Innovative Service Around the Globe YAGEO

DATA SHEET

CARBON FILM RESISTORS

Professional, Flameproof

FC0 Series

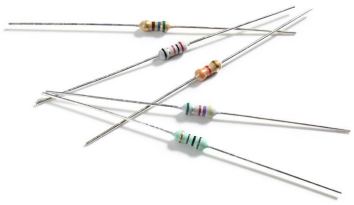
±2%, ±5%

0.4W AND 0.6W

RoHS compliant & Halogen Free

YAGEO

Product specification – August 13, 2021 V.0



APPLICATIONS

- All general purpose applications
- Power applications

FEATURES

- Wide resistance range
- Miniature & high power rating
- High stability
- Flameproof coating equivalent to UL-94V-0
- RoHS compliant & halogen-free

ORDERING INFORMATION

Part number of the professional, flameproof carbon film resistor are identified by the series, power rating, tolerance, packing, temperature coefficient, forming and resistance value.

PART NUMBER

FC0	204	J	T	-	52-	100R
(1)	(2)	(3)	(4)	(5)	(6)	(7)

(1) SERIES

FC0 Series

(2) POWER RATING

204 = 0.4W
207 = 0.6W

(3) TOLERANCE

G = ±2%
J = ±5%

(4) PACKAGING

R = Reel Pack
B = Bulk
T = Box Pack

(5) TEMPERATURE COEFFICIENT OF RESISTANCE

- = Based on spec , See page 3 Table 2

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(6) FORMING

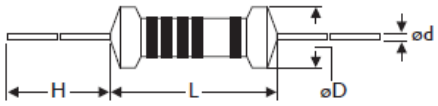
26- = 26mm
52- = 52.4mm
M = M-Type Forming
MT = MT Type Forming
FT = FT Type Forming
PN = PANAsert
AV = AVIsert

(7) RESISTANCE VALUE

E24 Series
Example:
100R = 100Ω, 10K = 10,000Ω, 1M = 1,000,000Ω

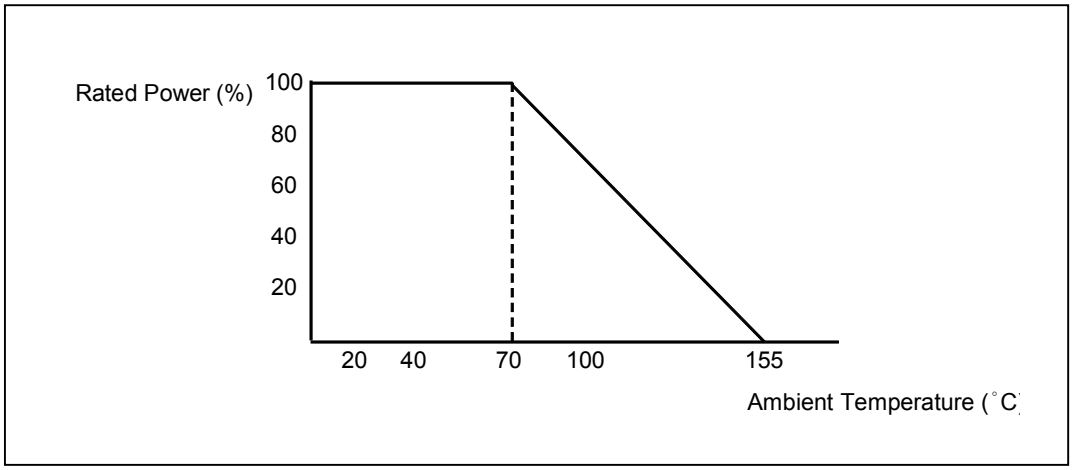
DIMENSIONS

Unit: mm



Miniature	L	ψD	H	ψd
FC0204	3.4 ± 0.3	1.9 ± 0.2	28 ± 2.0	0.45 ± 0.05
FC0207	6.3 ± 0.5	2.4 ± 0.2	28 ± 2.0	0.55 ± 0.05

DERATING CURVE



ELECTRICAL CHARACTERISTICS

TABLE 1

CHARACTERISTICS	FC0204	FC0207
Power Rating at 70 °C	0.4W	0.6W
Maximum Working Voltage	200V	300V
Maximum Overload Voltage	400V	600V
Voltage Proof on Insulation	300V	500V
Resistance Range	1Ω ~10M for E24 series value	
Operating Temp. Range	- 55°C to +155°C	
Temperature Coefficient	See table 2	

Note: For resistance value out of above range is by request.

TABLE 2 TEMPERATURE COEFFICIENT

TYPE	Temp. Coefficient ppm/°C		
	Under 100KΩ	100K ~ 1MΩ	1M ~ 10MΩ
FC0204 FC0207	-500 ~ +300	-700~0	-1500~0

TEST AND REQUIRMENTS

TEST	TEST METHOD	PROCEDURE	APPRAISE
Short Time Overload	IEC 60115-1 4.13	2.5 times RCWV for 5 sec.(Not more than maximum overload voltage)	±0.75%+0.05Ω
Voltage Proof on Insulation	IEC 60115-1 4.7	In V-Block for 60 sec. test voltage as above table	No Breakdown
Temperature Coefficient	IEC 60115-1 4.8	Between -55°C to +155°C	By Type
Insulation Resistance	IEC 60115-1 4.6	In V-Block for 60 sec.	>1,000MΩ
Solderability	IEC 60115-1 4.17	245±5°C for 3±0.5 Sec.	95% Min. coverage
Solvent Resistance of Marking	IEC 60115-1 4.30	IPA for 5±0.5 Min. with ultrasonic	No deterioration of coatings and markings
Robustness of Terminations	IEC 60115-1 4.16	Direct load for 10 Sec. in the direction of the terminal leads	≥2.5Kg(24.5N)
Periodic-pulse Overload	IEC 60115-1 4.39	4 times RCWV(or Umax., whichever less) 10,000 cycles (1 Sec. on, 25 Sec.off)	±1.0%+0.05Ω
Damp Heat Steady State	IEC 60115-1 4.24	40±2°C,90-95% RH for 56 days, loaded with 0.1 times RCWV(or Umax., whichever less)	±3.0%+0.05Ω
Endurance at 70°C	IEC 60115-1 4.25	70±2°C at RCWV(or Umax., whichever less) for 1,000 Hr.(1.5 Hr.on,0.5 Hr. off)	±3.0%+0.05Ω
Temperature Cycling	IEC 60115-1 4.19	-55°C ➔ Room Temp. ➔ +155°C ➔ Room Temp.(5 cycles)	±1.0%+0.05Ω
Resistance to Soldering Heat	IEC 60115-1 4.18	260±3°C for 10±1 Sec., immersed to a point 3±0.5mm from the body	±1.0%+0.05Ω
Accidental Overload Test	IEC 60115-1 4.26	4 times RCWV(or Umax., whichever less) for 1 Min.	No evidence of flaming or arcing

Note:

RCWV (Rated Continuous Working Voltage):

The DC or AC (rms) continuous working voltage corresponding to the rated power is determined by the following formula:

$V=\sqrt{(P \times R)}$
or max. working voltage whichever is less

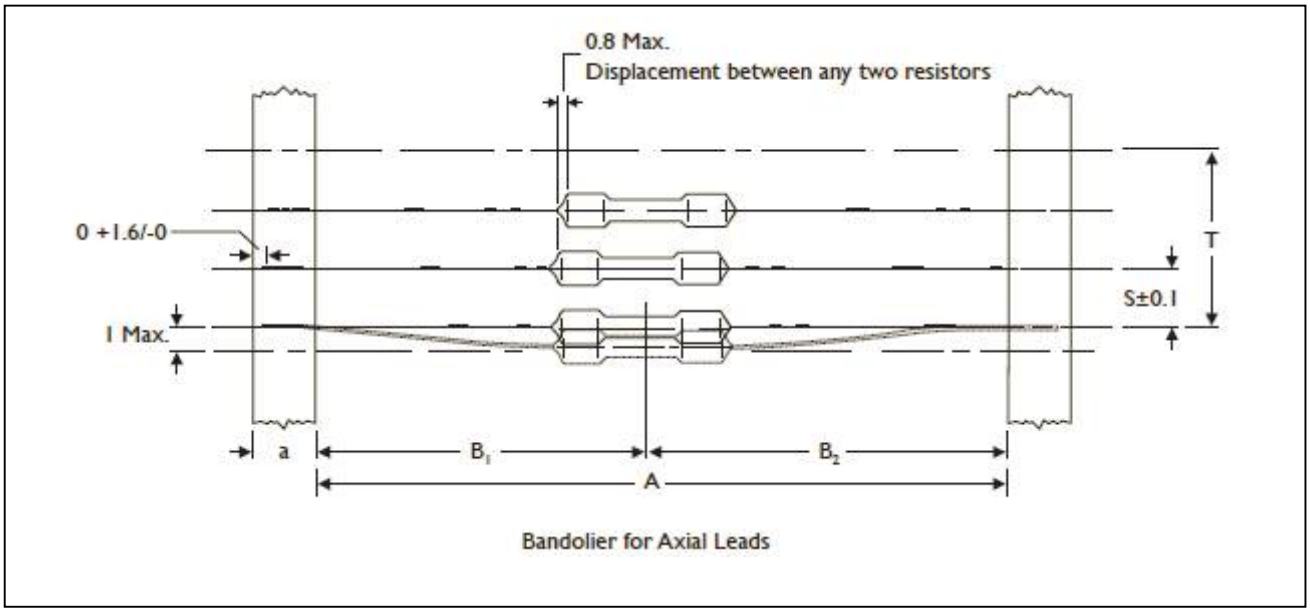
Where

V=Continuous rated DC or
AC (rms) working voltage (V)

P=Rated power (W)

R=Resistance value (Ω)

AXIAL / REEL TAPE SPECIFICATION

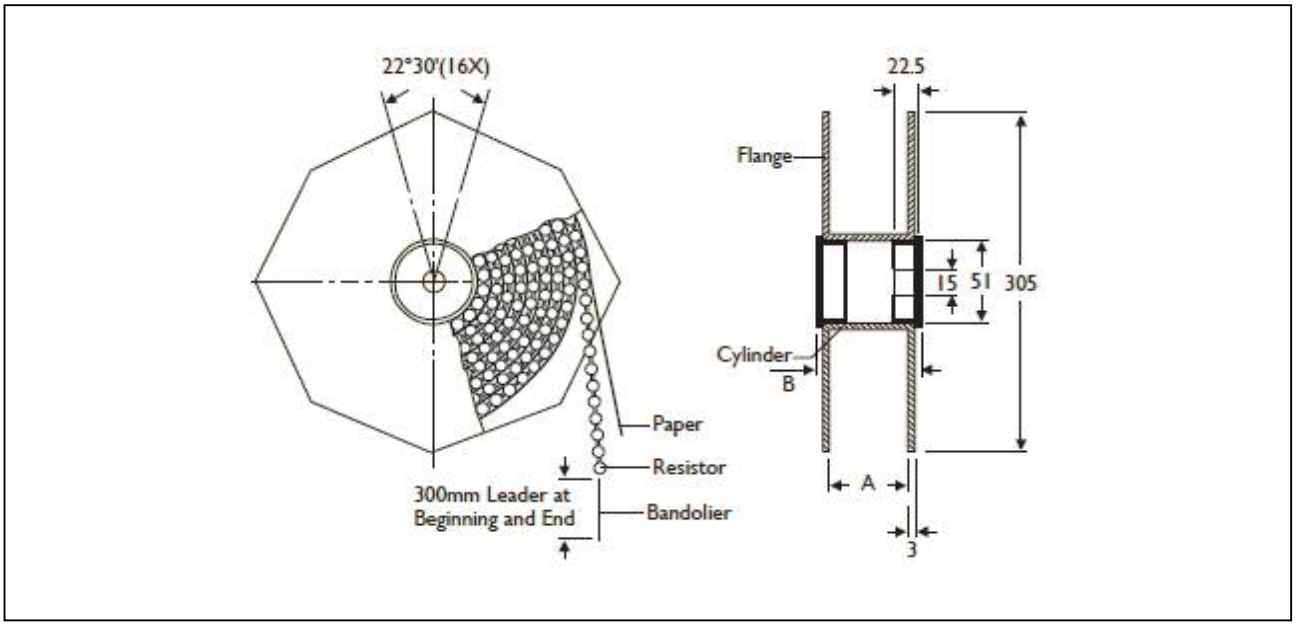


Bandolier for Axial Leads

Unit: mm

Miniature	a	A	B1-B2 (Max.)	S (spacing)	T (max. deviation of spacing)
FC0204	6 ± 0.5	52.4 ± 1.5	1.2	5	1 mm per 10 spacing, 0.5 mm per 5 spacing
		26.0 ± 1.5	1		
FC0207	6 ± 0.5	52.4 ± 1.5	1.2	5	
		26.0 ± 1.5	1		

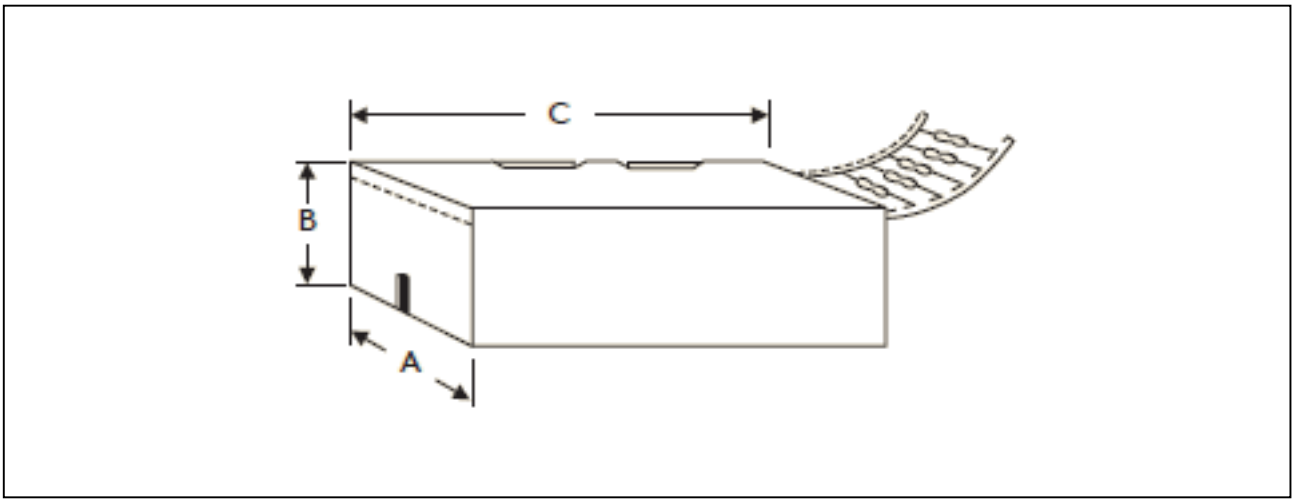
TAPE ON REEL PACKING



TYPE Unit: mm/piece

Miniature	Across Flange(A)	B	Quantity Per Reel
FC0204	66.5	75.5	5,000
FC0207	66.5	75.5	5,000

TAPE ON BOX PACKING



TYPE DIMENSIONS Unit: mm/piece

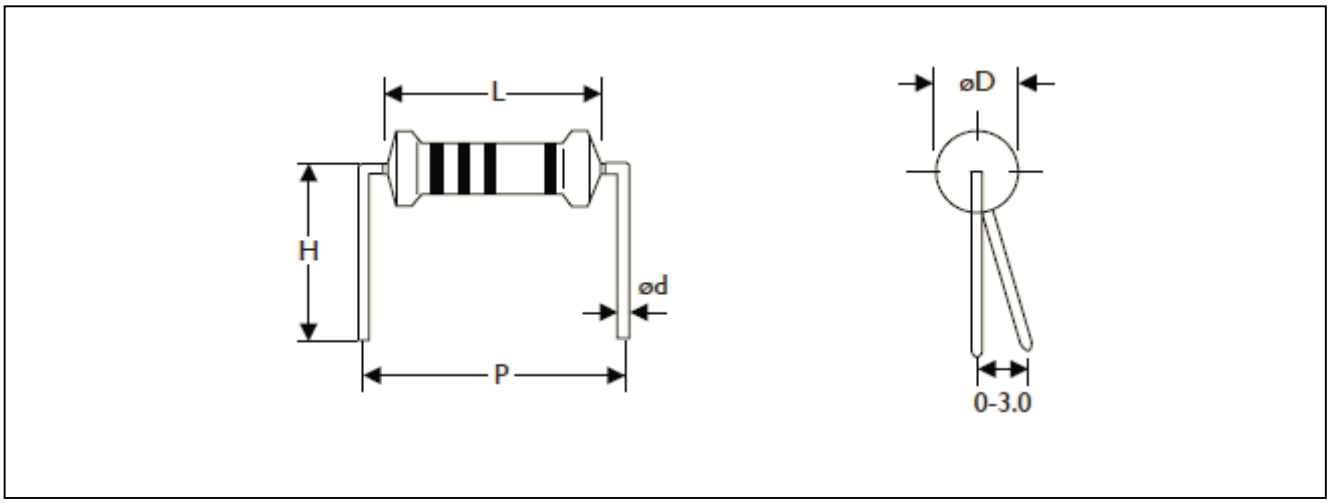
Miniature	A	B	C	Quantity Per Box
FC0204	48	102	255	5,000
FC0204	81	70	260	5,000
FC0207	48	102	255	5,000
FC0207	81	104	260	5,000

BULK PACKING

Miniature	Piece/Per Inner Box	Bag/Per Inner Box	Piece Per Bag
FC0204	10,000	10	1,000
FC0207	10,000	10	1,000

FORMING

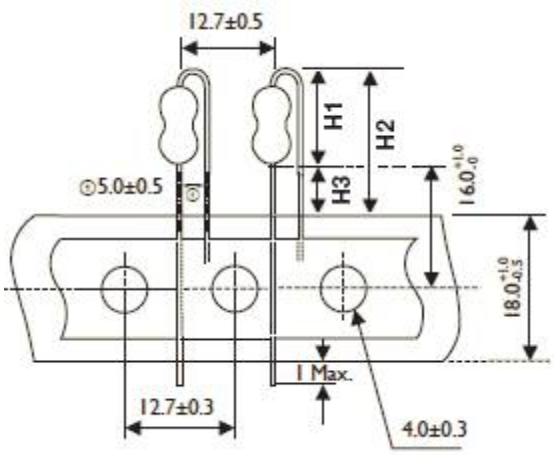
M TYPE



TYPE DIMENSIONS Unit: mm

Miniature	**L**	**ψD**	**ψd**	**P**	**H**
FC0204	3.4± 0.3	1.9 ± 0.2	0.45 ± 0.05	6.0 ± 1	10.0 ±1
FC0207	6.3 ± 0.5	2.4 ± 0.2	0.55 ± 0.05	10.0 ± 1	10.0 ± 1

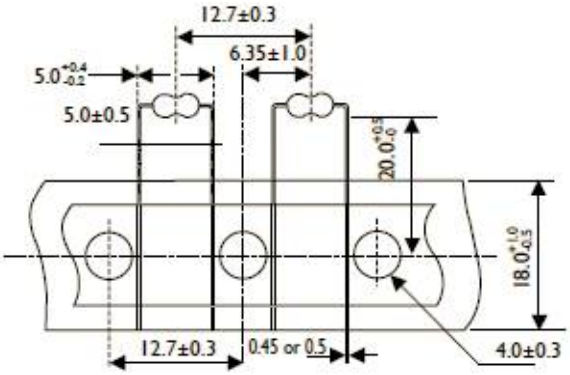
FT TYPE (Taping Pack)



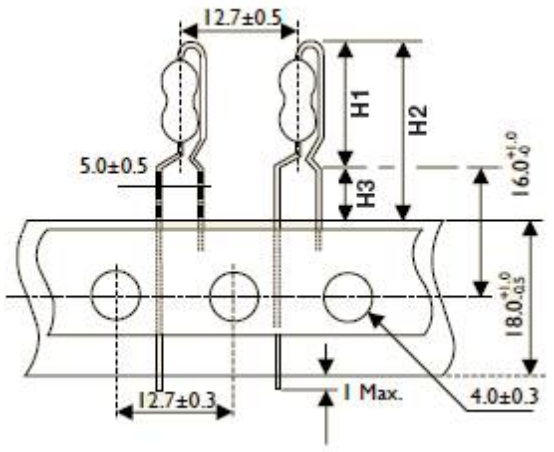
TYPE	DIMENSIONS		Unit: mm
Miniature	**H1 Max.**	**H2 Max.**	**H3 Max.**
FC0207	10	18.5	8.5

MT TYPE (Taping Pack)

Rated Watts : 0.4W

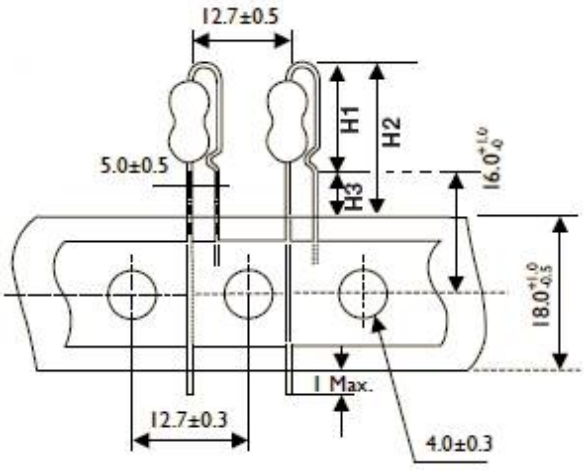


PN TYPE (Taping Pack)



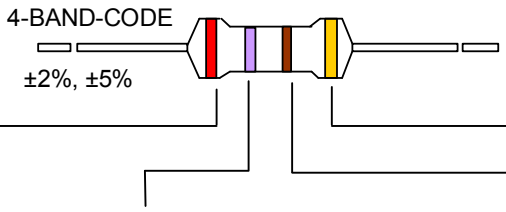
TYPE	DIMENSIONS		Unit: mm
Miniature	**H1 Max.**	**H2 Max.**	**H3 Max.**
FC0207	13	21.5	8.5

AV TYPE (Taping Pack)



TYPE	DIMENSIONS		Unit: mm
Miniature	**H1 Max.**	**H2 Max.**	**H3 Max.**
FC0207	11.5	20	8.5

MARKING



COLOR	1st BAND	2nd BAND	3rd BAND	MULTIPLIER	TOLERANCE
BLACK	0	0	0	1Ω	
BROWN	1	1	1	10Ω	
RED	2	2	2	100Ω	± 2% (G)
ORANGE	3	3	3	1KΩ	
YELLOW	4	4	4	10KΩ	
GREEN	5	5	5	100K	
BLUE	6	6	6	1MΩ	
VIOLET	7	7	7	10MΩ	
GREY	8	8	8	0.001Ω	
WHITE	9	9	9	0.0001Ω	
GOLD				0.1Ω	± 5 % (J)
SILVER				0.01Ω	

REVISION HISTORY

REVISION	DATE	CHANGE NOTIFICATION	DESCRIPTION
Version 0	Aug.2, 2021	-	- First issue of this specification

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