Data Sheet

Customer：	
Product :	High Power Thin Film Chip Resistors – ARP Series
Size:	1206
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High Power Thin Film Chip Resistors
(ARP Series)

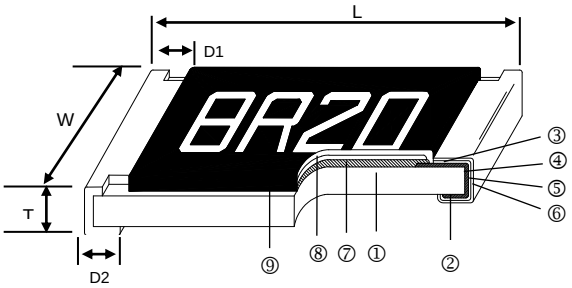
■Features

- Wider bottom terminal enabling higher power capability (short side terminal)
- Significantly larger power handling capability than existing same size resistors
- Size: 1206, Power rating: 1.0W, Resistance range: 10 ~ 100KΩ
- AEC-Q200 Compliance
- Advanced sulfur resistance verified according to ASTM B 809

■Applications

- Power source related devises
- DC motors, inverters
- Robotics, Industrial control system

■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

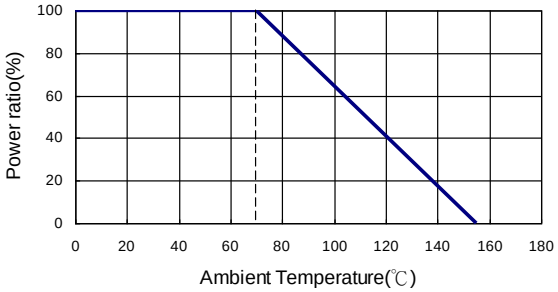
Unit: mm

Type	Size (Inch)	L	W	T	D1	D2	Weight (g) (1000pcs)
ARP06	1206	3.05±0.15	1.55±0.15	0.55±0.10	0.42±0.20	1.10±0.20	9.02

■Part Numbering

ARP	06	B	T	C		1001	N
Product Type	Dimensions (L×W)	Resistance Tolerance	Packaging Code	TCR (PPM/℃)	Power Rating	Resistance	Marking Code
	06: 1206	B: ±0.1% D: ±0.5% F: ±1%	T: Taping Reel B: Bulk	C: ±25 D: ±50	: Standard	0100: 10Ω 10R2: 10.2Ω 1000:100Ω 1001: 1KΩ 1003: 100KΩ	: Standard Marking for E96 / E24 N: No Marking

■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/℃)
					±0.1%	±0.5%	±1%	
1206	1W	-55 ~ +155°C	200V	400V	47Ω –100KΩ			±25
					47Ω –100KΩ	10Ω – 100KΩ		±50

Operating Voltage=√(P*R) or Max. operating voltage listed above, whichever is lower.
Overload Voltage=2.5*√(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

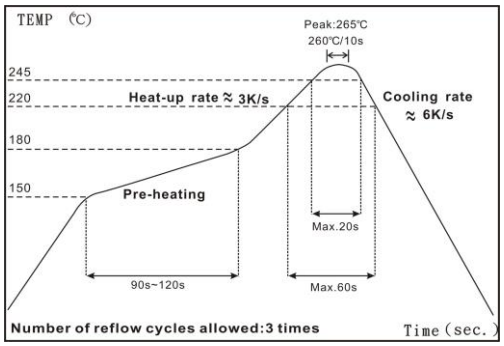
Item	Requirement	Test Method
Temperature Coefficient of Resistance (T.C.R.)	As Spec.	**MIL-STD-202 Method 304** +25/-55/+25/+125/+25°C
Short Time Overload	<47Ω △R±0.4%； ≧47Ω △R±0.2%	**JIS-C-5201-1 4.13** RCWV*2.5 or Max. overload voltage whichever is lower for 5 seconds
Insulation Resistance	>1000 MΩ	**MIL-STD-202 Method 302** Apply 100V_{DC} for 1 minute
Endurance	<47Ω △R±0.5%； ≧47Ω △R±0.25%	**MIL-STD-202 Method 108** 70±2°C, RCWV for 1000 hrs with 1.5 hrs "ON" and 0.5 hrs "OFF"
High Temperature Exposure	<47Ω △R±0.25%； ≧47Ω △R±0.1%	**MIL-STD-202 Method 108** at +155°C for 1000 hrs
Biased Humidity	<47Ω △R±0.25%； ≧47Ω △R±0.1%	**MIL-STD-202 Method 103** **1000 hrs 85℃/85%RH 10% of operating power**
Temperature Cycling	<47Ω △R±0.25%； ≧47Ω △R±0.1%	**JESD22 Method JA-104** -55℃ to +125℃, 1000 cycles
Bending Strength (Board Flex)	ΔR±0.1%	**JIS-C-5201-1 4.33** Bending once for 60 seconds Bending displacement: 0805 sizes: 3 mm

Solderability	95% min. coverage	**JIS-C-5201-1 4.17** **IEC-60115-1 4.17** 245±5°C for 3 seconds
Resistance to Soldering Heat	<47Ω △R±0.25%； ≧47Ω △R±0.1%	**JIS-C-5201-1 4.18** **IEC-60115-1 4.18** 260±5°C for 10 seconds
Terminal strength	No broken	**AEC-Q200-006** Force of 1.8kg for 60 seconds.
Mechanical Shock	ΔR±0.1%	**MIL-STD-202 Method 213** Wave Form: Tolerance for half sine shock pulse. Peak value is 100g's. Normal duration (D) is 6.
Vibration	ΔR±0.1%	**MIL-STD-202 Method 204** 5 g's for 20 min., 12 cycles each of 3 orientations, 10-2000 Hz
ESD	ΔR±0.5%	**AEC-Q200-002** Human body model 1206 : 1KV
Resistance to solvents	Marking Unsmeared	**MIL-STD-202 Method 215** Add Aqueous wash chemical - OKEM Clean or equivalent. Do not use banned solvents.
Flammability	No ignition of the tissue paper or scorching or the pinewood board	**UL-94** V-0 or V-1 are acceptable. Electrical test not required.
Sulfur Test	ΔR±1%	**ASTM-B-809-95 Modified** 105±2 °C no power rating for 750 hrs.

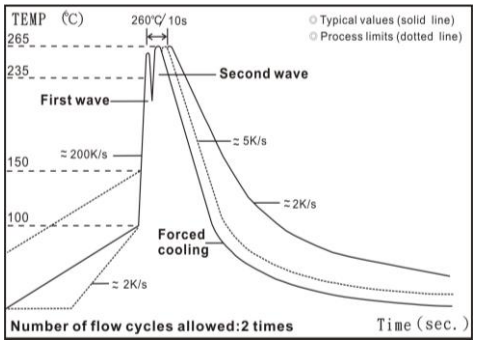
RCWV(Rated continuous working voltage)= √(P*R) or Max. Operating voltage whichever is lower

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

■Soldering Condition



IR Reflow Soldering



Wave Soldering (Flow Soldering)

(1) Time of IR reflow soldering at maximum temperature point 260°C：10s

(2) Time of wave soldering at maximum temperature point 260°C：10s

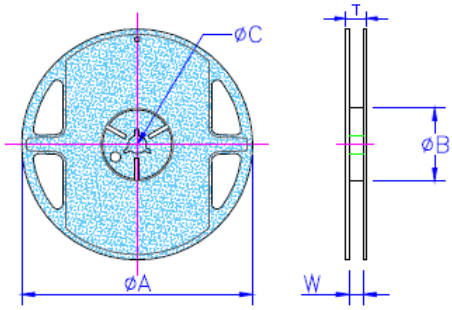
(3) Time of soldering iron at maximum temperature point 410°C：5s

■Marking

1206 4digit marking Example

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

■Packaging

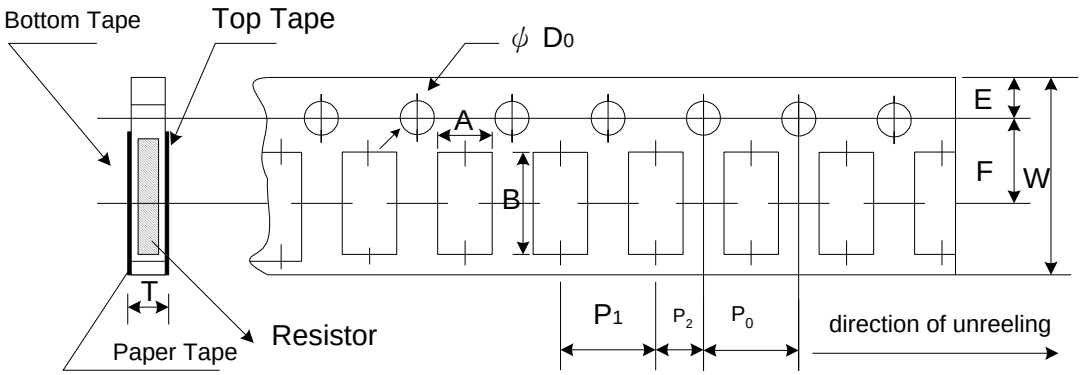


Packing Quantity & Reel Specifications

Unit :mm

Type	ØA	ØB	ØC	W	T	Paper Tape (EA)	Emboss Plastic Tape (EA)
ARP06	178.0±1.0	60.0+1.0	13.5±0.7	9.5±1.0	11.5±1.0	5,000	-

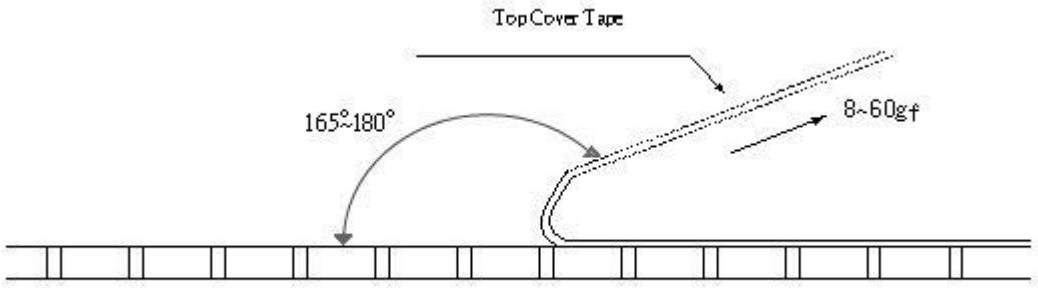
Paper Tape Specifications



Unit: mm

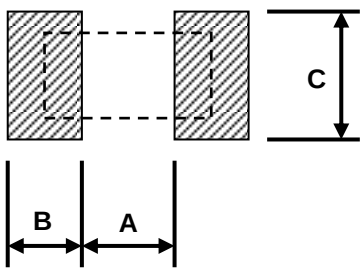
Type	A	B	W	E	F	P_0	P_1	P_2	ΦD_0	T
ARP06	2.00±0.05	3.55±0.05	8.00±0.10	1.75±0.05	3.5±0.05	4.00±0.10	4.00±0.10	2.00±0.05	1.55±0.05	0.75±0.05

■ 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



■Recommend Land Pattern

Unit: mm



Type	A	B	C
1206	0.8	1.90	1.80

■ Please design the land pattern considering heat dissipation to the board so that the terminal temperature will not exceed 155℃.