TITLE	TENTATIVE SPECIFICATION HE-RELAY	Page	1/9
NAME	HE1aN-P-DC9V-Y5		AHE129* ***

1. TYPE : HE1aN-P-DC9V-Y5
2. CODE NO. : AHE129* ***
3. STYLE: : Dust Cover, Single Side Stable, PC Board Blade Terminal
5. CHARACTERISTICS :

5- 1 COIL DATA

Code No.	Nominal voltage	Coil resistance (+-10% at 20°C)
HE1aN-P-DC9V-Y5	DC 9V	42.2 Ω

1. Pick-up voltage (initial) : less than DC 6.3V (at 20°C)
2. Drop-out voltage (initial) : more than DC 0.9V (at 20°C)
3. Max. allowable voltage : 9.9 VDC (at 20°C)
4. Nominal operating power : 1920mW

5- 2 CONTACT DATA

1. Arrangement : 1FormA
2. Contact material : AgNi alloy
3. Contact resistance (initial) : MAX 100mΩ (by voltage drop 6VDC 1A)
4. Max. switching current : 45A

5- 3 Expected life

1. Electrical life (resistive) : 2 x 10^5 ops. at 30A / 250VAC (at 20cpm)

: 3 x 10^4 ops. at 45A / 277VAC (at 85℃)

(Switching cycle: ON:OFF = 1s : 9s)

2. Mechanical life : Min. 1 x 10^7 ops (at 180 cpm)

5- 4 Breakdown voltage

1. Between open contacts : AC2.000Vrms for 1 min. (detect. current: 10mA)
2. Between contacts and coil : AC5.000Vrms for 1 min. (detect. Current: 10mA)

5- 5 Surge withstand voltage (initial) : 10.000 V Surge (between contacts and coil)

(Surge voltage is a standard impulse voltage that continues for +- (1.2x50)μs, as specified in JEC-212-1981).

5- 6 Insulation resistance (initial) : Min. 1.000 MΩ at 500VDC

(Detection time: 10μs)

5- 7 Insulation clearance/creepage : Min. 8mm (between contacts and coil)

5- 8 Vibration resistance

1. Functional : 10 to 55 Hz at double amplitude of 1.0mm
2. Destructive : 10 to 55 Hz at double amplitude of 1.5mm

5- 9 Shock resistance

1. Functional : 98 m/s^2 (sine half-wave pulse: 11ms)

(Detection time: 10μs)

1. Destructive : 980 m/s2 (sine half-wave pulse: 6ms)

5- 10 Operate time : Max. 30ms (at 20℃)
(at nominal voltage, without bounce)

5- 11 Release time : Max. 30ms (at 20℃)
(without diode, at nominal voltage; without bounce)

5- 12 Unit weight : Approx. 80g

6. OPERATION, TRANSPORT, STORAGE

6- 1 Following is the conditions of ambient temperature, humidity and air pressure in case of operation, transport and storage.

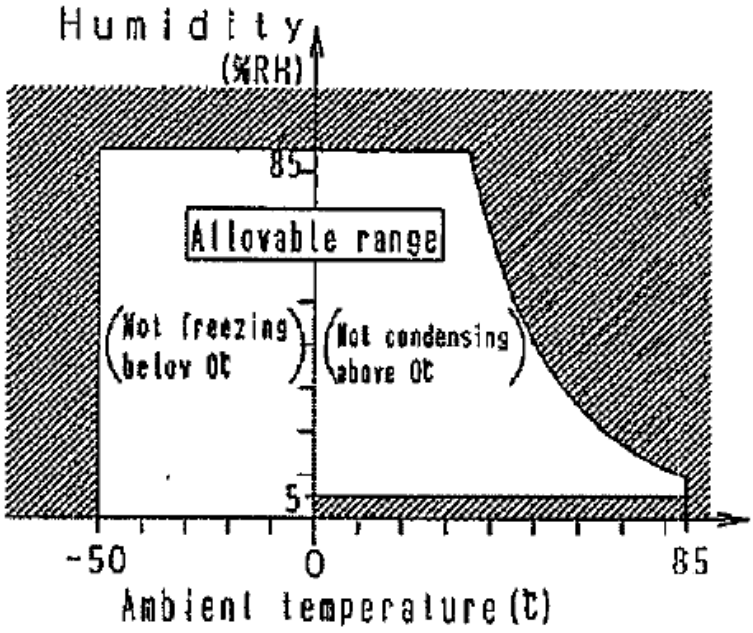
(1) Ambient temperature : -50 to 85°C
(When ambient temperature during use is 56~85℃, ma ke the coil holding voltage 50%. Refer to section 10 coil voltage setting waveform)

(2) Humidity : 5 to 85%RH

In addition, humidity range depends on temperature. The allowable ranges are as follows:

(3) Air pressure : 86 to 106kPa

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 ℃, moisture may freeze. Thi s 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.

7. SOLDERING AND CLEANING

7- 1 Soldering

In the case of soldering following conditions should be observed.
In additional, this relay is not sealed. Care should be done to prevent excessive flux from entering the internal structure.

7- 2 Cleaning

Do not clean this relay by immersion, since the relay is not sealed.

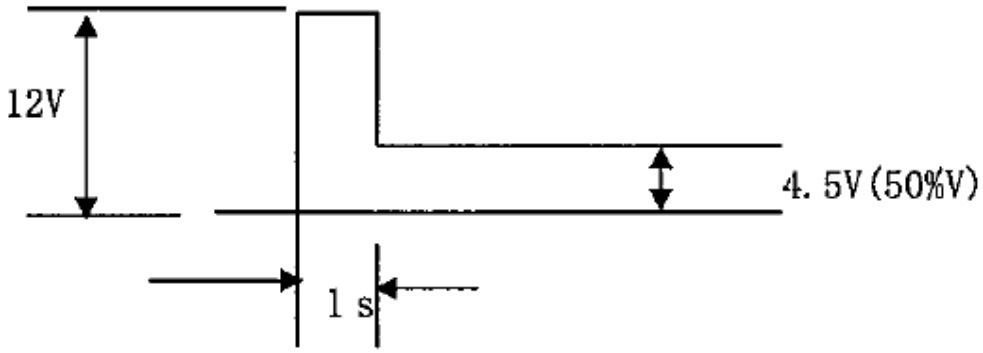
8. STANDARDS

8- 1 This relay will be approved UL / CSA standards
UL/CSA: 45A / 277VAC cos φ'=0.8 30.000ope. (at 85℃)

8- 2 This relay will be approved VDE standards
VDE: 45A / 277VAC cos φ =0.8 30.000ope. (at 85℃)

9. COIL VOLTAGE SETTING WAVEFORM

9- 1 The coil holding voltage can be reduced up to 4.5V (50%) after 1 second from the applied 12 volts of the coil voltage



10. CAUTIONS FOR USE

10- 1 Regarding cautions for use and explanation of technical terms, please refer to our general catalogue.

10- 2 To satisfy an accurate relay operation, please apply the voltage to the relay coil as within +-5% of the nominal voltage (at 20℃).

Additional the ambient temperature and condition for any application should be considered due to the fact that this might change the relay pick-up and drop-out voltage.

10- 3 If it includes ripple, the ripple factor should be less than 5%.

10- 4 Lifetime is specified by the test conditions of the standard JIS C 5442

(temperature 15 to 35℃, humidity 25 t0 85%RH)

Lifetime depends on the coil driving circuit, load type, operation frequency, on/off phase and ambient conditions.

The following load / conditions may have negative effects on the lifetime:

- If the ON/OFF phase is synchronized with the AC load, contact lockup or welding may occur due to the material transfer of the contacts.

- When switching loads causes contact arcing at high frequencies, the arc energy my synthesize HNO_2 which will cause contact corrosion.
  To prevent contact corrosion following action maybe taken:

  1. Use a spark suppresser across the contact
  2. Reduce the ON/OFF frequency
  3. Reduce the ambient humidity

10- 5 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- 6 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- 7 Take care to avoid cross connections as they may cause malfunctions, overheating or combustion.

10- 8 Only soldering connection can be applicable to the terminal of the relay.

11. ROHS-COMPLIANCE

11- 1 This product is manufactured in compliance with RoHS-directive

11. WARRANTY

PANASONIC ELECTRIC WORKS, LTD. (PEW) will do its utmost to keep their product to be free from defects, However;

1) To avoid uses of the product not in the accordance with its specifications, PEW 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, PEW 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 PEW`s failure to perform becomes apparent, PEW 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.

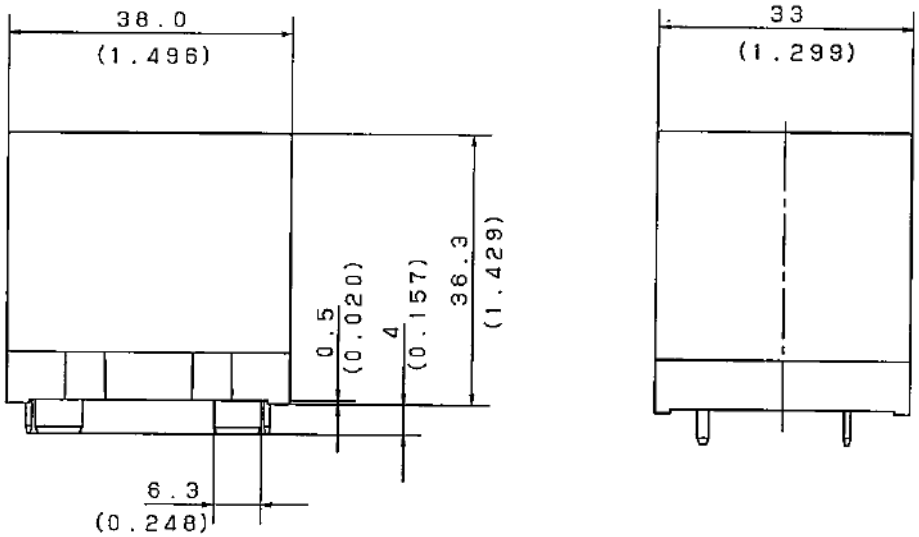
2) The product is affected by the use, the storage and the transport after the delivery.

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 PEW´s control occurs such as earthquake, flood, fire or social strife.

11. DRAWINGS

11- 1 Dimensions



11- 2 PAD-layout

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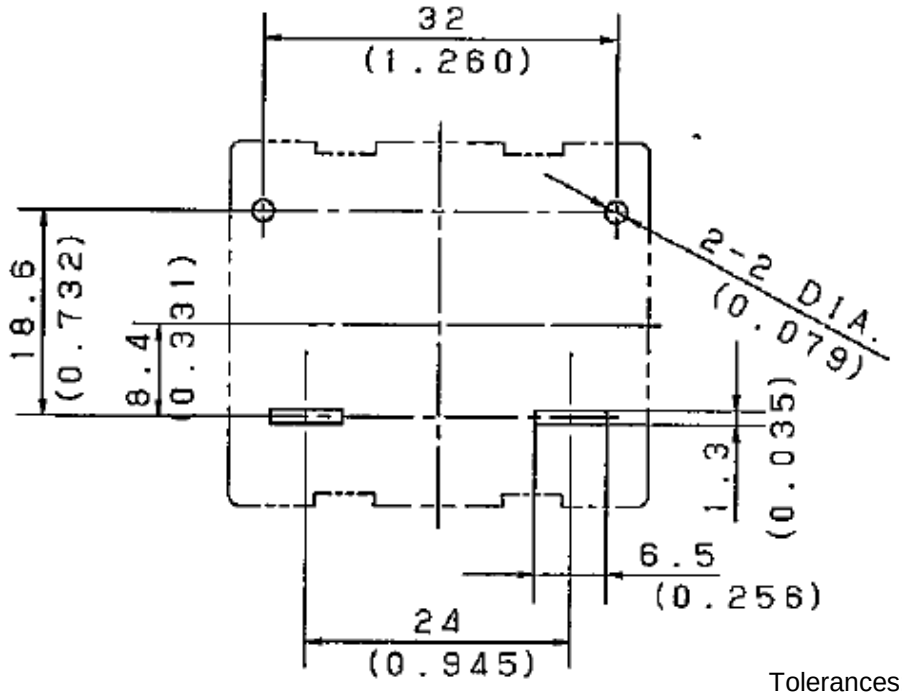

Tolerances: ± 0.1