GRACE

SPECIFICATION

ROHS Compliant Parts

Customer : _____

Part Name : Wirewound Inductors

Part Number : KIWM-G Size

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Wirewound inductors —KIWM-G series

For Power inductors - Molded

Features

- Operating temperature from -40 °C to 125°C
- Metal material for large current and low DCR
- Closed magnetic circuit design reduces leakage flux

Applications

- TV, graphics, memory
- Notebooks, tablets
- Communication equipments, industrial equipments

Explanation of Part Numbers

KIWM	0402	G	R10	M	A01	A	K000	T
①	②	③	④	⑤	⑥	⑦	⑧	⑨

①	Series
GRACE Wire-wound resin-coated SMD power inductors	

②	Chip size (JIS)
0402	

③	Series code
G	General Use

④	Nominal Inductor(μH)
R15	0.15
220	22
471	470

⑤	Inductor tolerance
J	±5%
K	±10%
M	±20%
N	±30%

⑥	Design code
A01	
A02	

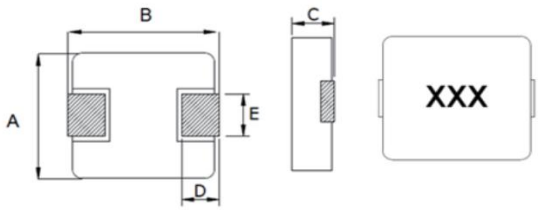
⑦	Internal code
A	

⑧	Customer identification code
K000	

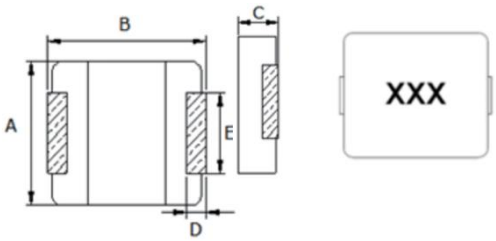
⑨	Packaging style
T	Tape
B	Bulk

Shape and Dimensions

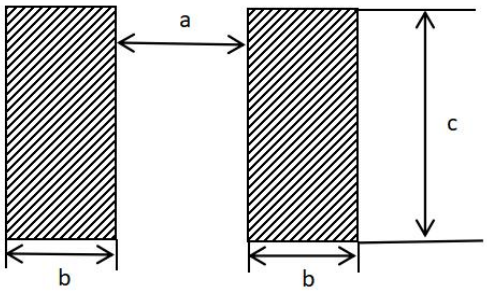
1）Dimensions for A01(0804-1005)：



Dimensions for A02(1707,2213):



2）Recommended PCB pattern for reflow soldering:



Unit: mm

Size(JIS)	A	B	C	D	E	a	b	c
0412	4.2±0.25	4.4±0.35	1.0±0.2	0.8±0.3	2.0±0.3	1.5	2.2	2.5
0402	4.2±0.25	4.4±0.35	1.8±0.2	0.8±0.3	2.0±0.3	1.5	2.2	2.5
0515	5.2±0.2	5.4±0.35	1.3±0.2	1.2±0.2	2.2±0.3	1.9	2.2	2.5
0518	5.2±0.2	5.4±0.35	1.6±0.2	1.2±0.2	2.2±0.3	1.9	2.2	2.5
0503	5.2±0.2	5.4±0.35	2.8±0.2	1.2±0.2	2.2±0.3	1.9	2.2	2.5
0615	6.6±0.2	7.0±0.3	1.3±0.2	1.6±0.3	3.0±0.3	2.35	3.7	3.5
0618	6.6±0.2	7.0±0.3	1.6±0.2	1.6±0.3	3.0±0.3	2.35	3.7	3.5
0602	6.6±0.2	7.0±0.3	1.8±0.2	1.6±0.3	3.0±0.3	2.35	3.7	3.5
0603	6.6±0.2	5.4±0.35	2.8±0.2	1.6±0.3	3.0±0.3	2.35	3.7	3.5
0605	6.6±0.2	7.0±0.3	4.8±0.2	1.6±0.3	3.0±0.3	2.35	3.7	3.5
0804	8.8±0.4	8.2±0.3	3.8±0.2	1.4±0.3	5.0±0.3	2.35	3.7	3.5
0805	8.5±0.5	8.0±0.3	4.8±0.2	1.8±0.3	3.0±0.3	2.75	4.0	5.5
1003	10.0±0.3	11.5 Max	2.8±0.2	2.0±0.5	3.0±0.5	4.1	5.4	4.1
1004	10.0±0.3	11.0±0.5	3.8±0.2	2.0±0.5	3.0±0.5	4.1	5.4	4.1
1005	10.0±0.3	11.5 Max.	4.8±0.2	2.0±0.5	3.0±0.5	4.1	5.4	4.1
1204	12.8±0.5	13.45±0.35	4.0 Max.	2.0±0.5	See Remarks	3.25	8.0	5.5
1205	12.6±0.3	13.45±0.35	4.8±0.2	2.0±0.5	See Remarks	3.25	8.0	5.5
1206	12.6±0.3	13.45±0.35	5.8±0.2	2.0±0.5	See Remarks	3.25	8.0	5.5
1265	12.6±0.3	13.45±0.35	6.5 Max.	2.0±0.5	5.0±0.3	3.25	8.0	5.5
1707	17.15Max	17.15±0.35	6.7±0.3	2.5±0.5	12.0±0.3	3.50	11.2	12.8
2213	22.0±0.3	23.5±0.5	12.6±0.4	5.0±0.4	19.0±0.3	5.75	12.5	19.6

Remarks

Series(EIA/JIS)	E(mm)	Dimensions
1204	3.85±0.5	R22/R47
	5.0±0.3	R68/R82/1R0/1R5/2R2/3R3/4R7/6R8/100/150/220
1205	3.85±0.5	R22/R36/R50/R68/R82/1R0/1R5/2R2
	5.0±0.3	3R3/4R7/6R8/100/150/220/330/470
1206	3.85±0.5	R68/1R5/2R2
	5.0±0.3	3R3/4R7/5R6/6R8/8R2/100/120/150/180/220/270/330/470/680/101/121/151

Construction

No.	Name	Material
①	Core	Metallic materials
②	Winding	Enamelled wire H class
③	Base	Phosphor bronze
④	Marking	None

Electrical Characteristics

0412 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
	L	DCR	Irms	Isat
KIWM0412GR15□A01A□□T	0.15	9	6.8	12.0
KIWM0412GR22□A01A□□T	0.22	11	6.5	8.8
KIWM0412GR33□A01A□□T	0.33	19	5.7	6.7
KIWM0412GR47□A01A□□T	0.47	21	5.2	5.4
KIWM0412GR68□A01A□□T	0.68	36	4.2	4.8
KIWM0412G1R0□A01A□□T	1.0	47	3.8	4.4
KIWM0412G1R5□A01A□□T	1.5	75	2.7	3.2
KIWM0412G2R2□A01A□□T	2.2	83.5	2.2	2.4
KIWM0412G3R3□A01A□□T	3.3	160	1.77	2.38
KIWM0412G4R7□A01A□□T	4.7	195	1.45	1.8

0402 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
	L	DCR	Irms	Isat
KIWM0402GR10□A01A□□T	0.1	4	11.2	17.6
KIWM0402GR22□A01A□□T	0.22	6.6	8.20	10.0
KIWM0402GR33□A01A□□T	0.33	11	8.60	9.60
KIWM0402GR47□A01A□□T	0.47	14	6.65	7.60
KIWM0402GR56□A01A□□T	0.56	16	6.10	7.20

KIWM0402GR68□A01A□□T	0.68	18	6.40	6.15
KIWM0402G1R0□A01A□□T	1.0	27	5.60	5.40
KIWM0402G1R2□A01A□□T	1.20	27	5.20	5.40
KIWM0402G1R5□A01A□□T	1.50	46	4.40	4.30
KIWM0402G2R2□A01A□□T	2.20	58	4.00	3.80
KIWM0402G3R3□A01A□□T	3.30	87	2.80	2.80
KIWM0402G4R7□A01A□□T	4.70	105	2.40	2.20
KIWM0402G6R8□A01A□□T	6.80	175	2.00	1.90
KIWM0402G100□A01A□□T	10.0	282	1.60	1.30
KIWM0402G220□A01A□□T	22.0	363	1.12	0.90

0515 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
	L	DCR	Irms	Isat
KIWM0515GR47□A01A□□T	0.47	13	8.70	12.0
KIWM0515GR68□A01A□□T	0.68	15.5	8.10	9.50
KIWM0515G1R0□A01A□□T	1.0	23	5.80	8.00
KIWM0515G3R3□A01A□□T	3.3	72	3.00	4.00
KIWM0515G4R7□A01A□□T	4.7	106	2.60	3.70

0518 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
	L	DCR	Irms	Isat
KIWM0518GR47□A01A□□T	0.47	9	9.50	9.60
KIWM0518GR56□A01A□□T	0.56	10	8.20	8.80
KIWM0518GR68□A01A□□T	0.68	13.8	7.70	9.30
KIWM0518G1R0□A01A□□T	1.0	17	7.20	7.20
KIWM0518G1R5□A01A□□T	1.50	26	6.60	6.40
KIWM0518G2R2□A01A□□T	2.20	35	4.20	4.80
KIWM0518G3R3□A01A□□T	3.30	58	3.80	3.84
KIWM0518G4R7□A01A□□T	4.70	85	3.00	3.20
KIWM0518G6R8□A01A□□T	6.80	120	2.40	2.72
KIWM0518G100□A01A□□T	10	155	2.20	2.00

0503 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM0503GR10□A01A□□T	0.1	3	23.0	24.0
KIWM0503GR20□A01A□□T	0.20	3.9	13.0	16.0
KIWM0503GR33□A01A□□T	0.33	5.5	13.1	14.4

KIWM0503GR47□A01A□□T	0.47	8.5	10.0	12.0
KIWM0503GR68□A01A□□T	0.68	12	8.20	9.20
KIWM0503GR82□A01A□□T	0.82	10.4	9.00	9.20
KIWM0503G1R0□A01A□□T	1.0	14	7.80	8.00
KIWM0503G1R2□A01A□□T	1.2	16	7.85	7.60
KIWM0503G1R5□A01A□□T	1.5	25	7.60	7.20
KIWM0503G2R2□A01A□□T	2.2	29	6.40	5.60
KIWM0503G3R3□A01A□□T	3.3	38	5.00	4.80
KIWM0503G4R7□A01A□□T	4.7	60	4.00	3.68
KIWM0503G6R8□A01A□□T	6.8	90	2.90	2.88
KIWM0503G100□A01A□□T	10	125	2.80	2.80
KIWM0503G150□A01A□□T	15	170	160	2.00

0615 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM0615GR47□A01A□□T	0.47	8.5	8.85	14.16
KIWM0615GR56□A01A□□T	0.56	11	7.96	12.38
KIWM0615GR68□A01A□□T	0.68	12	7.52	10.62
KIWM0615GR82□A01A□□T	0.82	17	7.08	8.85
KIWM0615G1R0□A01A□□T	1.0	21	5.30	7.96
KIWM0615G1R5□A01A□□T	1.5	40	4.40	7.00
KIWM0615G2R2□A01A□□T	2.2	54	3.36	6.19
KIWM0615G3R3□A01A□□T	3.3	63	3.10	4.87
KIWM0615G4R7□A01A□□T	4.7	85	2.83	4.42
KIWM0615G6R8□A01A□□T	6.8	135	2.21	3.54
KIWM0615G100□A01A□□T	10	175	1.77	2.65
KIWM0615G220□A01A□□T	22	510	1.32	2.20

0618 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM0618GR10□A01A□□T	0.10	2.3	23.0	30.4
KIWM0618GR22□A01A□□T	0.22	3.5	20.0	19.2
KIWM0618GR47□A01A□□T	0.47	8.4	10.0	16.0
KIWM0618GR68□A01A□□T	0.68	12	8.40	13.2
KIWM0618G1R0□A01A□□T	1.0	16	7.60	9.60
KIWM0618G1R5□A01A□□T	1.5	26	7.10	7.36
KIWM0618G2R2□A01A□□T	2.2	35	6.20	6.40
KIWM0618G3R3□A01A□□T	3.3	50	3.80	4.80
KIWM0618G4R7□A01A□□T	4.7	62	3.50	4.00

KIWM0618G6R8□A01A□□T	6.8	110	2.40	3.60
KIWM0618G8R2□A01A□□T	8.2	135	2.10	2.90
KIWM0618G100□A01A□□T	10	155	1.95	3.20
KIWM0618G220□A01A□□T	22	350	1.4	1.84

0602 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM0602G1R5□A01A□□T	1.5	18	8.0	12
KIWM0602G4R7□A01A□□T	4.7	60	4.3	5.5
KIWM0602G100□A01A□□T	10	145	2.8	4

0624 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM0624GR22□A01A□□T	0.22	3	19.0	24.0
KIWM0624GR33□A01A□□T	0.33	4.1	16.0	19.6
KIWM0624GR47□A01A□□T	0.47	5.1	13.5	16.0
KIWM0624GR56□A01A□□T	0.56	6.5	11.5	13.6
KIWM0624GR68□A01A□□T	0.68	7	10.5	12.8
KIWM0624G1R0□A01A□□T	1.0	13.5	8.00	12.0
KIWM0624G1R5□A01A□□T	1.5	20	7.00	10.8
KIWM0624G2R2□A01A□□T	2.2	28	6.20	8.00
KIWM0624G3R3□A01A□□T	3.3	39	4.80	6.40
KIWM0624G4R7□A01A□□T	4.7	50	4.30	5.20
KIWM0624G6R8□A01A□□T	6.8	70	3.20	4.80
KIWM0624G100□A01A□□T	10	101	2.40	3.20
KIWM0624G150□A01A□□T	15	160	2.00	2.64
KIWM0624G220□A01A□□T	22	230	1.60	2.00

0603 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM0603GR10□A01A□□T	0.1	1.7	28.5	53.0
KIWM0603GR12□A01A□□T	0.12	0.77	32.0	30.0
KIWM0603GR22□A01A□□T	0.22	3	21.0	27.2
KIWM0603GR24□A01A□□T	0.24	3.1	18.4	22.4
KIWM0603GR33□A01A□□T	0.33	3.5	19.0	20.0
KIWM0603GR47□A01A□□T	0.47	4.1	16.5	16.0
KIWM0603GR56□A01A□□T	0.56	4.5	15.0	14.4

KIWM0603GR68□A01A□□T	0.68	5.3	14.5	13.6
KIWM0603GR82□A01A□□T	0.82	6.0	12.5	12.8
KIWM0603GR1R0□A01A□□T	1.0	7.4	10.5	12.0
KIWM0603G1R5□A01A□□T	1.5	12.1	10.5	9.60
KIWM0603G1R8□A01A□□T	1.8	12.6	8.20	9.40
KIWM0603G2R2□A01A□□T	2.2	15	8.50	8.00
KIWM0603G3R3□A01A□□T	3.3	22	7.50	7.60
KIWM0603G4R7□A01A□□T	4.7	33	5.00	7.20
KIWM0603G5R6□A01A□□T	5.6	42	4.80	5.20
KIWM0603G6R8□A01A□□T	6.8	48	4.20	4.80
KIWM0603G8R2□A01A□□T	8.2	60	4.20	4.40
KIWM0603G100□A01A□□T	10	68	3.80	4.40
KIWM0603G150□A01A□□T	15	113	2.30	3.20
KIWM0603G220□A01A□□T	22	170	2.00	2.40
KIWM0603G330□A01A□□T	33	270	1.60	2.00
KIWM0603G470□A01A□□T	47	385	1.20	1.60

0605 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM0605GR47□A01A□□T	0.47	3.9	17.0	16.8
KIWM0605GR68□A01A□□T	0.68	4.5	14.5	14.4
KIWM0605G1R0□A01A□□T	1.0	6.6	10.0	12.8
KIWM0605G1R5□A01A□□T	1.5	10	8.20	10.4
KIWM0605G2R2□A01A□□T	2.2	12.5	8.00	8.80
KIWM0605G3R3□A01A□□T	3.3	22	7.60	8.00
KIWM0605G4R7□A01A□□T	4.7	29	5.00	6.40
KIWM0605G6R8□A01A□□T	6.8	41	4.00	5.04
KIWM0605G8R2□A01A□□T	8.2	48	4.80	4.40
KIWM0605G100□A01A□□T	10	60	3.80	4.24
KIWM0605G150□A01A□□T	15	90	2.60	3.20
KIWM0605G220□A01A□□T	22	140	2.00	2.80
KIWM0605G330□A01A□□T	33	190	1.80	2.40
KIWM0605G470□A01A□□T	47	230	1.50	2.08

0804 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM0804GR10□A01A□□T	0.1	1.6	35.0	68.0
KIWM0804GR15□A01A□□T	0.15	1.65	33.0	65.0
KIWM0804GR22□A01A□□T	0.22	1.8	30.0	55.0

KIWM0804GR33□A01A□□T	0.33	2.4	25.0	40.0
KIWM0804GR47□A01A□□T	0.47	2.8	25.0	36.0
KIWM0804GR56□A01A□□T	0.56	3.2	22.0	23.0
KIWM0804GR68□A01A□□T	0.68	3.8	21.0	22.0
KIWM0804GR82□A01A□□T	0.82	4.4	19.0	19.0
KIWM0804G1R0□A01A□□T	1.0	4.62	17.0	17.0
KIWM0804G1R5□A01A□□T	1.5	7.6	15.0	15.0
KIWM0804G1R8□A01A□□T	1.8	11	12.5	13.5
KIWM0804G2R2□A01A□□T	2.2	11.4	12.0	12.0
KIWM0804G3R3□A01A□□T	3.3	15	10.0	11.0
KIWM0804G4R7□A01A□□T	4.7	26.5	8.50	10.5
KIWM0804G5R6□A01A□□T	5.6	30	8.00	10.0
KIWM0804G6R8□A01A□□T	6.8	36.8	7.00	8.00
KIWM0804G8R2□A01A□□T	8.2	46	6.00	7.70
KIWM0804G100□A01A□□T	10	59	5.50	7.00
KIWM0804G150□A01A□□T	15	71	4.80	4.90
KIWM0804G220□A01A□□T	22	113	4.20	4.50
KIWM0804G330□A01A□□T	33	156	3.00	3.30
KIWM0804G470□A01A□□T	47	225	2.50	2.00

1003 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM1003GR22□A01A□□T	0.22	1.2	29.2	44.24
KIWM1003GR33□A01A□□T	0.33	1.6	20.35	28.3
KIWM1003GR36□A01A□□T	0.36	1.6	20.35	24.8
KIWM1003GR47□A01A□□T	0.47	2.5	19.47	23.0
KIWM1003GR82□A01A□□T	0.82	3.7	15.93	20.35
KIWM1003G1R0□A01A□□T	1.0	6	13.27	18.58
KIWM1003G1R5□A01A□□T	1.5	7.5	11.5	17.69
KIWM1003G2R2□A01A□□T	2.2	9	9.73	12.38
KIWM1003G3R3□A01A□□T	3.3	16	7.96	10.61
KIWM1003G4R7□A01A□□T	4.7	22.5	6.19	8.84
KIWM1003G8R2□A01A□□T	8.2	45	4.42	6.20
KIWM1003G100□A01A□□T	10	55	3.98	5.75
KIWM1003G330□A01A□□T	33	160	2.30	3.53

1004 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM1004GR30□A01A□□T	0.30	1.1	30.0	36.0

KIWM1004GR33□A01A□□T	0.33	1.15	28.0	36.0
KIWM1004GR36□A01A□□T	0.36	1.2	25.0	36.0
KIWM1004GR45□A01A□□T	0.45	1.5	25.0	34.0
KIWM1004GR47□A01A□□T	0.47	1.7	25.0	32.0
KIWM1004GR56□A01A□□T	0.56	1.8	20.0	26.4
KIWM1004GR68□A01A□□T	0.68	2.4	19.0	24.0
KIWM1004GR80□A01A□□T	0.80	2.7	19.0	23.2
KIWM1004G1R0□A01A□□T	1.0	3.3	16.0	22.4
KIWM1004G1R5□A01A□□T	1.5	4.2	14.0	19.2
KIWM1004G1R8□A01A□□T	1.8	4.5	14.0	16.0
KIWM1004G2R2□A01A□□T	2.2	7	10.0	13.2
KIWM1004G3R3□A01A□□T	3.3	11.8	9.50	12.8
KIWM1004G4R7□A01A□□T	4.7	20	7.50	10.4
KIWM1004G6R8□A01A□□T	6.8	25	7.00	9.60
KIWM1004G8R2□A01A□□T	8.2	27	6.80	7.20
KIWM1004G100□A01A□□T	10	30	6.90	6.80
KIWM1004G150□A01A□□T	15	45	5.60	5.60
KIWM1004G220□A01A□□T	22	66	4.20	4.40
KIWM1004G330□A01A□□T	33	92	3.80	3.84
KIWM1004G470□A01A□□T	47	145	2.80	3.10
KIWM1004G680□A01A□□T	68	195	2.00	2.40
KIWM1004G820□A01A□□T	82	285	2.10	2.30
KIWM1004G101□A01A□□T	100	340	1.80	2.10

1005 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM1005GR22□A01A□□T	0.22	0.8	32.5	57.5
KIWM1005GR68□A01A□□T	0.68	1.95	21.0	34.0
KIWM1005G1R0□A01A□□T	1.0	3	20.3	28.0
KIWM1005G1R5□A01A□□T	1.5	3.8	18.5	22.0
KIWM1005G2R2□A01A□□T	2.2	6	13.2	16.8
KIWM1005G3R3□A01A□□T	3.3	10	11.5	14.0
KIWM1005G4R7□A01A□□T	4.7	14	9.70	13.2
KIWM1005G5R6□A01A□□T	5.6	17	8.50	12.3
KIWM1005G6R8□A01A□□T	6.8	18.5	8.00	12.3
KIWM1005G100□A01A□□T	10	28	7.00	8.80
KIWM1005G150□A01A□□T	15	42	5.70	6.50
KIWM1005G220□A01A□□T	22	50	5.00	5.30
KIWM1005G330□A01A□□T	33	86	4.20	4.60
KIWM1005G470□A01A□□T	47	127	3.20	4.00

KIWM1005G680□A01A□□T	68	185	2.40	2.80
KIWM1005G820□A01A□□T	82	280	1.70	3.00
KIWM1005G101□A01A□□T	100	290	1.80	2.50

1204 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM1204GR22□A01A□□T	0.22	0.9	38.0	40.0
KIWM1204GR47□A01A□□T	0.47	2	29.0	38.4
KIWM1204GR68□A01A□□T	0.68	3.5	24.0	37.6
KIWM1204GR82□A01A□□T	0.82	4.5	24.0	32.0
KIWM1204G1R0□A01A□□T	1.0	7.5	20.0	28.0
KIWM1204G1R5□A01A□□T	1.5	9.5	17.0	24.4
KIWM1204G2R2□A01A□□T	2.2	11.5	15.0	20.8
KIWM1204G3R3□A01A□□T	3.3	13	13.0	16.8
KIWM1204G4R7□A01A□□T	4.7	14.5	11.0	14.4
KIWM1204G6R8□A01A□□T	6.8	20	8.00	11.2
KIWM1204G100□A01A□□T	10	25	7.00	8.00
KIWM1204G150□A01A□□T	15	39	5.80	6.00
KIWM1204G220□A01A□□T	22	51	3.80	4.80

1205 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM1205GR22□A01A□□T	0.22	0.7	45.0	60.0
KIWM1205GR36□A01A□□T	0.36	0.85	37.0	40.0
KIWM1205GR50□A01A□□T	0.50	1.15	33.0	38.4
KIWM1205GR68□A01A□□T	0.68	1.55	29.0	36.8
KIWM1205GR82□A01A□□T	0.82	1.67	26.0	31.2
KIWM1205G1R0□A01A□□T	1.0	2.2	22.0	28.0
KIWM1205G1R5□A01A□□T	1.5	3.2	19.0	26.4
KIWM1205G2R2□A01A□□T	2.2	5	13.0	19.2
KIWM1205G3R3□A01A□□T	3.3	7	12.0	17.6
KIWM1205G4R7□A01A□□T	4.7	9	11.0	16.0
KIWM1205G6R8□A01A□□T	6.8	18	10.0	12.8
KIWM1205G100□A01A□□T	10	22	8.00	9.60
KIWM1205G150□A01A□□T	15	30	7.00	8.00
KIWM1205G220□A01A□□T	22	58	3.80	5.20
KIWM1205G330□A01A□□T	33	84	2.80	4.80
KIWM1205G470□A01A□□T	47	130	2.60	4.00

1206 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM1205G1R5☐A01A☐☐T	1.5	2.9	23.0	27.0
KIWM1205G2R2☐A01A☐☐T	2.2	4.2	18.0	24.0
KIWM1205G3R3☐A01A☐☐T	3.3	6.8	14.0	21.0
KIWM1205G4R7☐A01A☐☐T	4.7	9	12.0	19.2
KIWM1205G5R6☐A01A☐☐T	5.6	11	11.0	18.0
KIWM1205G6R8☐A01A☐☐T	6.8	13.5	10.0	15.2
KIWM1205G8R2☐A01A☐☐T	8.2	16	9.00	10.8
KIWM1205G100☐A01A☐☐T	10	20.7	8.50	11.1
KIWM1205G120☐A01A☐☐T	12	23	7.80	8.00
KIWM1205G150☐A01A☐☐T	15	29	7.50	7.20
KIWM1205G180☐A01A☐☐T	18	35	6.50	6.40
KIWM1205G220☐A01A☐☐T	22	39.5	6.00	6.00
KIWM1205G270☐A01A☐☐T	27	56	5.00	5.20
KIWM1205G330☐A01A☐☐T	33	75	4.80	4.80
KIWM1205G470☐A01A☐☐T	47	90	4.20	4.40
KIWM1205G680☐A01A☐☐T	68	140	3.20	3.60
KIWM1205G101☐A01A☐☐T	100	200	2.50	2.80
KIWM1205G121☐A01A☐☐T	120	235	1.70	2.56
KIWM1205G151☐A01A☐☐T	150	350	1.20	2.16

1265 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM1265G4R7☐A01A☐☐T	4.7	8.5	16.0	24.0
KIWM1265G5R6☐A01A☐☐T	5.6	10.5	14.0	22.5
KIWM1265G6R8☐A01A☐☐T	6.8	12	13.0	19.0
KIWM1265G8R2☐A01A☐☐T	8.2	14	12.0	16.0
KIWM1265G100☐A01A☐☐T	10	16.5	11.0	15.0
KIWM1265G150☐A01A☐☐T	15	26	9.50	11.0
KIWM1265G220☐A01A☐☐T	22	36	8.00	9.00
KIWM1265G330☐A01A☐☐T	33	65	6.50	8.00
KIWM1265G470☐A01A☐☐T	47	70	5.50	6.80
KIWM1265G680☐A01A☐☐T	68	120	4.80	5.20
KIWM1265G820☐A01A☐☐T	82	135	4.0	4.50
KIWM1265G101☐A01A☐☐T	100	170	3.50	4.00

1707 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM1707G1R5□A01A□□T	1.5	2.1	29.0	35.0
KIWM1707G2R2□A01A□□T	2.2	2.5	25.5	30.0
KIWM1707G3R3□A01A□□T	3.3	3.95	21.0	26.0
KIWM1707G4R7□A01A□□T	4.7	4.75	18.5	21.0
KIWM1707G6R8□A01A□□T	6.8	7.5	15.0	19.5
KIWM1707G8R2□A01A□□T	8.2	2.1	29.0	35.0
KIWM1707G100□A01A□□T	10	2.5	25.5	30.0
KIWM1707G150□A01A□□T	15	3.95	21.0	26.0
KIWM1707G220□A01A□□T	22	4.75	18.5	21.0
KIWM1707G330□A01A□□T	33	7.5	15.0	19.5
KIWM1707G470□A01A□□T	47	8.7	11.5	17.5
KIWM1707G560□A01A□□T	56	9.9	10.5	16.5
KIWM1707G680□A01A□□T	68	17	9.50	12.5
KIWM1707G820□A01A□□T	82	23	7.50	10.0
KIWM1707G101□A01A□□T	100	37	7.00	8.50

2213 Type

Part Number	Inductance (μ H)	DC Resistance(m Ω)	Heat Rating Current(A)	Maximum Saturation Current(A)
KIWM2213G1R5□A01A□□T	1.5	1.15	57.0	48.0
KIWM2213G2R2□A01A□□T	2.2	1.25	52.0	43.0
KIWM2213G3R3□A01A□□T	3.3	1.75	47.0	37.0
KIWM2213G4R7□A01A□□T	4.3	2.2	44.0	34.0
KIWM2213G6R8□A01A□□T	6.8	3.1	36.0	32.0
KIWM2213G100□A01A□□T	10	4.15	30.0	20.0
KIWM2213G150□A01A□□T	15	6.12	23.0	18.0
KIWM2213G220□A01A□□T	22	11	18.0	14.0
KIWM2213G330□A01A□□T	33	15.4	16.0	10.5
KIWM2213G470□A01A□□T	47	20.8	14.0	10.0
KIWM2213G680□A01A□□T	68	29.5	12.0	9.00
KIWM2213G820□A01A□□T	82	34.2	10.0	7.70
KIWM2213G101□A01A□□T	100	40	9.50	7.50

※ **Notes:**

1: All test data is referenced to 20.

2: Rated current: Isat or Irms, whichever is smaller.

3: Isat(Typ): DC current at which the inductance drops approximate 30% from its value without current.

4: Isat(Max): DC current at which the inductance drops approximate 30% from its value without current.

5: Irms(Typ): DC current that causes the temperature rise (ΔT=40℃) from 20℃ ambient.

6: Irms(Max): DC current that causes the temperature rise (ΔT=20℃) from 20℃ ambient.

7: Absolute maximum voltage 30VDC.

Reliability Test

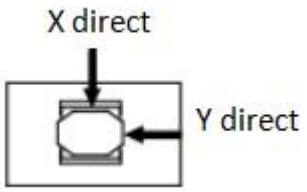
<table>
<tr><th>Items</th><th>Requirements</th><th>Test Methods and Remarks</th></tr>
<tr><td>Terminal Strength</td><td>No removal or split of the termination or other defects shall occur.
 

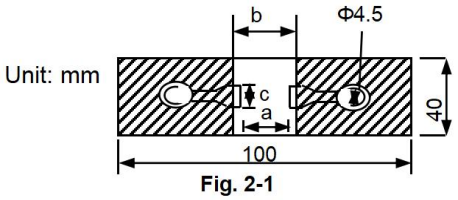
Fig.1-1</td><td>Solder the chip to the testing jig (glass epoxy board shown in the following Fig. 1-1) using eutectic solder. Then apply a force in the direction of the arrow.
<table>
<tr><th>Size（JIS）</th><th>Force</th><th>Duration</th></tr>
<tr><td>0402-0605</td><td>2N</td><td rowspan="3">10±1s</td></tr>
<tr><td>0804-1265</td><td>5N</td></tr>
<tr><td>1707/2213</td><td>10N</td></tr>
</table></td></tr>
<tr><td>Resistance to Flexure</td><td>No visible mechanical damage.
Unit: mm
<table>
<tr><th>Size（JIS）</th><th>a</th><th>b</th><th>c</th></tr>
<tr><td>0603</td><td>0.25</td><td>0.8</td><td>0.3</td></tr>
<tr><td>1005</td><td>0.4</td><td>1.5</td><td>0.5</td></tr>
<tr><td>1608</td><td>1.0</td><td>3.0</td><td>1.2</td></tr>
<tr><td>2012</td><td>1.2</td><td>4.0</td><td>1.65</td></tr>
<tr><td>3216</td><td>2.2</td><td>5.0</td><td>2.0</td></tr>
</table>


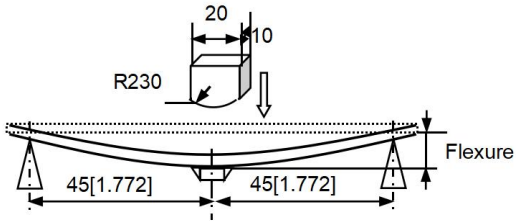
Fig. 2-1</td><td>Solder the chip to the test jig (glass epoxy board shown in Fig.2-1) using a eutectic solder. Then apply a force in the direction shown in Fig. 2-2.
<table>
<tr><th>Size（JIS）</th><th>Flexure</th><th>Pressurizing Speed</th><th>Duration</th></tr>
<tr><td>ALL</td><td>2mm</td><td>＜0.5mm/s</td><td>30±1s</td></tr>
</table>


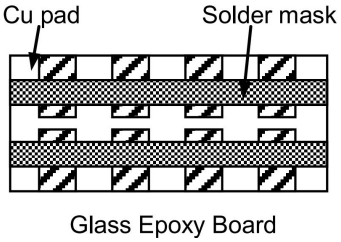
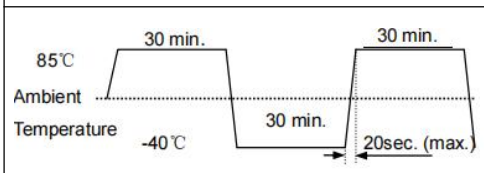
Fig.2-2</td></tr>
<tr><td>Vibration</td><td>❖ No visible mechanical damage.
❖ Inductance change: Within ±10%.
❖ Q factor change: Within ±30%.
 

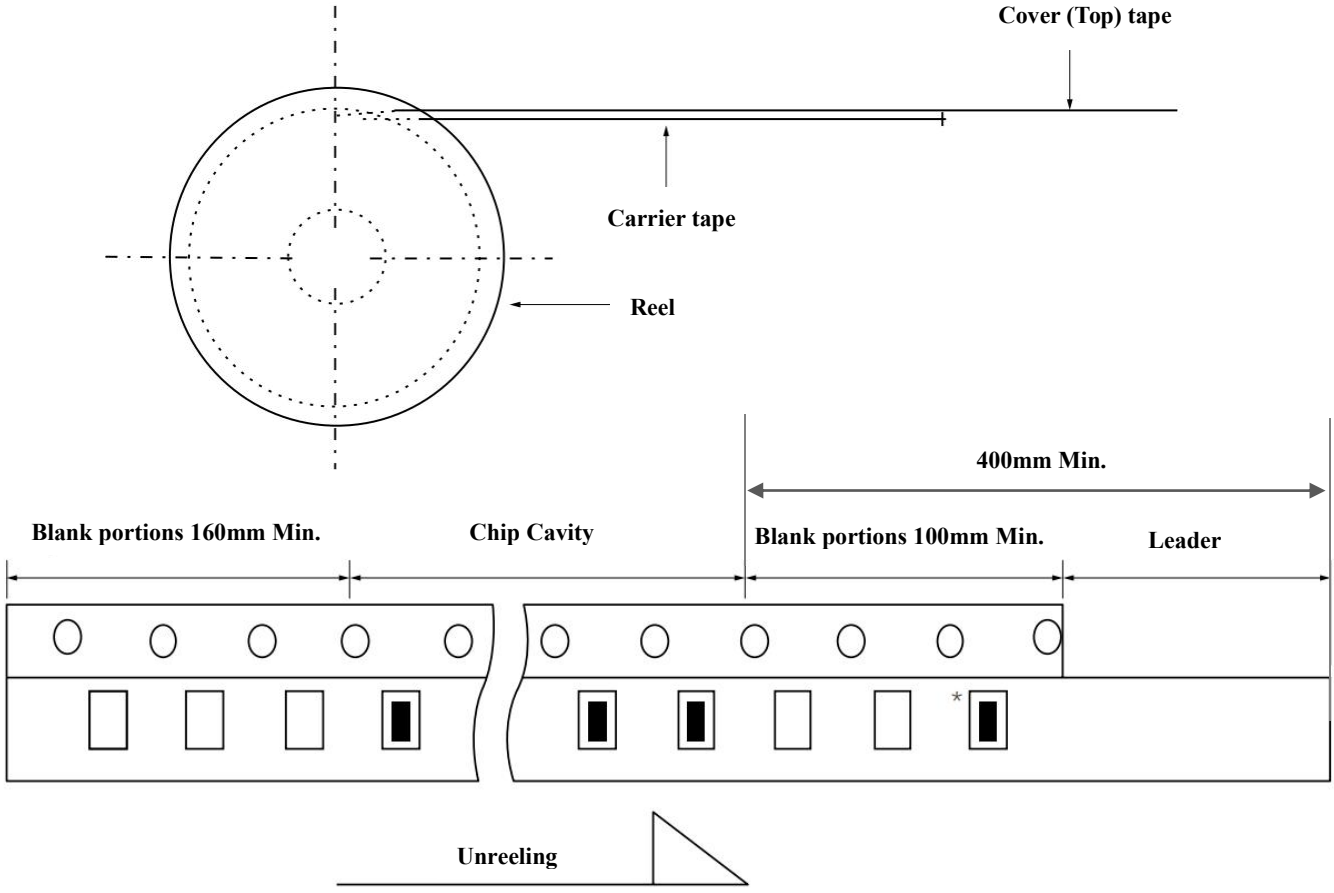
Fig. 3-1</td><td>❖ Solder the chip to the testing jig (glass epoxy board shown in Fig.3-1) using eutectic solder.
❖ The chip shall be subjected to a simple harmonic motion having total amplitude of 1.5mm, the frequency being varied uniformly between the approximate limits of 10 and 55 Hz.
❖ The frequency ranging from 10 to 55 Hz and returning to 10 Hz shall be traversed in approximately 1 minute. This motion shall be applied for a period of 2 hours in each 3 mutually perpendicular directions (total of 6 hours).</td></tr>
</table>

Dropping	❖ No visible mechanical damage. ❖ Inductance change: within ±20%. ❖ Q factor change: Within ±30%.	❖ Drop chip bead 10 times on a concrete flom a height of 100 cm.
Temperature Characteristic	❖ No visible mechanical damage. ❖ Inductance change: within ±20% of initial value measuring at 20℃.	❖ Temperature range: -40℃ ~ 125℃. ❖ Reference temperature: +20℃
Solderability	❖ No visible mechanical damage. ❖ Wetting shall exceed 75% coverage for 0201 series;exceed 95% for others.	❖ Solder temperature: 240±2℃. ❖ Duration: 3 sec. ❖ Solder: Sn/3.0Ag/0.5Cu. ❖ Flux: 25% Resin and 75% ethanol in weight.
Resistance to Soldering Heat	❖ No visible mechanical damage. ❖ Wetting shall exceed 75% coverage for 0201 series;exceed 95% for others. ❖ Inductance change: within ±20%. ❖ Q factor change: Within ±30%.	❖ Solder temperature: 260±3℃ ❖ Duration: 5 sec. ❖ Solder: Sn/3.0Ag/0.5Cu. ❖ Flux: 25% Resin and 75% ethanol in weight. ❖ The chip shall be stabilized at normal condition for 1~2hours before measuring.
Thermal Shock	❖ No visible mechanical damage. ❖ Inductance change: within ±20%. ❖ Q factor change: Within ±30%. 	❖ Temperature, Time: -40℃ for 30±3 min→ 125℃ for 30±3min. ❖ Transforming interval: 20sec. Max. ❖ Tested cycle: 100 cycles. ❖ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
Resistance to Low Temperature	❖ No visible mechanical damage. ❖ Inductance change: within ±20%. ❖ Q factor change: Within ±30%.	❖ Temperature: -40±2℃ ❖ Duration: 1000+24 hours. ❖ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
Resistance to High Temperature	❖ No visible mechanical damage. ❖ Inductance change: within ±20%. ❖ Q factor change: Within ±30%.	❖ Temperature: 125±2℃ ❖ Duration: 1000+24 hours. ❖ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
Damp Heat (Steady States)	❖ No visible mechanical damage. ❖ Inductance change: within ±20%. ❖ Q factor change: Within ±30%.	❖ Temperature:60±2℃ ❖ Humidity: 90% to 95% RH. ❖ Duration: 1000+24 hours. ❖ The chip shall be stabilized at normal condition for 1~2 hours before measuring.

Loading Under Damp Heat	❖ No visible mechanical damage. ❖ Inductance change: within ±20%.Inductance≤12μH, within ±15%, for inductance >15μH ❖ Q factor change: Within ±30%.	❖ Temperature:60±2℃ ❖ Humidity: 90% to 95% RH. ❖ Duration: 1000+24 hours. ❖ Applied current: Max. Permissive Operating Current. ❖ The chip shall be stabilized at normal condition for 1~2 hours before measuring.
Loading at High Temperature (Life Test)	❖ No visible mechanical damage. ❖ Inductance change: within ±20%. ❖ Q factor change: Within ±30%.	❖ Temperature: 125±2℃ ❖ Duration: 1000+24 hours. ❖ Applied current: Max. Permissive Operating Current. ❖ The chip shall be stabilized at normal condition for 1~2 hours before measuring.

Packaging

(1) **Figure**



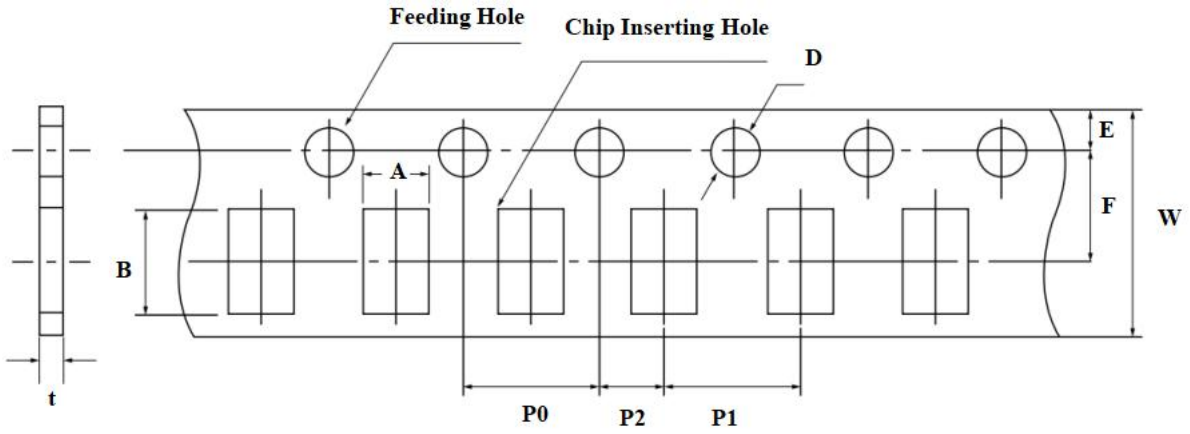
(2) **Quantity**

Size(JIS)	Taping Type	Reel	Inner Box	Outer Box
0412	Paper	10K	10K×10=150K	100K×6=600K
0402	Paper	10K	10K×10=150K	100K×6=600K
0515	Paper	10K	10K×10=100K	100K×6=600K

0518	Paper	10K	10K×10=100K	100K×6=600K
0503	Paper	10K	10K×10=100K	100K×6=600K
0615	Paper	4K	4K×10=100K	40K×6=240K
0618	Paper	4K	4K×10=100K	40K×6=240K
0602	Paper	4K	4K×10=40K	40K×6=240K
0603	Paper	4K	4K×10=40K	40K×6=240K
0605	Paper	4K	4K×10=40K	40K×6=240K
0804	Paper	4K	4K×10=40K	40K×6=240K
0805	Paper	4K	4K×10=40K	40K×6=240K
1003	Paper	4K	4K×10=40K	40K×6=240K
1004	Paper	3K	3K×10=30K	30K×6=180K
1005	Paper	3K	3K×10=30K	30K×6=180K
1204	Plastic	3K	3K×10=30K	30K×6=120K
1205	Plastic	2K	2K×10=20K	20K×6=120K
1206	Plastic	2K	2K×10=20K	20K×6=120K
1265	Plastic	2K	2K×10=20K	20K×6=120K
1707	Plastic	2K	2K×10=20K	20K×6=120K
2213	Plastic	1K	1K×10=10K	100K×6=60K

(3) Tape Size

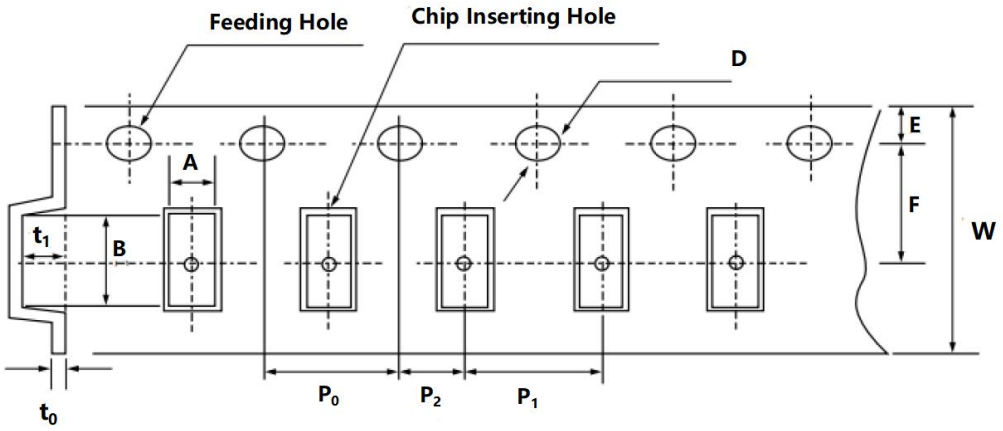
❖ **Cardboard(Paper) tape**



Unit: mm

Size (EIA)	A	B	W	F	E	P1	P2	P0	D	t
0402	0.65±0.1	1.15±0.1	8.00 ±0.30	3.50 ±0.05	1.75 ±0.10	2.00 ±0.05	2.00 ±0.05	4.00 ±0.10	Φ1.50 +0.1/-0.03	≤0.8

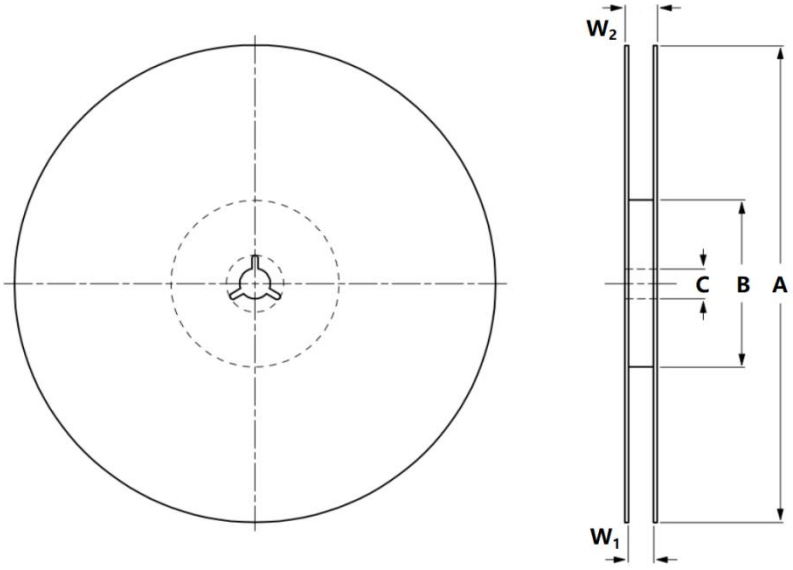
❖ **Embossed (Plastic) tape**



Unit: mm

Size (EIA)	A	B	W	F	E	P1	P2	P0	D	t
1812	3.66 ±0.10	4.95 ±0.10	12.00 ±0.30	5.50 ±0.05	1.75 ±0.10	8.00 ±0.10	2.00 ±0.05	4.00 ±0.10	Φ1.50 +0.1/-0.03	⩽0.5

(4) Reel Size

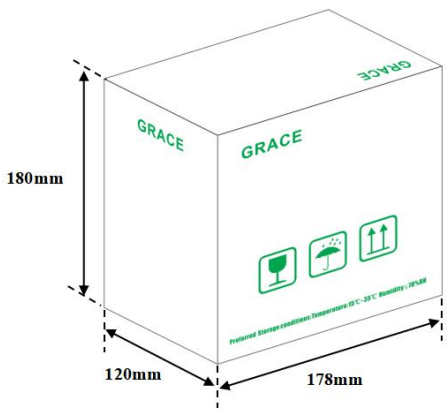


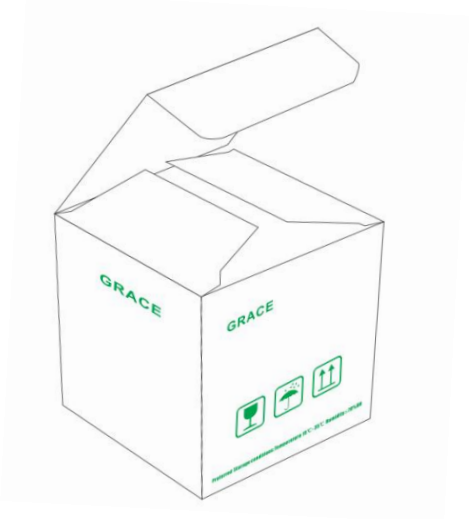
Type	Symbol	Dimensions(mm)
7" Reel	A	178±2
	B	58±2
	C	13.5±0.2
	W1	8.4+1.5/-0.0
	W2	⩽14.4

(5) BOX package

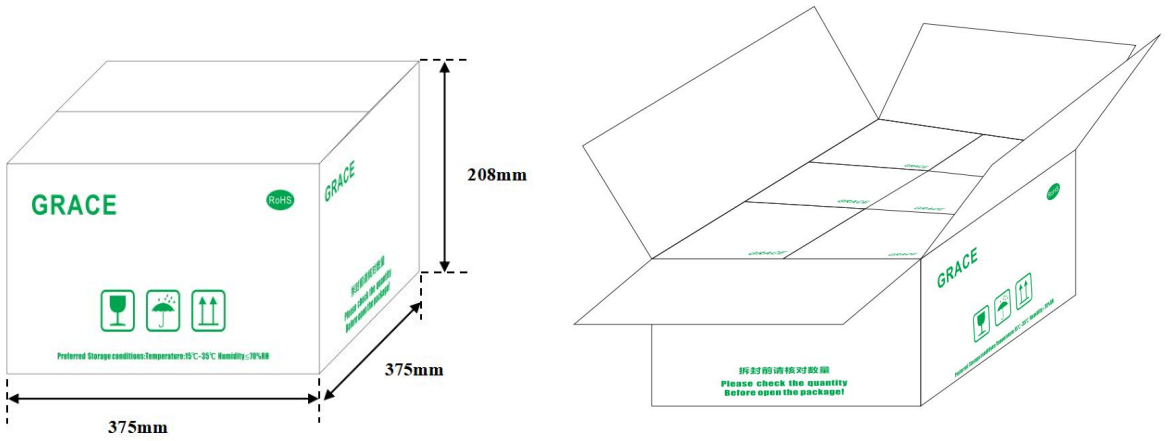
Double packaging with the paper type of inner box and outer box.

❖ **Inner Box ：**





❖ **Outer Box ：**



※ **Box size specifications for reference.**

Storage environment

(1) Recommendation for temperature/humidity

❖ **Even taping and packaging materials are designed to endure a long-term storage, they should be stored with a temperature of -10~40℃and an RH of 0~70% otherwise, too high temperatures or humidity may deteriorate the quality of the chip rapidly.**

❖ **Packaging material may be deform-ed if package are stored where they are exposed to heat of direct sunlight.**

❖ **As oxidization is accelerated when relative humidity is above 70%RH, the lower the humidity is, the better the solderability is.**

❖ **As the temperature difference may cause dew condensation during the storage of the chip, it is a must to maintain a temperature control environment.**

(2) Shelf Life

❖ **An allowable storage period should be within 12 months from the outgoing date of delivery in consideration of solderability.**

❖ **As for chips in storage over 12 months, please check solderability before use.**

(3) Caution for corrosive environment

As corrosive gases may deteriorate the solderability of chip outer termination, it is a must to store chip in an environment without gases. chip that is exposed to corrosive gases may cause its quality issues due to the corrosion of plating layers and the penetration of moisture.

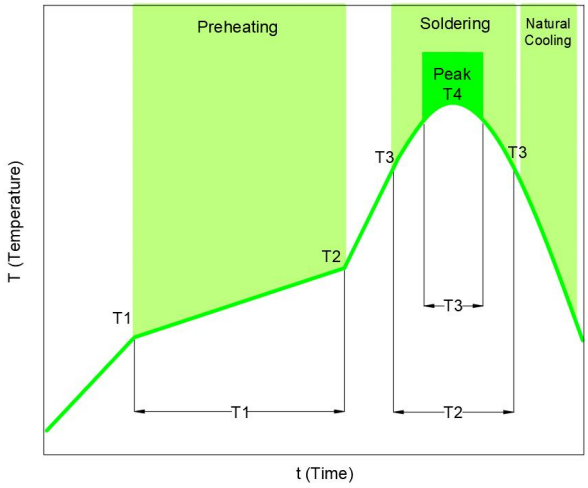
Process of Mounting and Soldering

(1) Reflow soldering

The reflow soldering temperature conditions are composed of temperature curves of Preheating, Temp. rise, Heating, Peak and Gradual cooling. Large temperature difference inside the chip caused by rapid heat application to the chip may lead to excessive thermal stresses, contributing to the thermal cracks. The

Preheating temperature requires controlling with great care so that tombstone phenomenon may be prevented.

Follow the recommended soldering conditions to avoid degradation of performance .



Item	Specification	
	For eutectic mixture solder	For lead-free solder
Preheating temperature	160 ～ 180 ℃	150 ～ 180 ℃
Solder melting temperature	200 ℃	230 ℃
Maximum temperature	240° C max.	260 ℃ max.
Preheating time	100s max.	120s max.
Time to reach higher than the solder melting temperature	30s max.	40s max.
number of possible reflow cycles	2 max.	2 max.

※ **Pre-heating is necessary for all constituents including the PCB to prevent the mechanical damages on the chip . The temperature difference between the PCB and the component surface must be kept to the minimum.**

a. **Allowable temperature difference △T≦ 150 °C**

b. **Use non-activated flux. (Max. Cl content less than 0.1%)**

(2) Soldering Iron

Manual soldering can pose a great risk on creating thermal cracks in the chip. The high temperature soldering iron tip may come into a direct contact with the ceramic body of the chip due to the carelessness of an operator. Therefore, the soldering iron must be handled carefully, and close attention must be paid to the selection of the soldering iron tip and to temperature control of the tip.

Iron soldering power	Soldering time	Soldering Temp.	Number of times	Pre-heating
20W max.	3s max.	300±10℃ max.	Within each terminal once(Within total of twice)	① ΔT≤130 ② ≥60S

※ **Keep the contact time between the outer termination of the chip and the soldering iron as short as possible. Long soldering time may cause problems such as adhesion deterioration by the leaching phenomenon of the outer termination.**

a. **Control Δ T in the solder iron and preheating temperature;**

b. Caution - Iron tip should not contact with ceramic body directly;

c. Do not cool down the chip and PCB rapidly after soldering;

d. Lead-free solder: Sn-3.0Ag-0.5CU.

(3) Cleaning

❖ In general, cleaning is unnecessary if rosin flux is used.

When acidic flux is used strongly, chlorine in the flux may dissolve into some types of cleaning fluids, thereby affecting the performance of the chip.

This means that the cleansing solution must be carefully selected and should always be new.

❖ Cautions for cleaning

a. Soldering flux residue may remain on the PC board if cleaned with an inappropriate solvent.This may deteriorate the performance of Varistors, especially insulation resistance.

b. The chip or solder joint may be cracked with the vibration of PCB, if ultrasonic vibration is too strong during cleaning. Therefore，test should be done for the cleaning equipment and its process before the cleaning in order to avoid damages on the chip，you can refer to the following conditions for cleaning

Ultrasound output	Ultrasound frequency	Cleaning time
20W/liter or less	40kHz or less	5minutes or less

Limitation

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- **Automotive of Transportation equipment**
- **Military equipment**
- **Atomic energy-related equipment**
- **Undersea equipment**
- **Medical equipment**
- **Disaster prevention/crime prevention equipment**
- **Power plant control equipment**
- **Traffic signal equipment**
- **Data-processing equipment**
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- **Any other applications with the same as or similar complexity or reliability to the applications**