

Polymer PTC Resettable Fuse: KRG Series

6Vdc/16Vdc Radial Leded Type



■ Features

1. RoHS & Halogen-Free (HF) compliant
2. Radial leaded devices
3. Broadest range of resettable devices available in the industry
4. Hold current ratings from 0.75 to 15A
5. Maximum voltage: 6Vdc / 16Vdc
6. Operating & storage temperature range: -40 ~ +85°C
7. Agency Recognition : UL / cUL / TUV



■ Recommended Applications

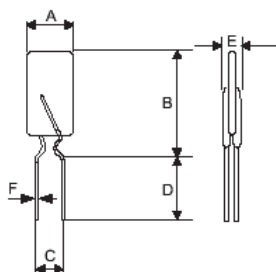
1. Motors / fans
2. Keyboard / mouse
3. Transformers
4. Industrial controls

■ Part Number Code

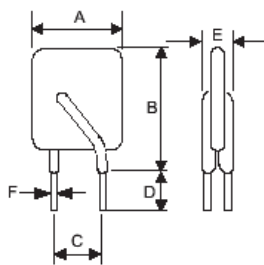
| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| K | R | G | 0 | 1 | 6 | 0 | 1 | 3 | 5 | I | B | Y | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |

| | | | | | | | | | | | | | | | |
|---------------------|--------------------------------------------|--------------------|--------|--------------|---------|---------------------------------------|-----|---------------|-------|-------------------|-----------------|------------------|-------------|------------------------|------------------------|
| Product Type | | Form Factor | | Usage | | Max. Operating Voltage (Vmax.) | | I hold | | Appearance | | Packaging | | Optional Suffix | |
| K | THINKING Polymer PTC Resettable Fuse | R | Radial | G | General | 006 | 6V | 0075 | 0.75A | S | Straight lead | B | Bulk | Y | RoHS & HF Compliant |
| | | | | | | 016 | 16V | 0120 | 1.2A | I | Inner kink lead | A | Ammo Taping | | |
| | | | | | | | | 0135 | 1.35A | | | R | Reel Taping | | |
| | | | | | | | | 0600 | 6A | | | | | | |
| | | | | | | | | 1000 | 10A | | | | | | |
| | | | | | | | | 1500 | 15A | | | | | | |

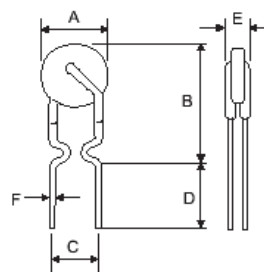
■ Structure and Dimensions



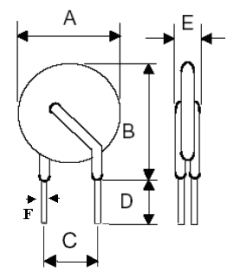
Style 1
(Inner Kink)



Style 2
(Straight Lead)



Style 3
(Inner Kink)



Style 4
(Straight Lead)

Marking: Device is marked with product type, Vmax, and I hold.

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6Vdc/16Vdc Radial Leaded Type



(Unit: mm)

| Part No. | A | | B | | | | C | | D | | E | | F | | Figure |
|------------|------|------|---------------|------|------------|------|------|------|------|------|------|------|------|------|--------|
| | Min. | Max. | Straight Lead | | Inner Kink | | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Style |
| | | | Min. | Max. | Min. | Max. | | | | | | | | | |
| KRG0060075 | 4.4 | 7.0 | -- | -- | 4.4 | 11.4 | 4.2 | 5.8 | 7.6 | 11.6 | 1.2 | 3.1 | 0.48 | 0.52 | 3,4 |
| KRG0060120 | 4.8 | 7.0 | -- | -- | 4.8 | 11.7 | 4.2 | 5.8 | 7.6 | 11.6 | 1.2 | 3.1 | 0.48 | 0.52 | 3,4 |
| KRG0060155 | 6.0 | 6.9 | -- | -- | 6.0 | 11.7 | 4.2 | 5.8 | 7.6 | 11.6 | 1.2 | 3.1 | 0.48 | 0.52 | 3,4 |
| KRG0160090 | 5.1 | 7.4 | 6.6 | 12.2 | 6.6 | 12.2 | 4.2 | 5.8 | 7.6 | 11.6 | 1.2 | 3.1 | 0.48 | 0.52 | 1,2 |
| KRG0160110 | 5.1 | 7.4 | 8.6 | 14.2 | 8.6 | 14.2 | 4.2 | 5.8 | 7.6 | 11.6 | 1.2 | 3.1 | 0.48 | 0.52 | 1,2 |
| KRG0160135 | 7.6 | 8.9 | 7.6 | 13.5 | 7.6 | 13.5 | 4.2 | 5.8 | 7.6 | 11.6 | 1.2 | 3.1 | 0.48 | 0.52 | 1,2 |
| KRG0160160 | 7.6 | 8.9 | 9.3 | 15.2 | 9.3 | 15.2 | 4.2 | 5.8 | 7.6 | 11.6 | 1.2 | 3.1 | 0.48 | 0.52 | 1,2 |
| KRG0160185 | 8.6 | 10.2 | 10.2 | 15.7 | 10.2 | 15.7 | 4.2 | 5.8 | 7.6 | 11.6 | 1.2 | 3.1 | 0.48 | 0.52 | 1,2 |
| KRG0160250 | 10.2 | 11.4 | 12.4 | 18.3 | 12.4 | 20.5 | 4.2 | 5.8 | 7.6 | 11.6 | 1.2 | 3.1 | 0.48 | 0.52 | 1,2 |
| KRG0160300 | 5.9 | 7.1 | 5.9 | 11.0 | 5.9 | 14.0 | 4.2 | 5.8 | 7.6 | 11.6 | 2.0 | 3.5 | 0.78 | 0.82 | 1,2 |
| KRG0160400 | 7.7 | 8.9 | 7.7 | 12.8 | 7.7 | 14.8 | 4.2 | 5.8 | 7.6 | 11.6 | 2.0 | 3.5 | 0.78 | 0.82 | 1,2 |
| KRG0160500 | 9.2 | 10.4 | 9.2 | 14.3 | 9.2 | 16.0 | 4.2 | 5.8 | 7.6 | 11.6 | 2.0 | 3.5 | 0.78 | 0.82 | 1,2 |
| KRG0160600 | 9.5 | 10.7 | 12.0 | 17.1 | 12.0 | 19.0 | 4.2 | 5.8 | 7.6 | 11.6 | 2.0 | 3.5 | 0.78 | 0.82 | 1,2 |
| KRG0160700 | 10.0 | 11.2 | 14.5 | 19.7 | 14.5 | 22.0 | 4.2 | 5.8 | 7.6 | 11.6 | 2.0 | 3.5 | 0.78 | 0.82 | 1,2 |
| KRG0160800 | 11.5 | 12.7 | 15.8 | 20.9 | 15.8 | 23.0 | 4.2 | 5.8 | 7.6 | 11.6 | 2.0 | 3.5 | 0.78 | 0.82 | 1,2 |
| KRG0160900 | 12.8 | 14.0 | 16.5 | 21.9 | 16.5 | 24.0 | 4.2 | 5.8 | 7.6 | 11.6 | 2.0 | 3.5 | 0.78 | 0.82 | 1,2 |
| KRG0161000 | 15.3 | 16.5 | 21.0 | 25.2 | 21.0 | 28.0 | 4.2 | 5.8 | 7.6 | 11.6 | 2.0 | 3.5 | 0.78 | 0.82 | 1,2 |
| KRG0161100 | 16.3 | 17.5 | 21.0 | 26.0 | 21.0 | 29.0 | 4.2 | 5.8 | 7.6 | 11.6 | 2.0 | 3.5 | 0.78 | 0.82 | 1,2 |
| KRG0161200 | 16.3 | 17.5 | 22.4 | 28.0 | 22.4 | 31.0 | 9.2 | 10.8 | 7.6 | 11.6 | 2.0 | 3.5 | 0.98 | 1.02 | 1,2 |
| KRG0161300 | 20.5 | 21.6 | 23.6 | 29.2 | 23.6 | 32.0 | 9.2 | 10.8 | 7.6 | 11.6 | 2.0 | 3.5 | 0.98 | 1.02 | 1,2 |
| KRG0161400 | 22.4 | 23.5 | 22.4 | 27.9 | 22.4 | 30.0 | 9.2 | 10.8 | 7.6 | 11.6 | 2.0 | 3.5 | 0.98 | 1.02 | 1,2 |
| KRG0161500 | 23.5 | 25.1 | 23.5 | 29.0 | 23.5 | 32.0 | 9.2 | 10.8 | 7.6 | 11.6 | 2.0 | 3.5 | 0.98 | 1.02 | 1,2 |

Electrical Characteristics at 23°C

| Part No. | Vmax. | I _{max} . | I _{hold} | I _{trip} | P _d (Typ.) | Maximum Time to Trip | | Resistance | | | Safety Approvals | |
|------------|--------------------|--------------------|-------------------|-------------------|--------------------------|----------------------|-------|------------------------|----------|--------------------------|------------------|-----|
| | (V _{dc}) | (A) | (A) | (A) | (W) | Current | Time | Initial R _i | | Post Trip R ₁ | UL/cUL | TUV |
| | | | | | | (A) | (Sec) | Min. (Ω) | Max. (Ω) | Max(Ω) | | |
| KRG0060075 | 6 | 40 | 0.75 | 1.50 | 0.30 | 8.00 | 0.40 | 0.110 | 0.175 | 0.230 | √ | √ |
| KRG0060120 | 6 | 40 | 1.20 | 2.40 | 0.60 | 8.00 | 0.50 | 0.065 | 0.0975 | 0.140 | √ | √ |
| KRG0060155 | 6 | 40 | 1.55 | 3.10 | 0.70 | 7.80 | 2.20 | 0.043 | 0.0705 | 0.100 | √ | √ |
| KRG0160090 | 16 | 40 | 0.90 | 1.80 | 0.60 | 8.00 | 1.20 | 0.070 | 0.120 | 0.180 | √ | √ |
| KRG0160110 | 16 | 40 | 1.10 | 2.20 | 0.70 | 8.00 | 2.30 | 0.050 | 0.095 | 0.140 | √ | √ |
| KRG0160135 | 16 | 40 | 1.35 | 2.70 | 0.80 | 8.00 | 4.50 | 0.040 | 0.074 | 0.120 | √ | √ |
| KRG0160160 | 16 | 40 | 1.60 | 3.20 | 0.90 | 8.00 | 9.00 | 0.030 | 0.061 | 0.110 | √ | √ |
| KRG0160185 | 16 | 40 | 1.85 | 3.70 | 1.00 | 8.00 | 10.00 | 0.030 | 0.051 | 0.090 | √ | √ |
| KRG0160250 | 16 | 40 | 2.50 | 5.00 | 1.20 | 8.00 | 40.00 | 0.020 | 0.036 | 0.070 | √ | √ |
| KRG0160300 | 16 | 100 | 3.00 | 5.10 | 2.30 | 15.00 | 1.00 | 0.038 | 0.065 | 0.098 | √ | √ |
| KRG0160400 | 16 | 100 | 4.00 | 6.80 | 2.40 | 20.00 | 1.70 | 0.021 | 0.038 | 0.060 | √ | √ |
| KRG0160500 | 16 | 100 | 5.00 | 8.50 | 2.60 | 25.00 | 2.00 | 0.010 | 0.023 | 0.034 | √ | √ |
| KRG0160600 | 16 | 100 | 6.00 | 10.20 | 2.80 | 30.00 | 3.30 | 0.006 | 0.018 | 0.028 | √ | √ |
| KRG0160700 | 16 | 100 | 7.00 | 11.90 | 3.00 | 35.00 | 3.50 | 0.006 | 0.013 | 0.020 | √ | √ |
| KRG0160800 | 16 | 100 | 8.00 | 13.60 | 3.00 | 40.00 | 5.00 | 0.005 | 0.011 | 0.018 | √ | √ |
| KRG0160900 | 16 | 100 | 9.00 | 15.30 | 3.30 | 45.00 | 5.50 | 0.005 | 0.009 | 0.014 | √ | √ |
| KRG0161000 | 16 | 100 | 10.00 | 17.00 | 3.60 | 50.00 | 6.00 | 0.004 | 0.007 | 0.010 | √ | √ |
| KRG0161100 | 16 | 100 | 11.00 | 18.70 | 3.70 | 55.00 | 7.00 | 0.003 | 0.006 | 0.009 | √ | √ |
| KRG0161200 | 16 | 100 | 12.00 | 20.40 | 4.20 | 60.00 | 7.50 | 0.003 | 0.006 | 0.009 | √ | √ |
| KRG0161300 | 16 | 100 | 13.00 | 22.10 | 4.60 | 65.00 | 8.50 | 0.002 | 0.006 | 0.008 | √ | √ |
| KRG0161400 | 16 | 100 | 14.00 | 23.80 | 4.60 | 70.00 | 9.00 | 0.002 | 0.005 | 0.007 | √ | √ |
| KRG0161500 | 16 | 100 | 15.00 | 25.50 | 4.60 | 75.00 | 10.00 | 0.002 | 0.005 | 0.007 | √ | √ |

Note: UL&cUL File No: E138827

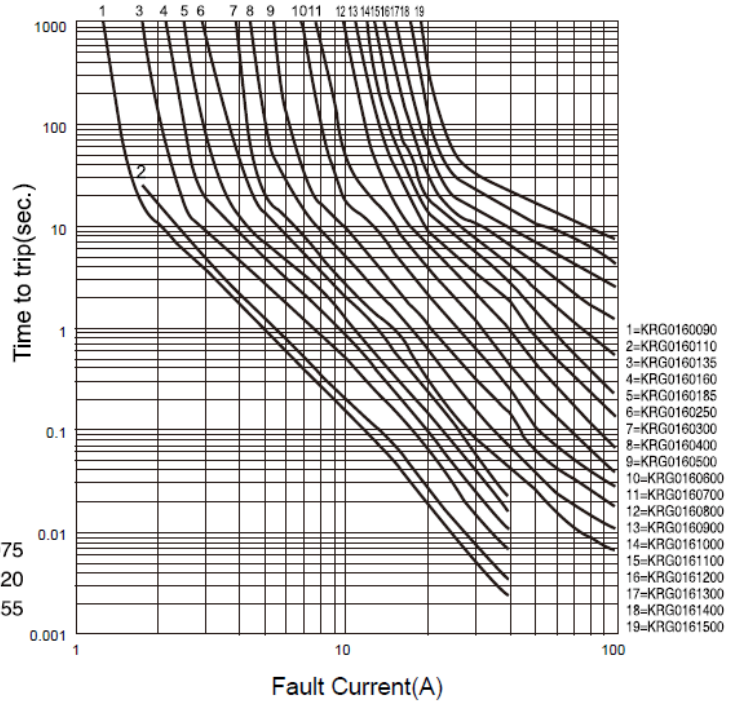
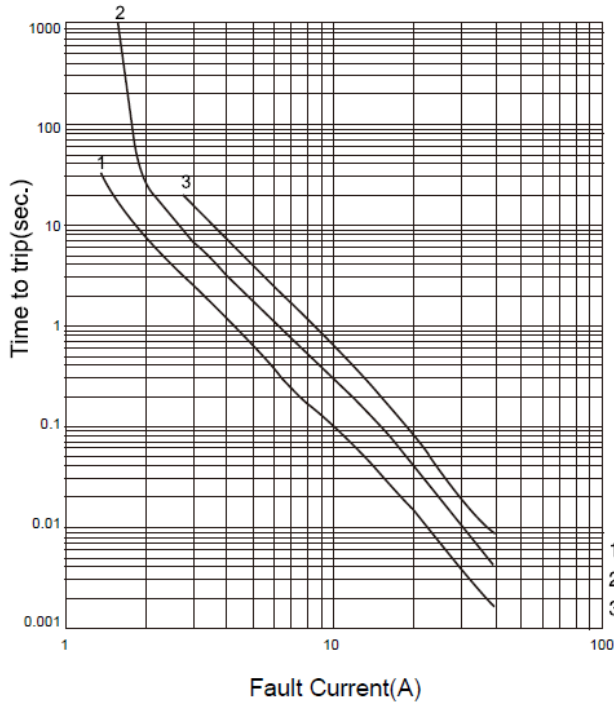
TUV File No: J 50161442, J 50231157

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6Vdc/16Vdc Radial Leaded Type

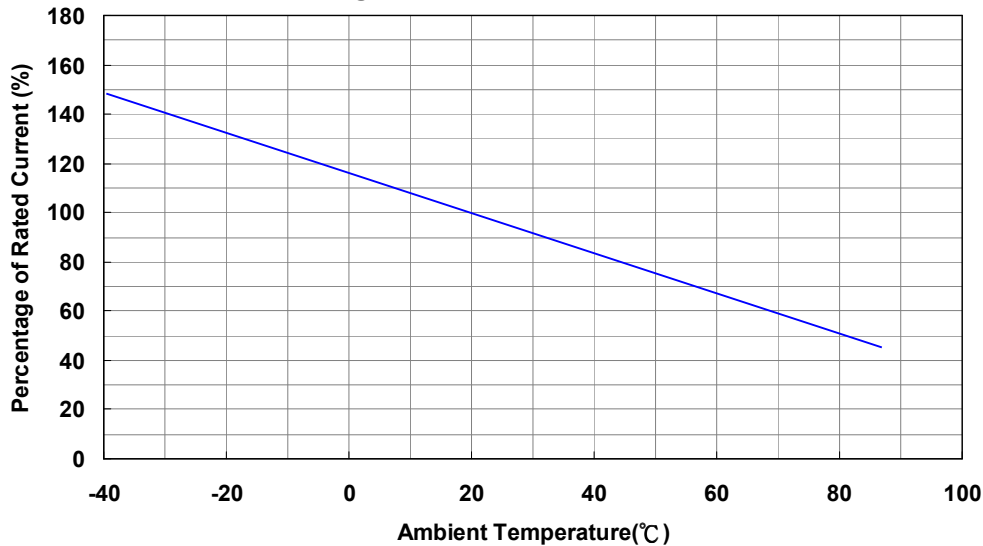


Typical Time to Trip Curves at 23°C



Ihold & Itrip Thermal Derating Curve

Derating Curve for KRG060/016 Series



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Hold Thermal Derating Chart

(Unit: A)

| Part No. | Ambient Temperature | | | | | | | | |
|------------|---------------------|-------|-------|--------------|-------|-------|-------|------|------|
| | -40°C | -20°C | 0°C | 23°C | 40°C | 50°C | 60°C | 70°C | 85°C |
| KRG0060075 | 1.05 | 0.95 | 0.85 | 0.75 | 0.64 | 0.58 | 0.51 | 0.44 | 0.35 |
| KRG0060120 | 1.69 | 1.52 | 1.36 | 1.20 | 1.02 | 0.92 | 0.82 | 0.71 | 0.56 |
| KRG0060155 | 2.17 | 1.96 | 1.75 | 1.55 | 1.32 | 1.19 | 1.05 | 0.91 | 0.73 |
| KRG0160090 | 1.33 | 1.20 | 1.05 | 0.90 | 0.77 | 0.69 | 0.61 | 0.53 | 0.42 |
| KRG0160110 | 1.63 | 1.46 | 1.29 | 1.10 | 0.94 | 0.85 | 0.75 | 0.65 | 0.52 |
| KRG0160135 | 2.00 | 1.80 | 1.58 | 1.35 | 1.15 | 1.04 | 0.92 | 0.80 | 0.63 |
| KRG0160160 | 2.37 | 2.13 | 1.87 | 1.60 | 1.36 | 1.23 | 1.09 | 0.94 | 0.75 |
| KRG0160185 | 2.74 | 2.46 | 2.16 | 1.85 | 1.57 | 1.42 | 1.26 | 1.09 | 0.87 |
| KRG0160250 | 3.63 | 3.25 | 2.88 | 2.50 | 2.08 | 1.93 | 1.70 | 1.48 | 1.18 |
| KRG0160300 | 4.40 | 3.96 | 3.60 | 3.00 | 2.55 | 2.31 | 2.10 | 1.77 | 1.35 |
| KRG0160400 | 5.90 | 5.28 | 4.80 | 4.00 | 3.40 | 3.08 | 2.80 | 2.36 | 1.80 |
| KRG0160500 | 7.30 | 6.60 | 6.00 | 5.00 | 4.25 | 3.85 | 3.60 | 2.95 | 2.25 |
| KRG0160600 | 8.80 | 7.92 | 7.20 | 6.00 | 5.10 | 4.62 | 4.20 | 3.54 | 2.70 |
| KRG0160700 | 10.30 | 9.24 | 8.40 | 7.00 | 5.95 | 5.39 | 5.00 | 4.13 | 3.15 |
| KRG0160800 | 11.70 | 10.56 | 9.60 | 8.00 | 6.80 | 6.16 | 5.60 | 4.72 | 3.60 |
| KRG0160900 | 13.20 | 11.88 | 10.70 | 9.00 | 7.65 | 6.93 | 6.40 | 5.31 | 4.05 |
| KRG0161000 | 14.70 | 13.20 | 12.00 | 10.00 | 8.50 | 7.70 | 7.00 | 5.90 | 4.50 |
| KRG0161100 | 16.10 | 14.52 | 13.10 | 11.00 | 9.35 | 8.47 | 7.80 | 6.49 | 4.95 |
| KRG0161200 | 17.60 | 15.84 | 14.40 | 12.00 | 10.20 | 9.24 | 8.40 | 7.08 | 5.40 |
| KRG0161300 | 17.70 | 16.30 | 14.80 | 13.00 | 11.05 | 10.01 | 9.60 | 7.67 | 5.85 |
| KRG0161400 | 20.50 | 18.48 | 16.80 | 14.00 | 11.90 | 10.78 | 9.80 | 8.26 | 6.30 |
| KRG0161500 | 20.40 | 18.80 | 17.10 | 15.00 | 12.75 | 11.55 | 11.10 | 8.85 | 6.75 |

Reliability

| Item | Standard | Test Condition/methods | Criteria |
|------------------------------|----------------|-----------------------------------------------------------|-------------------------------|
| Resistance to Soldering Heat | IEC 60068-2-58 | 260 ± 5 °C , 10 ± 1 sec | Rf<R1max No visible damage |
| Passive Aging | IEC 60738-1 | 85±5°C, 1000±24hrs | ±5% typical resistance change |
| Humidity Aging | IEC 60068-2-78 | 85±5°C, 80~85%RH, 1000±5hrs | ±5% typical resistance change |
| Rapid Change of Temperature | IEC 60738-1 | 85±5/-40±5°C, 10 cycles, Duration:30min | ±5% typical resistance change |
| Overload Endurance | UL 1434 | Vmax,120% Imax ,50 cycles Vmax,300% Itrip ,6000 cycles | No visible damage |
| Trip endurance | UL 1434 | Vmax, Itrip ≤ I ≤ Imax , 1000±24hrs | No visible damage |

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■ Packaging

Devices are taped according to IEC 60286-2 standards. See table below and Fig. 1~4 for details.

| Dimension description | IEC Mark | Dimension (mm) | Tolerance (mm) |
|----------------------------------------------------------------------------------------------------|----------------|------------------------|----------------|
| Sprocket hole pitch | P ₀ | 12.70 | ±0.3 |
| Ordinate to adjacent component lead KRG0060075, KRG0060120, KRG0060155 KRG0160090~KRG0161100 | P ₁ | 3.85 | ±0.7 |
| Ordinate to adjacent component lead KRG0161200~KRG0161500 | | 7.70 | ±0.7 |
| Device pitch KRG0060075, KRG0060120, KRG0060155 KRG0160090~KRG0160600 | P | 12.70 | ±1.0 |
| Device pitch KRG0160700~KRG0161400 | | 25.40 | ±1.0 |
| Device pitch KRG0161500 | | 38.10 | ±1.0 |
| Lead spacing KRG0060075, KRG0060120, KRG0060155 KRG0160090~KRG0161100 | F | 5.00 | ±0.8 |
| Lead spacing KRG0161200~KRG0161500 | | 10.00 | |
| Lead diameter KRG0060075, KRG0060120, KRG0060155 KRG0160090~KRG0160250 | d | 0.50 | ±0.02 |
| Lead diameter KRG0160300~KRG0161500 | | 0.80 | |
| Carrier tape width | W | 18.00 | +1/-0.5 |
| Top distance between tape edges | W ₂ | 3.00 | Max |
| Hold-down tape width | W ₀ | 12.00 | ±1.5 |
| Sprocket hole position | W ₁ | 9.00 | +0.75/-0.5 |
| Abscissa to top KRG0060075, KRG0060120, KRG0060155 KRG0160090~KRG0160600 | H ₁ | 32.20 | Max. |
| Abscissa to top KRG0160700~KRG0161500 | | 47.50 | |
| Abscissa to plane (straight lead) | H | 18.00 | +2/-0 |
| Abscissa to plane (kinked lead) | H ₀ | 16.00 | ±0.5 |
| Sprocket hole diameter | D ₀ | 4.00 | ±0.2 |
| Lead protrusion | L ₁ | 0.50 | Max. |
| Tape thickness | T | 0.60 | ±0.2 |
| Body lateral deviation | Δh | 2.00 | Max. |
| Body tape plane deviation | Δp | 1.00 | Max. |
| Reel width | W ₃ | See reel specification | ±1 |
| Reel diameter | | 340.00 | ±10 |
| Arbor hole diameter | n ₀ | 31.00 | ±1 |
| Core diameter | n | 80.00 | Min. |

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- Taping Specification

Fig.1. For KRG0060075, KRG0060120 and KRG0060155

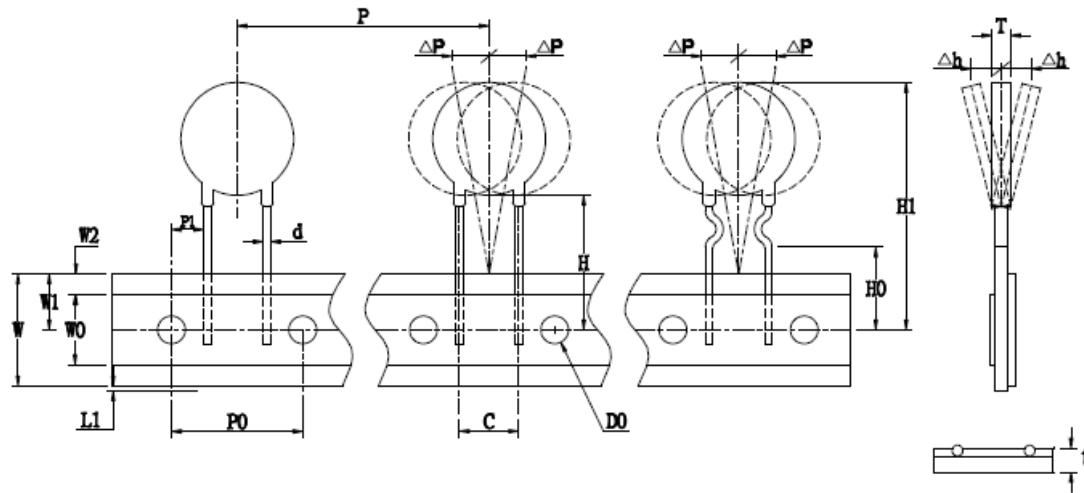


Fig.2. For KRG0160090 ~ KRG0161100

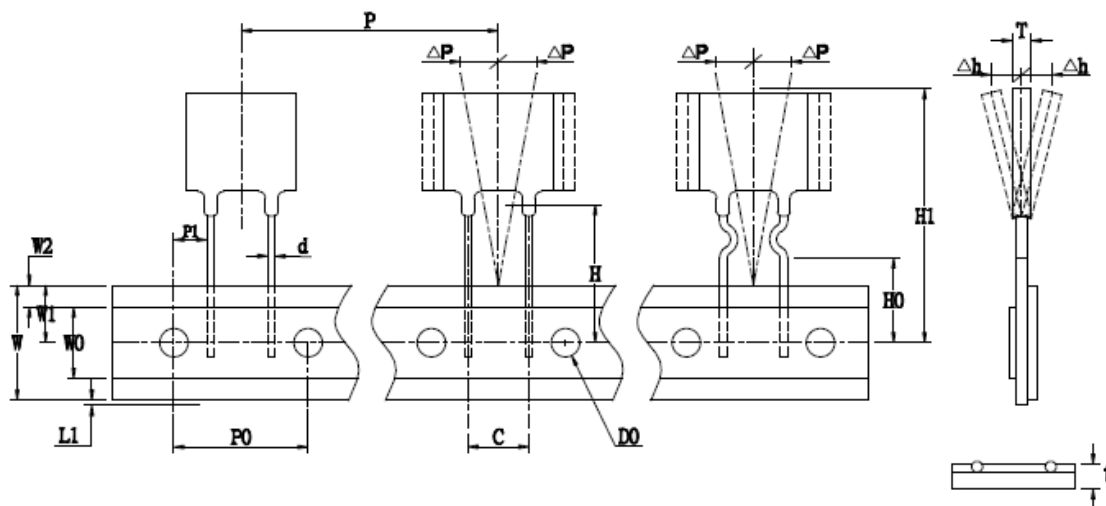
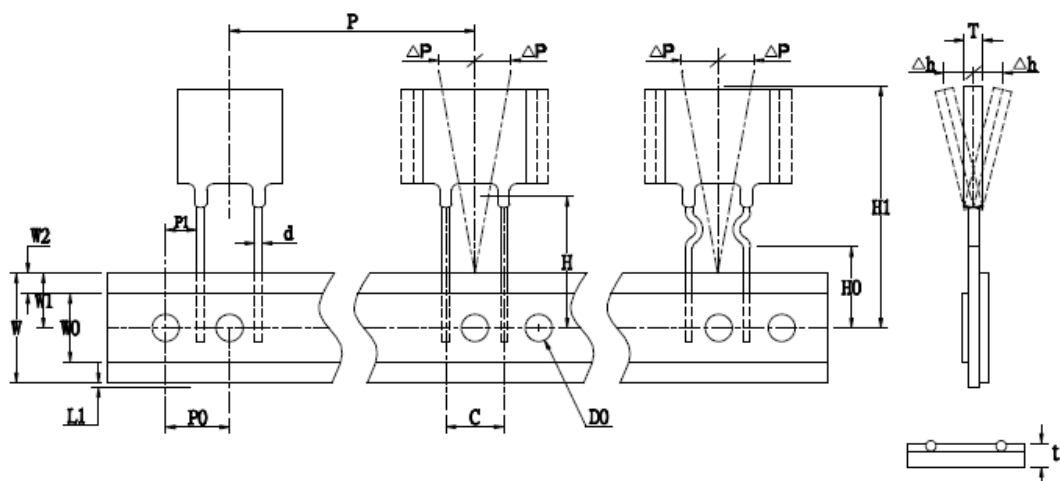


Fig.3. For KRG0161200 ~ KRG0161500

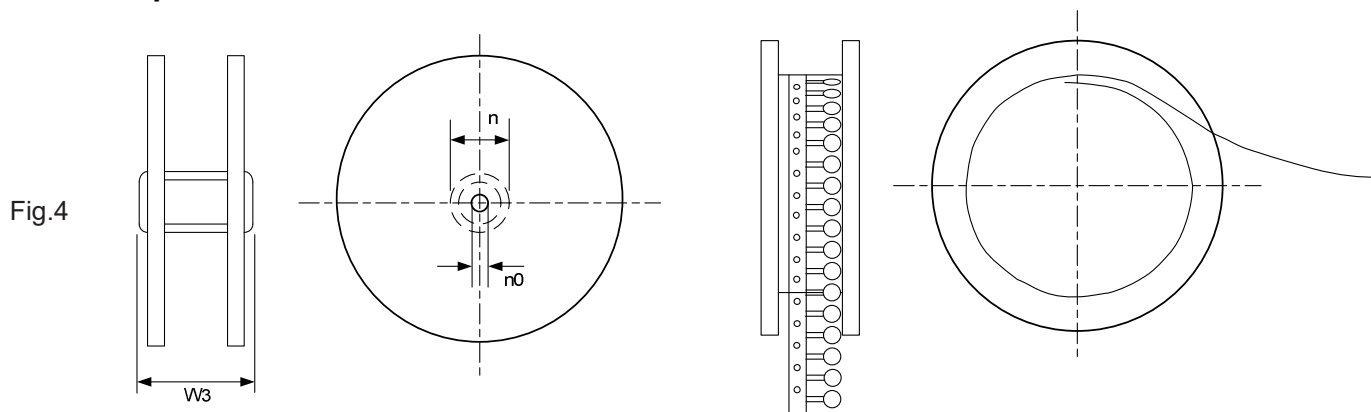


Polymer PTC Resettable Fuse: KRG Series

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● Reel Specification



| Series | W3 (mm) |
|------------------------------------------|---------|
| KRG006 (0075~0155) KRG016 (0090~0700) | 46±1 |
| KRG016 (0900~1500) | 55±1 |

■ Quantity

● Bulk Packing

| Series | Quantity (pcs/bag) |
|------------------------------------|--------------------|
| KRG0060075, KRG0060120, KRG0060155 | 1,000 |
| KRG016 (0090~0160) | 1,000 |
| KRG016 (0185~0900) | 500 |
| KRG016 (1000~1500) | 250 |

● Reel Packing

| Series | Quantity (pcs/reel) |
|------------------------------------|---------------------|
| KRG0060075, KRG0060120, KRG0060155 | 3,000 |
| KRG016 (0090~0185) | 3,000 |
| KRG016 (0250~0400) | 2,500 |
| KRG016 (0500~0700) | 1,500 |
| KRG016 (0800~1500) | 1,000 |

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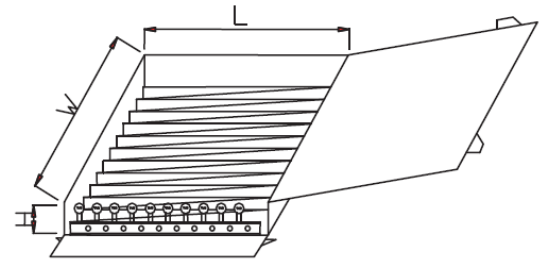


- Ammo Packing

| Series | Quantity (pcs/box) |
|------------------------------------|--------------------|
| KRG0060075, KRG0060120, KRG0060155 | 1,000 |
| KRG016 (0090~0600) | 1,000 |
| KRG016 (0700~1500) | 500 |

(Unit: mm)

| Series | W | L | H |
|---------------------------------------|-----|-----|----|
| KRG0060075, KRG0060120, KRG0060155 | 345 | 275 | 55 |
| KRG0160090~KRG0161500 | 345 | 275 | 55 |



■ Warehouse Storage Conditions of Products

- Storage Conditions:
 1. Storage Temperature: -10°C~+40°C
 2. Relative Humidity: $\leq 75\%RH$
 3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year