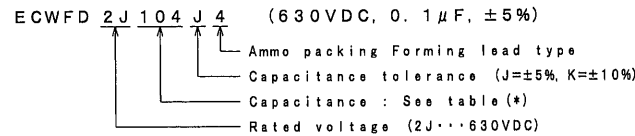


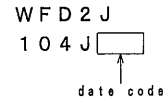
THIRD ANGLE PROJECTION

ITEM CODE	CAP.		DIMENSIONS					
	μF	(*)	$\times L$	$\times T$	$\times H$	$\times H_1$	$\times d$	
ECWFD2J473()	4	0.047(473)	12.6	4.4	7.8	29.8	0.6	
"	2J563()	4	0.056(563)	"	4.7	8.1	30.1	"
"	2J683()	4	0.068(683)	"	5.0	8.4	30.4	"
"	2J823()	4	0.082(823)	"	5.4	8.7	30.7	"
"	2J104()	4	0.1(104)	"	5.8	9.2	31.2	"
"	2J124()	4	0.12(124)	"	6.2	9.6	31.6	"
"	2J154()	4	0.15(154)	"	6.8	10.2	32.2	"
"	2J184()	4	0.18(184)	"	7.4	10.7	32.7	"
"	2J224()	4	0.22(224)	"	8.1	11.4	33.4	"

ITEM CODE NUMBER STRUCTURE



MARKING EXAMPLE



CONSTRUCTION

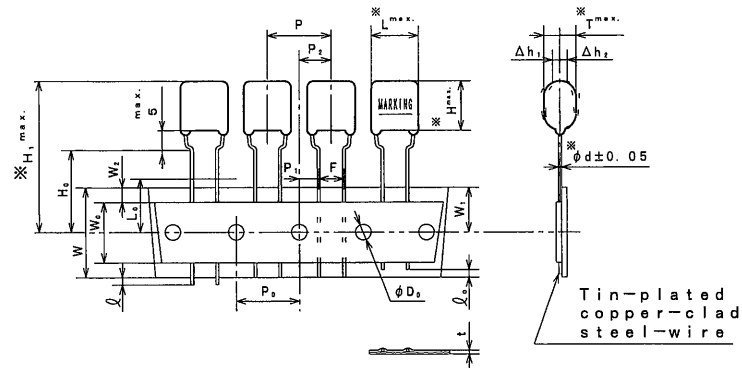
The capacitor is of non-inductive construction, wound with metallized polypropylene film dielectric.
The capacitor is enclosed in non-combustible epoxy resin and has two leads.

MARKING

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

PROPERTIES

- *Capacitance : See table at 1kHz.
- *Capacitance tolerance : ±5% (J), ±10% (K) at 1kHz.
- *Rated voltage : 630VDC
(Derating of rated voltage by 1.0%/°C at more than 85°C)
- *Withstand voltage (terminal-terminal) : 630VDC $\times 150\%$ for 60s
- *Insulation resistance : $\geq 9000M\Omega$ at 500VDC, 20°C for 60s
- *Dissipation factor : $\leq 0.1\%$ at 1kHz, 20°C
- *Category temperature range : From -40°C to +105°C
(including temperature rise on unit surface)



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	$\begin{matrix} +0.2 \\ -0.2 \end{matrix}$	
$\Delta h_{1,2}$	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	$\begin{matrix} +1.0 \\ 0 \end{matrix}$	
Q	Lead wire protrusion	0	max.	
Q ₀	Lead wire depression	7.0	max.	
ϕD_0	Feed hole diameter	4.0	± 0.2	
t	Total tape thickness	0.7	± 0.2	Total thickness including the hold down tape.
L ₀	Length of snapped lead	11.0	max.	

QUANTITY of MINIMUM ORDER

Capacitance range (μF)	Quantity (pcs.)
0.047	1300
0.056 ~ 0.068	1200
0.082 ~ 0.1	1000
0.12 ~ 0.15	900
0.18 ~ 0.22	700

ALTERATION		
ISSUE	DESCRIPTION	DATE

SPECIFICATIONS No.

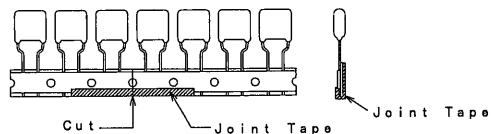
Reference

DESIGN	<i>Reference</i>
CHECKED	<i>Tetsuo Tanaka</i>
APPROVAL	<i>M. Sumiya</i>
ESTABLISHMENT	Jan 18, 2017
TYPE NAME	
ECWFA2J***() 4	
NAME Metallized Polypropylene Film Capacitor	
DRAWING NAME	
PRODUCT DRAWING	
DRAWING No.	
G005J-J-E (1/2)	

Toyama-Matsue Plant
Device Solutions Business Division
Panasonic Corporation

THIRD ANGLE PROJECTION

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

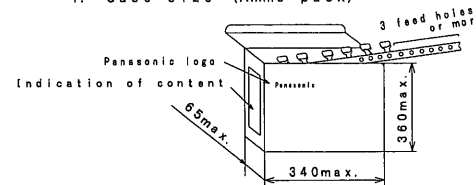


A tape sliding shall not exceed in an allowance of "P₀" dimension.
 A joint tape put on the back side of paper backing, and turn up the lower part to the front.

- 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.

Packing specification

1. Case size (Ammo pack)



2. Packing quantity

Capacitance range (μF)	Quantity (pcs.)
0.047	1300
0.056~0.068	1200
0.082~0.1	1000
0.12~0.15	900
0.18~0.22	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

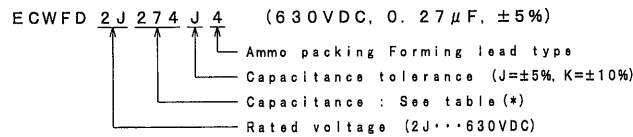
TYPE NAME	ECWFD2J*** () 4
DRAWING No.	G005J-J-E (2/2)

Toyama·Matsue Plant
 Device Solutions Business Division
 Panasonic Corporation

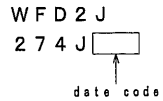
THIRD ANGLE PROJECTION

ITEM CODE	CAPACITANCE μF (*)	DIMENSIONS				
		※ L	※ T	※ H	※ H ₁	※ d
ECWFD2J274 () 4	0.27 (274)	17.8	6.0	11.0	33.0	0.8
" 2J334 () 4	0.33 (334)	"	6.6	11.5	33.5	"
" 2J394 () 4	0.39 (394)	"	7.1	12.0	34.0	"
" 2J474 () 4	0.47 (474)	"	7.8	12.7	34.7	"
" 2J564 () 4	0.56 (564)	"	8.4	13.3	35.3	"
" 2J684 () 4	0.68 (684)	"	9.3	14.2	36.2	"
" 2J824 () 4	0.82 (824)	"	10.2	15.1	37.1	"

ITEM CODE NUMBER STRUCTURE



MARKING EXAMPLE



CONSTRUCTION

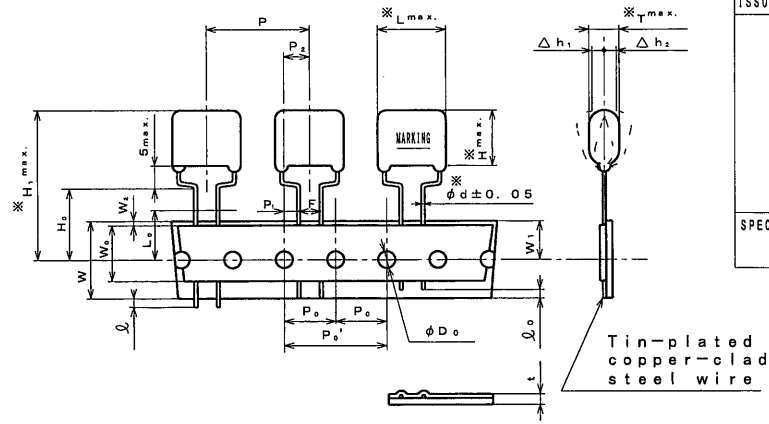
The capacitor is of non-inductive construction, wound with metallized polypropylene film dielectric.
The capacitor is enclosed in non-combustible epoxy resin and has two leads.

MARKING

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

PROPERTIES

- Capacitance : See table at 1kHz
- Capacitance tolerance : ±5% (J), ±10% (K) at 1kHz.
- Rated voltage : 630VDC (Derating of rated voltage by 1.0%/°C at more than 85°C)
- Withstand voltage : 630VDC×150% for 60s
- Insulation resistance : ≥9000Ω (C≤0.33μF) at 500VDC, 20°C for 60s
- : ≥3000Ω·μF (C>0.33μF) at 500VDC, 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)



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 ₁	Feed hole center to lead	15.0	±0.2	
P ₂	Feed hole center to comp. center	3.75	±0.5	
F	Hole center to comp. center	7.5	±1.3	Tilt of component due to curvature of leads shall be included.
L	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 _e	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	Total tape thickness	0.7	±0.2	Total thickness including the hold down tape.
L ₀	Length of snapped lead	11.0	max.	

QUANTITY of MINIMUM ORDER

Capacitance range (μF)	Quantity (pcs.)
0.27	500
0.33 ~ 0.47	400
0.56 ~ 0.82	300

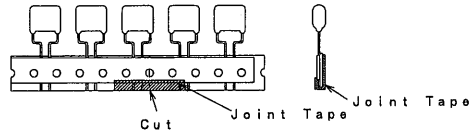
ALTERATION		
ISSUE	DESCRIPTION	DATE
SPECIFICATIONS No.		

Reference	
DESIGN	<i>Shinichi Takahashi</i>
CHECKED	<i>Tetsuo Tanaka</i>
APPROVAL	<i>M. Suenaga</i>
ESTABLISHMENT	Jan/18, 2017
TYPE NAME	
ECWFD 2J*** () 4	
NAME METALLIZED POLYPROPYLENE CAPACITOR	
DRAWING NAME	
PRODUCT DRAWING	
DRAWING No.	
G006J-J-E (1/2)	

Toyama-Matsue Plant
Device Solutions Business Division
Panasonic Corporation

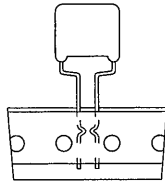
THIRD ANGLE PROJECTION

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



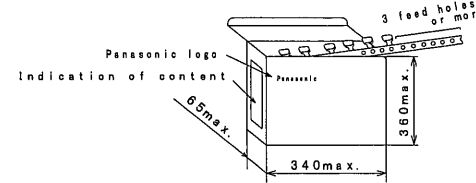
A tape sliding shall not exceed in an allowance of "P₀" dimension.
 A joint tape put on the back side of paper backing, and turn up the lower part to the front.

- 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.)
0.27	500
0.33~0.47	400
0.56~0.82	300

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

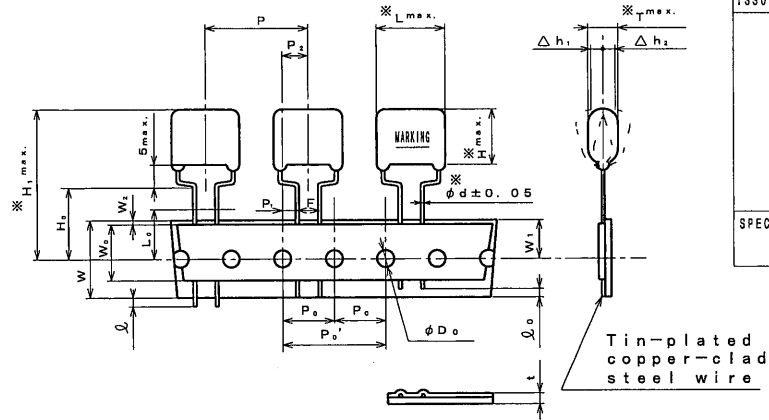
TYPE NAME	ECWFD 2J*** () 4
DRAWING No.	G006J-J-E (2/2)

Toyama-Matsue Plant
 Device Solutions Business Division
 Panasonic Corporation

THIRD ANGLE PROJECTION

ITEM CODE	CAPACITANCE μF (*)	DIMENSIONS				
		※ L	※ T	※ H	※ H ₁	※ d
ECWFD2J105**	1.0 (105)	17.8	11.2	16.1	38.1	0.8

P4=±5% (J)
 Q4=±10% (K)

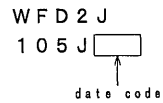


ALTERATION		
ISSUE	DESCRIPTION	DATE

SPECIFICATIONS No.

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	
ℓ	Lead wire protrusion	0	max.	
ℓ ₀	Lead wire depression	7.0	max.	
φD ₀	Feed hole diameter	4.0	±0.2	
t	Total tape thickness	0.7	±0.2	Total thickness including the hold down tape.
L ₀	Length of snapped lead	11.0	max.	

MARKING EXAMPLE



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 "WFD" and manufacturer's date code.

PROPERTIES

Capacitance : See table at 1kHz
 Capacitance tolerance : ±5% (J), ±10% (K) at 1kHz.
 Rated voltage : 630VDC (Derating of rated voltage by 1.0%/°C at more than 85°C)
 Withstand voltage : 630VDCx150% for 60s
 Insulation resistance : ≥3000MΩ·μF at 500VDC, 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)

QUANTITY of MINIMUM ORDER

Capacitance range (μF)	Quantity (pcs.)
1.0	200

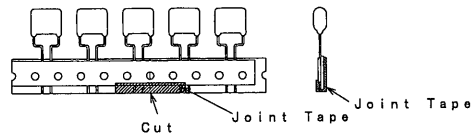
Reference

DESIGN	<i>Reference</i>
CHECKED	<i>Reference</i>
APPROVAL	<i>M. Sumiya</i>
ESTABLISHMENT	Jan 18. 2017
TYPE NAME	
ECWFD 2J***P4 ECWFD 2J***Q4	
NAME METALLIZED POLYPROPYLENE CAPACITOR	
DRAWING NAME PRODUCT DRAWING	
DRAWING No. G021J-J-E (1/2)	

Toyama-Matsue Plant
Device Solutions Business Division
Panasonic Corporation

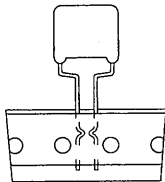
THIRD ANGLE PROJECTION

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



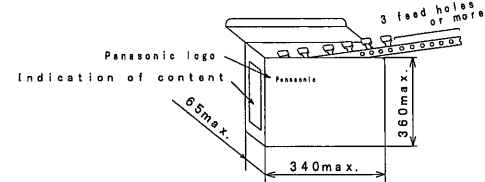
A tape sliding shall not exceed in an allowance of "P₂" dimension. A joint tape put on the back side of paper backing, and turn up the lower part to the front.

- 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.)
1.0	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	ECWFD 2J***P4 ECWFD 2J***Q4
DRAWING No.	G021J-J-E (2/2)

Toyama-Matsue Plant
 Device Solutions Business Division
 Panasonic Corporation