

# Polymer PTC Resettable Fuse: KRG Series

## 60Vdc 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 0.1 to 3.75A
5. Maximum voltage is 60Vdc
6. Operating & storage temperature range: -40 ~ +85°C
7. Agency Recognition: UL / cUL / TUV



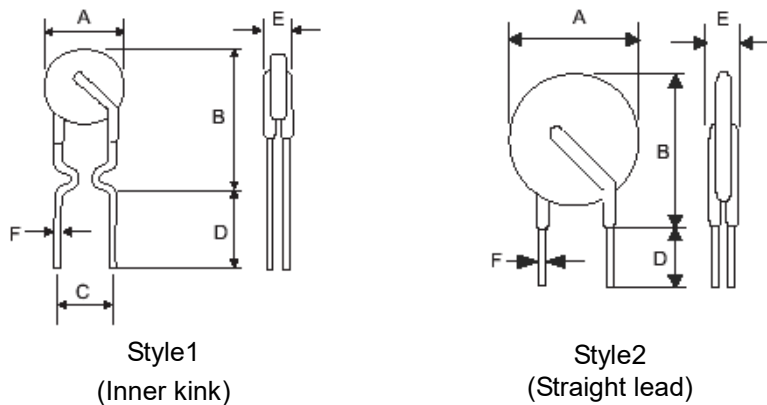
### ■ Recommended Applications

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

### ■ Part Number Code

K	R	G	0	6	0	0	1	3	5	I	B	Y			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
<b>Product Type</b>		<b>Form Factor</b>		<b>Usage</b>		<b>Max. Operating Voltage (Vmax)</b>		<b>I hold</b>		<b>Appearance</b>		<b>Packaging</b>		<b>Optional Suffix</b>	
K	THINKING Polymer PTC Resettable Fuse	R	Radial	G	General	060	60V	0010	0.1A	S	Straight lead	B	Bulk	Y	RoHS & HF Compliant
								0135	1.35A	I	Inner Kink	A	Ammo Taping		
								0250	2.5A			R	Reel Taping&		
								0375	3.75A						

### ■ Structure and Dimensions



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

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(Unit:mm)

Part no	A		B		C		D		E		F		Figure
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Style
KRG0600010	3.4	7.4	3.4	12.7	4.2	5.8	7.6	11.6	1.4	3.0	0.48	0.52	1,2
KRG0600017	4.5	7.4	4.5	12.7	4.2	5.8	7.6	11.6	1.4	3.0	0.48	0.52	1,2
KRG0600020	3.8	7.4	3.8	12.2	4.2	5.8	7.6	11.6	1.4	3.0	0.48	0.52	1,2
KRG0600025	4.3	7.4	4.3	12.7	4.2	5.8	7.6	11.6	1.4	3.0	0.48	0.52	1,2
KRG0600030	4.7	7.4	4.7	13.0	4.2	5.8	7.6	11.6	1.4	3.0	0.48	0.52	1,2
KRG0600040	5.9	7.6	5.9	13.5	4.2	5.8	7.6	11.6	1.4	3.0	0.48	0.52	1,2
KRG0600050	6.3	7.6	6.3	13.7	4.2	5.8	7.6	11.6	1.4	3.0	0.48	0.52	1,2
KRG0600065	7.9	9.7	7.9	14.5	4.2	5.8	7.6	11.6	1.4	3.0	0.48	0.52	1,2
KRG0600075	8.7	10.4	8.7	15.2	4.2	5.8	7.6	11.6	1.4	3.0	0.48	0.52	1,2
KRG0600090	9.5	11.7	9.5	15.7	4.2	5.8	7.6	11.6	1.4	3.0	0.48	0.52	1,2
KRG0600110	11.1	13.0	11.1	18.0	4.2	5.8	7.6	11.6	1.8	3.5	0.78	0.82	1,2
KRG0600135	12.7	14.5	12.7	19.6	4.2	5.8	7.6	11.6	1.8	3.5	0.78	0.82	1,2
KRG0600160	14.2	16.3	14.3	21.3	4.2	5.8	7.6	11.6	1.8	3.5	0.78	0.82	1,2
KRG0600185	15.8	17.8	15.9	22.9	4.2	5.8	7.6	11.6	1.8	3.5	0.78	0.82	1,2
KRG0600250	19.0	21.3	19.1	26.4	9.2	10.8	7.6	11.6	1.8	3.5	0.78	0.82	1,2
KRG0600300	22.2	24.9	22.2	30.0	9.2	10.8	7.6	11.6	1.8	3.5	0.78	0.82	1,2
KRG0600375	25.4	28.4	25.4	33.5	9.2	10.8	7.6	11.6	1.8	3.5	0.78	0.82	1,2

### ■ Electrical Characteristics at 23°C

Part no.	Vmax.	I <sub>max</sub> .	I <sub>hold</sub>	I <sub>trip</sub>	P <sub>d</sub> (Typ.)	Maximum Time to Trip		Resistance		Safety Approvals	
	(V <sub>dc</sub> )	(A)	(A)	(A)	(W)	Current	Time	Initial R <sub>i</sub>	Post Trip R <sub>1</sub>	UL/cUL	TUV
						(A)	(Sec)	Min. (Ω)	Max. (Ω)		
KRG0600010	60	40	0.10	0.20	0.38	0.50	4.00	2.500	7.500	√	√
KRG0600017	60	40	0.17	0.34	0.48	0.85	3.00	3.300	8.000	√	√
KRG0600020	60	40	0.20	0.40	0.41	1.00	2.20	1.830	4.400	√	√
KRG0600025	60	40	0.25	0.50	0.45	1.25	2.50	1.250	3.000	√	√
KRG0600030	60	40	0.30	0.60	0.49	1.50	3.00	0.880	2.100	√	√
KRG0600040	60	40	0.40	0.80	0.56	2.00	3.80	0.550	1.290	√	√
KRG0600050	60	40	0.50	1.00	0.77	2.50	4.00	0.500	1.170	√	√
KRG0600065	60	40	0.65	1.30	0.88	3.25	5.30	0.310	0.720	√	√
KRG0600075	60	40	0.75	1.50	0.92	3.75	6.30	0.250	0.600	√	√
KRG0600090	60	40	0.90	1.80	0.99	4.50	7.20	0.200	0.470	√	√
KRG0600110	60	40	1.10	2.20	1.50	5.50	8.20	0.150	0.380	√	√
KRG0600135	60	40	1.35	2.70	1.70	6.75	9.60	0.120	0.300	√	√
KRG0600160	60	40	1.60	3.20	1.90	8.00	11.40	0.090	0.220	√	√
KRG0600185	60	40	1.85	3.70	2.10	9.25	12.60	0.080	0.190	√	√
KRG0600250	60	40	2.50	5.00	2.50	12.50	15.60	0.050	0.130	√	√
KRG0600300	60	40	3.00	6.00	2.80	15.00	19.80	0.040	0.100	√	√
KRG0600375	60	40	3.75	7.50	3.20	18.75	24.00	0.030	0.080	√	√

Note 1: UL&cUL File No: E138827

TUV File No: J 50161442

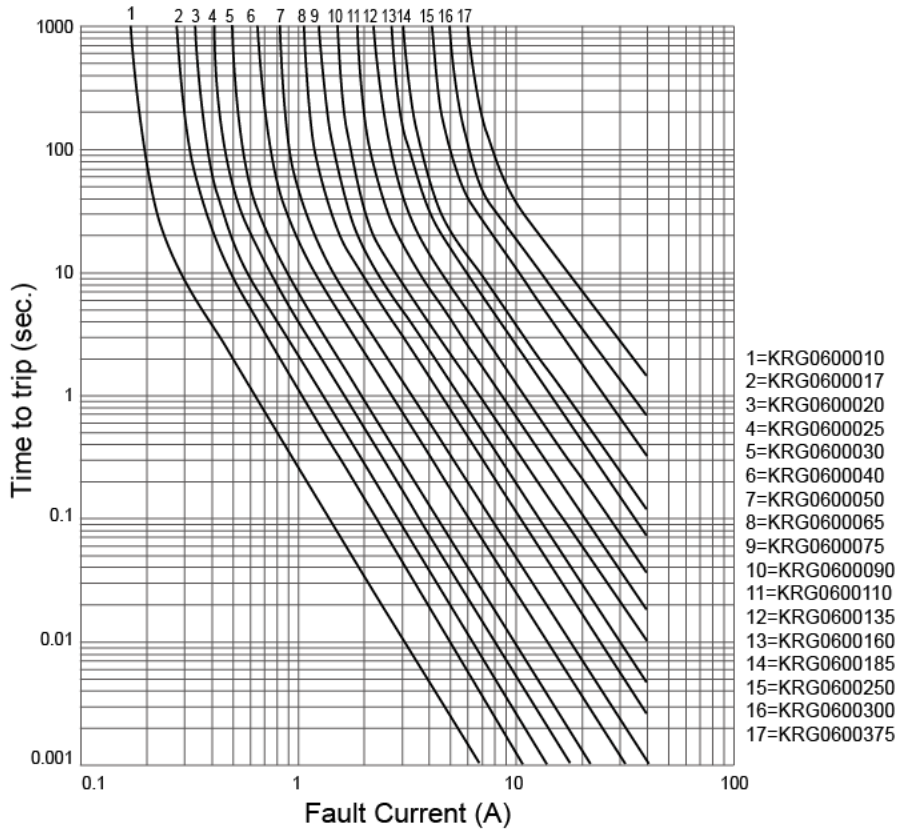
Note 2: Other Vmax rating are available upon request.

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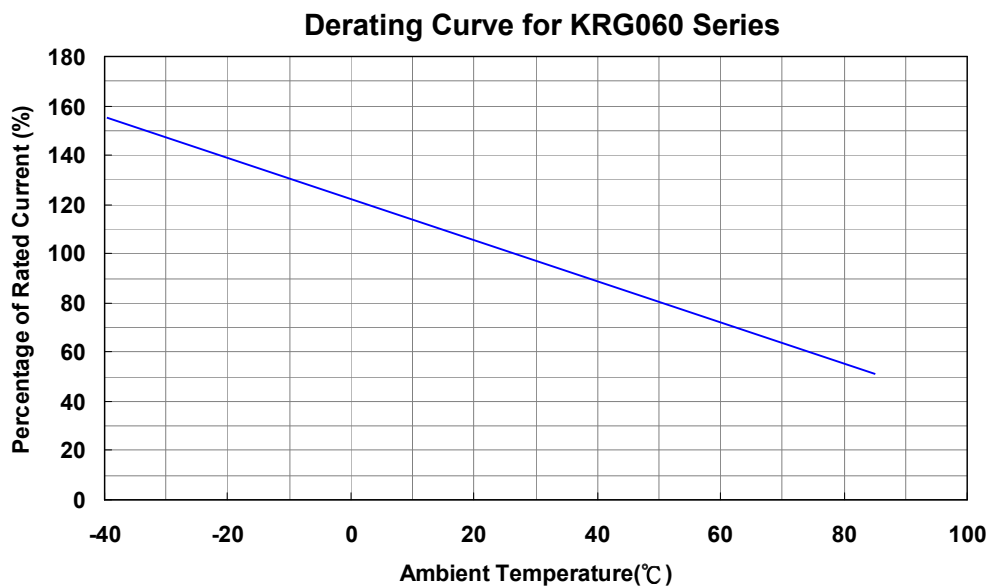
## 60Vdc Radial Leaded Type



### Typical Time to Trip Curves at 23°C



### Ihold & Itrip Thermal Derating Curve



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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
KRG0600010	0.15	0.14	0.12	<b>0.10</b>	0.09	0.08	0.07	0.06	0.05
KRG0600017	0.26	0.23	0.20	<b>0.17</b>	0.15	0.13	0.11	0.09	0.08
KRG0600020	0.31	0.27	0.24	<b>0.20</b>	0.17	0.16	0.13	0.11	0.09
KRG0600025	0.38	0.34	0.30	<b>0.25</b>	0.22	0.20	0.16	0.14	0.13
KRG0600030	0.46	0.41	0.36	<b>0.30</b>	0.26	0.23	0.19	0.16	0.15
KRG0600040	0.61	0.54	0.48	<b>0.40</b>	0.35	0.31	0.25	0.22	0.20
KRG0600050	0.77	0.68	0.60	<b>0.50</b>	0.44	0.39	0.31	0.27	0.25
KRG0600065	0.99	0.88	0.78	<b>0.65</b>	0.57	0.51	0.41	0.36	0.33
KRG0600075	1.15	1.02	0.90	<b>0.75</b>	0.65	0.59	0.51	0.46	0.38
KRG0600090	1.38	1.22	1.08	<b>0.90</b>	0.78	0.70	0.62	0.55	0.45
KRG0600110	1.60	1.43	1.27	<b>1.10</b>	0.92	0.85	0.75	0.67	0.57
KRG0600135	1.96	1.76	1.55	<b>1.35</b>	1.12	1.04	0.92	0.83	0.70
KRG0600160	2.23	2.08	1.84	<b>1.60</b>	1.33	1.23	1.08	0.98	0.80
KRG0600185	2.68	2.41	2.13	<b>1.85</b>	1.54	1.43	1.26	1.13	0.90
KRG0600250	3.63	3.25	2.88	<b>2.50</b>	2.08	1.93	1.70	1.50	1.30
KRG0600300	4.35	3.90	3.45	<b>3.00</b>	2.50	2.30	1.90	1.80	1.50
KRG0600375	5.44	4.88	4.31	<b>3.75</b>	3.11	2.90	2.54	2.29	1.90

### 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 IEC60286-2 standards. See table below and Fig. 1~3 for details.

Dimension description	IEC Mark	Dimension (mm)	Tolerance (mm)
Sprocket hole pitch	P <sub>0</sub>	12.70	±0.3
Ordinate to adjacent component lead KRG0600010~ KRG0600185	P <sub>1</sub>	3.85	±0.7
Ordinate to adjacent component lead KRG0600250~KRG0600375		7.70	±0.7
Device pitch KRG0600010~KRG0600090	P	12.70	±1.0
Device pitch KRG0600110~KRG0600300		25.40	±1.0
Device pitch KRG0600375		38.10	±1.0
Lead spacing KRG0600010~KRG0600185	F	5.00	±0.8
Lead spacing KRG0600250~KRG0600375		10.00	
Lead diameter KRG0600010~KRG0600090	d	0.50	±0.02
Lead diameter KRG0600110~KRG0600375		0.80	
Carrier tape width	W	18.00	+1/-0.5
Top distance between tape edges	W <sub>2</sub>	3.00	Max
Hold-down tape width	W <sub>0</sub>	12.00	±1.5
Sprocket hole position	W <sub>1</sub>	9.00	+0.75/-0.5
Abscissa to top KRG0600010~KRG0600090	H <sub>1</sub>	32.20	Max.
Abscissa to top KRG0600110~ KRG0600375		47.50	
Abscissa to plane (straight lead)	H	18.00	+2/-0
Abscissa to plane (kinked lead)	H <sub>0</sub>	16.00	±0.5
Sprocket hole diameter	D <sub>0</sub>	4.00	±0.2
Lead protrusion	L <sub>1</sub>	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 <sub>3</sub>	See reel specification	±1
Reel diameter		340.00	±10
Arbor hole diameter	n <sub>0</sub>	31.00	±1
Core diameter	n	80.00	Min.

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### ● Taping Specification

Fig.1 For KRG0600010~KRG0600185

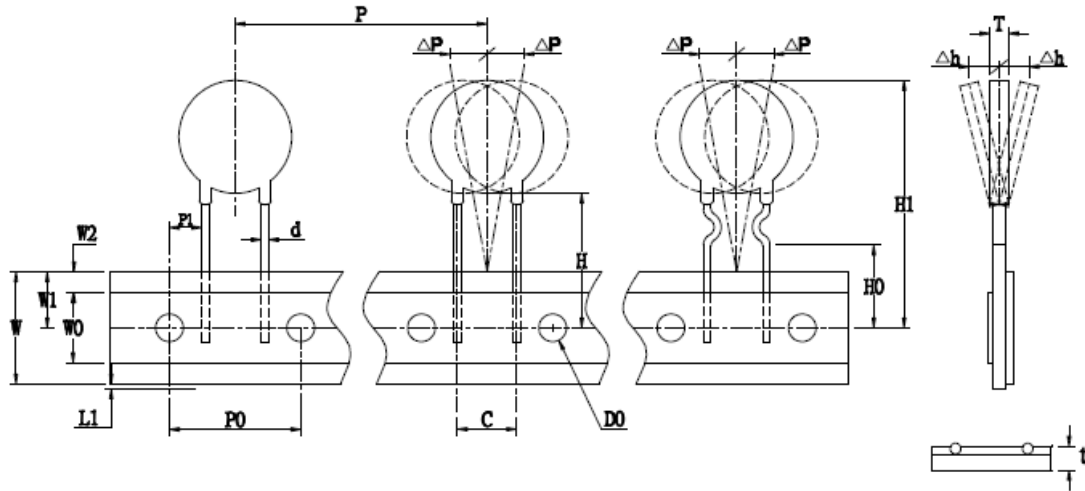
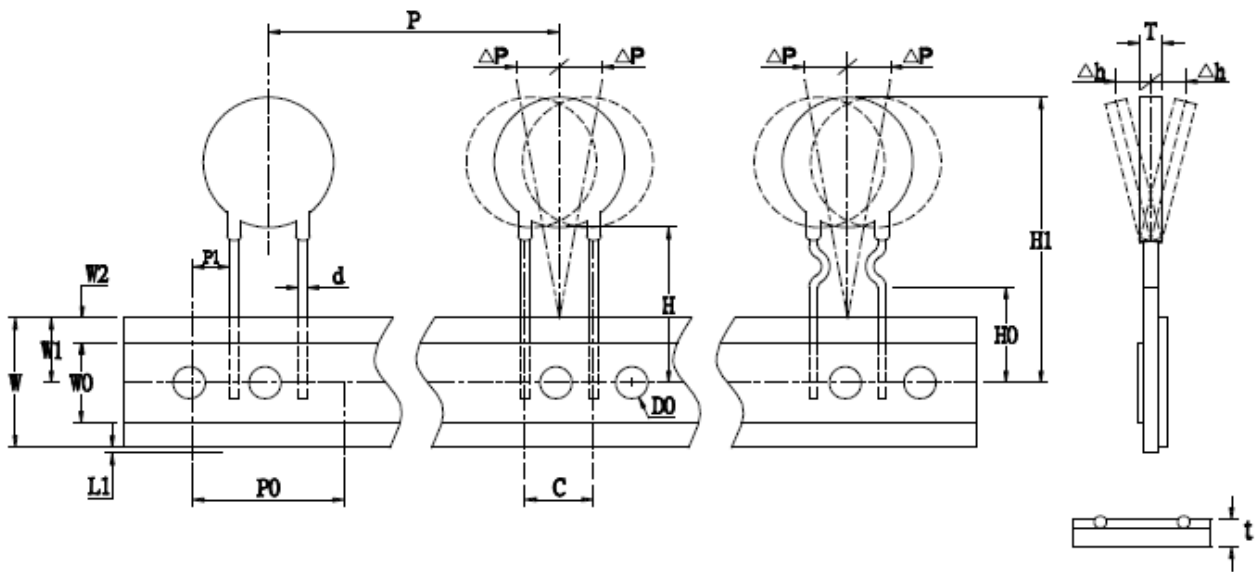


Fig.2 For KRG0600250~KRG0600375

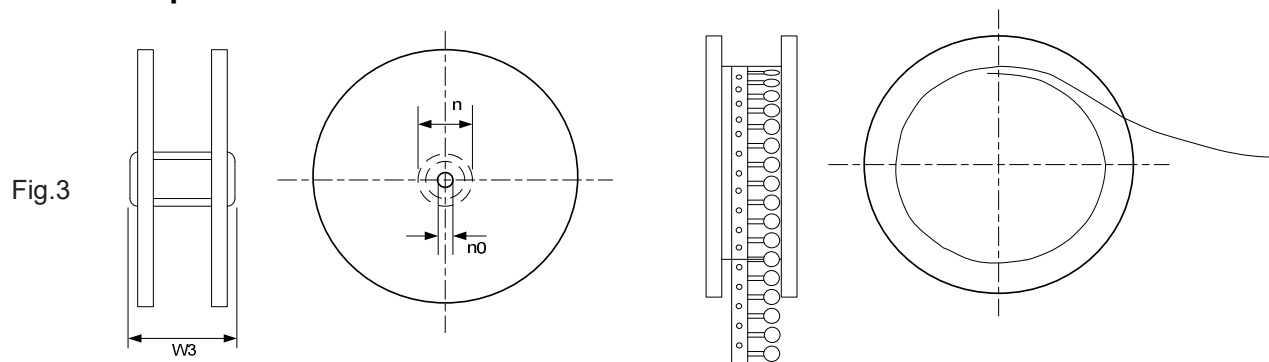


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### ● Reel Specification



Series	W3 (mm)
KRG060 (0010~0185)	46±1
KRG060 (0250~0375)	55±1

### ■ Quantity

#### ● Bulk Packing

Series	Quantity (pcs/bag)
KRG060 (0010~0025)	1,000
KRG060 (0030~0185)	500
KRG060 (0250~0375)	250

#### ● Reel Packing

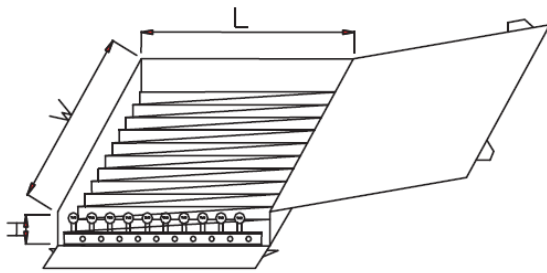
Series	Quantity (pcs/reel)
KRG060 (0010, 0020~0040)	3,000
KRG0600017	2,500
KRG060 (0050~0090)	2,000
KRG060 (0110~0185)	1,200
KRG060 (0250~0375)	1,000

#### ● Ammo Packing

Series	Quantity (pcs/box)
KRG060 (0010~0090)	1,000
KRG060 (0110~0375)	500

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(Unit: mm)

Series	W	L	H
KRG060(0010~0375)	345	275	55

### ■ Warehouse Storage Conditions of Products

- Storage Conditions:
  1. Storage Temperature:  $-10^{\circ}\text{C} \sim +40^{\circ}\text{C}$
  2. Relative Humidity:  $\leq 75\% \text{RH}$
  3. Keep away from corrosive atmosphere and sunlight.
- Period of Storage: 1 year