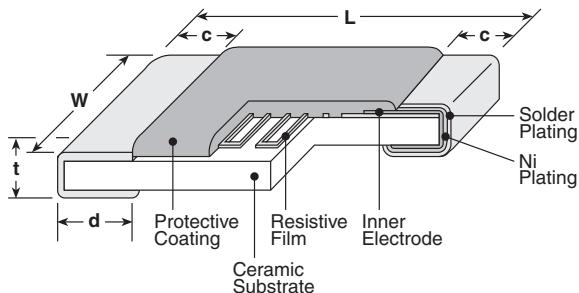




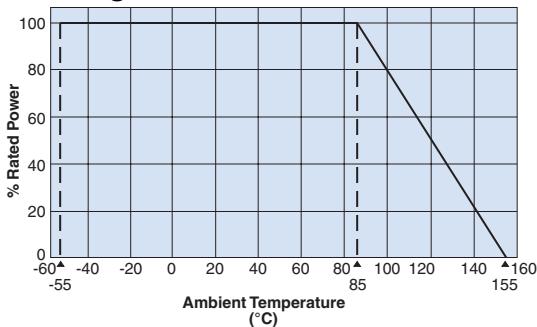
## features

- High precision type  $\pm 0.05\%$  is available with standard products
- Improved moisture resistance by glass passivation layer
- High reliability and high stability at elevated temperatures
- Low current noise
- Products with lead-free terminations meet EU RoHS requirements
- Rated ambient temperature: 85°C, rated up to +155°C
- AEC-Q200 Qualified: 0402 (1E), 0603 (1J), 0805 (2A), 1206 (2B), 1210 (2E)

## dimensions and construction



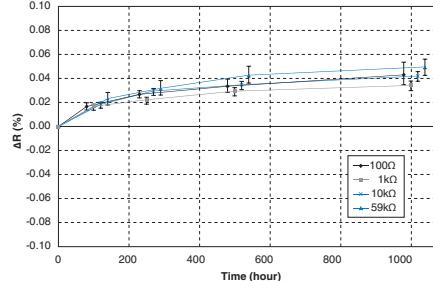
### Derating Curve



For resistors operated at an ambient temperature of 85°C or above, a power rating shall be derated in accordance with the above derating curve.

| Type<br>(Inch Size Code) | L  | Dimensions inches (mm)  | w                       | c  | d  | t                        |
|--------------------------|--|-------------------------|-------------------------|--|--|--------------------------|
| <b>1E<br/>(0402)</b>     | .039 <sup>.004</sup> <sub>.002</sub><br>(1.0 <sup>.01</sup> <sub>.05</sub> ) | .020±.002<br>(0.5±0.05) | .010±.004<br>(0.25±0.1) | .010 <sup>.002</sup> <sub>.004</sub><br>(0.25 <sup>.05</sup> <sub>.1</sub> ) | .010 <sup>.002</sup> <sub>.004</sub><br>(0.25 <sup>.05</sup> <sub>.1</sub> ) | .014±.002<br>(0.35±0.05) |
| <b>1J<br/>(0603)</b>     | .063±.008<br>(1.6±0.2)   | .031±.004<br>(0.8±0.1)  | .012±.004<br>(0.3±0.1)  | .012 <sup>.004</sup> <sub>.004</sub><br>(0.3±0.1)                            | .012 <sup>.004</sup> <sub>.004</sub><br>(0.3±0.1)                            | .018±.004<br>(0.45±0.1)  |
| <b>2A<br/>(0805)</b>     | .079±.008<br>(2.0±0.2)   | .049±.008<br>(1.25±0.2) | .016±.008<br>(0.4±0.2)  | .012 <sup>.008</sup> <sub>.004</sub><br>(0.3 <sup>.02</sup> <sub>.1</sub> )  | .012 <sup>.008</sup> <sub>.004</sub><br>(0.3 <sup>.02</sup> <sub>.1</sub> )  | .02±.004<br>(0.5±0.1)    |
| <b>2B<br/>(1206)</b>     | .126±.008<br>(3.2±0.2)   | .063±.008<br>(1.6±0.2)  | .02±.012<br>(0.5±0.3)   | .016 <sup>.008</sup> <sub>.004</sub><br>(0.4 <sup>.02</sup> <sub>.1</sub> )  | .016 <sup>.008</sup> <sub>.004</sub><br>(0.4 <sup>.02</sup> <sub>.1</sub> )  | .024±.004<br>(0.6±0.1)   |
| <b>2E<br/>(1210)</b>     |  | .098±.008<br>(2.5±0.2)  |                         |  |  |                          |

### High Temperature Exposure (155°C, 1000 Hr) RN73H2A



## ordering information

| New Part # | RN73H | 2B   | T                    | TD   | 1002  | B  | 25                          |
|------------|-------|--|----------------------|--|---|--|-----------------------------|
| Type       |       | Size   | Termination Material | Packaging  | Nominal Resistance  | Resistance Tolerance   | T.C.R. (ppm/°C)             |
|            |       | 1E: 0.063W<br>1J: 0.1W<br>2A: 0.125W<br>2B: 0.25W<br>2E: 0.25W | T: Sn                | TP: 0402 only; 7" 2mm pitch punched paper<br>TD: 0603, 0805, 1206, 1210: 7" 4mm pitch punched paper<br>TDD: 0603, 0805, 1206, 1210: 10" paper tape<br>TE: 0805, 1206, 1210: 7" embossed plastic<br>TED: 0805, 1206, 1210: 10" embossed plastic | 3 significant figures + 1 multiplier "R" indicates decimal on value <100Ω | A: $\pm 0.05\%$<br>B: $\pm 0.1\%$<br>C: $\pm 0.25\%$<br>D: $\pm 0.5\%$<br>F: $\pm 1.0\%$ | 05<br>10<br>25<br>50<br>100 |
|            |       |  |                      |  |   |  |                             |

For further information on packaging, please refer to Appendix A

Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

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## applications and ratings

| Part Designation | Power Rating @ 85°C | T.C.R. (ppm/°C) Max. | Resistance Range E-24, E-96, E-192* |              |              |              |              | Maximum Working Voltage | Maximum Overload Voltage | Operating Temp. Range |  |
|------------------|---------------------|----------------------|-------------------------------------|--------------|--------------|--------------|--------------|-------------------------|--------------------------|-----------------------|--|
|                  |                     |                      | (A±0.05%)                           | (B±0.1%)     | (C±0.25%)    | (D±0.5%)     | (F±1.0%)     |                         |                          |                       |  |
| RN73H1E          | 1/16W (.063W)       | ±10                  | —                                   | 100Ω - 10kΩ  | 100Ω - 10kΩ  | 100Ω - 10kΩ  | 100Ω - 10kΩ  | 50V                     | 75V                      | -55°C to +155°C       |  |
|                  |                     | ±25                  | —                                   | 100Ω - 300kΩ | 100Ω - 300kΩ | 47Ω - 300kΩ  | 47Ω - 300kΩ  |                         |                          |                       |  |
|                  |                     | ±50                  | —                                   | 100Ω - 300kΩ | 100Ω - 300kΩ | 10Ω - 300kΩ  | 10Ω - 300kΩ  |                         |                          |                       |  |
| RN73H1J          | 1/10W (.10W)        | ±5                   | 100Ω - 47kΩ                         | 100Ω - 47kΩ  | —            | —            | —            | 75V                     | 150V                     |                       |  |
|                  |                     | ±10                  | 100Ω - 59kΩ                         | 100Ω - 59kΩ  | 100Ω - 59kΩ  | 100Ω - 59kΩ  | 100Ω - 59kΩ  |                         |                          |                       |  |
|                  |                     | ±25                  | 51Ω - 59kΩ                          | 15Ω - 1MΩ    | 15Ω - 1MΩ    | 10Ω - 1MΩ    | 10Ω - 1MΩ    |                         |                          |                       |  |
|                  |                     | ±50                  | —                                   | 15Ω - 1MΩ    | 15Ω - 1MΩ    | 10Ω - 1MΩ    | 10Ω - 1MΩ    |                         |                          |                       |  |
|                  |                     | ±100                 | —                                   | —            | —            | 10Ω - 1MΩ    | 10Ω - 1MΩ    |                         |                          |                       |  |
| RN73H2A          | 1/8W (.125W)        | ±5                   | 100Ω - 100kΩ                        | 100Ω - 100kΩ | —            | —            | —            | 100V                    | 200V                     |                       |  |
|                  |                     | ±10                  | 100Ω - 100kΩ                        | 100Ω - 100kΩ | 100Ω - 100kΩ | 100Ω - 100kΩ | 100Ω - 100kΩ |                         |                          |                       |  |
|                  |                     | ±25                  | 51Ω - 100kΩ                         | 15Ω - 1MΩ    | 15Ω - 1MΩ    | 3Ω - 1MΩ     | 3Ω - 1MΩ     |                         |                          |                       |  |
|                  |                     | ±50                  | —                                   | 15Ω - 1MΩ    | 15Ω - 1MΩ    | 3Ω - 1MΩ     | 3Ω - 1MΩ     |                         |                          |                       |  |
|                  |                     | ±100                 | —                                   | —            | —            | 3Ω - 1MΩ     | 3Ω - 1MΩ     |                         |                          |                       |  |
| RN73H2B          | 1/4W (.25W)         | ±5                   | 100Ω - 300kΩ                        | 100Ω - 300kΩ | —            | —            | —            | 150V                    | 300V                     |                       |  |
|                  |                     | ±10                  | 100Ω - 300kΩ                        | 100Ω - 300kΩ | 100Ω - 300kΩ | 100Ω - 300kΩ | 100Ω - 300kΩ |                         |                          |                       |  |
|                  |                     | ±25                  | 51Ω - 300kΩ                         | 15Ω - 1MΩ    | 15Ω - 1MΩ    | 10Ω - 1MΩ    | 10Ω - 1MΩ    |                         |                          |                       |  |
|                  |                     | ±50                  | —                                   | 15Ω - 1MΩ    | 15Ω - 1MΩ    | 10Ω - 1MΩ    | 10Ω - 1MΩ    |                         |                          |                       |  |
|                  |                     | ±100                 | —                                   | —            | —            | 10Ω - 1MΩ    | 10Ω - 1MΩ    |                         |                          |                       |  |
| RN73H2E          | 1/4W (.25W)         | ±10                  | 100Ω - 510kΩ                        | 100Ω - 510kΩ | 100Ω - 510kΩ | 100Ω - 510kΩ | 100Ω - 510kΩ | 200V                    | 400V                     |                       |  |
|                  |                     | ±25                  | 51Ω - 510kΩ                         | 15Ω - 1MΩ    | 15Ω - 1MΩ    | 10Ω - 1MΩ    | 10Ω - 1MΩ    |                         |                          |                       |  |
|                  |                     | ±50                  | —                                   | 15Ω - 1MΩ    | 15Ω - 1MΩ    | 10Ω - 1MΩ    | 10Ω - 1MΩ    |                         |                          |                       |  |
|                  |                     | ±100                 | —                                   | —            | —            | 10Ω - 1MΩ    | 10Ω - 1MΩ    |                         |                          |                       |  |

\* No marking on E-192 values

## environmental applications

### Performance Characteristics

| Parameter                   | Requirement $\Delta R \pm (% + 0.05\Omega)$<br>Limit | Typical | Test Method   |
|-----------------------------|--|---------|---|
| Resistance                  | Within specified tolerance                           | —       | 25°C  |
| T.C.R.                      | Within specified T.C.R.                              | —       | +25°C/-55°C and +25°C/+155°C**  |
| Overload (Short time)       | ±0.05%   | ±0.01%  | Rated Voltage x 2.5 or Max. overload voltage, whichever is less for 5 seconds   |
| Resistance to Solder Heat   | ±0.05%*  | ±0.01%  | 260°C ± 5°C, 10 seconds ± 1 second  |
| Rapid Change of Temperature | ±0.1%*   | ±0.02%  | 1E, 1J, 2A: -55°C (30 minutes), +155°C (30 minutes), 1000 cycles<br>2B, 2E: -55°C (30 minutes), +155°C (30 minutes), 500 cycles |
| Moisture Resistance         | ±0.1%*   | ±0.05%  | 85°C ± 2°C, 85%±5%RH, 1000 hours; 1.5 hr ON, 0.5 hr OFF cycle   |
| Endurance at 85°C           | ±0.1%*   | ±0.05%  | 85°C ± 2°C, 1000 hours, 1.5 hr ON, 0.5 hr OFF cycle   |
| High Temperature Exposure   | ±0.1%*   | ±0.05%  | +155°C, 1000 hours  |

\* Depends on resistance value, please contact KOA Speer for details.

\*\* Test conditions differ depending on resistance value

### Precautions for Use

- The properly and electrostatically measured taping materials are used for the components, but attention should be paid to the fact that there is some danger the parts absorb on the top tapes to cause a failure in the mounting and the parts are destructed by static electricity (1J, 2A, 2B, 2E: 1kV and more, 1E: 0.5kV and more at Human Body Model 100pF, 1.5kΩ) to change the resistance in the conditions of an excessive dryness or after the parts are given vibration for a long time as they are packaged on the tapes. Similarly, care should be given not to apply the excessive static electricity when mounting on the boards.
- Ionic impurities such as flux etc. that are attached to these products or those mounted onto a PCB, negatively affect their moisture resistance, corrosion resistance, etc. The flux may contain ionic substances like chlorine, acid, etc. while perspiration and saliva include ionic impurities like sodium (Na+), chlorine (Cl-) etc. Therefore these kinds of ionic substances may induce electrical corrosion when they invade into the products. Either thorough washing or using RMA solder and flux are necessary since lead free solder contains ionic substances. Washing process is needed, before putting on moisture proof material in order to prevent electrical corrosion.
- Please pay attention that the top of an iron does not direct touch to the components. There is a risk that may cause a change in resistance. Take care that another risk may happen that the protecting coat is carbonized in an instant when touched directly by the top of the iron, also climatic-proof for electric corrosion or insulation of protecting coat may be dropped down. Be sure not to give high temperature on the top of the iron as it will degrade the protecting coat.
- Avoid storing components under direct sun rays, high temperature/humidity. Direct sun rays will cause quality change of taping and difficulty of keeping appropriate peeling strength. 5~35°C/35~75%RH, there is no deterioration of solderability for 12 months, but take special care for storing, because condensation, dust, and toxic gas like hydrogen sulfide, sulfurous acid gas, hydrogen chloride, etc. may drop solderability.
- The upper electrodes could be peeled off when a heat-resistant masking tape is attached to the mounted chip resistors and then detached from them. It is confirmed that the adhesiveness gets stronger due to the exposure to heat under mounting. Accordingly, we recommend the use of masking tape be refrained. If the use of heat-resistant masking tape is unavoidable, please make sure that the adhesives on the tape do not directly come in contact with the product.

For Surface Temperature Rise Graph see Environmental Applications. Additional environmental applications can also be found at [www.koaspeer.com](http://www.koaspeer.com). Specifications given herein may be changed at any time without prior notice. Please confirm technical specifications before you order and/or use.

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# OCEAN CHIPS

## Океан Электроники

### Поставка электронных компонентов

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибутором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибутором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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