RoHS

EM Devices Corporation

AUTOMOTIVE RELAY / 40A TYPE

EL1 SERIES

<FEATURE>

- Large current capacity (54A 1hour at 20°C)
- High heat resistance
- Flux tight housing
- Pb free
- Through-hole reflow soldering available

<APPLICATION>

- Motor control such as fan and pumps, Magnet clutch, Power supply

<PART NUMBER SYSTEM>

EL1 - 2 U 1 C S

Type			
	Enclosure	Nil:	Unsealed
		S:	Sealed
	Contact form	C:	1 form C
	Must operate voltage	1:	6.5V
	Contact Material	U:	Silver oxide complex alloy (Standard)
	Coil Resistance	2:	225Ω

Contact Form	Contact Material	Coil Nominal Voltage	Coil Resistance	Sealed Type	Unsealed Type
1 form C	Standard	12VDC	225Ω	EL1-2U1CS	EL1-2U1C

<COIL RATING>

(Ambient temperature: 20°C)

Coil Nominal Voltage	Nominal Operating Power	Coil Resistance (±10%)	Must Operate Voltage (1)	Must Release Voltage (1)
12VDC	0.64W	225Ω	6.5VDC	0.9VDC

(1) Test by pulse voltage

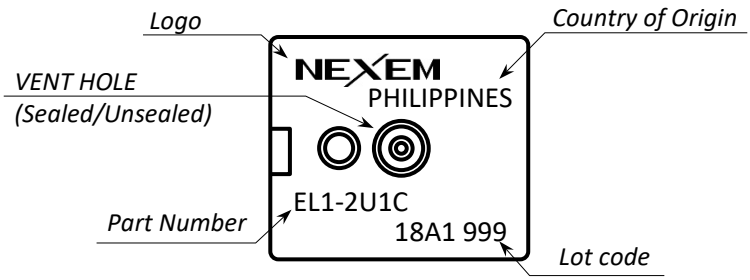
<SPECIFICATIONS>

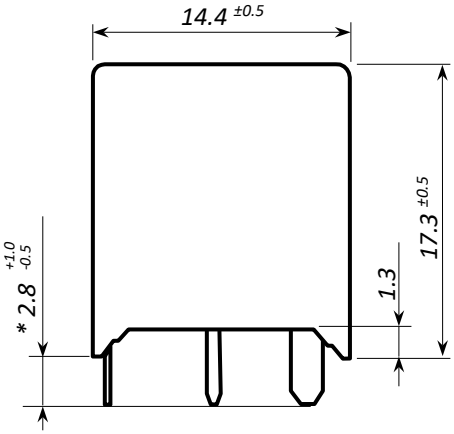
(Ambient temperature: 20°C)

Items		Specifications
Contact form		1 form C
Contact rating	Max. switching voltage (2)	16Vdc
	Max. switching current (2)	100A ON / 60A OFF at 14Vdc
	Min. switching current	1A at 5Vdc
	Max. carrying current (3)	54A at 14Vdc for 1hour
	Contact resistance	N/O contact: 3mΩ typical, 25mΩ max. N/C contact: 3mΩ typical, 25mΩ max. (6Vdc–7A voltage drop method, initial)
	Rated load	N/O contact: 40A-14Vdc, Resistive load N/C contact: 20A-14Vdc, Resistive load
Contact material		Silver oxide complex alloy
Operate time (4)		10ms max.
Release time (4)		10ms max.
Insulation resistance		100MΩ min. at 500Vdc
Breakdown voltage	Between open contacts	500Vac min. for 1minute
	Between coil and contact	500Vac min. for 1minute
Shock resistance	Misoperation	98m/s^2
	Destructive failure	980m/s^2
Vibration resistance	Misoperation	10 to 300Hz, 43m/s^2
	Destructive failure	10 to 500Hz, 43m/s^2 for 200hours
Ambient temperature		-40 to +125°C (no freezing and condensation)
Life expectancy	Mechanical	1,000,000 cycles
	Electrical	100,000 cycles (Rated load) 100,000 cycles (N/O contact, Inductive 0.5mH, 30A at 14Vdc)
Weight		7.5g typical

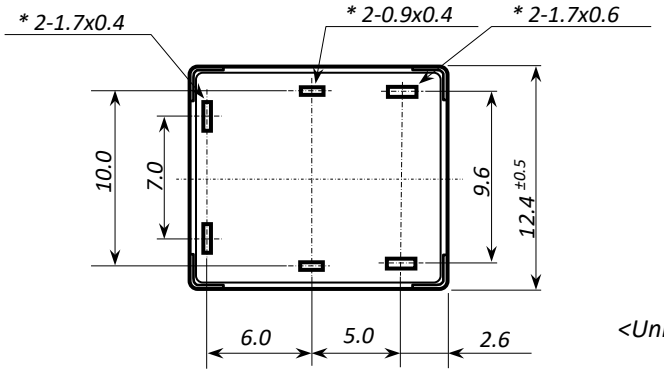
(2) Resistive, 10cycles
(3) Copper thickness: 105µm, width: 15mm
(4) Excluding contact bounce, nominal voltage applied, without flywheel coil diode

<DIMENSIONS>



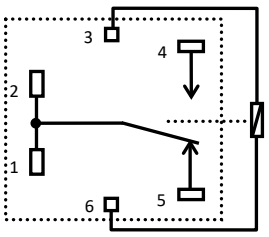


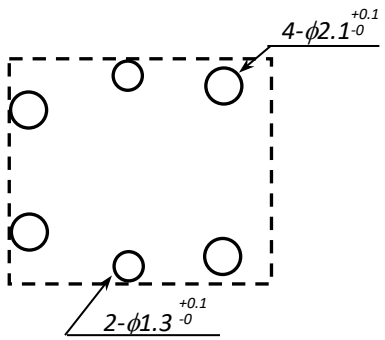
* AFTER SOLDER DIP



<Unit: mm>

<SCHEMATIC AND PCB PAD LAYOUT (BOTTOM VIEW)>

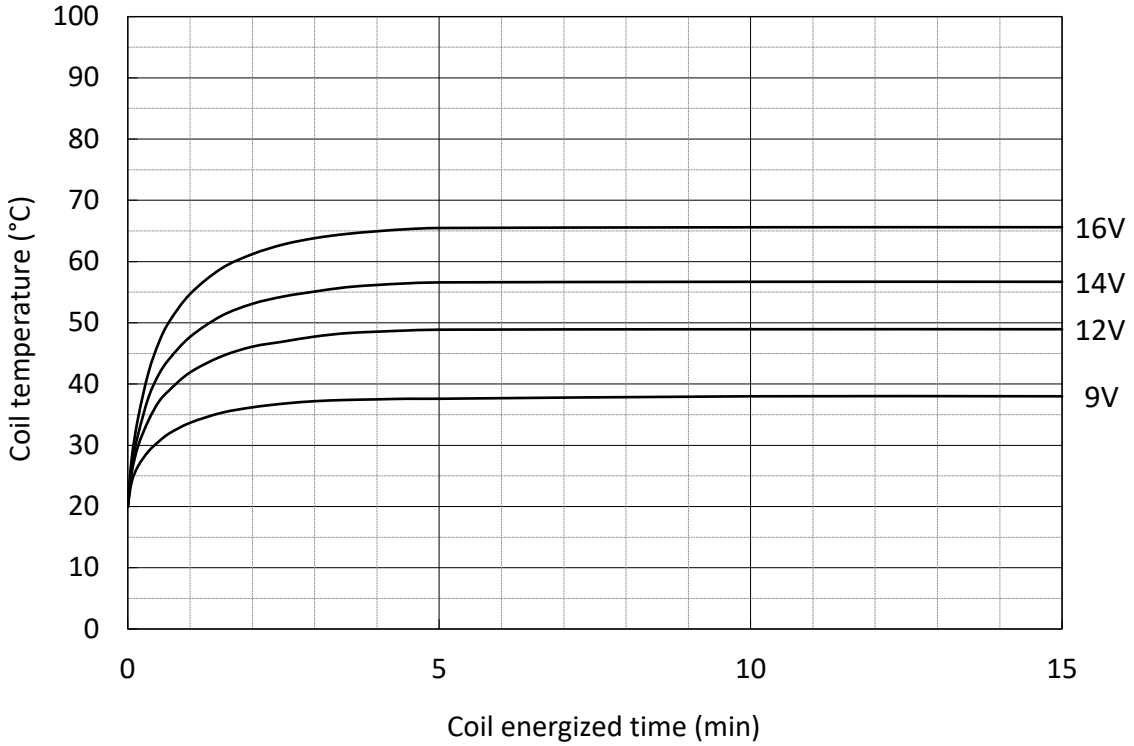


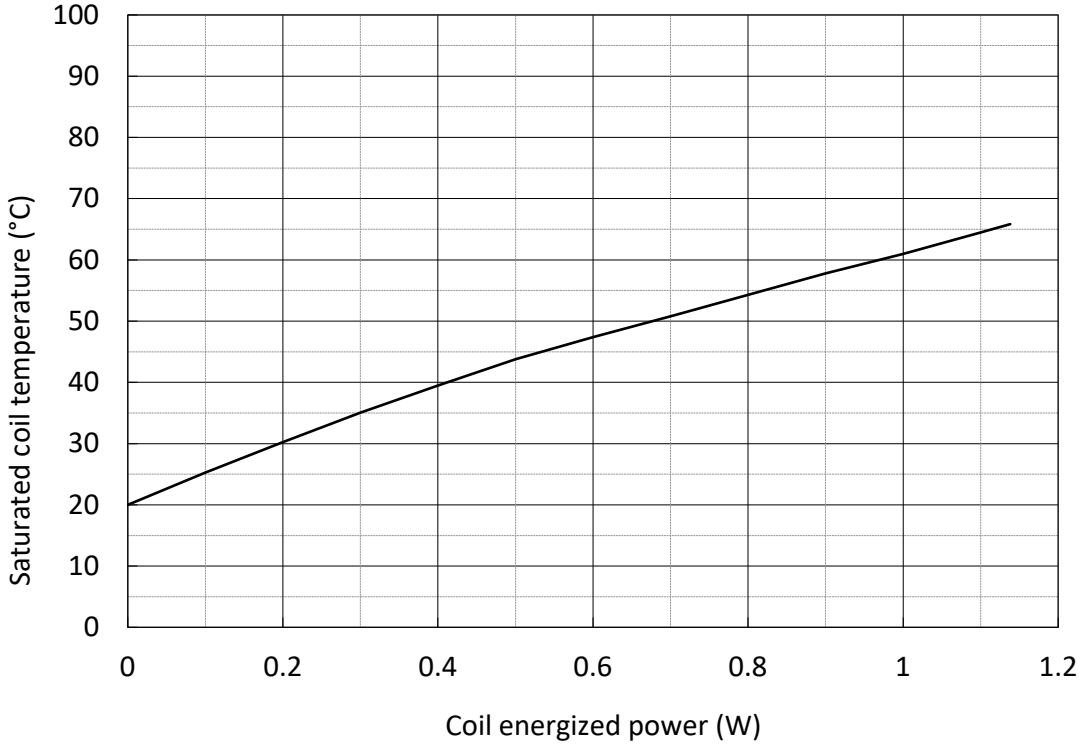


<Unit: mm>

<TECHNICAL DATA>

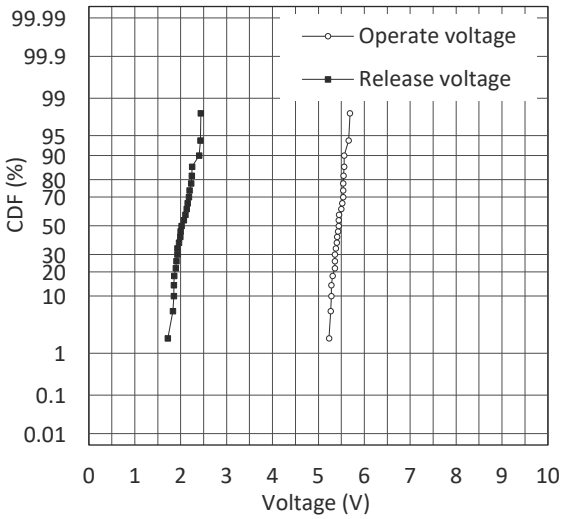
COIL TEMPERATURE DATA (Ambient temperature: 20°C)





RELAY CHARACTERISTICS DISTRIBUTION (INITIAL)

Operate / Release voltage

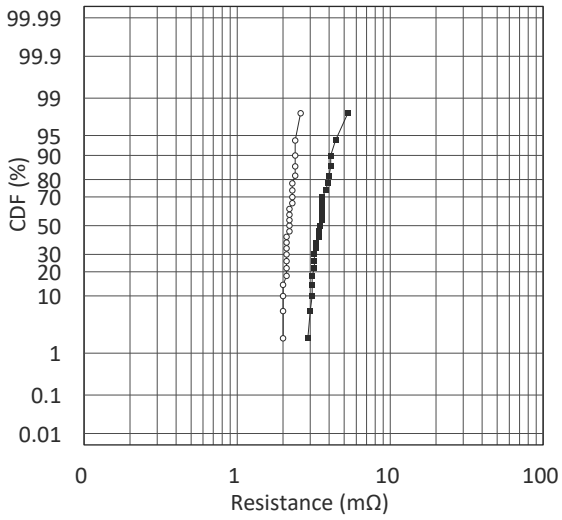


Specimen: EL1-2U1CS

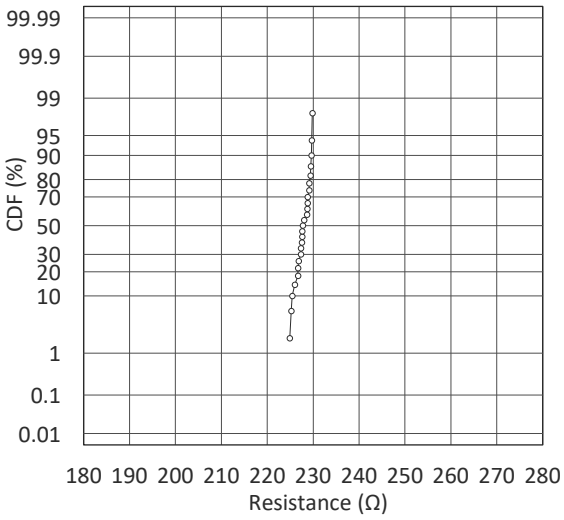
Ambient Temperature: 20°C

Quantity: 25pcs.

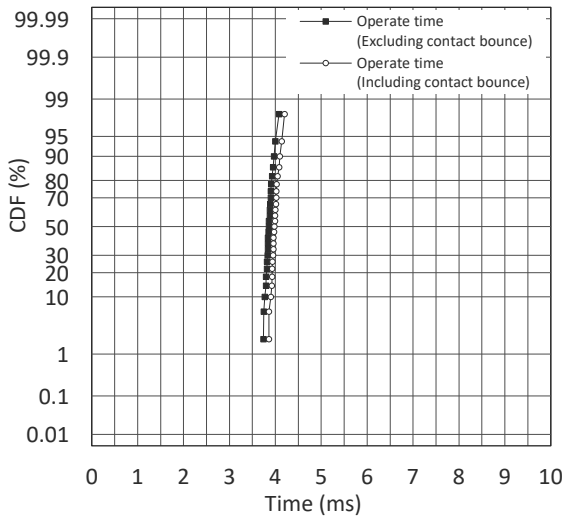
Contact resistance



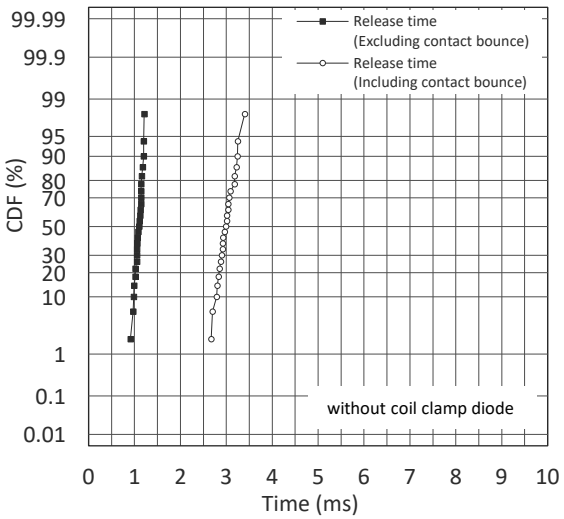
Coil resistance



Operate time



Release time



<NOTICE>

- All specifications in this catalog and production status of products are subject to change without notice. Prior to the purchase, please contact EM Devices for updated product data.
- Please request for a specification sheet for detailed product data prior to the purchase.
- Before using the product in this catalog, please read “AUTOMOTIVE POWER RELAY USER’S MANUAL” in web site. (https://www.em-devices.com/en/)
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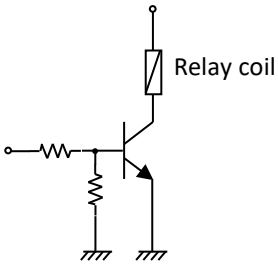
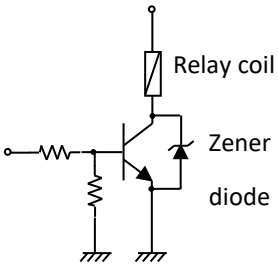
<COIL DRIVE CIRCUIT>

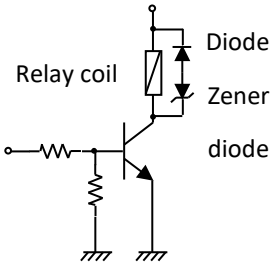
Recommended Circuit



(a)

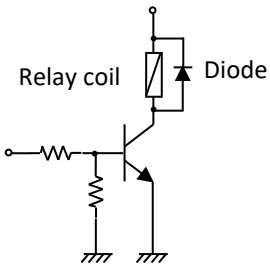


(b)



(c)

Non-recommended Circuit



(d)

EM Devices recommends coil drive circuit (b) and (c) for coil fly back suppression, but does not recommend the circuit (d) because the performance of the EL1 relay does not appear enough.