

# High Ohmic Values (up to 100 G $\Omega$ ), High Voltage Resistors (up to 50 kV) Thick Film Technology



## FEATURES

- RoHS for most values, please consult us
- Core: High purity ceramic
- Coating: Epoxy
- Termination: Standard lead material is solder coated copper
- Climatic category: - 55 °C/+ 155 °C/56 days
- High ohmic values: Up to 100 G $\Omega$
- High voltage application: Up to 50 kV
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT

## DIMENSIONS in millimeters

RESISTORS IN MINIMUM

Technical drawing of a resistor showing dimensions:

- Lead length: 25 min.
- Lead diameter:  $\varnothing E$
- Body length: A
- Body diameter:  $\varnothing B$
- Lead diameter:  $\varnothing a \pm 0.02$
- Chamfer: 45° chamfer max. 0.25 mm deep
- Lead thickness: 4
- Total length: L max.

| SERIES | A             | $\varnothing B$ | $\varnothing E \pm 0.1$ | WEIGHT IN g |
|--------|---------------|-----------------|-------------------------|-------------|
| 58     | $7 \pm 0.2$   | $1.6 \pm 0.2$   | 0.6                     | 0.24        |
| 63     | $8.5 \pm 0.5$ | $2.2 \pm 0.2$   |                         | 0.29        |
| 68     | $14 \pm 1$    | $3.5 \pm 0.3$   |                         | 0.67        |
| 523    | $23 \pm 2$    | $4.5 \pm 0.3$   | 0.8                     | 1.23        |
| 547    | $47 \pm 2$    | $4.5 \pm 0.3$   |                         | 4.60        |
| 729    | $29 \pm 2$    | $6.5 \pm 0.5$   |                         | 5.27        |
| 747    | $47 \pm 2$    | $4.5 \pm 0.5$   |                         | 7.18        |
| 923    | $23 \pm 2$    | $8.5 \pm 0.5$   |                         |             |
| 932    | $32 \pm 2$    |                 |                         |             |
| 947    | $47 \pm 2$    |                 |                         |             |
| 972    | $72 \pm 2$    |                 |                         |             |
| 9100   | $100 \pm 2$   |                 |                         |             |

## STANDARD ELECTRICAL SPECIFICATIONS

| MODEL   | RESISTANCE RANGE $\Omega$ | RATED POWER $P_{70^\circ\text{C}}$ W | LIMITING ELEMENT VOLTAGE V | TOLERANCE $\pm \%$ | TEMPERATURE COEFFICIENT $\pm \text{ppm}/^\circ\text{C}$ | CRITICAL RESISTANCE ( $\Omega$ ) |
|---------|---------------------------|--------------------------------------|----------------------------|--------------------|---------------------------------------------------------|----------------------------------|
| HTS58   | 200 to 200M               | 0.25                                 | 500                        | 0.5, 1, 2, 5, 10   | 150                                                     | 1M                               |
| HTS63   | 1K to 500M                | 0.5                                  | 1K                         | 0.5, 1, 2, 5, 10   | 150                                                     | 2M                               |
| HTS68   | 1K to 2.5G                | 1                                    | 2K                         | 0.5, 1, 2, 5, 10   | 150                                                     | 4M                               |
| HTS523  | 1K to 5G                  | 1                                    | 5K                         | 0.5, 1, 2, 5, 10   | 150                                                     | 25M                              |
| HTS547  | 1K to 50G                 | 1.5                                  | 15K                        | 0.5, 1, 2, 5, 10   | 150                                                     | 150M                             |
| HTS729  | 1K to 15G                 | 2                                    | 10K                        | 0.5, 1, 2, 5, 10   | 150                                                     | 50M                              |
| HTS747  | 1K to 30G                 | 2.5                                  | 15K                        | 0.5, 1, 2, 5, 10   | 150                                                     | 90M                              |
| HTS923  | 1K to 15G                 | 2                                    | 8K                         | 0.5, 1, 2, 5, 10   | 150                                                     | 32M                              |
| HTS932  | 1K to 30G                 | 2.5                                  | 15K                        | 0.5, 1, 2, 5, 10   | 150                                                     | 90M                              |
| HTS947  | 1K to 50G                 | 3                                    | 20K                        | 0.5, 1, 2, 5, 10   | 150                                                     | 133.3M                           |
| HTS972  | 1K to 100G                | 4                                    | 30K                        | 0.5, 1, 2, 5, 10   | 150                                                     | 225M                             |
| HTS9100 | 1K to 100G                | 5                                    | 50K                        | 0.5, 1, 2, 5, 10   | 150                                                     | 500M                             |



## TECHNICAL SPECIFICATIONS

| SERIES AND STYLES                                                                      |         | HTS 58 | HTS 63         | HTS 68         | HTS 523        | HTS 547        | HTS 729        | HTS 747        | HTS 923        | HTS 932        | HTS 947        | HTS 972        | HTS 9100       |
|----------------------------------------------------------------------------------------|---------|--------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Power Rating at + 70 °C                                                                |         | 0.25 W | 0.5 W          | 1 W            | 1 W            | 1.5 W          | 2 W            | 2.5 W          | 2 W            | 2.5 W          | 3 W            | 4 W            | 5 W            |
| Ohmic Range in Relation to<br>• Temperature Coefficient<br>± 150 ppm/°C<br>• Tolerance | ± 0.5 % | 200 Ω  | 1 kΩ<br>100 MΩ | 1 kΩ<br>100 MΩ | 1 kΩ<br>100 MΩ | 1 kΩ<br>100 MΩ | 1 kΩ<br>100 MΩ | 1 kΩ<br>100 MΩ | 1 kΩ<br>100 MΩ | 1 kΩ<br>100 MΩ | 1 kΩ<br>100 MΩ | 1 kΩ<br>100 MΩ | 1 kΩ<br>100 MΩ |
|                                                                                        | ± 1 %   | 100 MΩ | 1 kΩ<br>250 MΩ | 1 kΩ<br>500 MΩ | 1 kΩ<br>500 MΩ | 1 kΩ<br>1 GΩ   | 1 kΩ<br>1 GΩ   | 1 kΩ<br>1 GΩ   | 1 kΩ<br>1 GΩ   | 1 kΩ<br>1 GΩ   | 1 kΩ<br>1 GΩ   | 1 kΩ<br>1 GΩ   | 1 kΩ<br>1 GΩ   |
|                                                                                        | ± 2 %   | 1 kΩ   | 1 kΩ           | 1 kΩ           | 1 kΩ           | 10 GΩ          | 10 GΩ          | 10 GΩ          | 10 GΩ          | 10 GΩ          | 10 GΩ          | 10 GΩ          | 10 GΩ          |
|                                                                                        | ± 5 %   | 200 MΩ | 500 MΩ         | 2.5 GΩ         | 5 GΩ           | 1 kΩ<br>50 GΩ  | 1 kΩ<br>15 GΩ  | 1 kΩ<br>30 GΩ  | 1 kΩ<br>15 GΩ  | 1 kΩ<br>30 GΩ  | 1 kΩ<br>50 GΩ  | 1 kΩ<br>100 GΩ | 1 kΩ<br>100 GΩ |
|                                                                                        | ± 10 %  |        |                |                |                |                |                |                |                |                |                |                |                |
| Limiting Element Voltage                                                               |         | 0.5 kV | 1 kV           | 2 kV           | 5 kV           | 15 kV          | 10 kV          | 15 kV          | 8 kV           | 15 kV          | 20 kV          | 30 kV          | 50 kV          |
| Critical Resistance                                                                    |         | 1 MΩ   | 2 MΩ           | 4 MΩ           | 25 MΩ          | 150 MΩ         | 50 MΩ          | 90 MΩ          | 32 MΩ          | 90 MΩ          | 133.3 MΩ       | 225 MΩ         | 500 MΩ         |

## MARKING

GEKA trade-mark, series, style, nominal resistance (in Ω), tolerance (in %), letter P for TCR ± 150 ppm/°C, manufacturing date. Because of lack of space, small styles are marked with ohmic value (in Ω), tolerance (in %) and letter P.

## ORDERING INFORMATION

|                           |      |             |           |                         |           |                |
|---------------------------|------|-------------|-----------|-------------------------|-----------|----------------|
| HTS                       | 63   | 1M27        | 0.5 %     | 150 ppm/°C              | AM500     | e1             |
| MODEL                     | SIZE | OHMIC VALUE | TOLERANCE | TEMPERATURE COEFFICIENT | PACKAGING | LEAD (Pb)-FREE |
| P: Standard: ± 150 ppm/°C |      |             |           |                         |           |                |

## GLOBAL PART NUMBER INFORMATION

|                 |                 |                                                                                                                                                                                                  |   |   |                                                        |   |   |                            |   |   |                                                                                                                                                                                                   |   |   |               |   |
|-----------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|--------------------------------------------------------|---|---|----------------------------|---|---|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---------------|---|
| H               | T               | S                                                                                                                                                                                                | 0 | 0 | 6                                                      | 3 | 1 | 2                          | 7 | 4 | D                                                                                                                                                                                                 | P | A | 2             | 0 |
| GLOBAL<br>MODEL | STYLE           | OHMIC VALUE                                                                                                                                                                                      |   |   | TOLERANCE                                              |   |   | TEMPERATURE<br>COEFFICIENT |   |   | PACKAGING                                                                                                                                                                                         |   |   | SPECIAL       |   |
| HTS             | HTS: 58 to 9100 | The first three digits are significant figures and the last digit specifies the number of zeros to follow. R designates decimal point.<br>5104 = 5.1 MΩ<br>3303 = 330 kΩ<br>1276 = 127 MΩ<br>... |   |   | D = 0.5 %<br>F = 1 %<br>G = 2 %<br>J = 5 %<br>K = 10 % |   |   | P = 150 ppm<br>K = 100 ppm |   |   | B15 = Blister (20 pieces)<br>B19 = Blister (30 pieces)<br>A18 = Ammopack (400 pieces)<br>A20 = Ammopack (500 pieces)<br>B17 = Blister (25 pieces)<br>R10 = Reel (500 pieces)<br><br>As applicable |   |   | As applicable |   |



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