

Data Sheet

Customer:

Product :	Thin Film Chip Resistor - ARG Series
Size:	0402/0603/0805/1206
Issued Date:	19-Jul-16
Edition :	REV. A3



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Produced by (QC)	Checked (QC)	Approved by (QC)	Prepared by (Sales)	Accepted by (Customer)



Thin Film Chip Resistor (ARG Series)

Features

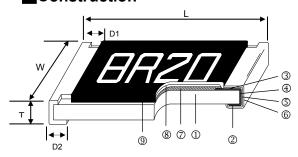
- -Advanced thin film technology
- -SMD Type designed for automatic insertion
- Wide resistance range 10hm ~ 2.49Mega 0hm

Applications

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



■Construction

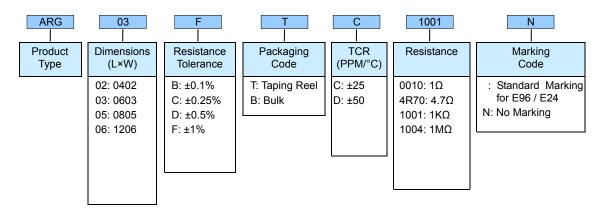


1	Alumina Substrate	4	Edge Electrode	7	Resistor Layer
2	Bottom Electrode	(5)	Barrier Layer	8	Overcoat
3	Top Electrode	6	External Electrode	9	Marking

DimensionsUnit: mm

Туре	Size (Inch)	L	w	т	D1	D2	Weight (g) (1000pcs)
ARG02	0402	1.00±0.05	0.50±0.05	0.30±0.10	0.20±0.10	0.20±0.10	0.54
ARG03	0603	1.60±0.10	0.80±0.10	0.45±0.10	0.30±0.20	0.30±0.20	1.83
ARG05	0805	2.00±0.15	1.25±0.15	0.50±0.10	0.30±0.20	0.40±0.20	4.71
ARG06	1206	3.10±0.15	1.55±0.15	0.55±0.10	0.42±0.20	0.35±0.25	9.02

Part Numbering

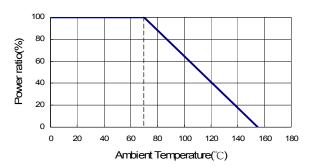


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■Derating Curve



■Standard Electrical Specifications

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

(Lower Resistance:1~10Ω; High Power Rating)

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



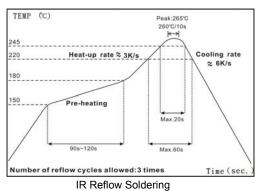
■Environmental Characteristics

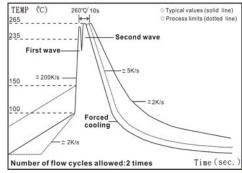
Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	MIL-STD-202 Method 304 +25/-55/+25/+125/+25°C
Short Time Overload	ΔR±0.2%	JIS-C-5201-1 5.5 RCWV*2.5 or Max. overload voltage whichever is lower for 5 seconds
Insulation Resistance	>9999 MΩ	MIL-STD-202 Method 302 Apply 100V _{DC} for 1 minute
Endurance	ΔR±0.5%	MIL-STD-202 Method 108A 70±2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Damp Heat with Load	ΔR±0.5%	MIL-STD-202 Method 103B 40±2°C, 90~95% R.H. RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
Bending Strength	ΔR±0.1%	JIS-C-5201-1 6.1.4 Bending amplitude 3 mm for 10 seconds
Solderability	95% min. coverage	MIL-STD-202 Method 208H 245±5°C for 3 seconds
Resistance to Soldering Heat	ΔR±0.1%	MIL-STD-202 Method 210E 260±5°C for 10 seconds
Dielectric Withstand Voltage	Ву Туре	MIL-STD-202 Method 301 Max. overload voltage for 1 minute
Thermal Shock	ΔR±0.2%	MIL-STD-202 Method 107G -55°C ~150°C, 100 cycles
Low Temperature Operation	ΔR±0.5%	JIS-C-5201-1 7.1 1 hour, -65°C, followed by 45 minutes of RCWV

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

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

■Soldering Condition





Wave Soldering (Flow Soldering)

- (1) Time of IR reflow soldering at maximum temperature point 260 $^{\circ}\text{C}$: 10s
- (2) Time of wave soldering at maximum temperature point 260°C : 10s
- (3) Time of soldering iron at maximum temperature point 410°C: 5s

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■ Marking

0603 3digit marking



3digit marking for Example: 14C=13K7 Ω 13C=13K3 Ω

68B=4K99Ω 68X=49.9Ω

Marking Table

Code	E	96	Code	E	96	Code	E	96	Code	E	96
01	10	00	25	17	78	49	49 316		73	50	62
02	10	02	26	18	32	50	32	24	74	5	76
03	10	05	27	18	37	51	3	32	75	59	90
04	10	07	28	19	91	52	34	40	76	60	04
05	1	10	29	19	96	53	34	48	77	6	19
06	1	13	30	20	00	54	3	57	78	6	34
07	1	15	31	20	05	55	30	65	79	6-	49
08	11	18	32	2	10	56	3	74	80	60	65
09	12	21	33	2	15	57	38	33	81	6	31
10	12	24	34	22	21	58	39	92	82	69	98
11	12	27	35	22	26	59	40	02	83	7	15
12	1;	30	36	232		60	412		84	732	
13	1;	33	37	23	237 61 422		85	7:	50		
14	1;	37	38	24	43	62	4:	32	86	7(68
15	14	40	39	24	49	63	4	42	87	78	37
16	14	43	40	25	55	64	4	53	88	8	06
17	14	47	41	26	31	65	40	64	89	8:	25
18	1	50	42	26	67	66	4	75	90	84	45
19	1	54	43	27	74	67	48	37	91	80	66
20	1	58	44	28	30	68	49	99	92	8	37
21	16	62	45	28	37	69	5	11	93	90	09
22	16	65	46	29	94	70	52	23	94	9:	31
23	16	69	47	30	01	71 536		95	9:	53	
24	1	74	48	30)9	72	549		96	9	76
Code	Α	В	С	D	E	F	G	н	х	Υ	z
Multiplier	10°	10 ¹	10 ²	10 ³	10 ⁴	10⁵	10 ⁶	10 ⁷	10 ⁻¹	10 ⁻²	10 ⁻³

Example: $101=100\Omega$ $102=1K\Omega$ 0603 3digit marking for E24

Γ				40														4-7			00				
	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	2.2ΚΩ	10ΚΩ	49.9ΚΩ	100ΚΩ
marking	1000	2201	1002	4992	1003

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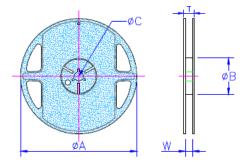


■Packaging

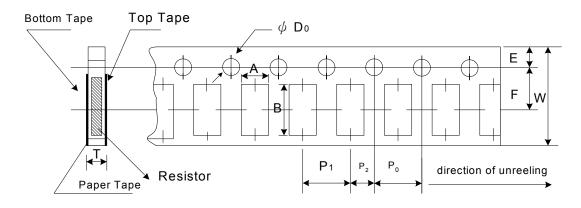
Packing Quantity & Reel Specifications

Unit:mm

Туре	ØA	ØB	øс	W	Т	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	ı
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	-



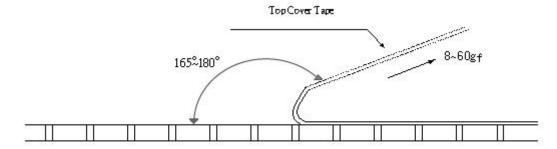
Paper Tape Specifications



Unit: mm

Type	Α	В	W	E	F	P ₀	P ₁	P ₂	ΦD ₀	Т
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



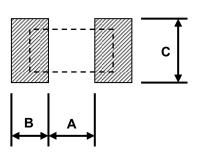
Unit: mm

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Unit: mm

■ Recommend Land Pattern



Туре	Α	В	С
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

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REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version A1	May 08, 2015	-	- Correct the element of Top Electrode.
Version A2	May 02, 2016	-	- Modify Storage Temperature Remove Material Description.
Version A3	July 19, 2016	-	 - Add Resistance Range (±0.1% and 0.25%) - Update requirements of Environmental Characteristics.

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