☐ For Receipt ■ For Reference

Document No.: OMI - G7L - 12001 A

Data of Issue: May 10, 2012

OMRON Corporation
PT. OMRON MFG OF INDONESIA

Originated by	Reviewed by	Authorized by
Ryan F.	**Anom W.**	**Isman N.**

PRODUCT SPECIFICATIONS

Name	POWER RELAY
Model	G7L-2A-P-PV
Item	12VDC & 24VDC

Please make a signature, stamp or other equivalent mark indicating your receipt on one copy of this sheet and return it to Omron.

Registration part Number by Customer
Type name ;
Type Number ;

Signature, Stam or Other Equivalent Mark (for receipt confirmation)
■ This is reference, if there is no return

Release of Drawing
Sales

Distribution

	Copy
Customer	
Sales	

Revision Record

Mark	Date	Contents	Name
A	May 10 '12	New Release	Ryan F.

OMRON

The units and figures in brackets { } are for reference only.

(Optional items are indicated by a check mark [√].)

1. Type: POWER RELAY

2. Structure

2.1 Outline drawing: Drawing No.: 3 4 8 3 5 5 6 - 4

2.2 Structure drawing: Drawing No.: —

2.3 Contact structure: DPST - NO

2.4 Contact mechanism: DOUBLE BREAK CONTACT

2.5 Contact material: Surface material — Base material Ag alloy

2.6 Protective structure: [ ] Plastic sealed [ ] Flux tight [√] Closed type

3. Standards

3.1 Authorized specifications: —

3.2 Applicable specifications: —

3.3 Conforming specifications: —

4. Ratings

4.1 Operating coil ※Initial values

[√] Refer to Table 1 (Page 6/10)

(1) Rated voltage & frequency — V — Hz

(2) Rated current

[ ] Setting current — mA ± — % (at — V — Hz)

[ ] Resetting current — mA ± — % (at — V — Hz)

(3) Coil resistance

[ ] Setting resistance — Ω ± — %

[ ] Resetting resistance — Ω ± — %

(4) Rated power consumption: Approx. 2.3 W

(5) Allowable range of voltage fluctuation : 90 to 110 % of the rated voltage

(6) Coil holding voltage is 37.5 %(DC24V:9V,DC12V:4.5V) minimum at 85℃ ambient temperature after 100% coil voltage applying for more than 100 ms.

4.2 Switching section

(1) Rated load: Inductive load AC 280 V 30 A (P.f. = 0.8)

at Temperature 85°C

(2) Rated current: 30 A

(3) Maximum contact voltage: AC 280 V DC — V

(4) Maximum contact current:

Resistive load AC - A DC — A

Inductive load AC 30 A (P.f. = 0.8)

DC — A (L/R = — ms)

(5) Maximum switching capacity
Resistive load AC - VA, DC — W
Inductive load AC 8400 VA (P.f= 0.8)
DC — W (L/R= — ms)

(6) Minimum applicable load
5 VDC 100 mA
(P standard, reference value)
(λ 60 = 0.1 X 10^{-6})
(Switching frequency : 60 times / h)

5. Performance (initial values)

5.1 Contact resistance
100 miliohm (mΩ) max.
[√] Measured by the voltage drop method with 5 VDC 1 A
[ ] Measured by —

5.2 Operate voltage
[ ] Setting voltage — V max.
[√] Refer to Table 1 (Page 6/10)

5.3 Release voltage
[ ] Resetting voltage — V max.
[√] Refer to Table 1 (Page 6/10)

5.4 Operate time
[√] Setting time 30 ms max. (operated with rated voltage)
(bounce time included)

5.5 Release time
[√] Resetting time 30 ms max. (operated with rated voltage)
(bounce time included)

5.6 Insulation resistance ([√] 500 VDC [ ] 250 VDC)

(1)	Between coil and contact.	1000	Megaohm min.
(2)	Between contacts of opposite polarities	1000	Megaohm min.
(3)	Between contacts of the same polarity	1000	Megaohm min.
(4)	Between set coil and reset coil.	—	Megaohm min.
(5)	Between coil / contact terminal and exposed non - charged metallic section (grounding etc.)	—	Megaohm min.

5.7 Dielectric withstand voltage (Leak current 10 mA, 50 / 60 Hz, 1 minute of application)

(1)	Between coil and contact.	4000	VAC
(2)	Between contacts of opposite polarities	2000	VAC
(3)	Between contacts of the same polarity	2000	VAC
(4)	Between set coil and reset coil.	—	VAC
(5)	Between coil / contact terminal and exposed non - charged metallic section (grounding etc.)	—	VAC

5.8 Temperature rise

(1) Coil
70 ℃ max. (resistance method) at ambient temperature 85 ℃. Voltage applied to coil : 100 % 50/60 Hz . Contact current : 30 A

(2) Contact
65 ℃ max. (thermometer method) at ambient temperature 85 ℃. Voltage applied to coil : 100 % 50/60 Hz . Contact current : 30 A

(3) Terminal
50 ℃ max. (thermometer method) at ambient temperature 85 ℃ . Voltage applied to coil : 100 % 50/60 Hz . Contact current : 30 A

Note: About terminal temperature, if heat resistance of the PCB is less than 135 ℃, use it at ambient temperature less than 75 ℃ or contact current less than 25A. In the case of coil holding voltage,available in 85℃30A.

5.9 Vibration resistance

(1) Durability

After varied vibration with a double amplitude of 0.75 mm (1.50 mm double amplitude) and frequency of 10 to 55 to 10 Hz is applied in each direction for 2 hours, no abnormality in structure and characteristics shall be observed.

(2) Malfunction

☑ Set status (Energized)

After varied vibration with a double amplitude of 0.75 mm (1.50 mm double amplitude) and frequency of 10 to 55 to 10 Hz is applied in each direction for 1 cycle(5 minutes).
No contact opening of more than 1 ms shall be observed.

☐ Reset status (Not energized)

After varied vibration with a double amplitude of - mm (- mm double amplitude) and frequency of - Hz is applied in each direction for - cycle(5 minutes).
No contact opening of more than - ms shall be observed.

5.10 Shock resistance

(1) Durability

Must be free from any abnormality in both the construction and characteristics after the relay is subjected to a shock of 1,000 m/s² in each direction for 3 times.

(2) Malfunction

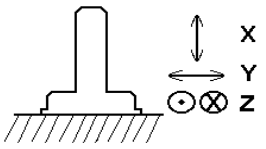
☑ Set status (When Energized)

Contacts must not open for 1ms or longer after the relay is subjected to a shock of 100 m/s² in each direction for 3 times.
No contact opening of more than 1 ms shall be observed.

☐ Reset status (When not Energized)

Contacts must not open for 1ms or longer after the relay is subjected to a shock of - m/s² in each direction for - times.

5.11 Terminal strength



When stress force of 15 kgf is applied in the direction of the vertical axis for 60 seconds, there shall be no abnormality. However, dimensional deformation of terminal caused by the force shall not be considered mechanical damage.

5.12 Temperature resistance

(1) Heat resistance

When left at a temperature of 85 ± 2 °C for 16 hours, then at a normal temperature / humidity for 2 hours, no abnormality in structure and characteristic shall be observed.

(2) Cold resistance

When left at a temperature of -55 ± 3 °C for 72 hours, then at a normal temperature / humidity for 2 hours, no abnormality in structure and characteristic shall be observed.

(3) Thermal Shock Resistance

When left at a temperature of -40 ± 3 °C for 20 minutes and then increase to 120 ± 3 °C for 20 minutes this condition will happened for 500 cycle, no abnormality in structure characteristic shall be observed.

5.13 Humidity resistance — When left at a temperature of 40 ± 2°C and relative humidity of 90 to 95% RH for 48 hours, then at a normal temperature / humidity for 2 hours, no abnormality in structure and characteristic shall be observed. However, the insulation resistance shall be 5 MegaOhm min.

5.14 Heat resistance of soldered parts — After terminal is immersed in a molten solder of 260 ± 5 ºC for 10 ± 1 seconds, then left a normal temperature / humidity for 2 hours, no abnormality in structure and characteristic shall be observed.

5.15 Life Endurance

(1) Mechanical Endurance 1,000,000 times min.
(no contact load, switching frequency : 1,800 times / h)

(2) Electrical Endurance 30,000 times min.
(Rated load, switching frequency : 360 times / h)

Note: About electrical endurance, 100% coil voltage, and 1sON/9sOFF.

6. Standard testing conditions — The specification values in this document are based on the following testing conditions, unless indicated otherwise.

6.1 Temperature — 23 ºC

6.2 Humidity — 65% RH

7. Environments

(1) Products shall not be exposed to corrosive gases such a hydrogen sulfide gas, or air containing salt.
(2) The storage site shall have no visible dust.
(3) Products shall not be exposed to direct sunlight.
No force or stress that can cause dimensional deformation or quality deterioration shall be applied.

8. Operating conditions : Products shall be used under the following conditions :

8.1 Temperature — [√] -25 to +85 °C [ ] — to — °C
There shall be no ice formation or dew condensation.

8.2 Humidity — 5 ~ 85 %RH

8.3 Mounting direction — Free

8.4 Environments

(1) Products shall not be used in a place exposed to corrosive gases such a hydrogen sulfide gas or air containing salt.
(2) There shall be no visible dust.
(3) Products shall not be exposed to direct sunlight.
No force or stress that can caused dimensional deformation or quality deterioration shall be applied

9. Change of indications

Specification other than the ratings, performance, structure and external dimensions and mounting dimension are subject to change.

10. Validity of specification sheet

10.1 When no confirmation is received within one year of the issuing date of this specification sheet, this specification sheet will be invalidated.

10.2 This specification sheet is valid for 3 years after the date of receiving confirmation

11. Warranty period

11.1 Warranty period is one year from the date on which the products are delivered to the location designated by the customer.

11.2 Scope of warranty

The warranty is limited only to repairs or replacement of defective parts, when Omron is responsible for the malfunctioning or defect that occurs during the warranty period.
The warranty applies only to individual products delivered by Omron. Therefore, the warranty does not cover any other damages induced by the malfunctioning of Omron products.

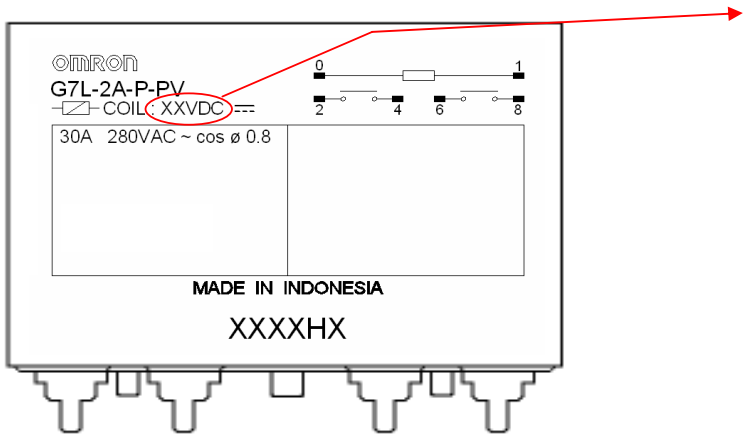
12. Others (list of ratings) ※Initial values

Table 1

Rated Voltage (V)	Rated Current (mA)	Coil Resist. (Ω)	Operate Voltage	Release Voltage	Power Consumtion voltage (W)
			% of rated voltage		
12VDC	191.7	63	75% Max.	10% Min.	approx. 2.3
24VDC	95.8	250			

Note : The rated current and coil resistance are measured at coil temperature 23°C with tolerance of ±15%

13. Marking of relay

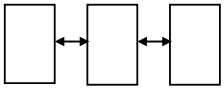


Coil Voltage :
12VDC
24VDC

14. Relay distance on PCB (with 100% coil voltage)

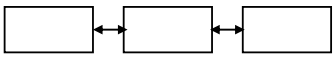
The relay should be placed on PCB with distance min as below.

Relay array direction



30mm at 85ºC ambient temperature
0mm at 70ºC ambient temperature

Relay array direction

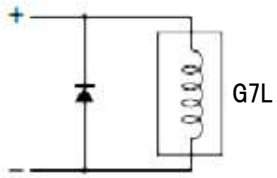


40mm at 85ºC ambient temperature
0mm at 70ºC ambient temperature

Note: In the case of using with coil holding voltage,
it's OK that relay distance is 0mm at 85℃ ambient temperature in any array direction.

15. Coil diode addition in coil holding voltage

15.1 When drop to coil holding voltage(37.5 % minimum), add a coil diode.
G7L does not have coil polarity, so attach diode so that the polarity is reverse to the applied voltage coil.



<Choice method of the diode>
・Voltage resistance＝V_{RM}≧Rated voltage×2
・Forward current＝I_F≧Rated current

16. Handling cautions

16.1 Do not use ultrasonic cleaning, since it causes resonance inside the relay and can result in coil disconnection and contact sticking.

16.2 Do not drop products to avoid deterioration of the initial performance.

17. Other Related Matters

17.1 Before Using This Product

(1) Please ensure the safety of the product by bearing in mind the normally predictable possible failures of the product.
(2) Please maintain the product conditions related to operation, storage and disposal (including the cautions and warnings in the operation manual, catalogue, specifications, etc.)
(3) If you wish to use the product in critical operations where the failure of the product may cause injury or death, or property damage (e.g. nuclear power control, railways, aviation, vehicles, combustion equipment, medical equipment, safety equipment, etc.), please add a sufficient allowance in the ratings and characteristics as well as in safety measures such as failsafe procedures, etc.
(4) If any accident occurs due to a defect in this product, please immediately contact our sales person.

17.2 Warranty Range

If any failure occurs during the above warranty period for which we are responsible, the product or faulty part will be replaced, exchanged or repaired at no extra cost at the place where the product was purchased or received. The following cases, however, are outside the warranty range :

(1) Where the cause of the failure originated with the product
(2) Where the product has been remodeled or repaired by someone not from our company.
(3) Where the failure has been caused by incorrect operation
(4) Where the contents of Section 15.1, "Before Using This Product" have been ignored.
(5) Where the cause of the failure may be defined as force majeure, and hence is not our fault

18 . Precautions

18.1 Following terms are defined as below.

1) Conditions; Use conditions, rating, performance, operating environment, handling procedure, precautions and/or prohibited use described in this “product specifications”, documentations or manuals.
2) User Application; Application of this product by a customer, including but not limited to embedding this product into customer’s components, electronic circuit boards, devices, equipments or systems
3) Fitness; (a)Fitness, (b)performance, (c) no infringement of intellectual property of third party, (d) compliance with laws and regulations and (e)conformity to various standards.

18.2 Note about this specification

1) The product may be discontinued or change its specification without prior notice, unless the specification is not returned or the product is not ordered within one year after issue of this specification. Please confirm current specifications if you return this specification or you place an order of this product one year after issue of this specification.
2) Rating and performance is tested separately. Combined conditions are not warranted.
3) Reference data is intended to be used just for reference. Omron does NOT warrant that the product can work properly in the range of reference data.
4) Examples are intended for reference. Omron does not warrant the Fitness in usage of the examples.
5) Omron may, at its discretion, change factors other than rating, performance, structure, outside dimensions or mounting dimensions.

18.3 Note about adoption and use

1) Please use the product in conformance to the Conditions, including rating and performance.
2) Please confirm the Fitness and decide whether or not the product is able to be adopted in User Application.
3) Omron will not warrant any items in (1) 3)(b)～(e) of User Application nor the Fitness.
4) If you use the product in the application below, please ensure followings; (i) allowance in aspect of rating and performance,
   (ii) safety design which can minimize danger of the User Application when the product does not work properly and
   (iii) periodical maintenance of the product and the User Application.
   (a) Applications requiring safety, including, without limitation, nuclear control facilities, combustion facilities, aerospace and aviation facilities, railroad facilities, elevating facilities, amusement facilities, medical facilities,
   safety devices or other applications which has possibility to influence lives or bodies
   (b) Applications requiring high reliability, including, without limitation, supplying systems of gas, water and electric power and applications handling right, title, ownership or property
   power and applications handling right, title, ownership or property, such as payment systems.
   (c) Applications in a harsh condition or environment, including, without limitation, outdoor facilities, facilities with chemical contamination or electromagnetic interference, facilities with vibration or impact and facilities on continual operation for a long period.
   (d) Applications under conditions or environment which are not described in this specification this product in the automotive application.
5) This product is not intended to be used in automotive applications (including two wheel vehicles). Please DO NOT use this product in the automotive application.

18.4 Warranty

1) Warranty period; One year after your purchase
2) Warranty; Omron will provide, free of charge, replacements of the same number of malfunctioning products
3) Exceptions; This warranty does not cover malfunctions caused by any of the following.

(a) Usage in the manner other than its original purpose.
(b) Usage out of the Condition.
(c) Cause which could not be foreseen by the level of science and technology at the time of shipment of the product
(d) Cause outside Omron or the product, including force majeure such as disasters.
(e) THE WARRANTY DESCRIBED IN THIS “CONDITIONS” IS A WHOLE AND SOLE LIABILITY FOR THE PRODUCTS. THERE ARE NO OTHER WARRANTIES, EXPRESSED OR IMPLIED. OMRON AND DISTRIBUTORS ARE NOT LIABLE FOR ANY DAMAGES ARISEN FROM OR RELATING TO THE PRODUCTS.
(f) Please comply with laws and regulations of security trade control in relevant countries if you export or provide a nonresident with the product or technical information.

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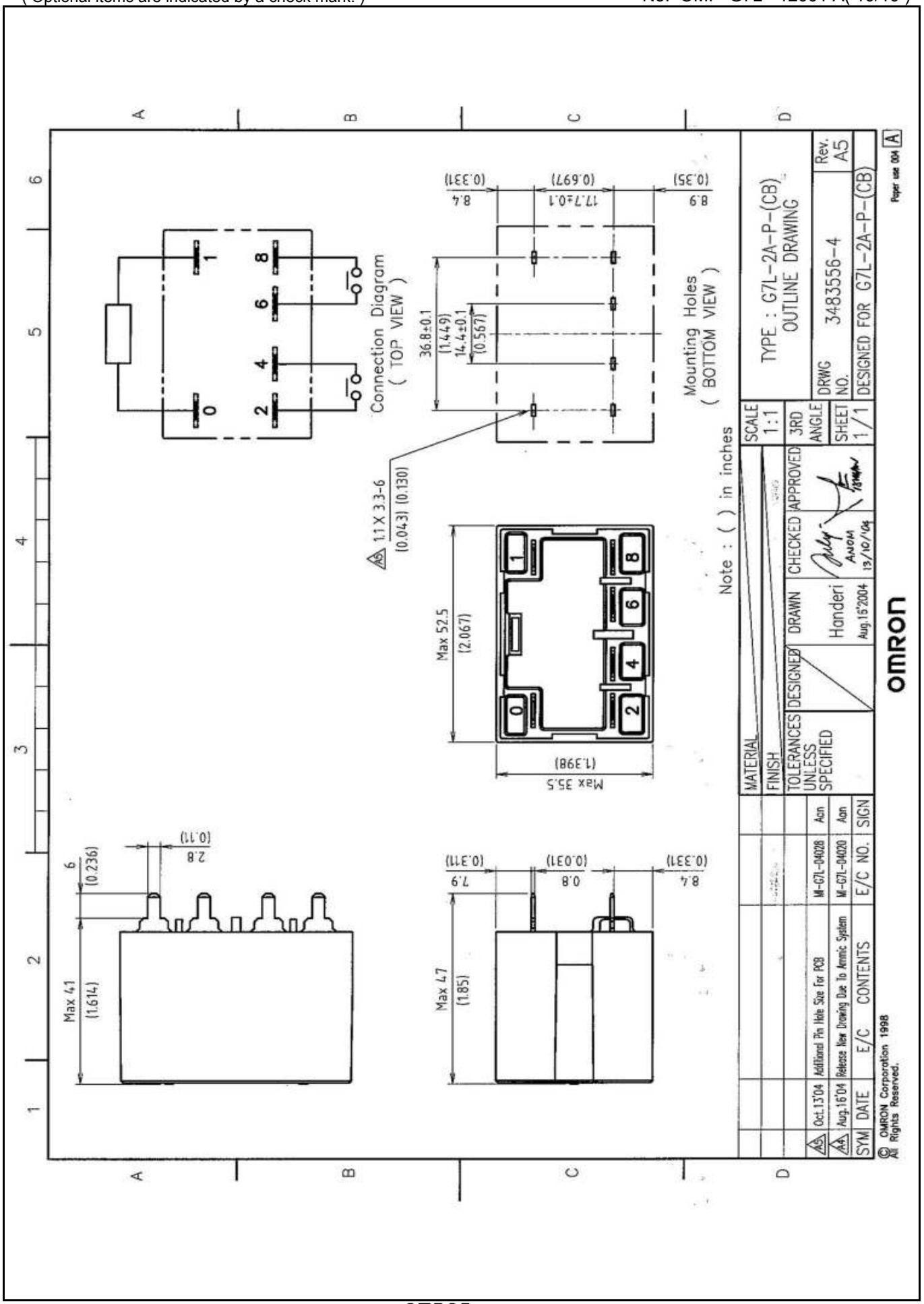
Connection Diagram
(TOP VIEW)
Mounting Holes
(BOTTOM VIEW)
Note : ( ) in inches
TYPE : G7L-2A-P-(CB)
OUTLINE DRAWING
DESIGNED FOR G7L-2A-P-(CB)
DRWG NO. 3483556-4
SCALE 1:1
SHEET 1/1
3RD ANGLE
Rev. A5
MATERIAL
FINISH
TOLERANCES UNLESS SPECIFIED
DESIGNED
DRAWN
CHECKED
APPROVED
Handeri
Aug.16'2004
13/10/04
Oct.13'04 Additional Pin Hole Size For PCB M-G7L-04028 Aon
Aug.16'04 Release New Drawing Due To Anmic System M-G7L-04020 Aon
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