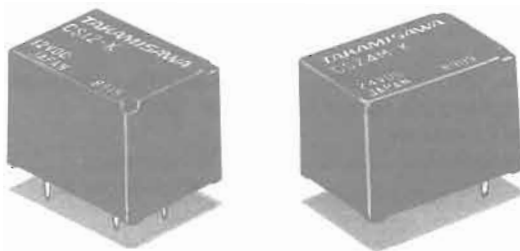


### ■ FEATURES

- Subminiature Automotive Relay with High Reliability
  - Size 16.0(W) × 22.2(L) × 16.0(H)
  - Weight Approx. 11 g
- 1 Form A (SPST-NO) or 1 Form C (SPDT)
- Low-Acoustic Noise by Air Damper (Silent Type)
- Wide Operating Temperature Range
- Washable Type Backfilled with Nitrogen



### ■ STRUCTURE

**Movable contact spring**

*Silver alloy contact onto highly conductive spring*

**Armature**

**Yoke**

**Coil**

**Coil terminal**

*Pre soldered terminal*

**Stationary contact spring (N.O.)**

*Silver alloy contact onto highly conductive spring*

**Bobbin**

*Material with high thermal stability & accuracy in dimensions is employed*

**Stationary contact spring (N.C.)**

**Air damper (piston)**

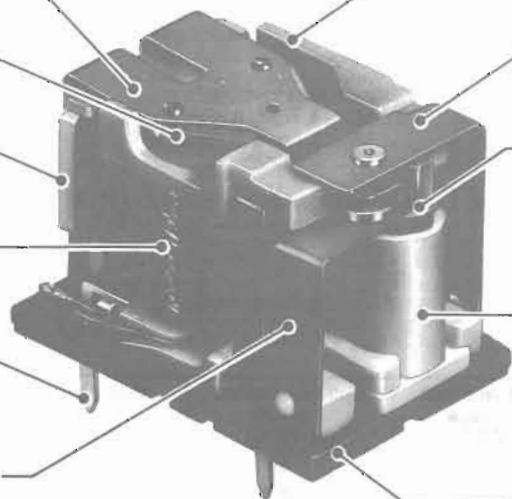
*Material with high wearing resistance, thermal stability & tolerance is employed*

**Air damper (cylinder)**

*Material with high wearing resistance & accuracy in dimensions is employed*

**Base plate**

*PBT with high thermal stability & solvent resistance is employed*



## SPECIFICATIONS

### CONTACT

- Arrangement ..... 1 Form A (SPST-NO) or  
1 Form C (SPDT)
- Material ..... Silver alloy
- Type ..... Single Type
- Resistance (initial) ..... Max. 50mΩ (at 12VDC 5A)
- Ratings
  - Nominal Load ..... 5A 16VDC (at 25A inrush, Motor load)
  - Max. Carrying Current ..... 25A (at 1 hour continuous duty)
  - Min. Switching Load(\*1) ..... 5VDC 100mA
- Life Expectancy
  - Mechanical .....  $1 \times 10^7$  operations
  - Electrical .....  $3 \times 10^5$  operations (at rated motor load)

(\*1) Min. Switching Load mentioned above are reference values. Please perform the confirmation test with the actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

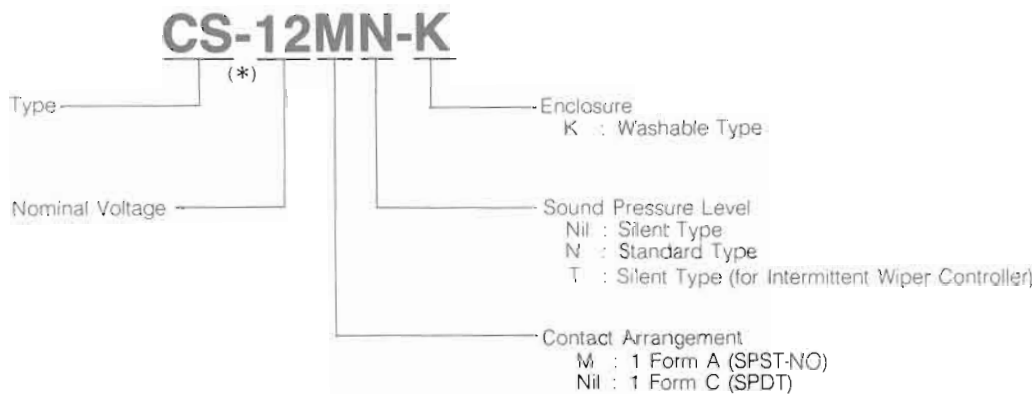
### COIL

- Nominal Voltage ..... 5 to 24VDC
- Nominal Power (at 20°C) ..... 0.45W
- Operate Power (at 20°C) ..... 0.18W
- Operate & Release Voltage .. Please see Coil Data chart
- Max. Continuous Voltage ..... Please see Characteristic Data

### GENERAL

- Insulation Resistance ..... Min. 1,000MΩ at 500VDC
- Dielectric Strength ..... 500VAC 1 minute  
(between open contacts, coil and contacts)
- Temperature Range ..... -40° to +85°C  
(at nominal voltage)
- Time Value ..... Operate Max. 10 ms (with Diode)  
Release Max. 15 ms (with Diode)
- Vibration Resistance
  - Misoperation ..... 10 to 55Hz,  
double amplitude of 1.5mm
  - Endurance ..... 10 to 55 Hz,  
double amplitude of 1.5mm
- Shock Resistance
  - Misoperation ..... 200 m/s<sup>2</sup> (11±1ms)
  - Endurance ..... 1,000 m/s<sup>2</sup> (6±1 ms)
- Unit Mass ..... Approx. 11 g
- Enclosure ..... Polybutylene Terephthalate (PBT)

## ORDERING INFORMATION

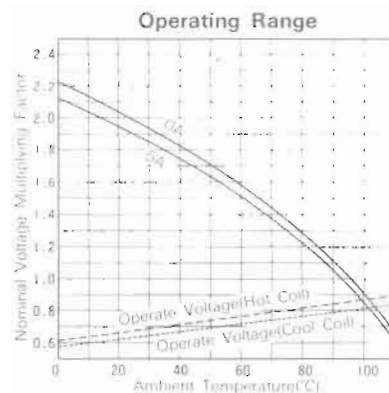
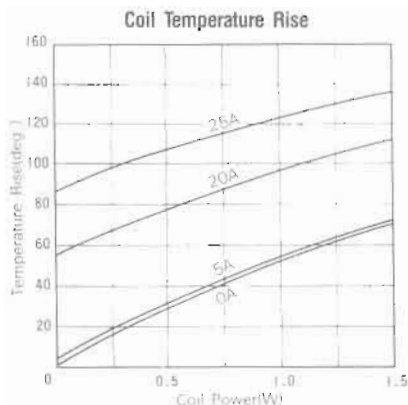
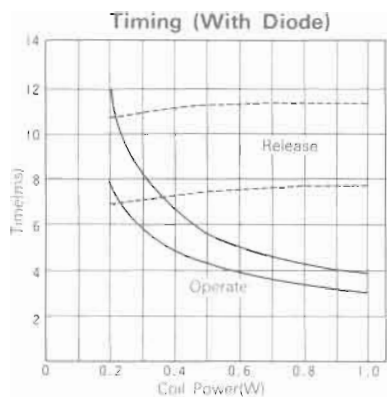


Note) 1. Actual marking omits the hyphen (-) of (\*).

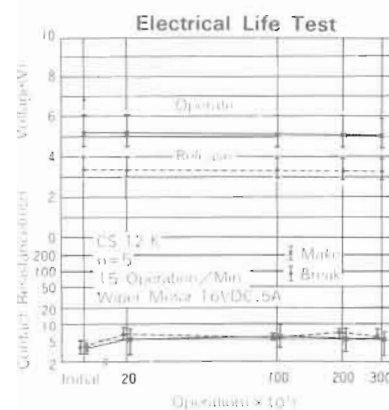
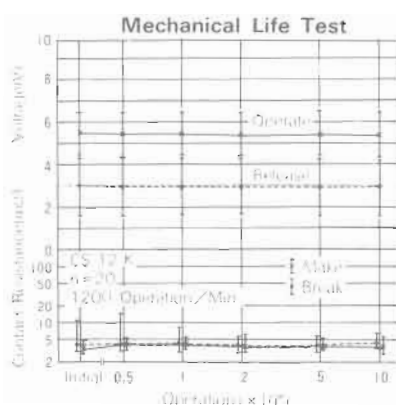
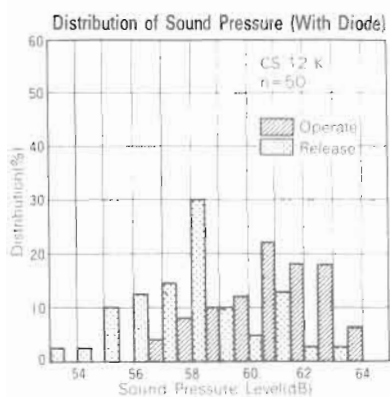
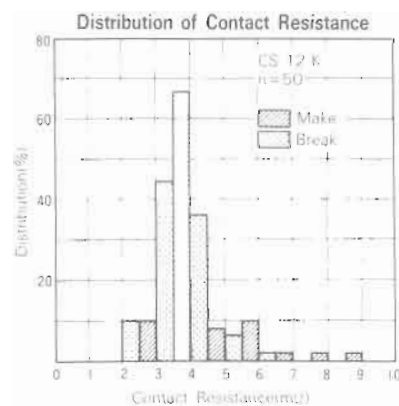
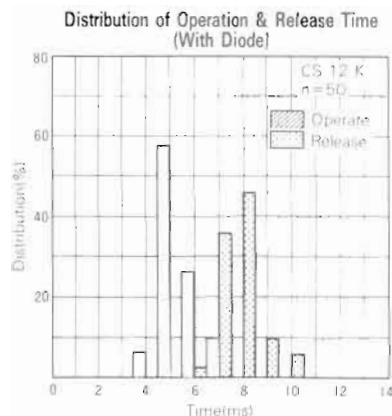
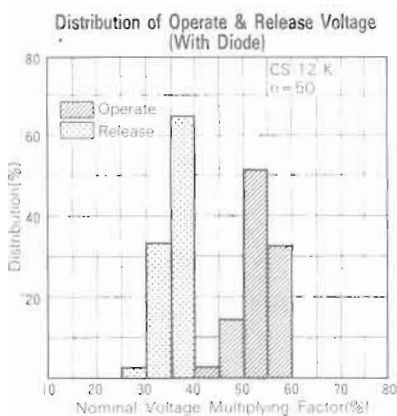
## COIL DATA CHART

ORDERING CODE		Coil Nominal Voltage V DC	Coil Resistance Ω ±10% (at 20°C)	Must Operate Voltage V DC (at 20°C)	Must Release Voltage V DC (at 20°C)	Coil Nominal Power W (at 20°C)
Silent Type	Standard Type					
CS- 5( ) ( )-K	CS- 5( )N-K	5	56	3.1	0.5	0.45
CS- 6( ) ( )-K	CS- 6( )N-K	6	80	3.7	0.6	0.45
CS- 9( ) ( )-K	CS- 9( )N-K	9	180	5.6	0.9	0.45
CS-10( ) ( )-K	CS-10( )N-K	10	222	6.2	1.0	0.45
CS-12( ) ( )-K	CS-12( )N-K	12	320	7.5	1.2	0.45
CS-18( ) ( )-K	CS-18( )N-K	18	720	11.2	1.8	0.45
CS-24( ) ( )-K	CS-24( )N-K	24	1,280	15.0	2.4	0.45

## CHARACTERISTIC DATA



## REFERENCE DATA



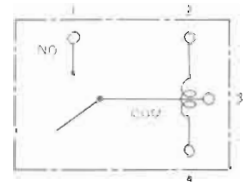
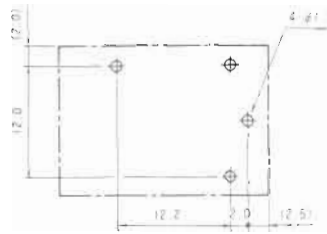
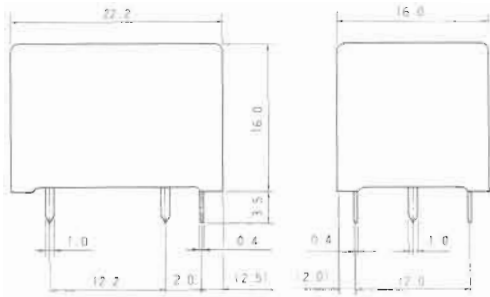
# CS Relay

## ■ DIMENSIONS (in mm)

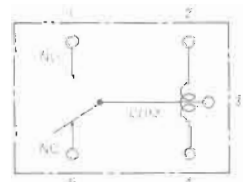
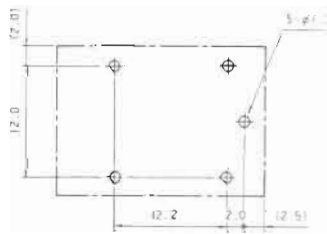
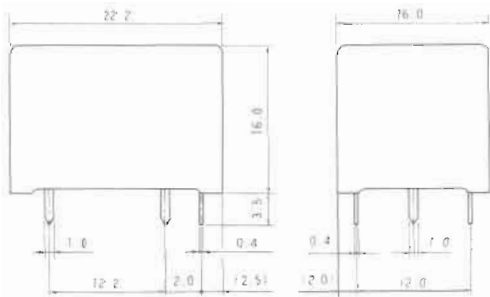
## ■ DRILLING PLAN (in mm) (BOTTOM VIEW)

## ■ WIRING DIAGRAM (BOTTOM VIEW)

CS-M Type



CS Type



### ■ Hybrid IC for Driving "CS" Relay

A Custom Hybrid IC with built in logic, timer and driver circuit is available for the CS relay for use in automotive applications.

Please consult with your nearest Takamisawa dealer to finalize your custom specification.

Your design requirements, as always, are kept in the strictest confidence. Please feel free to contact our dealers with any automotive application or quantity.

