

TITLE SPECIFICATIONS OF DSP RELAY PAGE 1/7

NAME DSP RELAY AGP201 •

- 1. TYPE ; DSP RELAY (Plastic sealed)
- 2. TYPE NO. ; DSP1 - DC V
- 3. CODE NO. ; AGP201 •
- 4. STYLE ; Standard PC board terminal, Single side stable
- 5. DRAWING NO. ; AGP2011
- 6. CHARACTERISTICS

6- 1 Coil data

Type No.	Code No.	Nominal voltage	Coil resistance (±10% at20°C)	Nominal operating power
DSP1-DC1.5V	AGP2010	DC 1.5 V	7.5 Ω	300 mW
DSP1-DC 3 V	AGP2011	DC 3 V	30 Ω	300 mW
DSP1-DC 5 V	AGP2019	DC 5 V	83 Ω	300 mW
DSP1-DC 6 V	AGP2012	DC 6 V	120 Ω	300 mW
DSP1-DC 9 V	AGP2017	DC 9 V	270 Ω	300 mW
DSP1-DC12 V	AGP2013	DC 12 V	480 Ω	300 mW
DSP1-DC24 V	AGP2014	DC 24 V	1920 Ω	300 mW
DSP1-DC48 V	AGP2015	DC 48 V	7680 Ω	300 mW

- 1 Pick-up voltage(initial) ; less than 80% of nominal voltage (at20°C)
- 2. Drop-out voltage(initial) ; more than 10% of nominal voltage (at20°C)
- 3. Maximum allowable voltage ; 130% of nominal voltage (at20°C)

6- 2 Contact data

- 1. Arrangement ; 1a1b
- 2. Contact material ; Gold-plated silver alloy
- 3. Initial contact resistance ; Max. 30 mΩ (by voltage drop 6VDC 1A)
- 4. Max. switching power (resistive) ; 1250VA , 150W
- 5. Max. switching voltage ; 250VAC , 30VDC
- 6. Max. switching current(resistive) ; 5A (AC250V, DC30V)

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	DESIGNED <i>K. Izumi</i>	ENACTED <i>Sh. Motomura</i>	
	CHECKED <i>A. Kobayashi</i>		<i>T. Kubota</i>

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7.	Contact rating (resistive)	; 5A250VAC , 5A30VDC			
6- 3	Expected life				
1.	Electric life (resistive)	; 1×10^5 ope. at 5A250VAC (at 20cpm)			
		; 1×10^5 ope. at 5A 30VDC (at 20cpm)			
2.	Mechanical life	; 5×10^7 ope. (at 180cpm)			
6- 4	Initial breakdown voltage				
1.	Between open contacts	; AC 1000 Vrms for 1 min. (Detection current:10mA)			
2.	Between contact sets	; AC 2000 Vrms for 1 min. (Detection current:10mA)			
3.	Between contacts and coil	; AC 3000 Vrms for 1 min. (Detection current:10mA)			
6- 5	Surge withstanding voltage (initial)				
		; 5000 V surge (Between contact and coil)			
		{ Surge voltage is a standard impulse voltage that continues for $\pm(1.2 \times 50) \mu s$, as specified in JEC-212-1981.			
6- 6	Initial insulation resistance ; Min. 1,000 M Ω at 500VDC				
		(Measured portion is same as the case of breakdown voltage)			
6- 7	Coil temperature rise value ; Max. 40 °C (resistance method) (at65°C)				
		(5A contact carry current, coil nominal voltage)			
6- 8	Vibration resistance				
1.	Functional	; 10 to 55 Hz at double amplitude of 2.0 mm			
		(Detection time:10 μs)			
2.	Destructive	; 10 to 55 Hz at double amplitude of 3.5 mm			
6- 9	Shock resistance, min.				
1.	Functional	; 196m/s ² (Sine half-wave pulse:11ms)			
		(Detection time:10 μs)			
2.	Destructive	; 980m/s ² (Sine half-wave pulse: 6ms)			
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6-10 Operate time ; Approx. 5 ms. (at 20°C)
(at nominal voltage, without bounce)

6-11 Release time ; Approx. 4 ms. (at 20°C)
(at nominal voltage, without bounce)
(If a diode is connected across the coil, the
release time will be delayed. Check this under
actual operating conditions.)

6-12 Resistance to soldering heat ; 250 °C (within 10s)
300 °C (within 5s)
350 °C (within 3s)
(Soldering depth : 2/3 of the terminal length)

6-13 Unit weight ; Approx. 4.5g

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7. OPERATION, TRANSPORT AND STORAGE

Following is the conditions of ambient temperature, humidity and air pressure in case of operation, transport and storage.

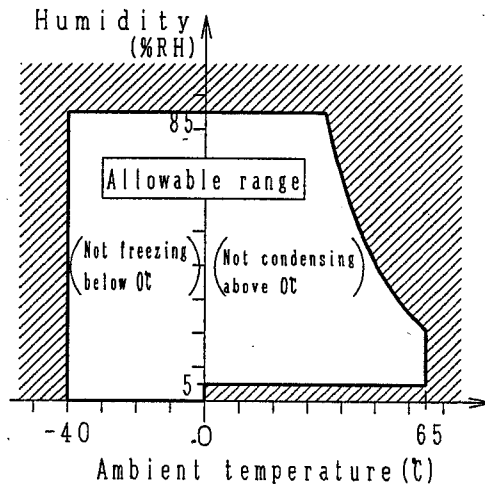
- (1) Ambient temperature : -40 to 65 °C
- (2) Humidity : 5 to 85 %RH
(Not freezing and condensing)

In addition the humidity range depends on temperature.
The allowable ranges are as follows ;

- (3) Air pressure : 86 to 106 kPa

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- Allowable range of ambient temperature and humidity for operation, transport and storage



- Condensing

Condensing occurs when the relay is exposed to sudden temperature change in a high-temperature, high-humidity atmosphere. This may cause some troubles like insulation failure.

- Freezing

At temperature below 0°C, moisture may freeze. This may lead to some troubles like sticking of the moving portion of the relay or delayed operation.

- Low-temperature, low-humidity atmosphere

If the relay is exposed to a low-temperature, low-humidity atmosphere for a long time, its plastic parts may become brittle and fragile.

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8. SOLDERING AND CLEANING

8- 1 Soldering

In case of automatic soldering, following conditions should be observed.

1. Pre-heating : Max. 100°C within 120s
2. Soldering : Max. 260°C within 5s

8- 2 Cleaning

This relay shall not be cleaned by the ultrasonic cleaning, for it affects the relay characteristics.
Also it is recommended that alcoholic solvent be used for the relay cleaning.

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9. APPROVED STANDARDS

- 9- 1 This relay has been approved by UL/CSA standards.
(UL File No. E43028)
(CSA File No. LR26550 etc.)

UL/CSA rating 1/6HP 125, 250VAC
5A 125, 250VAC
5A 30VDC
30W Max.
1A 30VDC~0.24A 125VDC

- 9- 2 This relay has been approved by TÜV (comform to electric relay for VDE0435)
(TÜV File No. 86 07 1645 519)

TÜV ratings ; 5A 250V~ (cos φ=1.0)
3A 250V~ (cos φ=0.4)
5A 30V= (0ms)

- Insulation distance of this relay complies with class C of VDE0110.
- Only soldering connection can be applicable to the terminal of this relay.

10. CAUTIONS FOR USE

- 10- 1 Regarding cautions for use and explanation of technical terms, please refer to our general catalog.
- 10- 2 This relay is polarized relay , the coil voltage must be applied with correct polarity.
- 10- 3 For secure operations, the voltage applied to coil should be nominal voltage. In addition, please note that pick-up and drop-out voltage will be changed according to the ambient temperature and using condition.
- 10- 4 If it includes ripple, the ripple factor should be less than 5%.

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- 10- 5 Lifetime is specified under the standard test conditions in JIS C 5442 (temperature 15 to 35°C, humidity 25 to 85%RH). Lifetime is dependent on the coil driving circuit, load type, operation frequency, on/off phase and ambient conditions. Check lifetime under the actual condition. The following load conditions may reduce lifetime :
- If the on/off phase is synchronized with the AC load, contact lockup or welding may occur due to the material transfer of contact.
 - When switching loads that cause contact arcing at high frequencies, the resulting arc energy may synthesize HNO₃ which causes contact corrosion. To prevent this, take one or more of the following actions :
 1. Use a spark suppressor across the contacts.
 2. Reduce the on/off frequency.
 3. Reduce the ambient humidity.
- 10- 6 If the relay is used while exceeding the coil rating, contact rating or cycle lifetime, this may result in the risk of overheating, smoke or combustion.
- 10- 7 If the relay is dropped onto a hard surface, it should not be used again. If it is used, be sure to check electrical/mechanical characteristics and the external conditions beforehand.
- 10- 8 Take care to avoid cross connections as they may cause malfunctions, overheating or combustion.

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11. WARRANTY

MATSUSHITA ELECTRIC WORKS, LTD. (MEW) will do our utmost to keep our product to be free from defects. However:

- 1) To avoid uses of the product not in accordance with its specifications, MEW asks the purchaser to present the purchaser's specification, the final destination, application of the final product and the method of installation of the product.
- 2) If the purchaser believes that the possibility exists that the installation or anticipated use of the product may cause personal injury, death or property damage, MEW advises the purchaser to be broad-minded about conditions and performance requirements listed on this specification and to take precautions such as applying a double-circuit.
- 3) The warranty period of this product is one year from the date of arrival of the product at the location of the purchaser, and is limited to the listed items on this specification. If upon arrival any defect due to MEW's failure to perform becomes apparent, MEW will replace, exchange or repair the defective product on the site where it was received.

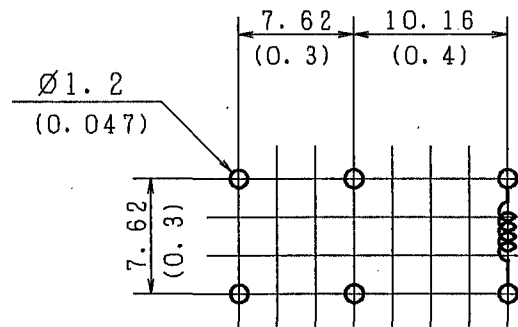
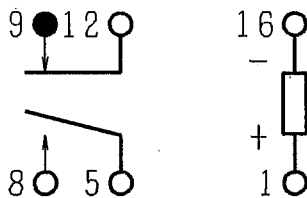
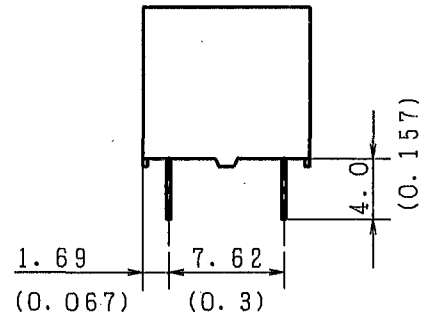
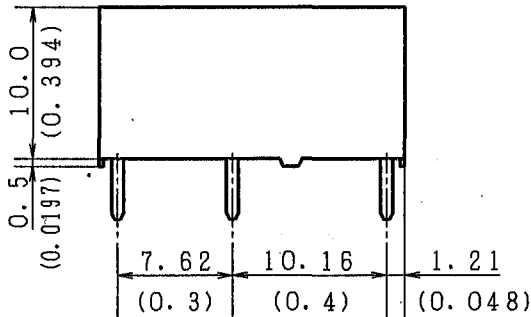
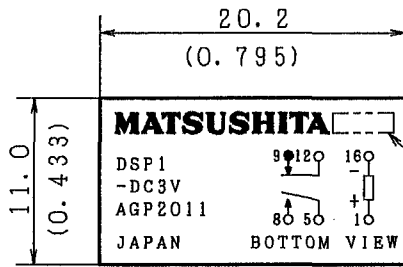
The following are excluded from the warranty conditions:

- ① Any consequential damages or loss of profits are resulting from malfunctions or defects of the product.
- ② The product is affected by the use, the storage and the transport after the delivery.
- ③ An unforeseen situation arises which was unable to be predicted by the technology level at the time of shipment.
- ④ A natural or man-made disaster which is outside of MEW's control occurs such as earthquake, flood, fire or social strife.

The warranty covers only when the product is purchased and used in Japan. When the product is purchased and/or its application is for use outside Japan, the warranty issue must be discussed and agreed by the purchaser and MEW separately from this warranty.

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* Brand change from Matsushita to NAI S will be done from December, 1996 production.



Wiring diagram (bottom view)

P/C board pattern (± 0.1 mm)

Sym	Item or Code No	Material & Size	qt.	Process	Remark
Catalog No	DSP1-DC3V	Drawing Name		DIMENSIONS	
Name	DSP RELAY	Drawing No		AGP2011	
Remark	Scale 2:1		Unit: mm (Inch)	Date APR. 5' 84	
Drawn <i>K. Izumi</i>	Checked <i>N. Kobayashi</i>	MATSUSHITA ELECTRIC WORKS, LTD.			
Designed <i>K. Izumi</i>					
	Enacted <i>T. Kubota</i>	www.DataSheet4U.com			