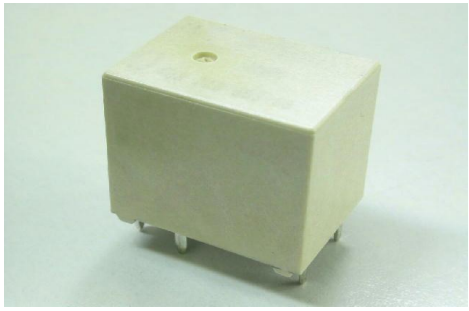
Taiko Device Techno & Co., Ltd.
RTC1L RELAY SPECIFICATIONS

All data are at 20°C ambient temperature unless otherwise noted.

PCB Miniature High Current Latching relay.



Covers a broad range
of automotive applications.

The relays are lead free / RoHS compliant.

Please observe the special notes at the last page of this data sheet.

RTC1L

Available Standard Types

RTCL1	Standard Type	reflow solderable	125°C	max. ambient temperature

The standard Reflow types have a vent-hole in the cover (Letter T appended)

Special Features available: (see nomenclature page)

Available Coil Options

Contact versions	Coil Resistance	Nominal Power	Polarity at Pin 6	Set Voltage	Reset Voltage
Form C contact	75 Ω each	1.920 W	plus	6.5 V	6.5 V
Form U contact	75 Ω each	1.920 W	minus	7.2 V	7.2 V
	±10%				

ITEM		SPECIFICATION
Contact Arrangement		1 Form C / 1Form U
Contact Material		$AgSnO_2$ Alloy
Contact Resistance		Typical 3 mΩ (max 50mΩ at 6 VDC 1A)
Contact Rated Load		25A at 14VDC Motor load (Locked Rotor)
Max. Switching Current/ Voltage		30A at 16VDC
Max. Continuous Current at 20 °C		30A at 14VDC for 1hour
Min. Switching Current (recommended)		1A at 12VDC
Dielectric Strength		500VAC for 1 minute (between coil and contact)
		500VAC for 1 minute (between open contacts)
Insulation Resistance		Min 100MΩ (at 500VDC)
SET / RESET pulse		min 10ms
		max 1 s
Set Time		Max 10ms (at 12VDC, 20℃ with pulse > 10 ms)
Reset Time		
Shock resistance	False Operation	Min 98m/s^2 (10G) :Shock wave 11ms
	Endurance	Min 980m/s^2 (100G) :Shock wave 6ms
Vibration resistance	False Operation	Min 43m/s^2 (4.4G) at 10 to 500Hz
	Endurance	
Mechanical Life (no load)		Min 10×10^6 Operations(300 cycles/minute)
Electrical Life at rated load		Min 1.0×105 Operations (2 sec. ON/ 2 sec. OFF)
Ambient Temperature range		-40°C to 125°C
Weight		Approx. 10 g

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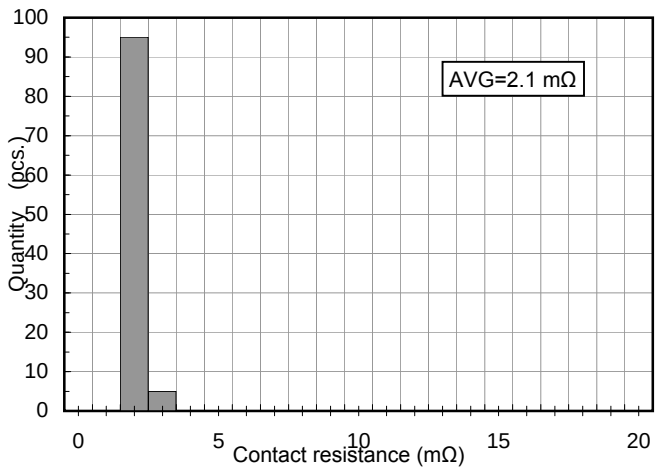
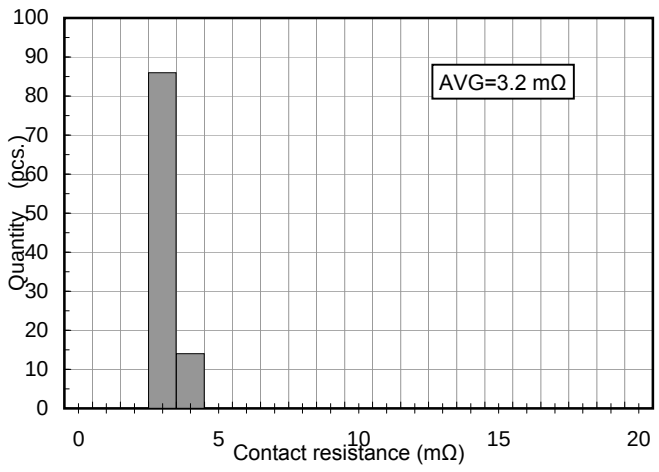
TECHNICAL REFERENCE DATA FOR THE RTCL1-75 RELAY

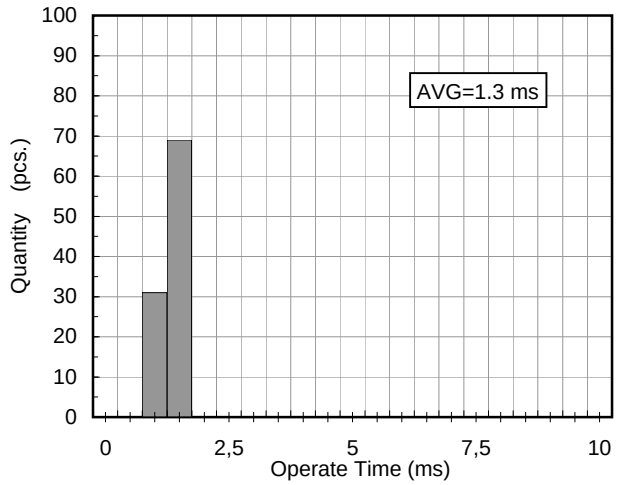
Contact Resistance of the NO contact



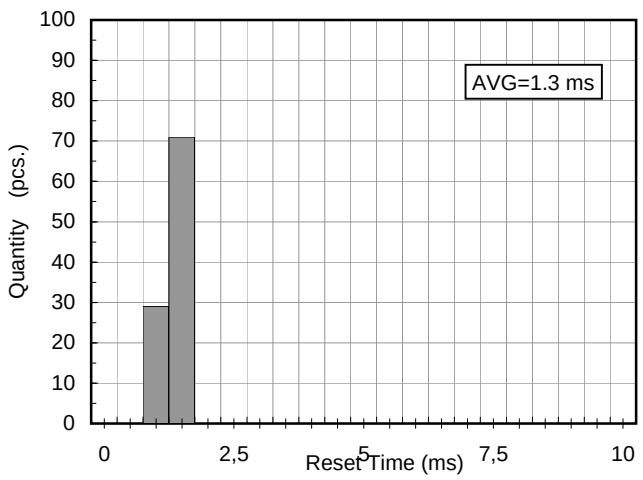
Contact Resistance of the NC contact



Set Time with 12 V



Reset Time with 12V

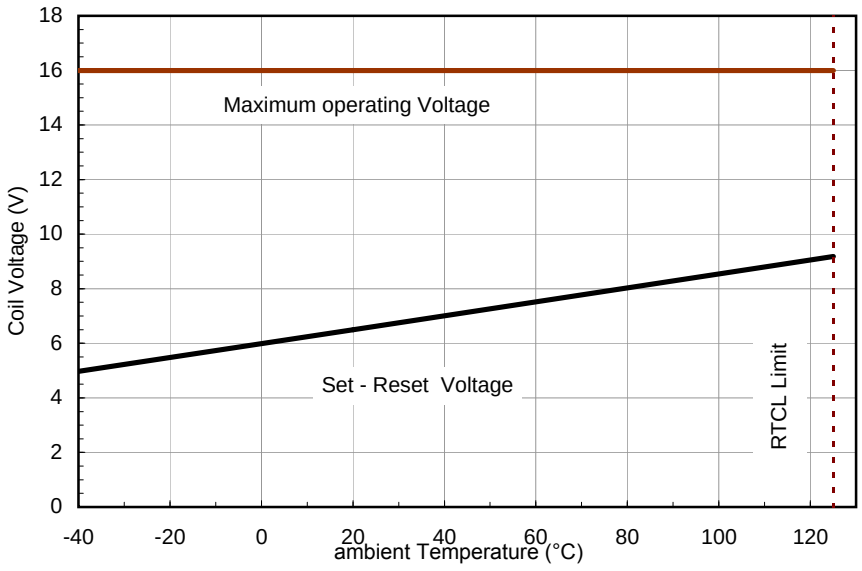


Operating Voltage Range

Please note, that this diagram shows the SET/ RESET Voltage range and the Maximum Voltage is 16 V for coil at ambient temperature.

Not valid for continuous condition since it is required, that the latching relays are energized by impulses only.

No Load Current considered.



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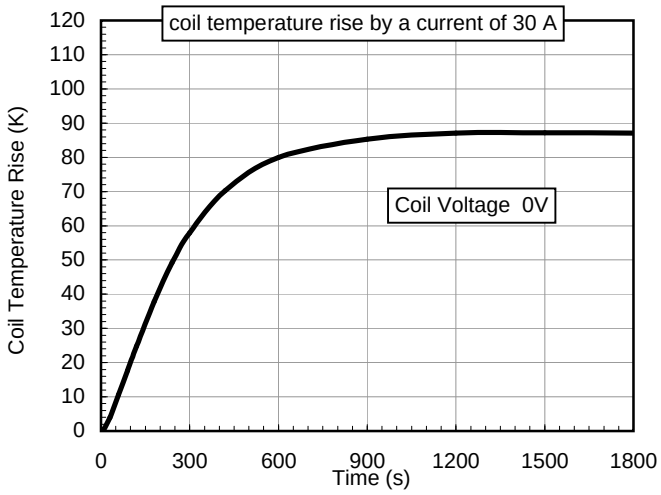
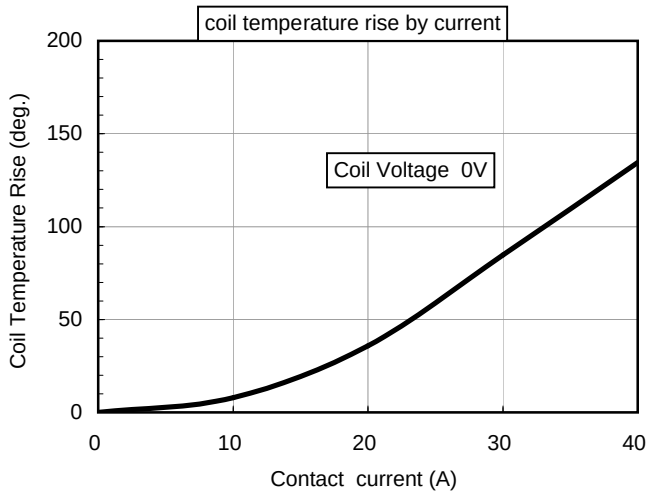
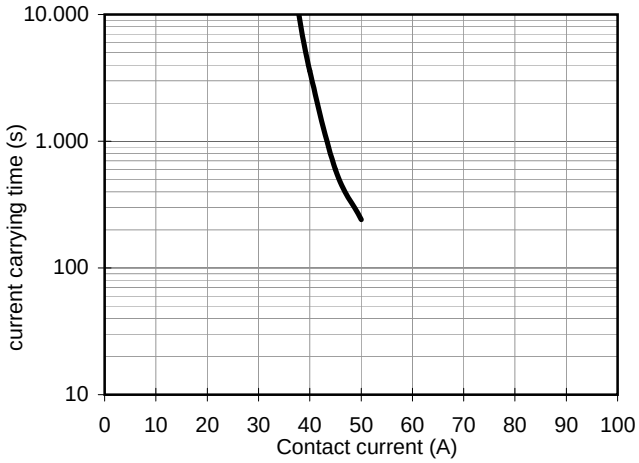
TECHNICAL REFERENCE DATA FOR THE RTCL1-75 RELAY

Coil temperature rise

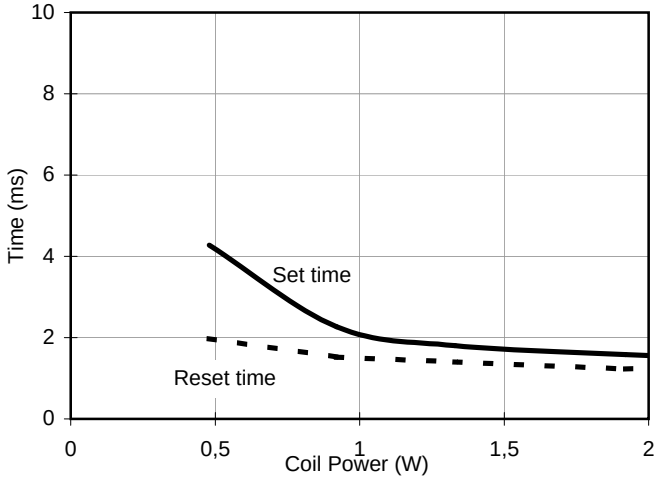




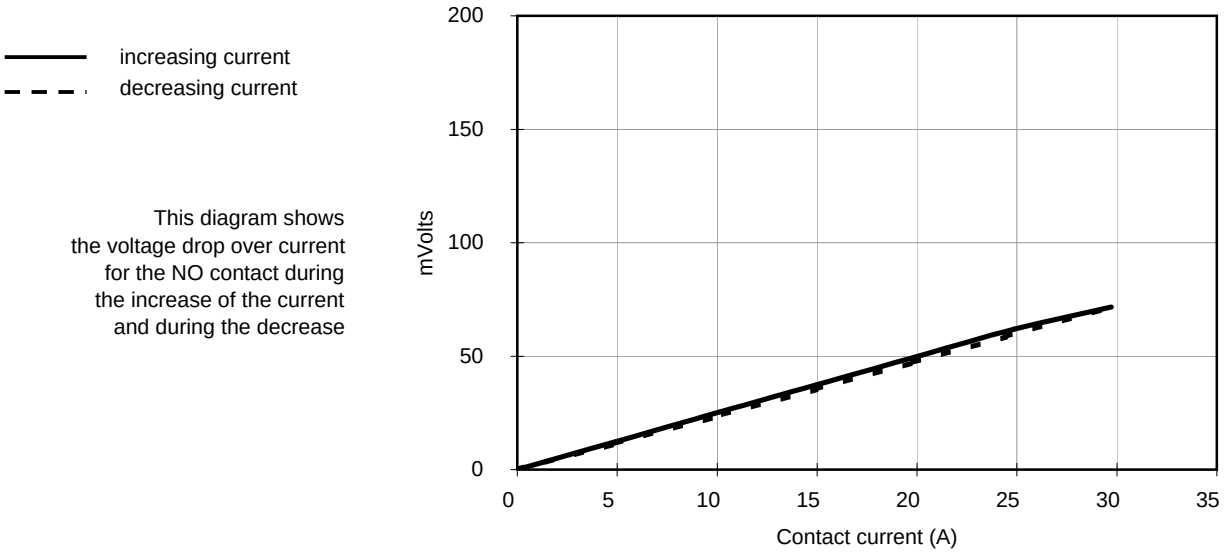
Over current limit



Set and Reset Time



Contact voltage drop over the NO contact



This diagram shows the voltage drop over current for the NO contact during the increase of the current and during the decrease

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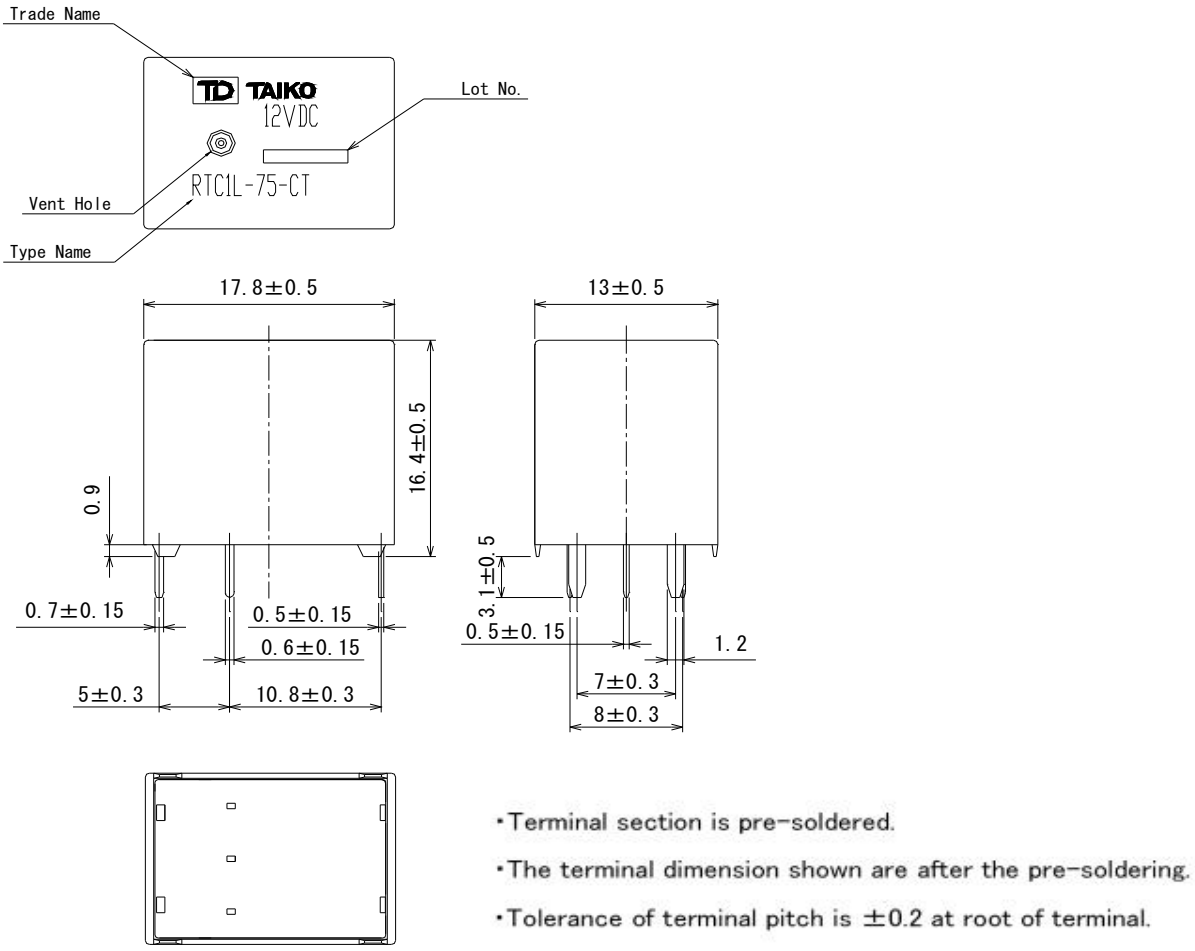
External Dimensions / Wiring Diagram / PCB Pin Layout

Fig.1.External dimension



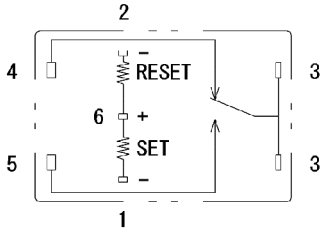
・Terminal section is pre-soldered.

・The terminal dimension shown are after the pre-soldering.

・Tolerance of terminal pitch is ±0.2 at root of terminal.

Fig.2. Wiring diagram
(BOTTOM VIEW)

1 Form C (Low side drive)



1 Form U (High side drive)

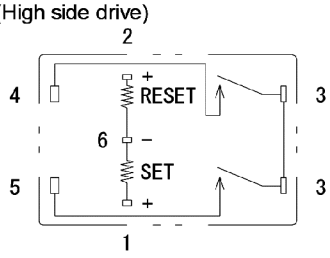
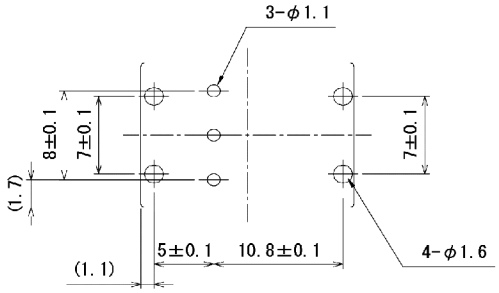


Fig.3. PCB pin layout (Reference figure)
(BOTTOM VIEW)



Hole punching tolerance ±0.1

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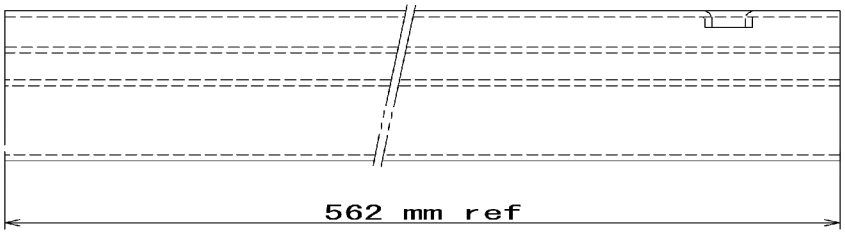
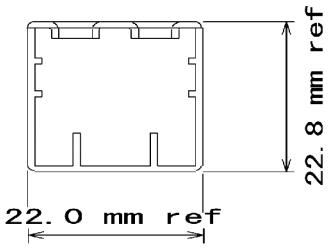
Packaging specification

Standard Tube Packaging — 40 relays per tube, 20 tubes per box (800 relays per box)





Notes:

The benefit of a latching relay lies in the fact that it can be operated with short pulses so that the heat of the coil which normally is the highest contributor is not recognizable any more
Therefore a latching relay can carry higher currents than a neutral relay.
Latching relays need to be turned on by one pulse at one winding and turned off by a puls in the opposite direction or by another pulse to a second winding.
A latching relay is recognizable by at least 3 coil pins instead of 2 of a neutral relays

Since the 2 windings of the coil of the TCL are not symmetrical you cannot swap the function from one winding to the other. The coils which require the pin 6 to be "minus" are marked with the letter "H" at the end.

A latching relay should be operated by pulses with a width between 10 ms and 1000ms.

If the pulse is too short, the relay may not operate. If the voltage is applied too long especially at high ambient temperature the coil might overheat quickly.
Apply a voltage to the coil in the polarity specified by the internal connection diagram of the relay.
Do not apply voltage at the set and reset windings at the same time.

A latching relay is factory-set to the reset state for shipment.
However, it may be SET while being transported due to vibration or shock.

Therefore it is recommendable to reset the relay before the PCB is tested.

The spring of this relay might relax if you run these relays in a SET condition through the reflow oven

Taiko recommends to RESET the relays in a special step before reflow soldering.

For further information, please contact Taiko device Techno.

Disclaimer: