



Автомобильные реле серии FTR-G1

Технические характеристики

Архангельск (8182)63-90-72	Ижевск (3412)26-03-58	Магнитогорск (3519)55-03-13	Пермь (342)205-81-47	Сургут (3462)77-98-35
Астана (7172)727-132	Иркутск (395)279-98-46	Москва (495)268-04-70	Ростов-на-Дону (863)308-18-15	Тверь (4822)63-31-35
Астрахань (8512)99-46-04	Казань (843)206-01-48	Мурманск (8152)59-64-93	Рязань (4912)46-61-64	Томск (3822)98-41-53
Барнаул (3852)73-04-60	Калининград (4012)72-03-81	Набережные Челны (8552)20-53-41	Самара (846)206-03-16	Тула (4872)74-02-29
Белгород (4722)40-23-64	Калуга (4842)92-23-67	Нижний Новгород (831)429-08-12	Санкт-Петербург (812)309-46-40	Тюмень (3452)66-21-18
Брянск (4832)59-03-52	Кемерово (3842)65-04-62	Новокузнецк (3843)20-46-81	Саратов (845)249-38-78	Ульяновск (8422)24-23-59
Владивосток (423)249-28-31	Киров (8332)68-02-04	Новосибирск (383)227-86-73	Севастополь (8692)22-31-93	Уфа (347)229-48-12
Волгоград (844)278-03-48	Краснодар (861)203-40-90	Омск (3812)21-46-40	Симферополь (3652)67-13-56	Хабаровск (4212)92-98-04
Вологда (8172)26-41-59	Красноярск (391)204-63-61	Орел (4862)44-53-42	Смоленск (4812)29-41-54	Челябинск (351)202-03-61
Воронеж (473)204-51-73	Курск (4712)77-13-04	Оренбург (3532)37-68-04	Сочи (862)225-72-31	Череповец (8202)49-02-64
Екатеринбург (343)384-55-89	Липецк (4742)52-20-81	Пенза (8412)22-31-16	Ставрополь (8652)20-65-13	Ярославль (4852)69-52-93
Иваново (4932)77-34-06	Киргизия (996)312-96-26-47	Казахстан (772)734-952-31	Таджикистан (992)427-82-92-69	

Единый адрес для всех регионов: fst@nt-rt.ru || www.fujitsu.nt-rt.ru

Compact Power Relay

1 Pole—25A for Automotive Applications

FTR-G1 Series

RoHS compliant

■ FEATURES

- Compact for high density packaging (70% volume of previous generation FTR-P3 series)
- High contact capacity with proven contact material (min. 100,000 operations, 14V, 25A achieved, even with reduced size)
- Coil power savings (640mW nominal achieved with state-of-the-art magnetic analysis/design)
- Ease of PCB layout (all terminals on perimeter, coil and contact terminals separated)
- Lower noise (57dB average at 5cm)
- RoHS compliant since beginning of production. Please see page 7 for more information



■ ORDERING INFORMATION

[Example] FTR-G1 C N 010 W1
 (a) (b) (c) (d) (e)

(a)	Series Name	FTR-G1: FTR-G1 Series
(b)	Contact Arrangement	C : 1Form C
(c)	Contact Gap	N : 0.3mm gap
(d)	Nominal Coil Voltage	009 : 09 VDC 010 : 010 VDC 012 : 012 VDC
(e)	Contact Material	W1 : Silver-tin oxide-indium
(f)	Custom Designation	To be assigned custom designation

Note: The designation name is stamped on the top of the relay case as follows:
 Example: Ordering part number: FTR-G1CN010W1
 Stamped on part number: G1CN010W1

■ TYPICAL APPLICATIONS

- Power window
- Door lock
- Sun roof
- Power seat
- Wiper/IWW
- Tilt steering
- Retractable antenna

FTR-G1 SERIES

■ SPECIFICATIONS

Item		FTR-G1	
Contact	Arrangement	1 form C	
	Material	Silver-tin oxide-indium	
	Contact Path Voltage Drop (initial)	Maximum 100 mΩ (at 6 VDC 1A after stabilization)	
	Rating	25 A at 14VDC (locked motor load)	
	Maximum Carry Current	25 A / 1 hour (25°C, 100% rated coil voltage)	
	Maximum Inrush Current (reference)	35A	
Coil	Operating Ambient Temperature Range	-40°C to +85°C (no frost)	
	Storage Temperature Range	-40°C to +100°C (no frost)	
Time Values	Operate (at nominal voltage)	Maximum 10 ms (not including bounce)	
	Release (at nominal voltage)	Maximum 5 ms (not including bounce, no diode)	
Life	Mechanical	1x10 ⁶ operations minimum	
	Electrical	1) 100x10 ³ operation minimum, 14VDC, 25A inrush power window motor (1 operation: 1 forward and 1 reverse) 2) 200x10 ³ ops min., 14 VDC, 19A inrush, 12A break power window motor 3) 100x10 ³ ops. min. 14VDC, 20A inrush door locked motor	
Other	Vibration Resistance	Misoperation 10-55HZ, 1.5mm double amplitude	
	Shock Resistance	Misoperation	100 m/s ² minimum (10G)
		Endurance	1,000 m/s ² minimum (100G)
	Insulation Resistance (initial)		Max. 100 MΩ @500 VDC
	Dielectric Withstanding Voltage (initial)		500 VAC
	Weight		Approximately 3.5g

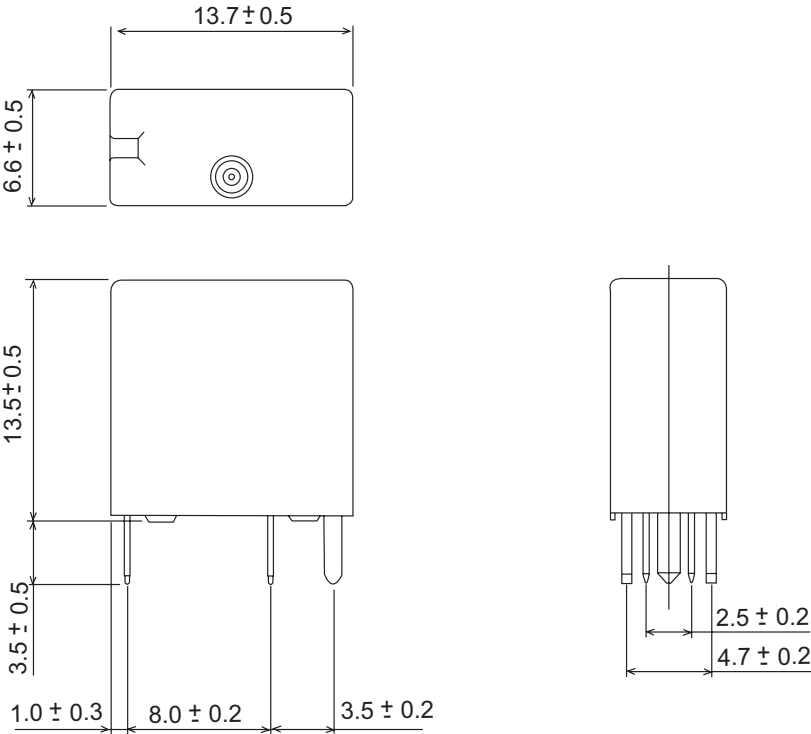
■ COIL DATA CHART

FTR-G1 Series

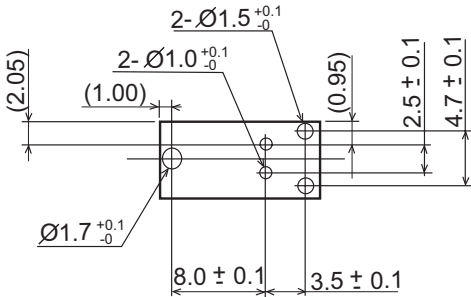
Model	Nominal Coil Voltage	Coil Resistance (±10% at 20°C)	Must Operate Voltage	Must Release Voltage (at 20°C)	Coil Power at Nominal Voltage
FTR-G1CN009W1	9VDC	126	5.4VDC (at 20°C) 6.8VDC (at 20°C)	0.75VDC	0.64W
FTR-G1CN010W1	10VDC	160	6.5VDC (at 20°C) 8.2VDC (at 20°C)	0.8VDC	0.64W
FTR-G1CN012W1	12VDC	225	7.3VDC (at 20°C) 9.2VDC (at 20°C)	1.0VDC	0.64W

■ DIMENSIONS

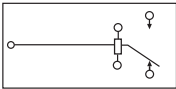
Schematic



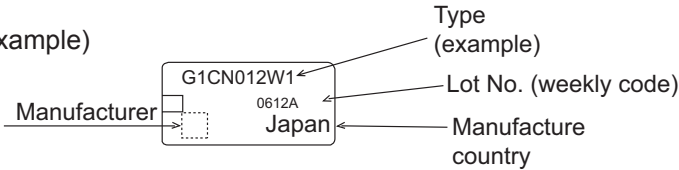
Mounting hole layout (bottom view)



Schematic



Marking (example)

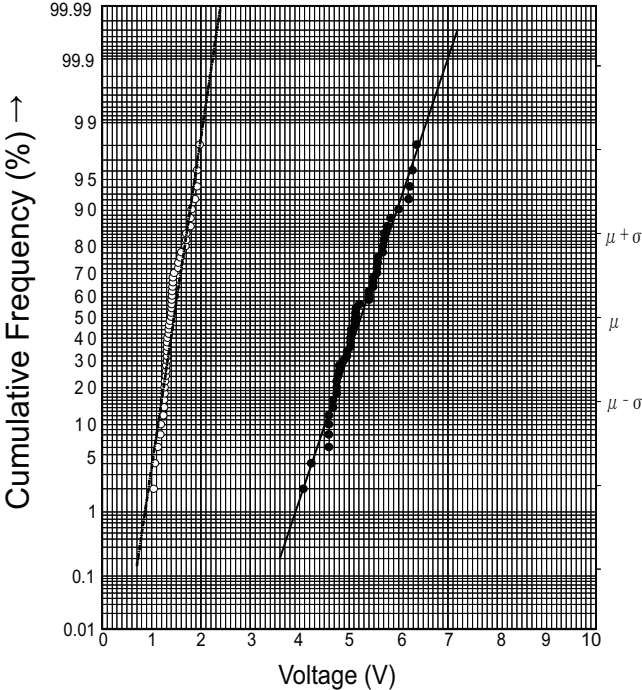


Unit: mm

■ REFERENCE DATA

1. Pick-up & Drop-out Voltage Distributio

P/N: FTR-G1CN012W1

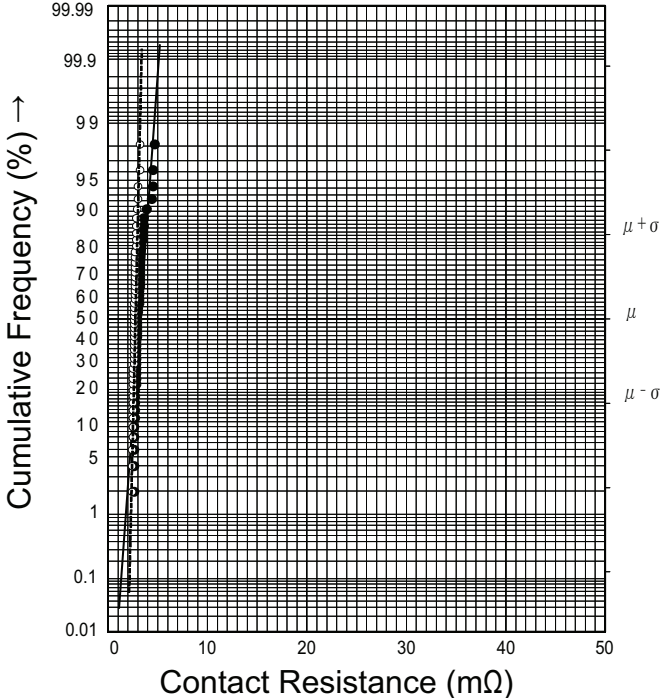


Remarks: ● Pick-up Voltage
 Spec. 7.3V or less
 Sample: 50 pieces
 Temperature: 20°C

○ Drop-out Voltage
 Spec. 1.0 or more

2. Contact Resistance Distribution

P/N: FTR-G1CN012W1

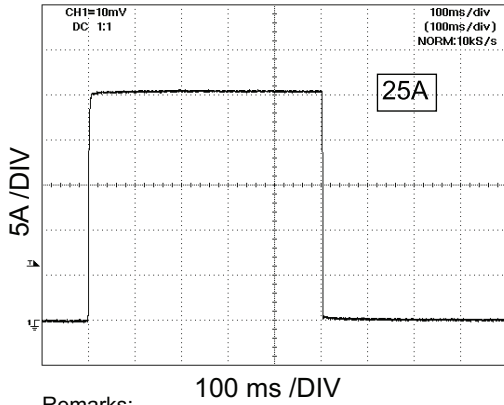


Remarks: ● N.O. contact
 Spec. 100mΩ or less at 6VDC, 1A, wet
 Sample: 50 pieces
 Temperature: 20°C

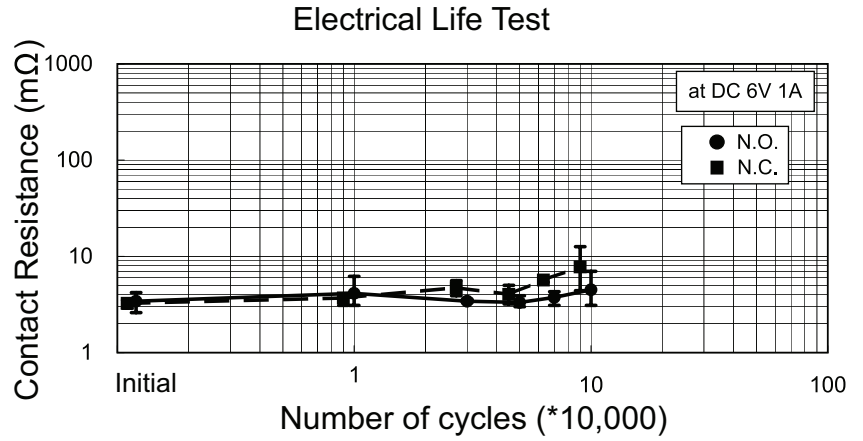
○ N.C. contact

3. Electrical Life Test

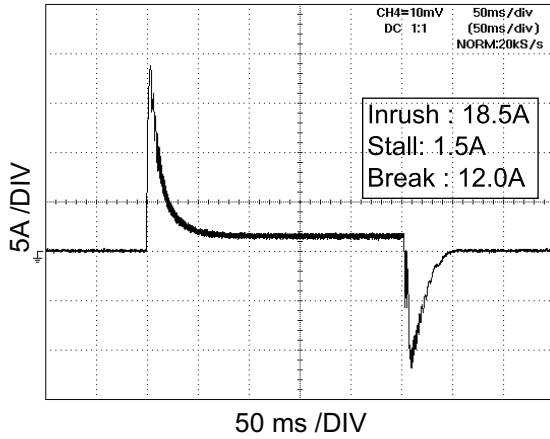
3.1 Power Window Motor Lock



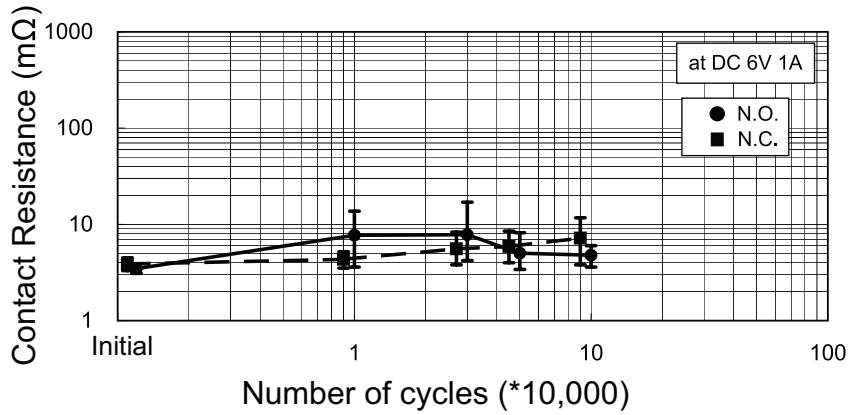
Remarks:
 V Supply: 14VDC
 Duty: 0.5 sec. ON / 9.5 sec. OFF
 Cycles: 100,000
 Temperature: 25°C
 Sample: 6 pieces



3.2 Electrical Life Test



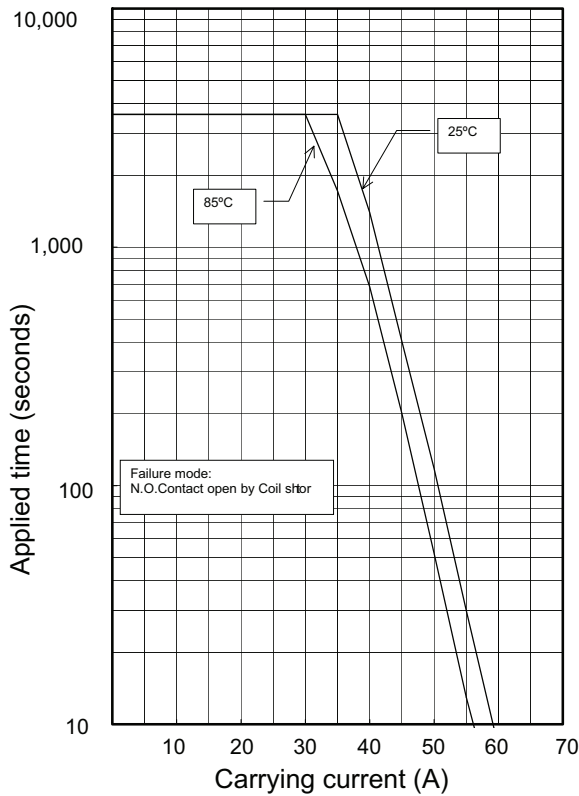
Remarks:
 V Supply: 14VDC
 Duty: 0.25 sec. ON / 9.75 sec. OFF
 Cycles: 100,000
 Temperature: 25°C
 Sample: 6 pieces



FTR-G1 SERIES

4. Carrying Current Capacity

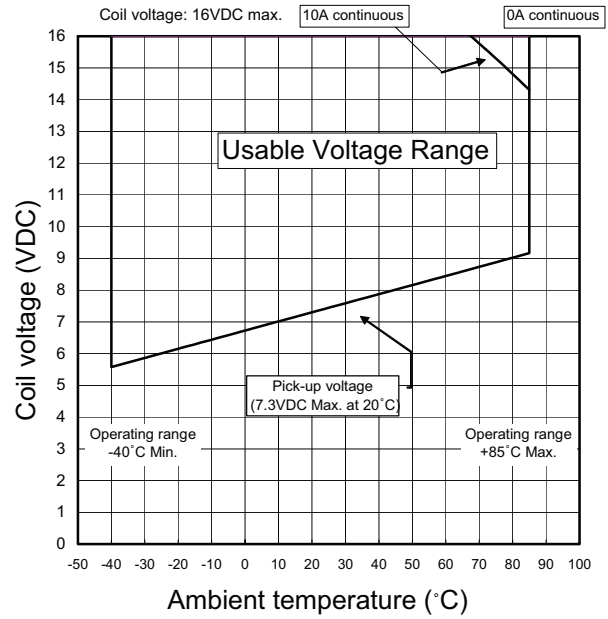
P/N: FTR-G1CN012W1



Remarks:
Applied coil voltage: 14VDC
The electric wire is soldered directly with the terminal.
(Wire size: AWG12)

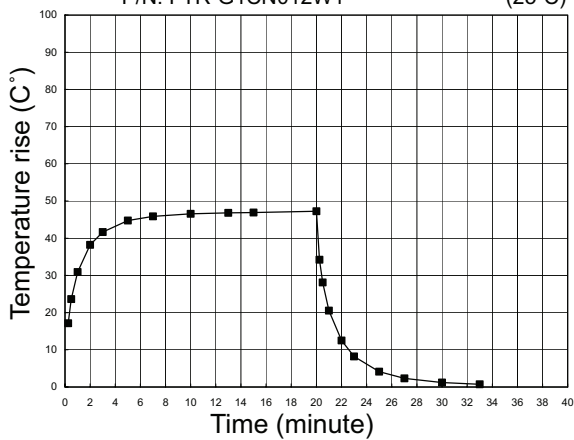
5. Operating Range

P/N: FTR-G1CN012W1



6. Coil Temperature Rise Test 1

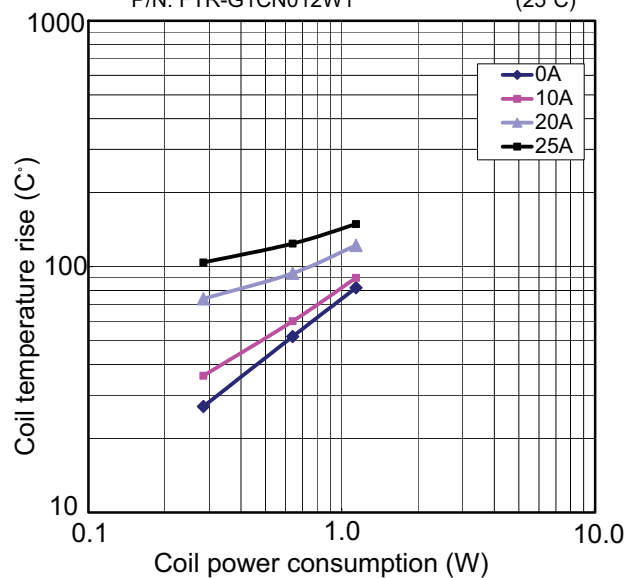
P/N: FTR-G1CN012W1 (25°C)



Remarks:
Applied coil voltage: 12VDC
Carrying current: 0A

7. Coil Temperature Rise Test 1

P/N: FTR-G1CN012W1 (25°C)



RoHS Compliance and Lead Free Relay Information

1. General Information

- Relays produced after the specific date code that is indicated on each data sheet are lead-free now. Most of our signal and power relays are lead-free. Please refer to Lead-Free Status Info.
- Lead free solder paste currently used in relays is Sn-3.0Ag-0.5Cu.
- All signal and most power relays also comply with RoHS. Please refer to individual data sheets. Relays that are RoHS compliant do not contain the 5 hazardous materials that are restricted by RoHS directive (lead, mercury, chromium IV, PBB, PBDE).
- It has been verified that using lead-free relays in leaded assembly process will not cause any problems (compatible).
- "LF" is marked on each outer and inner carton. (No marking on individual relays).
- To avoid leaded relays (for lead-free sample, etc.) please consult with area sales office.
- We will ship leaded relays as long as the leaded relay inventory exists.

Note: Cadmium was exempted from RoHS on October 21, 2005. (Amendment to Directive 2002/95/EC)

2. Recommended Lead Free Solder Profile

- Recommended solder paste Sn-3.0Ag-0.5Cu.

Flow Solder condition:

Pre-heating: maximum 120°C
Soldering: dip within 5 sec. at
260°C solder bath

Solder by Soldering Iron:

Soldering Iron
Temperature: maximum 360°C
Duration: maximum 3 sec.

We highly recommend that you confirm your actual solder conditions

3. Moisture Sensitivity

- Moisture Sensitivity Level standard is not applicable to electromechanical relays.

4. Tin Whisker

- Dipped SnAgCu solder is known as low risk tin whisker. No considerable length whisker was found by our in house test.

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