Innovative Service Around the Globe YAGEO

DATA SHEET

METAL FILM RESISTORS

High Power, Flameproof

FMP Series

±1%, ±5%

1/2W to 3W

RoHS compliant & Halogen Free

YAGEO

Product specification – December 10, 2025 V.8

APPLICATIONS

- All general purpose applications
- Power applications

FEATURES

- Ultra miniature size
- Wide resistance range
- High power rating
- High stability
- PPAP ready (FMP-50)
- Flameproof coating equivalent to UL94V-0
- RoHS compliant & halogen-free

ORDERING INFORMATION

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

PART NUMBER

FMP	200	F	T	F	52-	100R
(1)	(2)	(3)	(4)	(5)	(6)	(7)

(1) SERIES

FMP Series

(2) POWER RATING

-50 = 1/2W	3WS = 3W
100 = 1W	300= 3W
200 = 2W	

(3) TOLERANCE

F = ±1%	J = ±5%

(4) PACKAGING

R = Reel Pack	B = Bulk
T = Box Pack	

(5) TEMPERATURE COEFFICIENT OF RESISTANCE

E = ±50ppm/°C	- = Based on spec.
F = ±100ppm/°C	

(6) FORMING

26- = 26mm	FK = FK Type Forming
52- = 52.4mm	FFK = FFK Type Forming
73- = 73mm	FKK = FKK Type Forming
52E = 52.4mm, Φd=0.70±0.05mm	FT = FT Type Forming
52J = 52.4mm, Φd=0.8±0.05mm	MT = MTsert
52G= 52.4mm, Φd≧0.6mm	PN = PANAsert
M = M Type Forming	AV = AVIsert
F = F Type Forming	

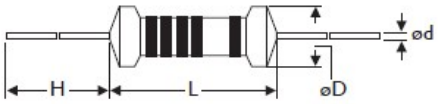
Note:26mm, 52.4mm and 73mm represent dimension A of the axial type, please refer to the category of AXIAL/REEL TAPE SPECIFICATION for the detail.

(7) RESISTANCE VALUE

E24 & E96 Series
Example:
100R = 100Ω, 10K = 10,000Ω, 1M = 1,000,000Ω

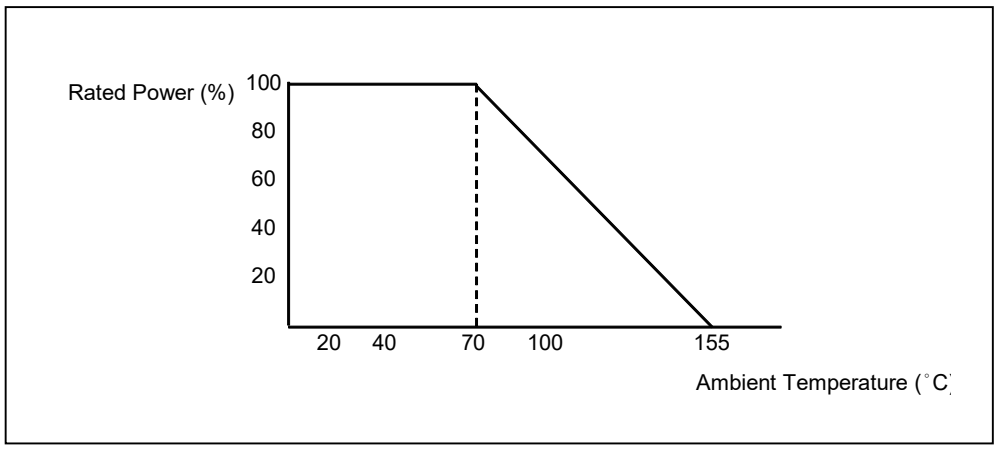
DIMENSIONS

Unit: mm



Ultra Miniature	L	ψD	H	ψd
FMP-50	3.4 ± 0.3	1.9 ± 0.2	28 ± 2.0	0.45 ±0.05
FMP100	6.3 ± 0.5	2.4 ± 0.2	28 ± 2.0	0.55 ±0.05
FMP200	9.0 ± 0.5	3.9 ± 0.3	26 ± 2.0	0.55 ±0.05
FMP3WS	11.5 ± 1.0	4.5 ± 0.5	35 ± 2.0	0.8±0.05
FMP300	15.5± 1.0	5.0 ± 0.5	33 ± 2.0	0.8±0.05

DERATING CURVE



ELECTRICAL CHARACTERISTICS

CHARACTERISTICS	FMP-50	FMP100	FMP200	FMP3WS	FMP300
Power Rating at 70 °C	1/2W	1W	2W	3W	3W
Maximum Working Voltage	200V	350V	500V	500V	750V
Maximum Overload Voltage	400V	600V	700V	700V	1000V
Voltage Proof on Insulation	300V	500V	500V	500V	500V
Resistance Range	1Ω ~ 4M7Ω for E24 & E96 series value				
Operating Temp. Range	- 55°C to +155°C				
Temperature Coefficient	±100ppm/°C , ±50ppm/°C(FMP-50 & FMP100 types, R ≥ 10RΩ)				

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

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)	± 1.0 % + 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)	±2.0%+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)	±2.0%+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	±0.25%+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

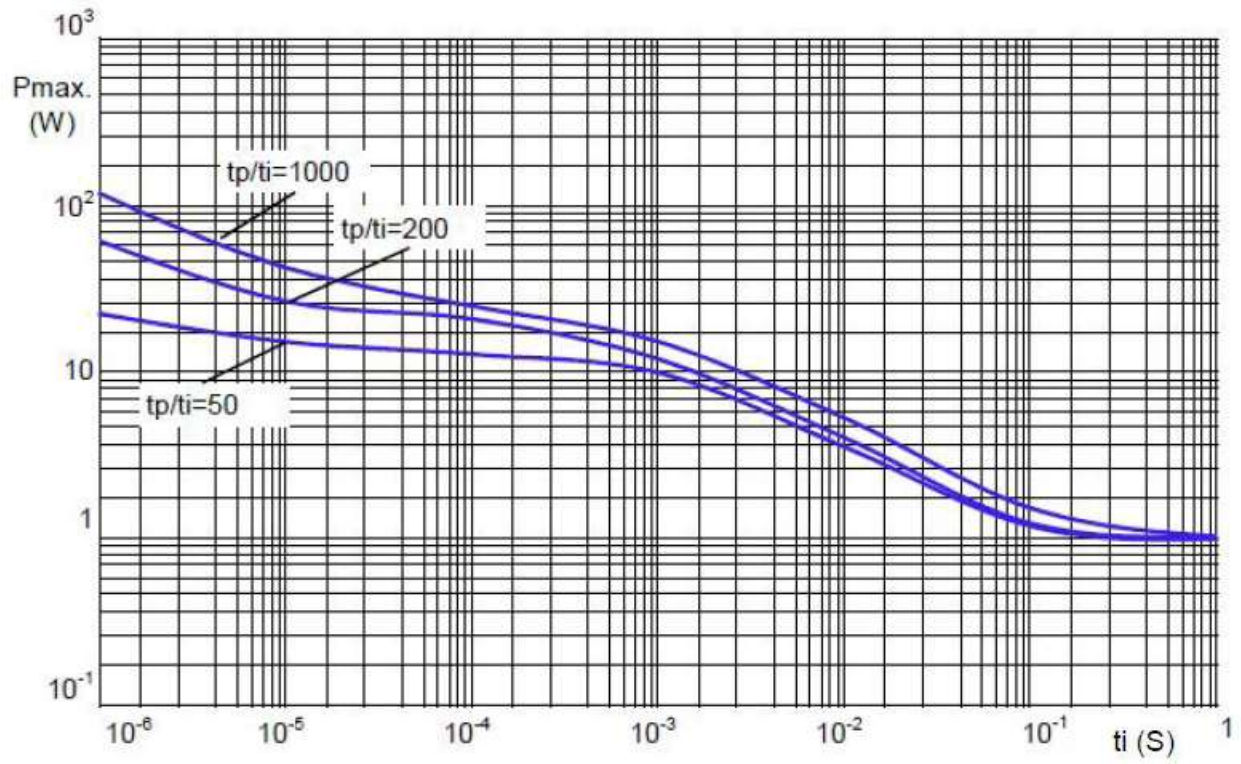
Where

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

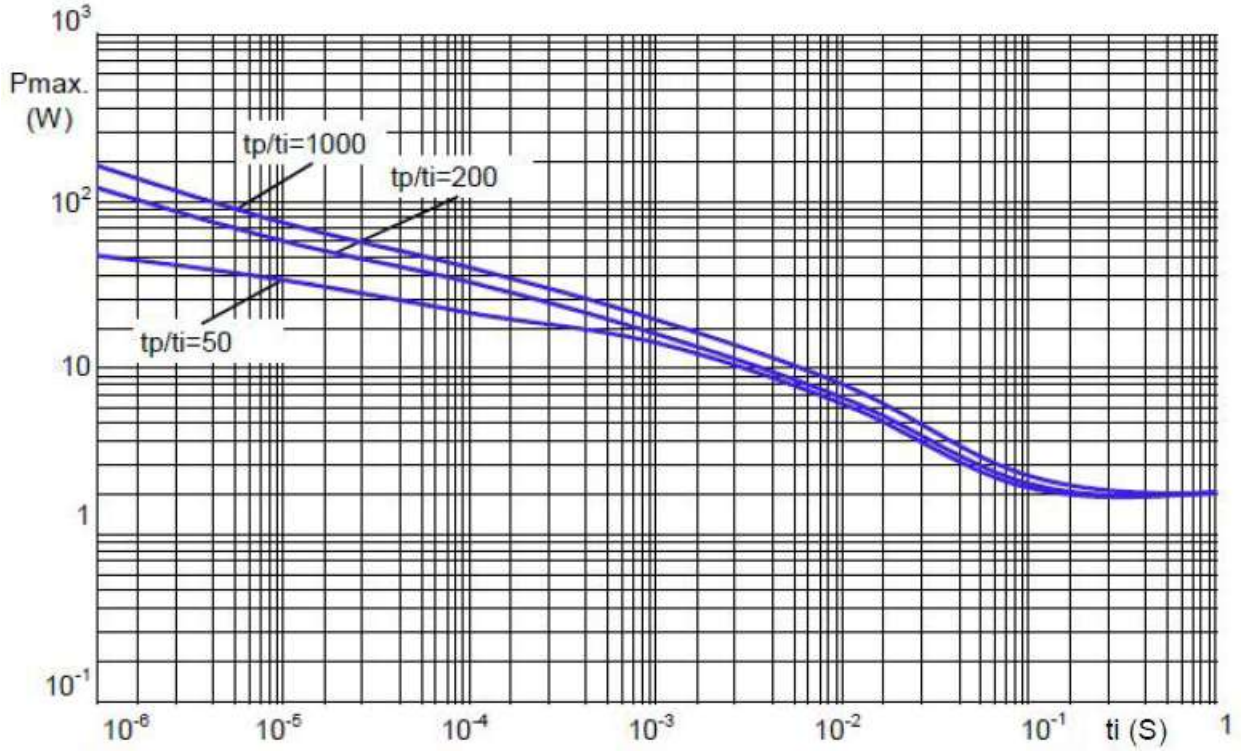
P=Rated power (W)

R=Resistance value (Ω)

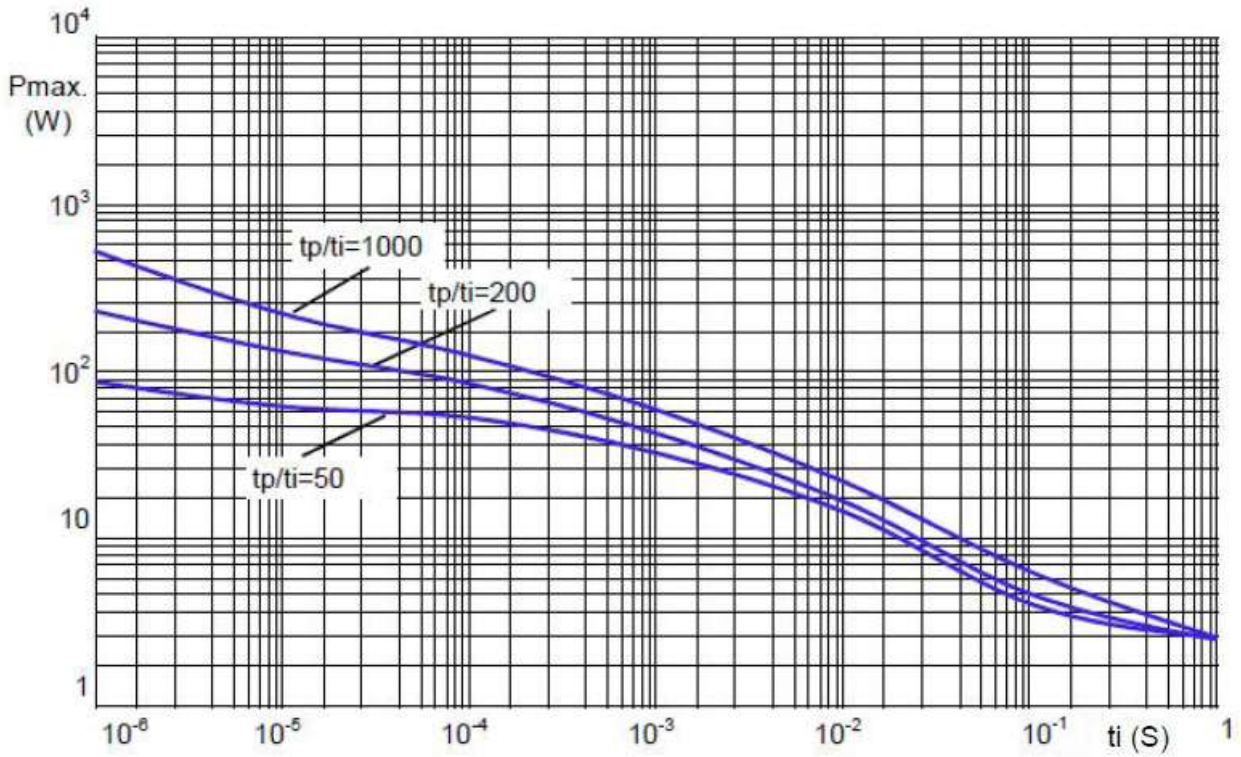
PULSE DIAGRAMS



FMP100 Series: Pmax.: Maximum permissible peak pulse power
ti: Pulse duration
tp: Pulse repetition time

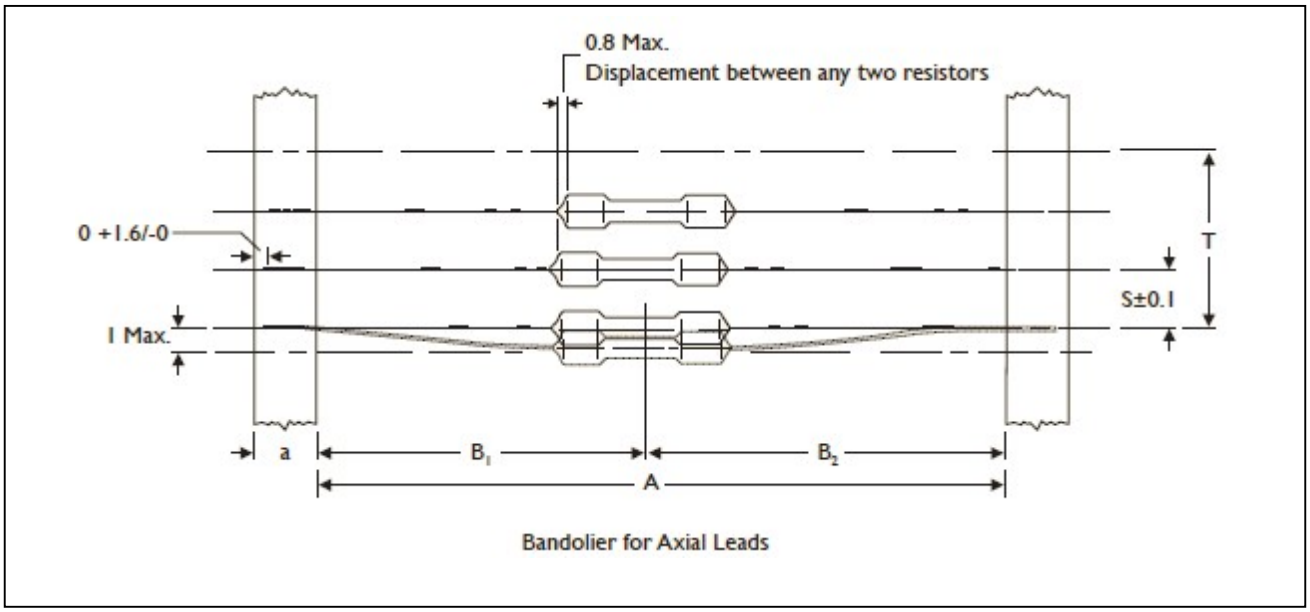


FMP200 Series: Pmax.: Maximum permissible peak pulse power
ti: Pulse duration
tp: Pulse repetition time



FMP300 Series: Pmax.: Maximum permissible peak pulse power
ti: Pulse duration
tp: Pulse repetition time

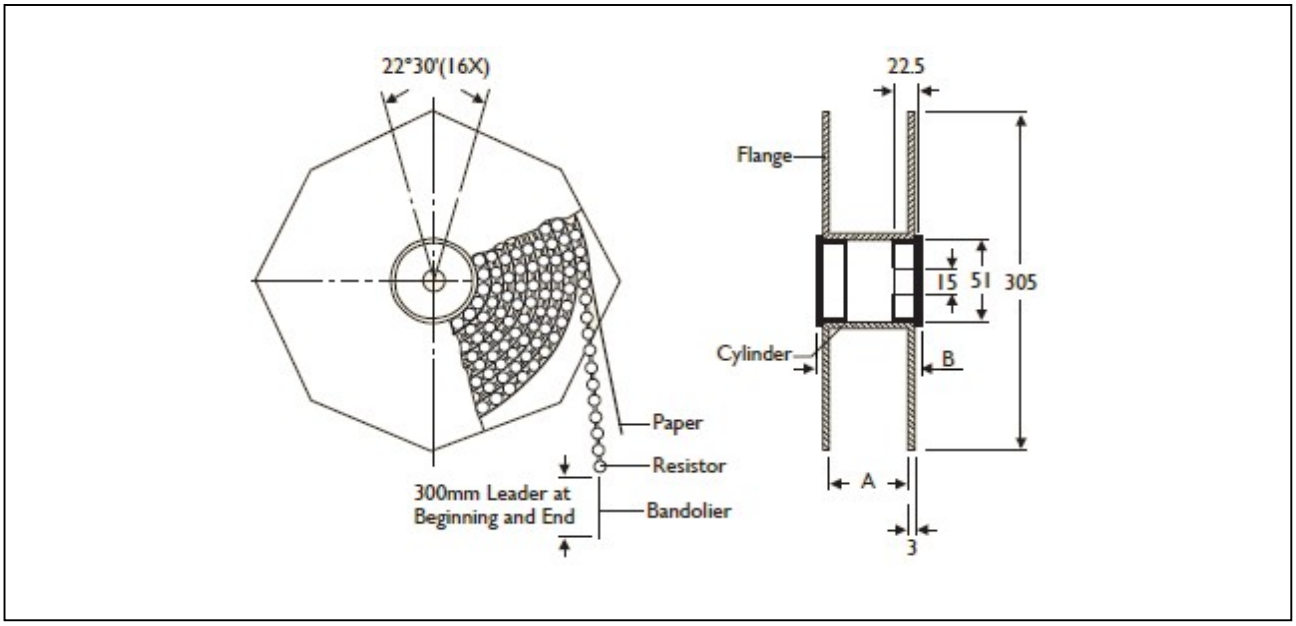
AXIAL / REEL TAPE SPECIFICATION



Unit: mm

Ultra Miniature	a	A	B1-B2 (Max.)	S (spacing)	T (max. deviation of spacing)
FMP-50	6 ± 0.5	52.4 ± 1.5	1.2	5	0.5 mm per 5 spacing 1 mm per 10 spacing
		26.0 ± 1.5	1		
FMP100 FMP200	6 ± 0.5	52.4 ± 1.5	1.2	5	
FMP3WS	6 ± 0.5	73.0 ± 1.5	1.5	5	
		52.4 ± 1.5	1.2		
FMP300	6 ± 0.5	73.0 ± 1.5	1.5	10	
		52.4 ± 1.5	1.2		

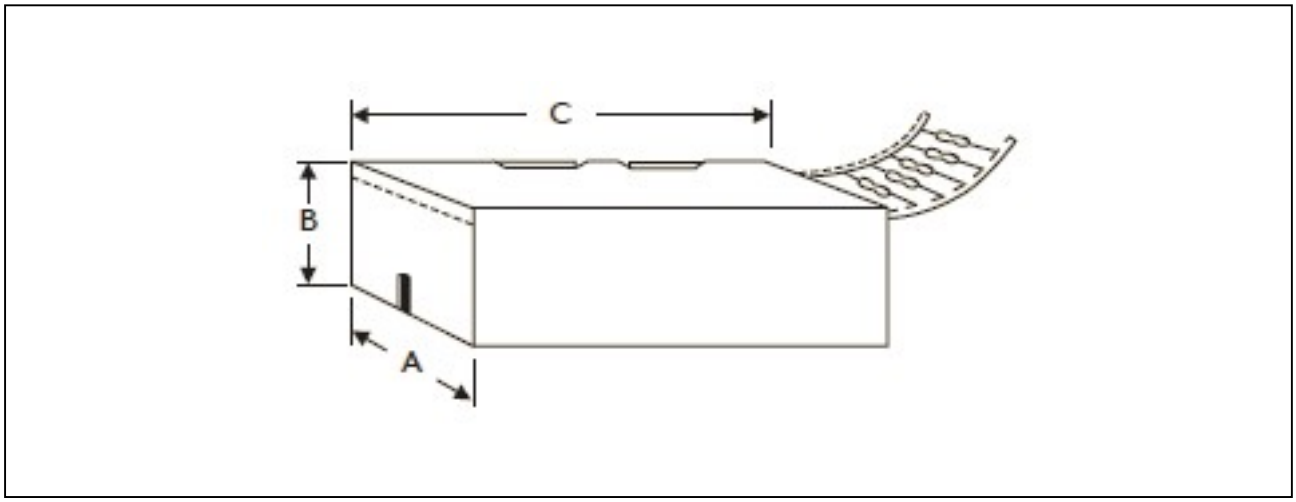
TAPE ON REEL PACKING



TYPE Unit: mm/piece

Ultra Miniature	Across Flange(A)	B	Quantity Per Reel
FMP-50	66.5	75.5	5,000
FMP100	66.5	75.5	5,000
FMP200	66.5	75.5	2,500
FMP3WS	87	96	2,000
FMP300	87	96	1,000

TAPE ON BOX PACKING



TYPE DIMENSIONS Unit: mm/piece

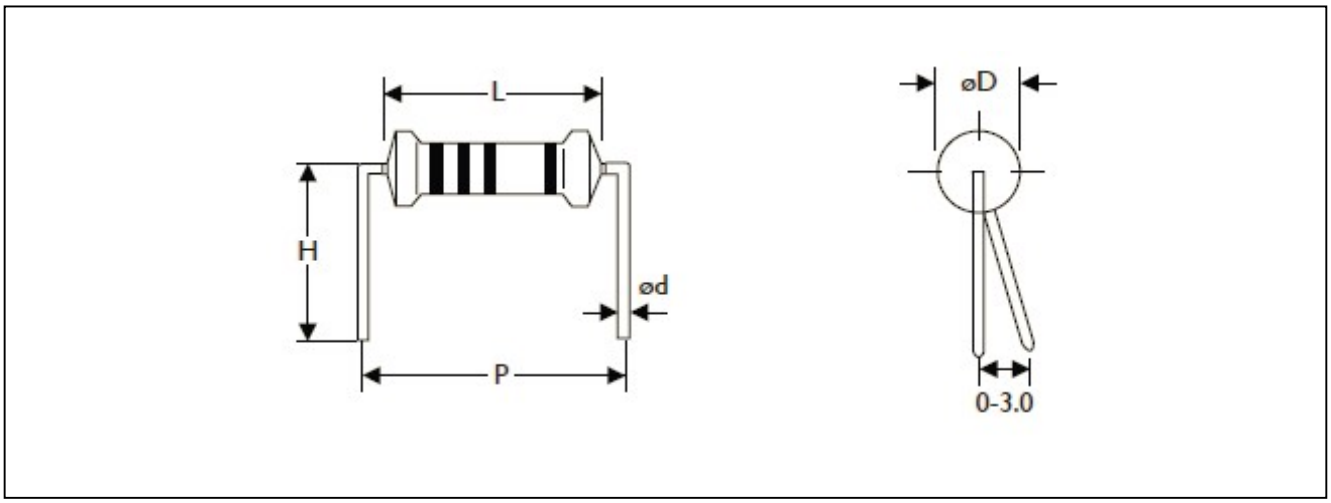
Ultra Miniature	A	B	C	Quantity Per Box
FMP-50	81	70	260	5,000
FMP100	81	104	260	5,000
FMP200	73	45	258	1,000
FMP3WS	103	78	260	1,000
FMP300	103	94	260	1,000
FMP300	81	91	260	1,000

BULK PACKING

Ultra Miniature	Piece/Per Inner Box	Bag/Per Inner Box	Piece Per Bag
FMP-50	10,000	10	1,000
FMP100	10,000	10	1,000
FMP200	5,000	5	1,000
FMP3WS	2,000	4	500
FMP300	1,000	2	500

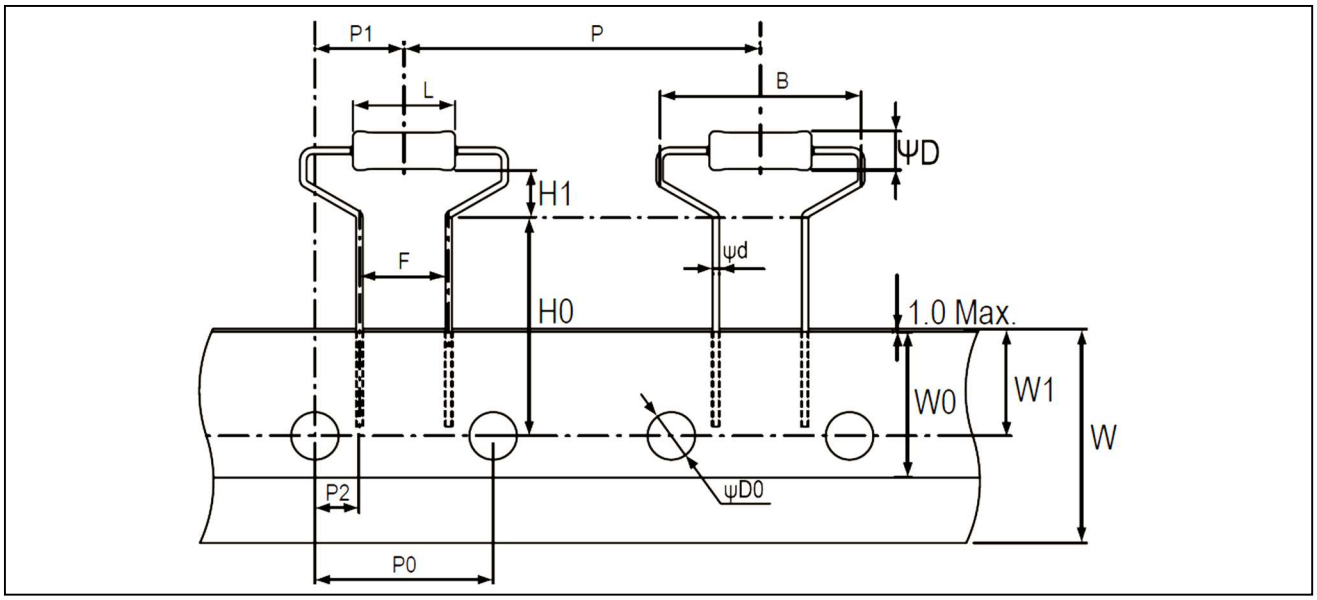
FORMING

M TYPE



TYPE	DIMENSIONS				Unit: mm
Ultra Miniature	**L**	**ψD**	**ψd**	**P**	**H**
FMP-50	3.4± 0.3	1.9 ± 0.2	0.45 ± 0.05	6.0 ± 1	10.0 ±1
FMP100	6.3 ± 0.5	2.4 ± 0.2	0.55 ± 0.05	10.0 ± 1	10.0 ± 1
FMP300	15.5 ± 1.0	5.0± 0.5	0.8 ± 0.05	20.0 ± 1	15.0 ± 1

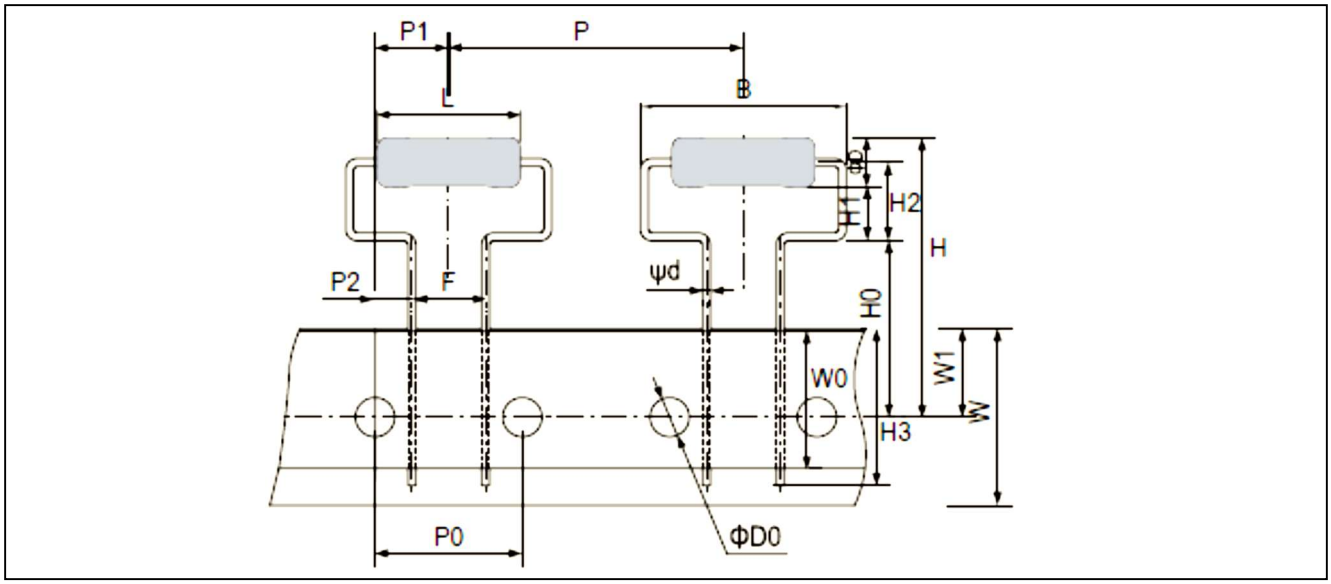
MHA TYPE



TYPE DIMENSIONS Unit: mm

Miniature	L	ψD	ψd	B	H0	HI	P	P0
	9.0±0.5	3.9±0.3	0.55±0.05	17.5Max	19.0±1.0	4.0±1.0	30.0±1.0	15.0±0.3
FMP200	**P1**	**P2**	**F**	**W**	**W0**	**W1**	**ΨD0**	
	7.5±1.0	3.75±0.5	7.5±0.5	18.0±0.5	5.0Min	9.0±0.5	4.0±0.2	

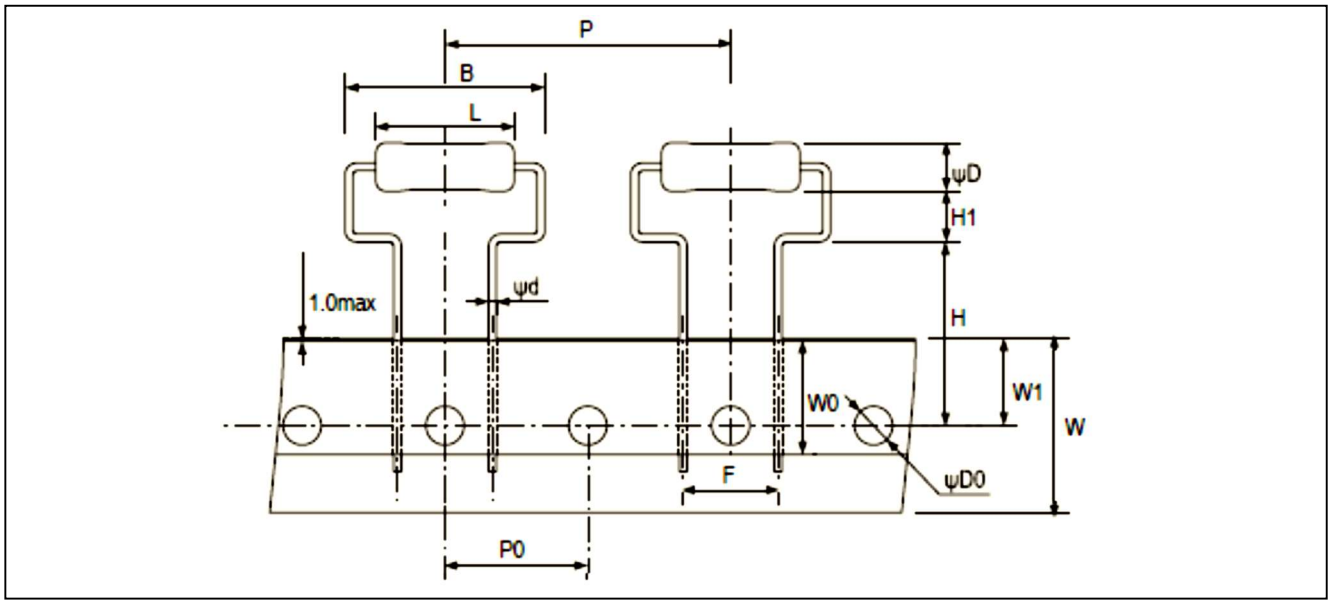
MHB TYPE



TYPE DIMENSIONS Unit: mm

Miniature	L	ψD	ψd	B	H	H0	HI	H2	H3
	15.5±1.0	5.0±0.5	0.8±0.05	21.0Max.	30Max.	18.0±1.0	5.5(Ref.)	8.0±1.5	16Max.
FMP300	**P**	**P0**	**PI**	**P2**	**F**	**W**	**W0**	**W1**	**ΨD0**
	30.0±1.0	15.0±0.3	7.5±1.0	3.75±0.8	7.5±0.5	18.0±0.5	5.0Min.	9.0±0.5	4.0±0.3

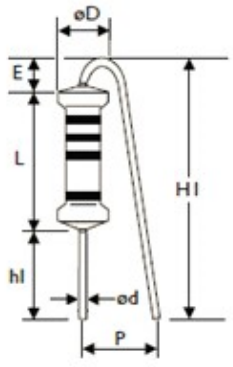
MHC TYPE



TYPE DIMENSIONS Unit: mm

Miniature	L	ψD	ψd	B	H	Hl	P	P0
	15.5±1.0	5.0±0.5	0.8±0.05	21.0Max.	19.0±1.0	5.25±1.0	30.0±1.0	15.0±0.3
FMP300	**F**	**W**	**W0**	**W1**	**ΨD0**			
	10.0±0.5	18.0±0.5	5.0Min.	9.0±0.5	4.0±0.2			

F TYPE



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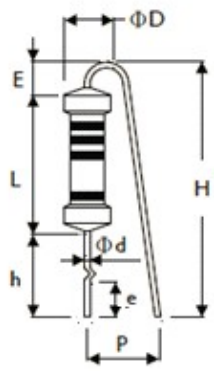
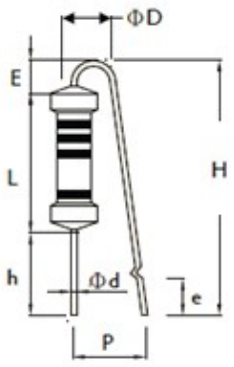
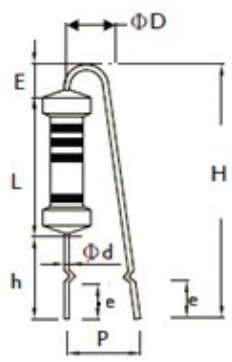


FFK TYPE



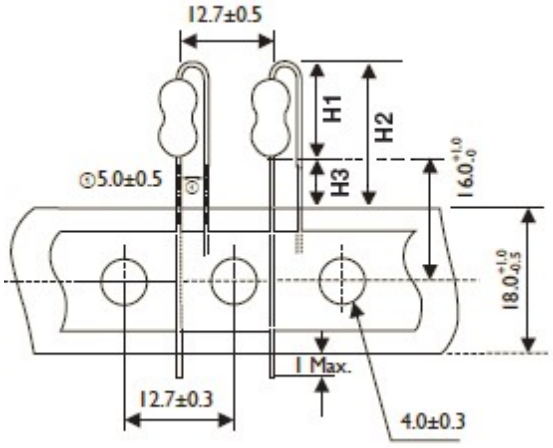
FKK TYPE



TYPE DIMENSIONS Unit: mm

Ultra Miniature	L	ψD	ψd	P	h	H Max.	hl	Hl Max.	E Max.	e
FMP200	9.0±0.5	3.9±0.3	0.55±0.05	6±1	8±1	22	5± 1	18.5	3.5	3.5±1
FMP300	15.5±1	5.0±0.5	0.8±0.05	8±1	8±1	28	5± 1	25	3.5	3.5±1

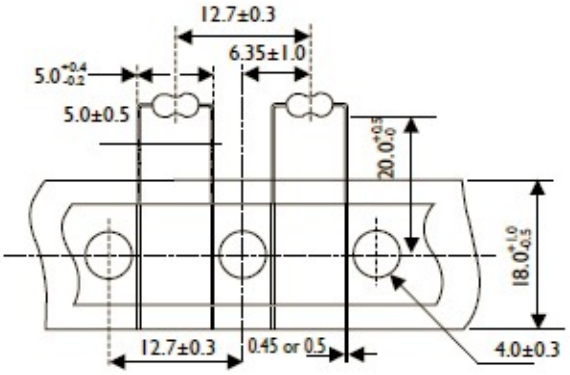
FT TYPE (Taping Pack)



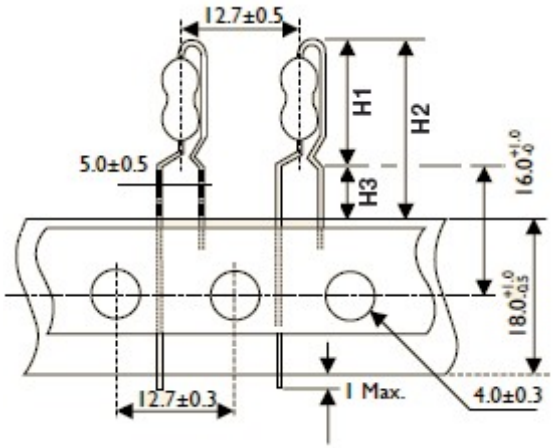
TYPE	DIMENSIONS		Unit: mm
Ultra Miniature	**H1 Max.**	**H2 Max.**	**H3 Max.**
FMP100	10	18.5	8.5
FMP200	13	21.5	8.5
FMP3WS	16	24.5	8.5

MT TYPE (Taping Pack)

Rated Watts : 0.5W

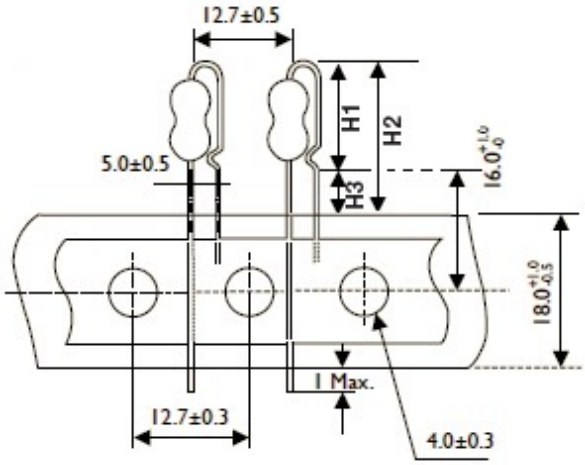


PN TYPE (Taping Pack)



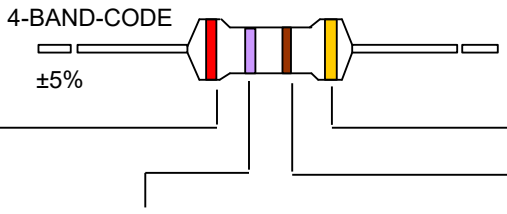
TYPE	DIMENSIONS		Unit: mm
Ultra Miniature	**H1 Max.**	**H2 Max.**	**H3 Max.**
FMP100	13	21.5	8.5
FMP200	17	25.5	8.5
FMP3WS	19	27.5	8.5

AV TYPE (Taping Pack)



TYPE	DIMENSIONS		Unit: mm
Ultra Miniature	**H1 Max.**	**H2 Max.**	**H3 Max.**
FMP100	11.5	20	8.5
FMP200	14.5	23	8.5
FMP3WS	17.5	26	8.5

MARKING



COLOR	1st BAND	2nd BAND	3rd BAND	MULTIPLIER	TOLERANCE
BLACK	0	0	0	1Ω	
BROWN	1	1	1	10Ω	± 1% (F)
RED	2	2	2	100Ω	
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 8	Dec.10, 2025		- Added 52- type for FMP300
Version 7	Jun.5, 2025		- Added FK&FFK&FKK t ype for FMP200
Version 6	May.14, 2024		- Added 52G type
Version 5	Apr.2, 2024		- Added forming code description for part number
Version 4	Aug.31, 2023		- Update legal disclaimer and footer version numbers
Version 3	May.25, 2023		- Updated the tape specification of FMP300
Version 2	Oct.25, 2021		- Add F type for FMP200 series
Version 1	Oct.12, 2021	-	- Updated the tape specification of FMP200
Version 0	Aug.2, 2021	-	- First issue of this specification

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