Data Sheet

Customer：

Product :	Anti-Corrosive Thin Film Precision Chip Resistor-PR Series
Size :	0402/0603/0805/1206/2010/2512
Issued Date:	9-Jul-26
Edition :	REV.B9



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9-Jul-26	9-Jul-26	9-Jul-26		
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Anti-Corrosive Thin Film Precision Chip Resistor
(PR Series)



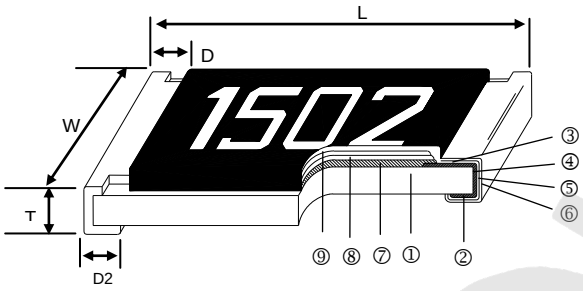
■Features

- Long term life stability and demonstrated the Anti–Corrosion claims
- Special passivated NiCr film for Anti-Acid and Anti-Damp
- Tight tolerance down to ±0.1%
- Extremely low TCR down to ±15 PPM/°C
- Wide resistance range 10ohm ~ 1.5Mega ohm
- RoHS (Pb)-free without exemption

■Applications

- High-end Computer
- Industrial Equipment
- Automatic Equipment Controller
- Medical Equipment
- Telecommunication Device
- High-end Multimedia Electronics
- Outdoor Electronic Applications

■Construction



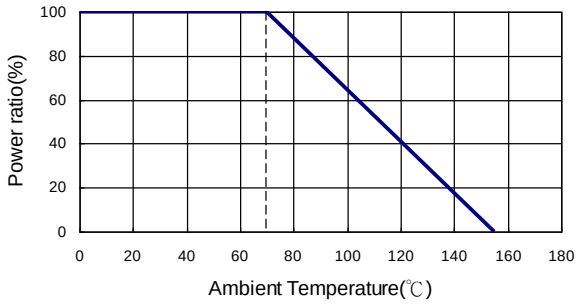
①	Alumina Substrate	④	Edge Electrode	⑦	Resistor Layer
②	Bottom Electrode	⑤	Barrier Layer	⑧	Passivation
③	Top Electrode	⑥	External Electrode	⑨	Overcoat

■Dimensions

Unit :mm

Type	Size (Inch)	L	W	T	D1	D2	Weight (g) (1000pcs)
PR02	0402	1.00±0.05	0.50±0.05	0.30±0.05	0.20±0.10	0.20±0.10	0.55
PR03	0603	1.55±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.30±0.20	1.85
PR05	0805	2.00±0.15	1.25±0.15	0.55±0.10	0.30±0.20	0.40±0.25	4.76
PR06	1206	3.05±0.15	1.55±0.15	0.55±0.10	0.42±0.20	0.35±0.25	9.11
PR10	2010	4.90±0.15	2.40±0.15	0.55±0.10	0.60±0.30	0.50±0.25	23.82
PR12	2512	6.30±0.15	3.10±0.15	0.55±0.10	0.60±0.30	0.50±0.25	38.46

■Derating Curve



■Part Numbering

PR	03	D	T	D	X	1001	N
Product Type	Dimensions (L×W)	Resistance Tolerance	Packaging Code	TCR (PPM/°C)	Power Rating	Resistance	Marking Code
	02: 0402 03: 0603 05: 0805 06: 1206 10: 2010 12: 2512	B: ±0.1% C: ±0.25% D: ±0.5%	T: Taping Reel B: Bulk	N: ±15 C: ±25 D: ±50	: Standard* (See Remark) X: 1/10W W: 1/8W V: 1/4W	1000: 100Ω 2201: 2200Ω 1001: 1KΩ 1004: 1MΩ	: Standard Marking for E96 / E24 N: No Marking

*Remark: Standard part no need for power rating code.

■Standard Electrical Specifications

Item / Type	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range			TCR (PPM/°C)
					±0.1%	±0.25%	±0.5%	
PR02 (0402)	1/16W	-55 ~ +155°C	25V	50V	49.9Ω - 12KΩ			±15
					24.9Ω - 24.9KΩ			±25 ±50
PR03 (0603)	1/16W	-55 ~ +155°C	50V	100V	24.9Ω - 332KΩ			±15 ±25 ±50
PR05 (0805)	1/10W	-55 ~ +155°C	100V	200V	10Ω – 1MΩ			±15 ±25 ±50
PR06 (1206)	1/8W	-55 ~ +155°C	150V	300V	10Ω – 1MΩ			±15 ±25 ±50
PR10 (2010)	1/4W	-55 ~ +155°C	150V	300V	24.9Ω - 1MΩ			±15
					10Ω – 1.5MΩ			±25 ±50
PR12 (2512)	1/2W	-55 ~ +155°C	150V	300V	24.9Ω - 1MΩ			±15
					10Ω – 1.5MΩ			±25 ±50

■High Power Rating Electrical Specifications

Item / Type	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range ±0.1%	Resistance Range ±0.25%	Resistance Range ±0.5%	TCR (PPM/°C)
PR03 (0603)	1/10W	-55 ~ +155℃	75V	150V	24.9Ω - 220KΩ			±15 ±25 ±50
PR05 (0805)	1/8W	-55 ~ +155℃	150V	300V	24.9Ω - 680KΩ			±15 ±25 ±50
PR06 (1206)	1/4W	-55 ~ +155℃	200V	400V	24.9Ω – 1MΩ			±15 ±25 ±50

Operating Voltage=$\sqrt{}$(P*R) or Max. operating voltage listed above, whichever is lower.

Overload Voltage=2.5*$\sqrt{}$(P*R) or Max. overload voltage listed above, whichever is lower.

■Viking is capable of manufacturing the optional spec based on customer's requirement.

■Environmental Characteristics

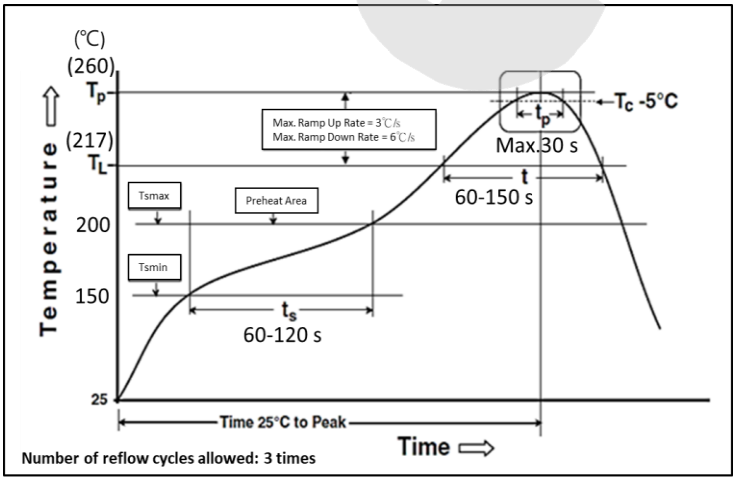
Item	Requirement Size 0603 / 0805 / 1206 2010 / 2512	Requirement Size 0402	Test Method
Short Time Overload	≦±0.02% ≦ ±0.2% for high power rating	≦±0.1%	**JIS-C-5201-1 4.13** RCWV*2.5 or Max. overload voltage whichever is lower for 2 seconds
Endurance	≦±0.05% ≦ ±0.25% for high power rating	≦±0.25%	**MIL-STD-202 Method 108** 70±2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	≦±0.05% ≦ ±0.25% for high power rating	≦±0.5%	**MIL-STD-202 Method 103** 40±2°C, 90~95% R.H., RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Solderability	95% min. coverage		**MIL-STD-202 Method 208** 245±5°C for 3 seconds
Resistance to Soldering Heat	≦±0.02%	≦±0.1%	**MIL-STD-202 Method 210** 260±5°C for 10 seconds
Thermal Shock	≦±0.02%	≦±0.1%	**MIL-STD-202 Method 107** -55°C ~150°C, 100 cycles

RCWV(Rated continuous working voltage)= $\sqrt{}$(P*R) or Max. Operating voltage whichever is lower

■**Storage Temperature: 15~28°C; Humidity < 80%RH**

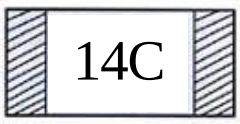
■ **Shelf Life: 2 years from production date.**

■Soldering Condition(IPC/JEDEC J-STD-020)



■Marking

0603 3digit marking



3digit marking for Example: 14C=13KΩ 13C=13K3Ω

68B=4K99Ω 68X=49.9Ω

Marking Table

Code	E96	Code	E96	Code	E96	Code	E96
01	100	**25**	178	**49**	316	**73**	562
02	102	**26**	182	**50**	324	**74**	576
03	105	**27**	187	**51**	332	**75**	590
04	107	**28**	191	**52**	340	**76**	604
05	110	**29**	196	**53**	348	**77**	619
06	113	**30**	200	**54**	357	**78**	634
07	115	**31**	205	**55**	365	**79**	649
08	118	**32**	210	**56**	374	**80**	665
09	121	**33**	215	**57**	383	**81**	681
10	124	**34**	221	**58**	392	**82**	698
11	127	**35**	226	**59**	402	**83**	715
12	130	**36**	232	**60**	412	**84**	732
13	133	**37**	237	**61**	422	**85**	750
14	137	**38**	243	**62**	432	**86**	768
15	140	**39**	249	**63**	442	**87**	787
16	143	**40**	255	**64**	453	**88**	806
17	147	**41**	261	**65**	464	**89**	825
18	150	**42**	267	**66**	475	**90**	845
19	154	**43**	274	**67**	487	**91**	866
20	158	**44**	280	**68**	499	**92**	887
21	162	**45**	287	**69**	511	**93**	909
22	165	**46**	294	**70**	523	**94**	931
23	169	**47**	301	**71**	536	**95**	953
24	174	**48**	309	**72**	549	**96**	976

Code	A	B	C	D	E	F	G	H	X	Y	Z
Multiplier	10^0	10^1	10^2	10^3	10^4	10^5	10^6	10^7	10^{-1}	10^{-2}	10^{-3}

0603 3digit marking for E24 Example: 101=100Ω 102=1KΩ

E24	10	11	12	13	15	16	18	20	22	24	27	30	33	36	39	43	47	51	56	62	68	75	82	91

0805~2512 4digit marking Example

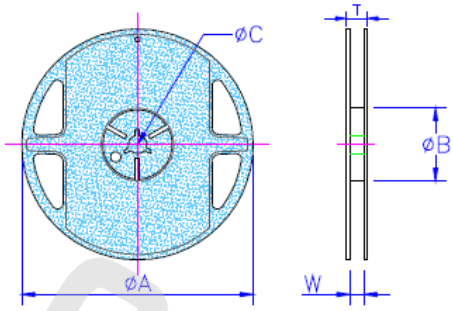
Resistance	100Ω	2.2KΩ	10KΩ	49.9KΩ	100KΩ
marking	1000	2201	1002	4992	1003

■Packaging

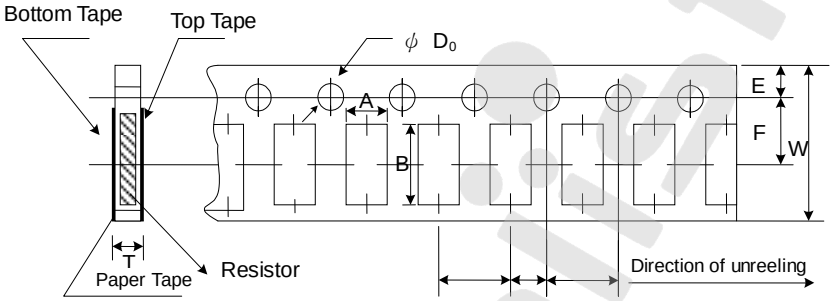
Package Quantity & Reel Specifications

Unit :mm

Type	ΦA	ΦB	ΦC	W	T	Paper Tape (EA)	Emboss Plastic Tape (EA)
PR02	178.0±1.0	60.0+1.0	13.5±0.7	9.5±1.0	11.5±1.0	10,000	-
PR03	178.0±1.0	60.0+1.0	13.5±0.7	9.5±1.0	11.5±1.0	5,000	-
PR05	178.0±1.0	60.0+1.0	13.5±0.7	9.5±1.0	11.5±1.0	5,000	-
PR06	178.0±1.0	60.0+1.0	13.5±0.7	9.5±1.0	11.5±1.0	5,000	-
PR10	178.0±1.0	60.0+1.0	13.5±0.7	13.5±1.0	15.5±1.0	-	4,000
PR12	178.0±1.0	60.0+1.0	13.5±0.7	13.5±1.0	15.5±1.0	-	4,000



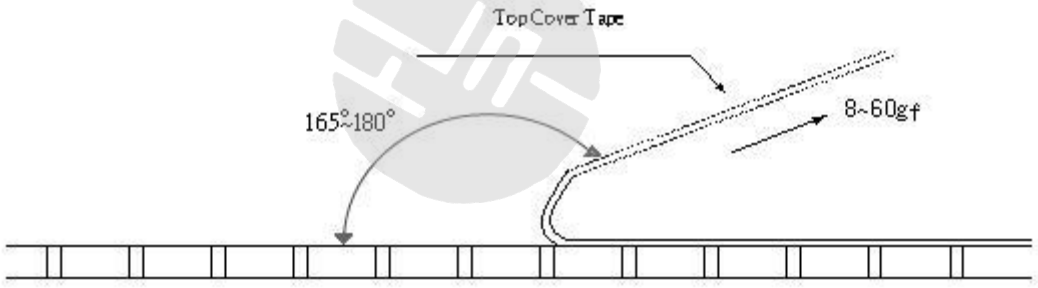
Paper Tape Specifications



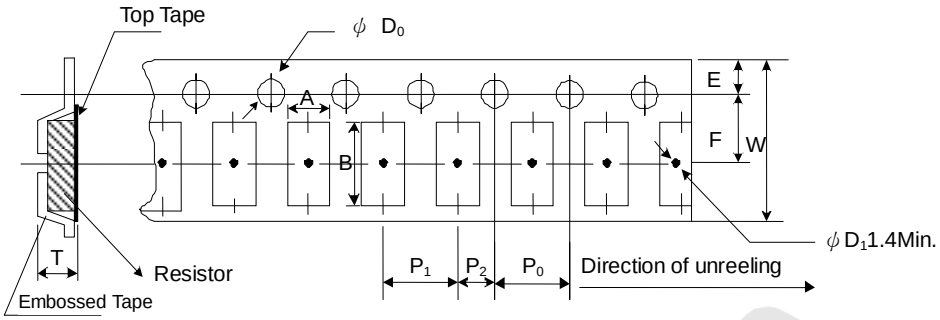
Unit: mm

Type	A	B	W	E	F	P0	P1	P2	ΦD0	T
PR02	0.70±0.05	1.16±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	2.00±0.05	2.00±0.05	1.55±0.05	0.40±0.03
PR03	1.10±0.05	1.90±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.05	0.60±0.03
PR05	1.60±0.05	2.37±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.05	0.75±0.05
PR06	2.00±0.05	3.55±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.05	0.75±0.05

■ Peel force of top cover tape
■ The peel speed shall be about 300mm/min±5%
■ The peel force of top cover tape shall be between 8gf to 60gf



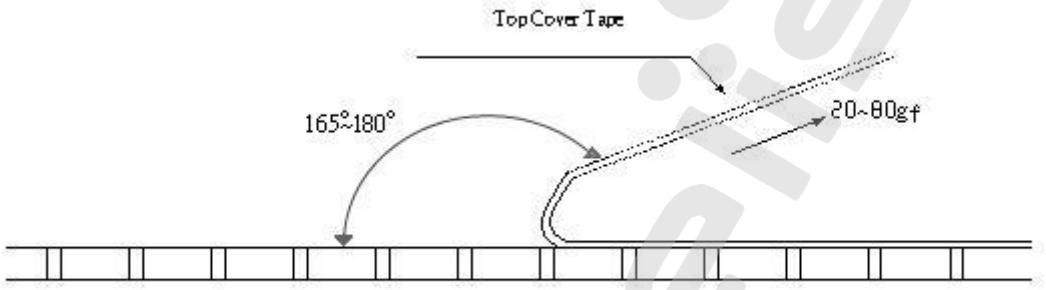
Emboss Plastic Tape Specifications



Unit: mm

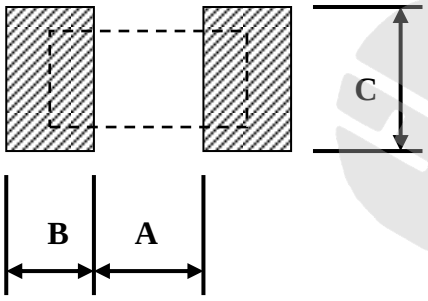
Type	A	B	W	E	F	P_0	P_1	P_2	ψD_0	T
PR10	2.85±0.10	5.45±0.10	12.0±0.10	1.75±0.10	5.5±0.05	4.00±0.05	4.00±0.10	2.00±0.05	1.50+0.10	1.00±0.20
PR12	3.40±0.10	6.65±0.10	12.0±0.10	1.75±0.10	5.5±0.05	4.00±0.05	4.00±0.10	2.00±0.05	1.50+0.10	1.00±0.20

- Peel force of top cover tape
- The peel speed shall be about 300mm/min±5%
- The peel force of top cover tape shall be between 20gf to 80gf



■Recommend Land Pattern

Unit：mm



Type	A	B	C
PR02	0.50	0.50	0.60±0.2
PR03	0.80	1.00	0.90±0.2
PR05	1.00	1.00	1.35±0.2
PR06	2.00	1.15	1.70±0.2
PR10	3.60	1.40	2.50±0.2
PR12	4.90	1.60	3.10±0.2

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version B3	April 28,2014	-	- Update Features, Applications and add Wave Soldering Condition.
Version B4	Sep 25 ,2014	-	- Correct the specification of top cover tape peel force.
Version B5	May 08 ,2015	-	- Correct the element of Top Electrode.
Version B6	May 02, 2016	-	- Modify Storage Temperature. - Remove Material Description.
Version B7	Nov 10, 2017	-	- Correct the reference standard in Environmental Characteristics.
Version B8	Jan 26, 2022	-	- Add shelf life description. - Modify IR reflow profile to comply IPC/JEDEC J-STD-020.
Version B9	Jul 09, 2026	-	- Add new description “RoHS (Pb)-free without exemption” to Features.