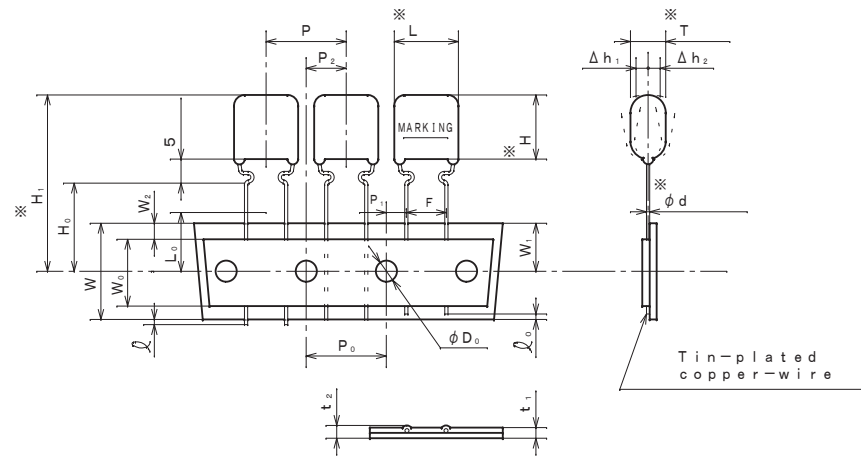


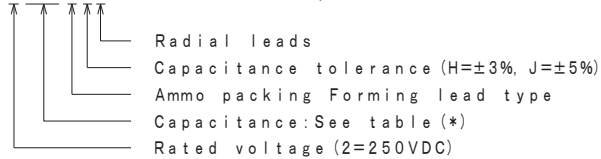
ITEM CODE	CAPACITANCE μF (*)	DIMENSIONS						VOLUME (mm ³)
		※ L	※ T	※ H	※ H ₁	※ d		
ECWF2104R () A	0.1 (104)	13.0	5.0	9.1	31.1	0.6	488	
" 2124R () A	0.12 (124)	"	5.3	9.4	31.4	"	524	
" 2154R () A	0.15 (154)	"	5.6	9.7	31.7	"	575	
" 2184R () A	0.18 (184)	"	5.9	10.1	32.1	"	626	
" 2224R () A	0.22 (224)	"	6.3	10.4	32.4	"	689	
" 2274R () A	0.27 (274)	"	6.8	10.9	32.9	"	771	
" 2334R () A	0.33 (334)	"	7.3	11.4	33.4	"	867	
" 2394R () A	0.39 (394)	"	7.8	11.9	33.9	"	962	
" 2474R () A	0.47 (474)	"	8.4	12.6	34.6	"	1087	



ALTERATION		
ISSUE	DESCRIPTION	DATE
△	Company name changed	Apr. 1 2012
△	Company name changed	Apr. 1 2013
△	Company name changed	Apr. 1 2015
△	Company name changed	Apr. 1 2022
SPECIFICATIONS No.		

ITEM CODE NUMBER STRUCTURE

ECWF 2104RJA (250VDC, 0.1μF, ±5%)



SYMBOL	ITEM	VALUE	TOLERANCE	REMARKS
P	Pitch of component	15.0	±1.0	Tilt of component and curvature of leads shall be included.
P ₀	Feed hole pitch	15.0	±0.2	
P ₁	Feed hole center to lead	3.75	±0.5	
P ₂	Hole center to comp. center	7.5	±1.3	Tilt of component due to curvature of leads shall be included.
F	Lead-to-lead distance	7.5	+0.8	
Δh _{1,2}	Component alignment	0~2.0		Tilt of component due to curvature of leads shall be included.
W	Paper backing width	18.0	±0.5	
W ₀	Adhesive tape width	9.5	min.	The hold down tape shall not protrude beyond the carrier tape.
W ₁	Hole position	9.0	±0.5	
W ₂	Hold-down tape position	0~3.0		
H ₀	Lead-wire clinch height	16.0	+1.0	
ℓ	Lead wire protrusion	0	max.	
ℓ ₀	Lead wire depression	7.0	max.	
φD ₀	Feed hole diameter	4.0	±0.2	
t ₁	Total tape thickness	0.7	±0.2	Total thickness including the hold down tape.
t ₂	Total thickness	1.5	max.	
L ₀	Length of snapped lead	11.0	max.	

CONSTRUCTION

The capacitor is of non-inductive construction, wound with metallized polypropylene film dielectric.
The capacitor is enclosed in non-combustible epoxy resin and has two leads.

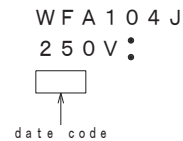
MARKING

Marking comprises capacitance, capacitance tolerance, rated voltage, type name "WFA" and manufacturer's date code.

PROPERTIES

Capacitance : See table at 1kHz
 Capacitance tolerance : ±3% (H), ±5% (J)
 Rated voltage : 250VDC
 Withstand voltage : 250VDC×150% for 60s
 Insulation resistance : C≤0.33μF : ≥9000MΩ } at 100VDC, 20°C for 60s
 : C>0.33μF : ≥3000MΩ·μF }
 Dissipation factor : ≤0.1% at 1kHz, 20°C
 Category temperature range : From -40°C to +105°C
 (including temperature rise on unit surface)

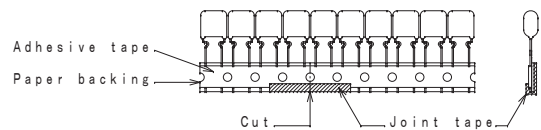
MARKING EXAMPLE



DESIGN	M. MEKADA
CHECKED	H. YAMAMOTO
APPROVAL	T. KATO
ESTABLISHMENT	May. 28. 2009
TYPE NAME	
ECWF 2***R () A	
NAME METALLIZED POLYPROPYLENE CAPACITOR	
DRAWING NAME	
PRODUCT DRAWING	
DRAWING No.	
9024J-J-E (1/2)	

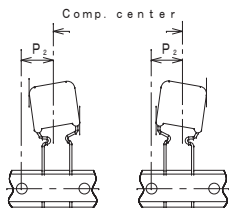
Film Capacitor Business Unit
 Device Solutions Business Division
 Panasonic Industry Co., Ltd.

- Note 1. No more than 3 consecutive missing is permitted.
- Note 2. A tape conjunction and a tape discrepancy specify as follows.

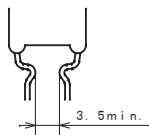


A tape sliding shall not exceed in an allowance of "P₀" dimension. A joint tape put on the back side of paper backing, and turn up the lower part to the front.

- Note 3. Marking on components may not be the same side.
- Note 4. The tape adhesion is more than 3.92N(400gf)/25mm.
- Note 5. A tape trailer having at least 3 feed holes is required at the end of the tape.
- Note 6. 1) The P₁ and P₂ dimension shall be measured as shown in the figure after the adhesive tape placing upward. (measuring from the center of sprocket hole to the right.)
2) The P₂ dimension shall be measured between center of a vertical projection plane for tape plane and center of sprocket hole.

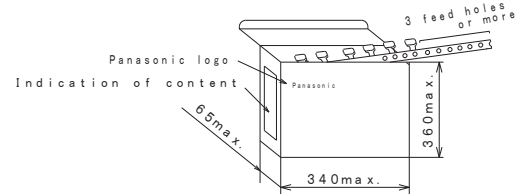


Note 7. The lead crimping shape shows as follows.



Packing specification

1. Case size (Ammo pack)



2. Packing quantity

Capacitance range (μF)	Quantity (pcs.)
0.1	1300
0.12	1200
0.15, 0.18	1100
0.22	1000
0.27, 0.33	900
0.39	800
0.47	700

Handling notes

- 1) One package must be packed one product only.
- 2) The storage must be stacked 5 boxes or less. (Surface printed placing upward)
(For prevention from displacement of capacitors and damage of lead crimping)
- 3) The packing box must be handled with care and never thrown out.

REFERENCE

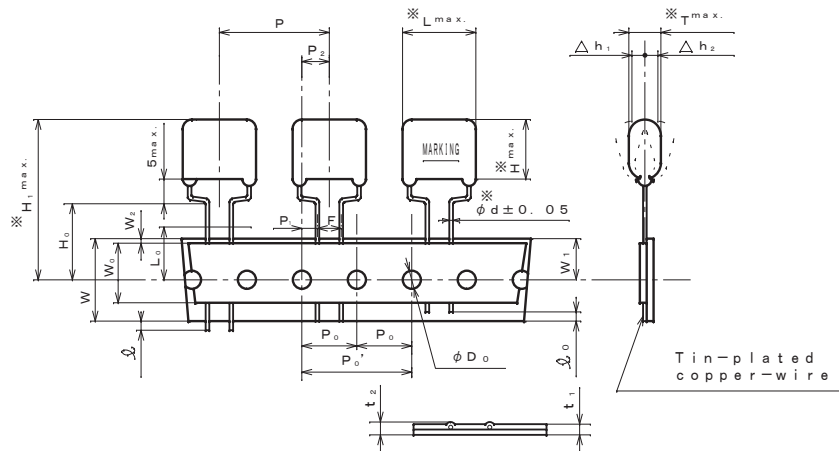
TYPE NAME	ECWF 2***R () A
DRAWING No.	9024J-J-E (2/2)

Film Capacitor Business Unit
Device Solutions Business Division
Panasonic Industry Co., Ltd.

ITEM CODE	CAPACITANCE μF (*)	DIMENSIONS					VOLUME (mm ³)	MARKING STYLE	NOTE
		※ L	※ T	※ H	※ H ₁	※ d			
ECWF2564R () A	0.56 (564)	18.1	6.9	11.4	33.4	0.8	1179	1	
" 2684R () A	0.68 (684)	"	7.4	12.0	34.0	"	1328	"	
" 2824R () A	0.82 (824)	"	8.0	12.6	34.6	"	1499	"	
" 2105R () A	1.0 (105)	"	8.5	13.3	35.3	"	1684	"	
" 2125R () A	1.2 (125)	18.8	9.5	14.6	36.6	"	2125	2	*
" 2155R () A	1.5 (155)	"	10.5	15.6	37.6	"	2497	"	*
" 2185R () A	1.8 (185)	"	11.4	16.5	38.5	"	2863	"	*
" 2225R () A	2.2 (225)	"	12.6	17.6	39.6	"	3344	"	*

Note

※The specimen (the volume is more than 1750mm³) shall be satisfied with IEC60384-1 Inflammability Category B based on IEC60065, 1998~



SYMBOL	ITEM	VALUE	TOLERANCE	REMARKS
P	Pitch of component	30.0	±1.0	Tilt of component and curvature of leads shall be included.
P ₀ '	Feed hole pitch	30.0	±0.2	
P ₀	Feed hole pitch	15.0	±0.2	
P ₁	Feed hole center to lead	3.75	±0.5	
P ₂	Hole center to comp. center	7.5	±1.3	Tilt of component due to curvature of leads shall be included.
F	Lead-to-lead distance	7.5	+0.2 -0.2	
Δh _{1,2}	Component alignment	0~2.0		Tilt of component due to curvature of leads shall be included.
W	Paper backing width	18.0	±0.5	
W ₀	Adhesive tape width	12.5	min.	The hold down tape shall not protrude beyond the carrier tape.
W ₁	Hole position	9.0	±0.5	
W ₂	Hold-down tape position	0~3.0		
H ₀	Lead-wire clinch height	16.0	+1.0 0	
ℓ	Lead wire protrusion	0	max.	
ℓ ₀	Lead wire depression	7.0	max.	
φD ₀	Feed hole diameter	4.0	±0.2	
t ₁	Total tape thickness	0.7	±0.2	Total thickness including the hold down tape.
t ₂	Total thickness	1.5	max.	
L ₀	Length of snapped lead	11.0	max.	

CONSTRUCTION

The capacitor is of non-inductive construction, wound with metallized polypropylene film dielectric.
The capacitor is enclosed in non-combustible epoxy resin and has two leads.

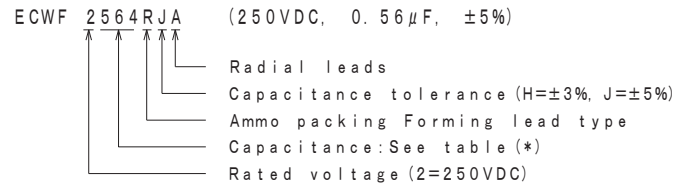
MARKING

Marking comprises capacitance, capacitance tolerance, rated voltage, type name "WFA" and manufacturer's date code.

PROPERTIES

- Capacitance : See table at 1kHz
- Capacitance tolerance : ±3% (H), ±5% (J)
- Rated voltage : 250VDC
- Withstand voltage : 250VDC×150% for 60s
- Insulation resistance : ≥3000MΩ·μF at 100VDC, 20°C for 60s
- Dissipation factor : ≤0.1% at 1kHz, 20°C
- Category temperature range : From -40°C to +105°C (including temperature rise on unit surface)

ITEM CODE NUMBER STRUCTURE

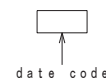


ALTERATION		
ISSUE	DESCRIPTION	DATE
△	Company name changed	Apr. 1 2012
△	Company name changed	Apr. 1 2013
△	Company name changed	Apr. 1 2015
△	Company name changed	Apr. 1 2022
SPECIFICATIONS No.		

MARKING EXAMPLE

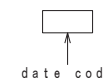
STYLE 1

WFA564J
250V



STYLE 2

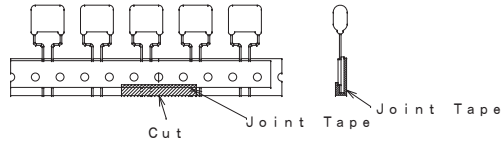
WFA225J
250V



DESIGN	M. MEKADA
CHECKED	H. YAMAMOTO
APPROVAL	T. KATO
ESTABLISHMENT	May. 28, 2009
TYPE NAME	
ECWF 2***R () A	
NAME METALLIZED	
POLYPROPYLENE CAPACITOR	
DRAWING NAME	
PRODUCT DRAWING	
DRAWING No.	
9025J-J-E (1/2)	

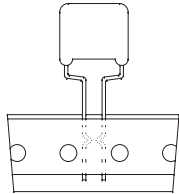
Film Capacitor Business Unit
Device Solutions Business Division
Panasonic Industry Co., Ltd.

- Note 1. No more than 2 consecutive missing is permitted.
 Note 2. A tape conjunction and a tape discrepancy specify as follows.



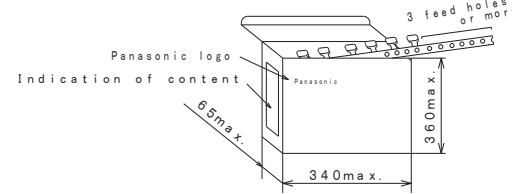
A tape sliding shall not exceed in an allowance of "P₀" dimension. A joint tape put on the back side of paper backing, and turn up the lower part to the front.

- Note 3. A tape trailer having at least 3 feed holes is required at the end of the tape.
 Note 4. Marking on components may not be the same side.
 Note 5. The tape adhesion is more than 3.92N (400gf) / 25mm.
 Note 6. The lead clinch at the tape, shows as follows.



Packing specification

1. Case size (Ammo pack)



2. Packing quantity

Capacitance range (μF)	Quantity (pcs.)
0.56~0.82	400
1.0 ~ 1.5	300
1.8 , 2.2	200

Handling notes

- 1) One package must be packed one product only.
- 2) The storage must be stacked 5 boxes or less.
(Surface printed placing upward)
(For prevention from displacement of capacitors and damage of lead crimping)
- 3) The packing box must be handled with care and never thrown out.

REFERENCE

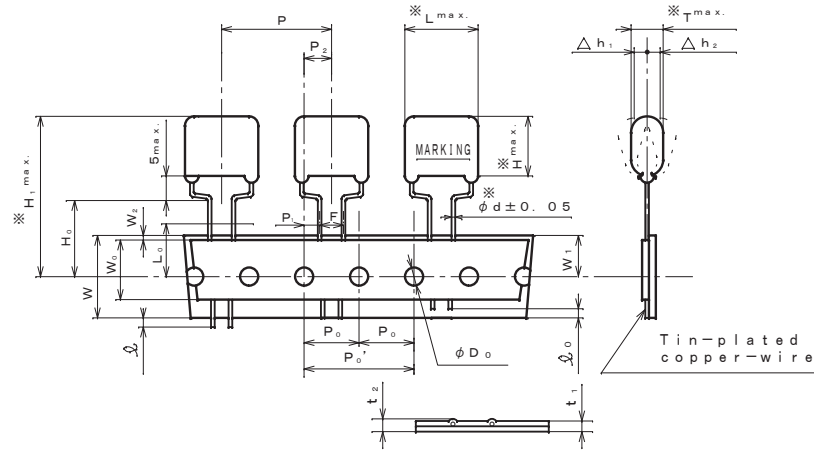
TYPE NAME	ECWF 2***R () A
DRAWING No.	9025J-J-E (2/2)

Film Capacitor Business Unit
 Device Solutions Business Division
 Panasonic Industry Co., Ltd.

ITEM CODE	CAPACITANCE μF (*)	DIMENSIONS					VOLUME (mm ³)	NOTE
		※ L	※ T	※ H	※ H ₁	※ d		
ECWF2275R () A	2.7 (275)	23.8	11.4	17.2	39.2	0.8	3824	*
" 2335R () A	3.3 (335)	"	12.5	18.3	40.3	"	4452	*
" 2395R () A	3.9 (395)	"	13.5	19.3	41.3	"	5070	*

Note

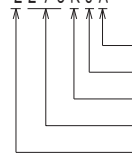
※The specimen (the volume is more than 1750mm³) shall be satisfied with IEC60384-1 Inflammability Category B based on IEC60065, 1998~



ALTERATION		
ISSUE	DESCRIPTION	DATE
△	Company name changed	Apr. 1 2012
△	Company name changed	Apr. 1 2013
△	Company name changed	Apr. 1 2015
△	Company name changed	Apr. 1 2022
SPECIFICATIONS No.		

ITEM CODE NUMBER STRUCTURE

ECWF 2275RJA (250VDC, 2.7μF, ±5%)



- Radial leads
- Capacitance tolerance (H=±3%, J=±5%)
- Ammo packing Forming lead type
- Capacitance: See table (*)
- Rated voltage (2=250VDC)

SYMBOL	ITEM	VALUE	TOLERANCE	REMARKS
P	Pitch of component	30.0	±1.0	Tilt of component and curvature of leads shall be included.
P ₀ '	Feed hole pitch	30.0	±0.2	
P ₀	Feed hole pitch	15.0	±0.2	
P ₁	Feed hole center to lead	3.75	±0.5	
P ₂	Hole center to comp. center	7.5	±1.3	Tilt of component due to curvature of leads shall be included.
F	Lead-to-lead distance	7.5	+0.8 -0.2	
Δh _{1,2}	Component alignment	0~2.0		Tilt of component due to curvature of leads shall be included.
W	Paper backing width	18.0	±0.5	
W ₀	Adhesive tape width	12.5	min.	The hold down tape shall not protrude beyond the carrier tape.
W ₁	Hole position	9.0	±0.5	
W ₂	Hold-down tape position	0~3.0		
H ₀	Lead-wire clinch height	16.0	+1.0 0	
φ	Lead wire protrusion	0	max.	
φ _p	Lead wire depression	7.0	max.	
φD ₀	Feed hole diameter	4.0	±0.2	
t ₁	Total tape thickness	0.7	±0.2	Total thickness including the hold down tape.
t ₂	Total thickness	1.5	max.	
L ₀	Length of snipped lead	11.0	max.	

CONSTRUCTION

The capacitor is of non-inductive construction, wound with metallized polypropylene film dielectric. The capacitor is enclosed in non-combustible epoxy resin and has two leads.

MARKING

Marking comprises capacitance, capacitance tolerance, rated voltage, type name "WFA" and manufacturer's date code.

PROPERTIES

- Capacitance : See table at 1kHz
- Capacitance tolerance : ±3% (H), ±5% (J)
- Rated voltage : 250VDC
- Withstand voltage : 250VDC×150% for 60s
- Insulation resistance : ≥3000MΩ·μF at 100VDC, 20°C for 60s
- Dissipation factor : ≤0.1% at 1kHz, 20°C
- Category temperature range : From -40°C to +105°C (including temperature rise on unit surface)

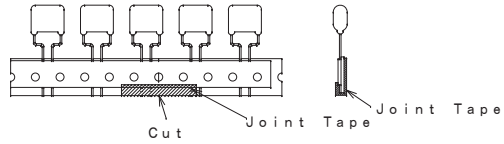
MARKING EXAMPLE

WFA225J
250V
date code

DESIGN	M. MEKADA
CHECKED	H. YAMADA
APPROVAL	T. KATO
ESTABLISHMENT	May. 28, 2009
TYPE NAME	
ECWF 2***R () A	
NAME METALLIZED	
POLYPROPYLENE CAPACITOR	
DRAWING NAME	
PRODUCT DRAWING	
DRAWING No.	
9026J-J-E (1/2)	

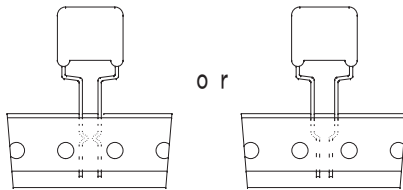
Film Capacitor Business Unit
Device Solutions Business Division
Panasonic Industry Co., Ltd.

- Note 1. No more than 2 consecutive missing is permitted.
 Note 2. A tape conjunction and a tape discrepancy specify as follows.



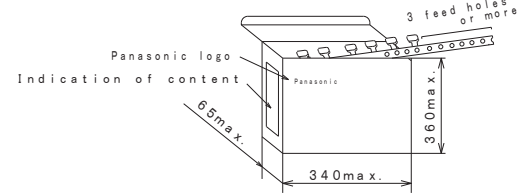
A tape sliding shall not exceed in an allowance of "P₀" dimension. A joint tape put on the back side of paper backing, and turn up the lower part to the front.

- Note 3. A tape trailer having at least 3 feed holes is required at the end of the tape.
 Note 4. Marking on components may not be the same side.
 Note 5. The tape adhesion is more than 3.92N (400gf) / 25mm.
 Note 6. The lead clinch at the tape, shows as follows.



Packing specification

1. Case size (Ammo pack)



2. Packing quantity

Capacitance range (μF)	Quantity (pcs.)
2.7	300
3.3, 3.9	200

Handling notes

- 1) One package must be packed one product only.
- 2) The storage must be stacked 5 boxes or less.
(Surface printed placing upward)
(For prevention from displacement of capacitors and damage of lead crimping)
- 3) The packing box must be handled with care and never thrown out.

REFERENCE

TYPE NAME
ECWF 2***R () A
DRAWING No.
9026J-J-E (2/2)

Film Capacitor Business Unit
 Device Solutions Business Division
 Panasonic Industry Co., Ltd.