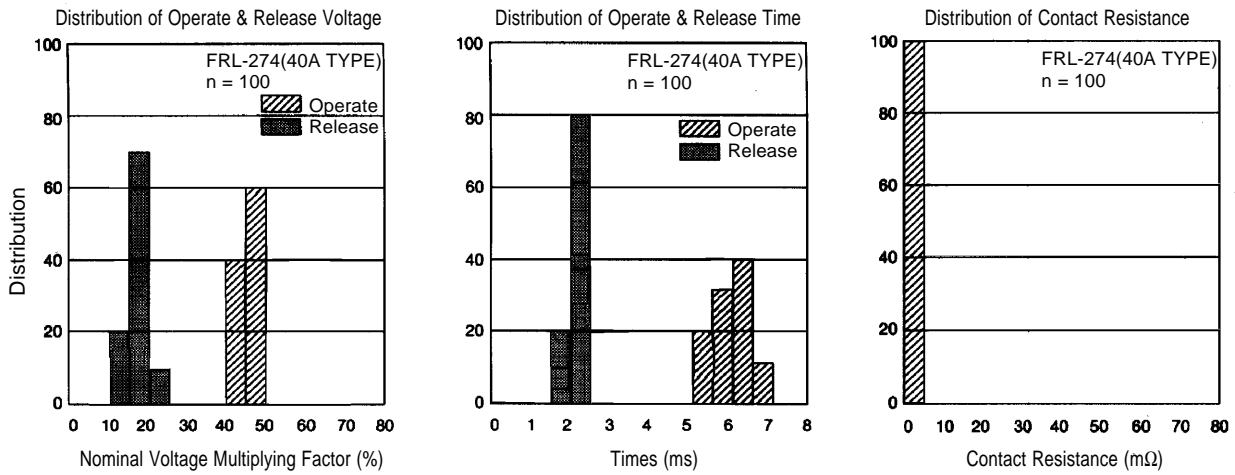


3. OPERATING COIL VOLTAGE (EXAMPLE)



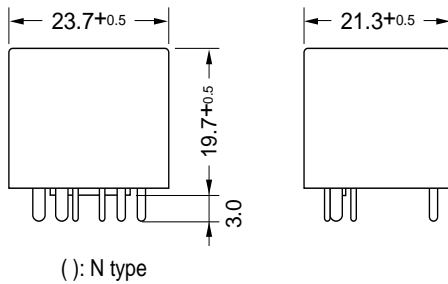
FRL-274 (40A TYPE) SERIES

REFERENCE DATA



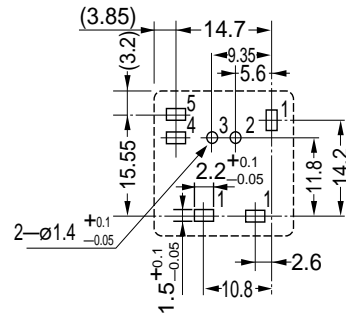
DIMENSIONS

Dimensions



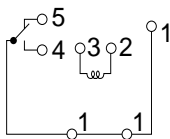
PC board mounting hole layout (BOTTOM VIEW)

Standard terminal width

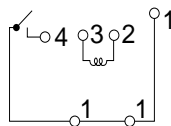


Schematics (BOTTOM VIEW)

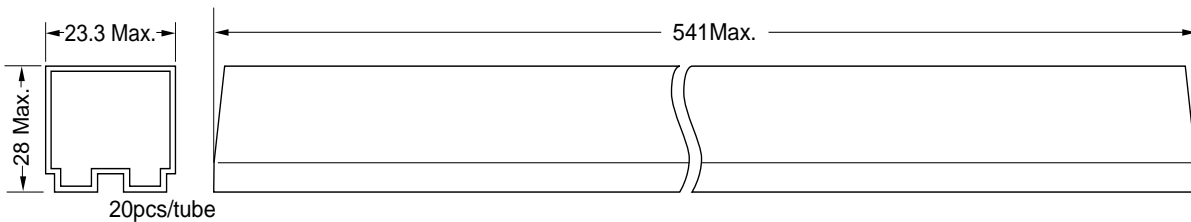
1 from C



1 from A



Tube carrier



Unit: mm

FRL-274 (40A TYPE) SERIES

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