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HONG KONG RESISTORS MANUFACTORY

(wholly owned by Hong Kong Resistors Manufactory International Ltd.)

AN ISO 9001:2015 CERTIFIED MANUFACTURER

AN ISO 45001: 2018 MANUFACTURER

AN ISO 14001: 2015 MANUFACTURER

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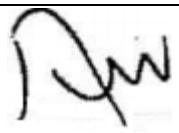
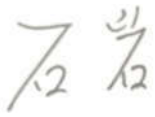
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DATASHEET

Name of Product: Thin Film Chip Resistor -ARG Series

Sales Executive:_____ Date: 2024/7/16

制造 Prepared by	品质 Quality by	业务 Sales by	核准 Authorized by
			
客户 customer approval	客户 customer approval	客户 customer approval	客户 customer approval

Spec. No. ARG 2024

Rev. No.: 2024 Jul

Thin Film Chip Resistor -ARG Series



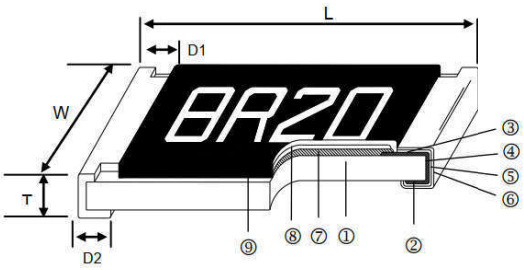
Features

- Advanced thin film technology
- SMD Type designed for automatic insertion
- Wide resistance range 1ohm ~ 2.49Mega ohm

Applications

- Medical Equipment
- Testing / Measurement
- Equipment Printer Equipment
- Automatic Equipment
- Controller Converters
- Communication Device, Cell Phone, GPS, PDA

Construction



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

Dimensions

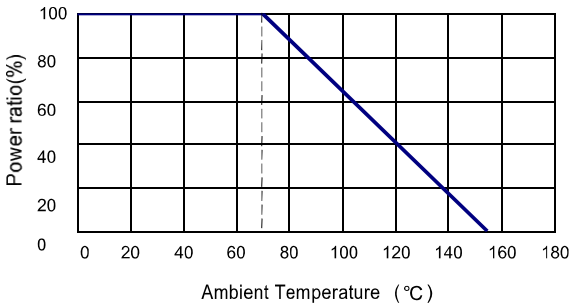
Unit: mm

Type	Size (Inch)	L	W	T	D1	D2
ARG02	0402	1.00±0.05	0.50±0.05	0.30±0.10	0.20±0.10	0.20±0.10
ARG03	0603	1.60±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.30±0.20
ARG05	0805	2.00±0.15	1.25±0.15	0.50±0.10	0.30±0.20	0.40±0.20
ARG06	1206	3.10±0.15	1.55±0.15	0.55±0.10	0.42±0.20	0.35±0.25

Part Numbering

ARG	03	100R	D	C3	1/10W
Type	Size	Value	Tolerance	TCR	Power
	02 : 0402		B : ±0.1%	C3: ±25PPM	1/16W
	03 : 0603		C : ±0.25%	C2: ±50PPM	1/10W
	05 : 0805		D : ±0.5%		1/8W
	06 : 1206		F : ±1%		1/4W

Derating Curve



Standard Electrical Specifications

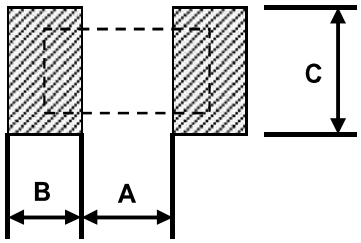
Item / Type	Power Rating at 70°C	Operating Temp. Range	Max. Operating Voltage	Max. Overload Voltage	Resistance Range				TCR (PPM/ C)
					±0.1%	±0.25%	±0.5%	±1%	
ARG02 (0402)	1/16W	-55 ~ +155℃	50V	100V	4.7Ω – 255KΩ				±25 ±50
ARG03 (0603)	1/10W	-55 ~ +155℃	75V	150V	1Ω - 1MΩ				±25 ±50
ARG05 (0805)	1/8W	-55 ~ +155℃	150V	300V	1Ω - 2MΩ				±25 ±50
ARG06 (1206)	1/4W	-55 ~ +155℃	200V	400V	1Ω - 2.49MΩ				±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.

- HKR is capable of manufacturing the optional spec based on customer's requirement.
  (Lower Resistance:1-10Ω ; High Power Rating)

Recommend Land Pattern

Unit: mm



Type	A	B	C
ARG02	0.50	0.50	0.60±0.2
ARG03	0.80	1.00	0.90±0.2
ARG05	1.00	1.00	1.35±0.2
ARG06	2.00	1.15	1.70±0.2

■Environmental Characteristics

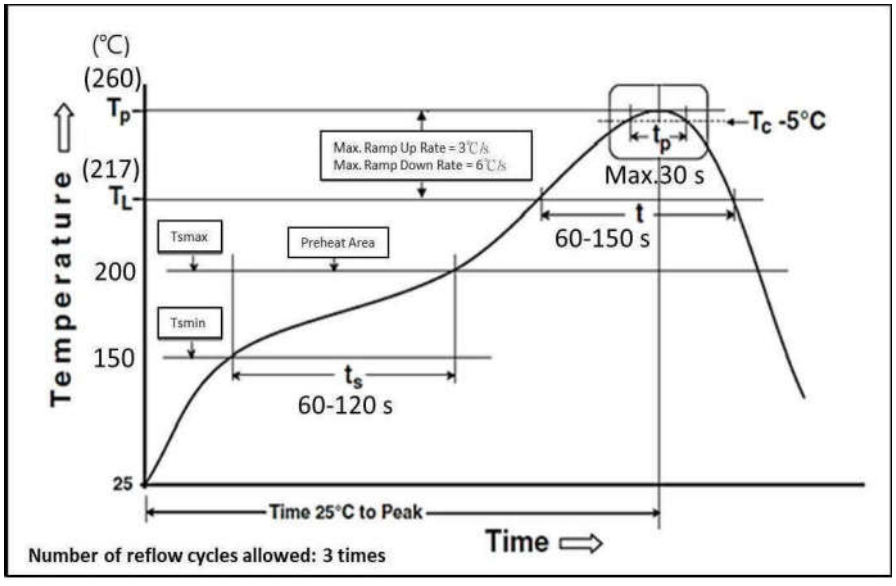
Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	**MIL-STD-202 Method 304** +25/-55/+25/+125/+25℃
Short Time Overload	△R±0.2%	**JIS-C-5201-1 4.13** RCWV*2.5 or Max. overload voltage whichever is lower for 5 seconds
Insulation Resistance	>9999 MΩ	**MIL-STD-202 Method 302** Apply 100V_{DC} for 1 minute
Endurance	△R±0.5%	**MIL-STD-202 Method 108A** 70±2℃, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	△R±0.5%	**MIL-STD-202 Method 103B** 40±2℃, 90~95% R.H. RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Bending Strength	△R±0.1%	**JIS-C-5201-1 4.33** Bending amplitude 3 mm for 10 seconds
Solderability	95% min. coverage	**MIL-STD-202 Method 208H** 245±5℃ for 3 seconds
Resistance to Soldering Heat	△R±0.1%	**MIL-STD-202 Method 210E** 260±5℃ for 10 seconds
Dielectric Withstand Voltage	By Type	**MIL-STD-202 Method 301** Max. overload voltage for 1 minute
Thermal Shock	△R±0.2%	**MIL-STD-202 Method 107G** -55℃ ~150℃ , 100 cycles
Low Temperature Operation	△R±0.5%	**JIS-C-5201-1 4.36** 1 hour, -65℃, followed by 45 minutes of RCWV
High Temperature Exposure	△R±0.5%	**MIL-STD-202 Method 108** at +155℃ fo r 1000 hrs

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

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

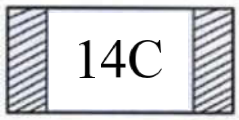
■ **Shelf Life: 1 years from production date.**

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



■Marking

0603 3digit marking



3digit marking for Example: 14C=13K7Ω 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

0805~1206 4digit marking Example

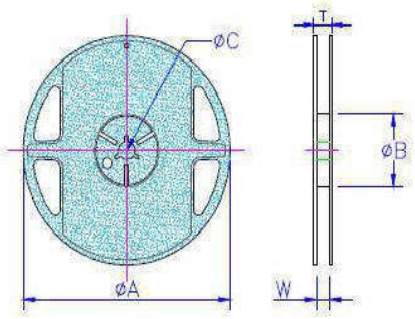
Resistance	100Ω	2.2KΩ	10KΩ	49.9KΩ	100KΩ
marking	1000	2201	1002	4992	1003

Packaging

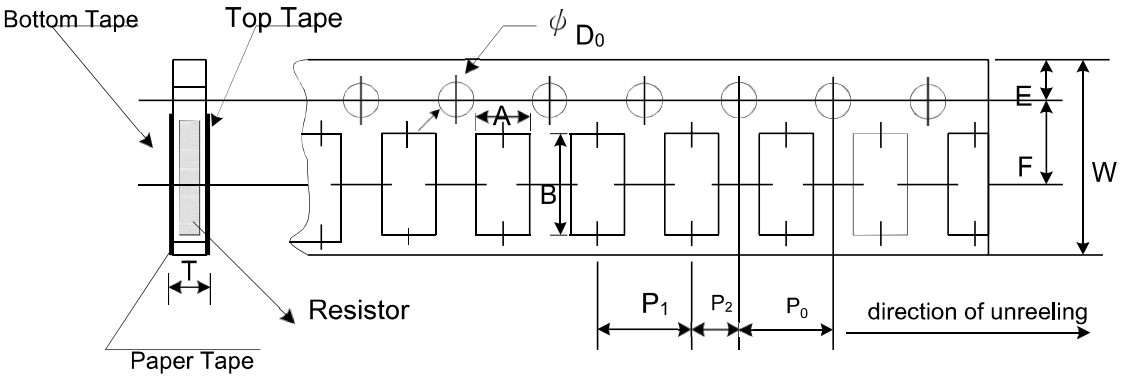
Packing Quantity & Reel Specifications

Unit :mm

Type	ØA	ØB	ØC	W	T	Paper Tape (EA)	Emboss Plastic Tape (EA)
ARG02	178.0±1.0	60.0+1.0	13.5±0.7	9.5±1.0	11.5±1.0	10,000	-
ARG03	178.0±1.0	60.0+1.0	13.5±0.7	9.5±1.0	11.5±1.0	5,000	-
ARG05	178.0±1.0	60.0+1.0	13.5±0.7	9.5±1.0	11.5±1.0	5,000	-
ARG06	178.0±1.0	60.0+1.0	13.5±0.7	9.5±1.0	11.5±1.0	5,000	-



Paper Tape Specifications



Unit: mm

Type	A	B	W	E	F	P_0	P_1	P_2	ϕ D_0	T
ARG02	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
ARG03	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
ARG05	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
ARG06	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

