

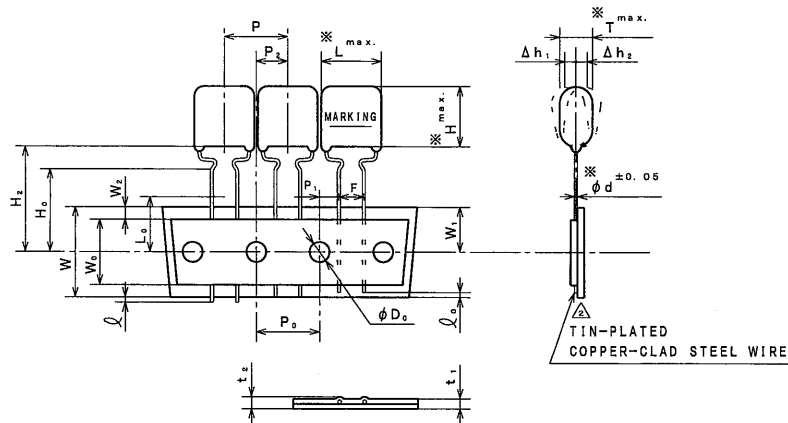
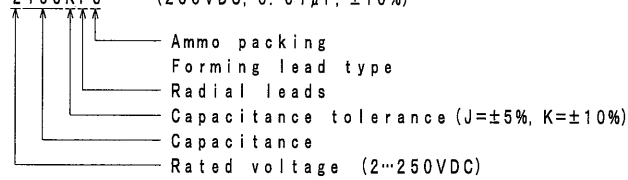
THIRD ANGLE PROJECTION

ITEM CODE	RATED VOLTAGE	CAP. (μ F)	DIMENSIONS			
			\approx L	\approx T	\approx H	\approx d
ECQE2103 () F3	250VDC	0.01	10.3	4.3	7.4	0.6
" 2123 () F3	"	0.012	"	4.4	7.5	"
" 2153 () F3	"	0.015	"	"	"	"
" 2183 () F3	"	0.018	"	"	"	"
" 2223 () F3	"	0.022	"	"	"	"
" 2273 () F3	"	0.027	"	"	"	"
" 2333 () F3	"	0.033	"	4.5	"	"
" 2393 () F3	"	0.039	"	"	"	"
" 2473 () F3	"	0.047	"	"	"	"
" 2563 () F3	"	0.056	"	4.8	7.9	"
" 2683 () F3	"	0.068	"	4.5	7.5	"
" 2823 () F3	"	0.082	"	4.9	8.0	"
" 2104 () F3	"	0.1	"	5.8	8.4	"
" 2124 () F3	"	0.12	"	6.0	9.0	"
" 2154 () F3	"	0.15	"	"	10.8	"
" 2184 () F3	"	0.18	12.0	5.0	10.3	"
" 2224 () F3	"	0.22	"	5.5	10.5	"
" 2274 () F3	"	0.27	"	6.0	11.5	"

TOL. SYMBOL (J or K)

ITEM CODE NUMBER STRUCTURE

ECQE 2103KF3 (250VDC, 0.01 μ F, \pm 10%)



SYMBOL	ITEM	DIMENSION	REMARKS
P	Pitch of component	12.7 \pm 1.0	Tilt of component and curvature of leads shall be included.
P _e	Feed hole pitch	12.7 \pm 0.2	
P ₁	Feed hole center to lead	3.85 \pm 0.5	
P ₂	Hole center to comp. center	6.35 \pm 1.3	Tilt of component due to curvature of leads shall be included.
F	Lead-to-lead distance	5.0 \pm 0.5	
Δ 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 \pm 0.5	
W ₀	Adhesive tape width	9.5min.	The hold down tape shall not protrude beyond the carrier tape.
W ₁	Hole position	9.0 \pm 0.5	
W ₂	Hold-down tape position	0~3.0	
H ₂	Component height	22.0 \pm 0.75	
H ₀	Lead-wire clinch height	16.0 \pm 0.5	
f	Lead-wire protrusion	0max.	
f ₀	Lead-wire depression	7.0max.	
ϕ D ₀	Feed hole diameter	4.0 \pm 0.2	
t ₁	Total tape thickness	0.7 \pm 0.2	Total thickness including the hold down tape.
t ₂	Total thickness	1.5max.	
L ₀	Length of snapped lead	11.0max.	

CONSTRUCTION

The capacitor is of non-inductive construction, wound with metallized polyester film dielectric.

The capacitor is enclosed in non-combustible epoxy resin and has two leads.

MARKING

Marking comprises capacitance, capacitance tolerance, rated voltage and date code.

PROPERTIES

- Capacitance : See table at 1kHz
- Capacitance tolerance : \pm 5% (J), \pm 10% (K) at 1kHz
- Rated voltage : 250VDC Δ (Derating of rated voltage by 1.25%/ $^{\circ}$ C at more than 85 $^{\circ}$ C)
- Withstand voltage : 250VDC \times 150% for 60s
- Insulation resistance : \geq 9000M Ω at 100VDC, 20 $^{\circ}$ C for 60s
- Dissipation factor : \leq 1.0% at 1kHz, 20 $^{\circ}$ C
- Category temperature range : Δ From -40 $^{\circ}$ C to +105 $^{\circ}$ C (including temperature rise on unit surface)

DO NOT SCALE DRAWING REVISIONS INDICATED BY Δ ALL DIMENSIONS ARE IN MILLIMETERS

ALTERATION

ISSUE	DESCRIPTION	DATE
Δ 2	Modification	Jun. 20 2002
Δ 3	Company name changed	Oct. 1 2004
Δ 4	Company name changed	Apr. 1 2005
Δ 5	Company name changed	Apr. 1 2006
Δ 6	Correction: category temperature range (-40 $^{\circ}$ C~+85 $^{\circ}$ C \rightarrow -40 $^{\circ}$ C~+105 $^{\circ}$ C) Addition: rated voltage (Derating of rated voltage by 1.25%/ $^{\circ}$ C at more than 85 $^{\circ}$ C)	Jan. 22 2008
Δ 7	Company name changed Error correction	Apr. 1 2008
Δ 8	Company name changed	Apr. 1 2012
Δ 9	Company name changed	Apr. 1 2013
Δ 10	Company name changed	Apr. 1 2015

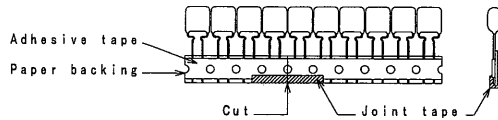
SPECIFICATIONS No.
TE72028Y

Reference

DESIGN	<i>M. Oshida</i>
CHECKED	<i>K. Osaki</i>
APPROVAL	<i>Y. Takata</i>
ESTABLISHMENT	Apr. 27, 1987
TYPE NAME	ECQE2*** () F3
NAME	Metallized Polyester Film Capacitor
DRAWING NAME	PRODUCT DRAWING
DRAWING No.	CT-H-C013 (1/2)

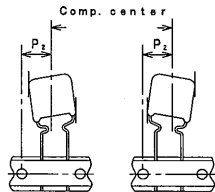
Toyama-Matsue Plant
Device Solutions Business Division
Panasonic Corporation

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

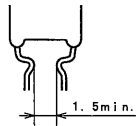


A tape sliding shall not exceed in an allowance of "P₀" dimension.
 A joint tape put on the back side of paper backing, and turn up the lower part to the front.

- 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.

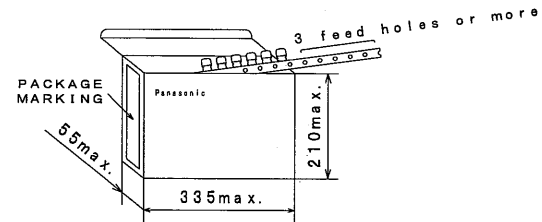


- Note 7. The lead crimping shape shows as follows.



Packing specification

1. Case size
Ammo pack



2. Packing quantity

Capacitance range	Packing quantity
0.01~0.082μF	1000
0.1~0.27μF	500

3. 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	ECQE2*** () F3
DRAWING No.	CT-H-C013 (2/2)

Toyama-Matsue Plant
 Device Solutions Business Division
 Panasonic Corporation

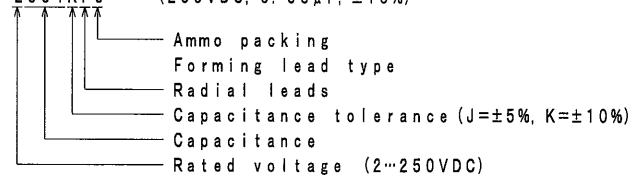
THIRD ANGLE PROJECTION

ITEM CODE	RATED VOLTAGE	CAP. (μF)	DIMENSIONS				
			$\times L$	$\times T$	$\times H$	$\times d$	$\times H_1$
ECQE2334 () F3	250VDC	0.33	12.0	6.5	12.0	0.6	33.5

TOL. SYMBOL (J or K)

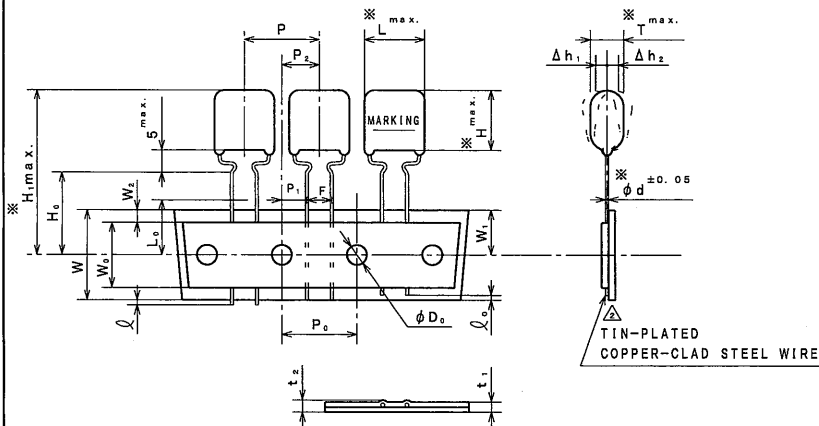
ITEM CODE NUMBER STRUCTURE

ECQE 2334KF3 (250VDC, 0.33 μF , $\pm 10\%$)



ALTERATION		
ISSUE	DESCRIPTION	DATE
△	Modification	Jun. 20 2002
△	Company name changed	Oct. 1 2004
△	Company name changed	Apr. 1 2005
△	Company name changed	Apr. 1 2006
△	Correction: category temperature range (-40°C~+85°C→-40°C~+105°C) Addition: rated voltage (Derating of rated voltage by 1.25%/°C at more than 85°C)	Jan. 22 2008
△	Company name changed Error correction	Apr. 1 2008
△	Company name changed	Apr. 1 2012
△	Company name changed	Apr. 1 2013
△	Company name changed	Apr. 1 2015

SPECIFICATIONS No.
TE8Y160H



SYMBOL	ITEM	DIMENSION	REMARKS
P	Pitch of component	15.0 \pm 1.0	Tilt of component and curvature of leads shall be included.
P ₀	Feed hole pitch	15.0 \pm 0.2	
P ₁	Feed hole center to lead	5.0 \pm 0.5	
P ₂	Hole center to comp. center	7.5 \pm 1.3	Tilt of component due to curvature of leads shall be included.
F	Lead-to-lead distance	5.0 \pm 0.2	
$\Delta h_{1,2}$	Component alignment	0~2.0	Tilt of component due to curvature of leads shall be included.
W	Paper backing width	18.0 \pm 0.5	
W ₀	Adhesive tape width	9.5min.	The hold down tape shall not protrude beyond the carrier tape.
W ₁	Hole position	9.0 \pm 0.5	
W ₂	Hold-down tape position	0~3.0	
H ₀	Lead-wire clinch height	16.0 \pm 0.5	
↑	Lead-wire protrusion	0max.	
↓	Lead-wire depression	7.0max.	
ϕD_0	Feed hole diameter	4.0 \pm 0.2	
t ₁	Total tape thickness	0.7 \pm 0.2	Total thickness including the hold down tape.
t ₂	Total thickness	1.5max.	
L ₀	Length of snapped lead	11.0max.	

CONSTRUCTION

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

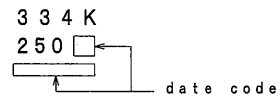
MARKING

Marking comprises capacitance, capacitance tolerance, rated voltage and date code.

PROPERTIES

Capacitance : See table at 1kHz
 Capacitance tolerance : $\pm 5\%$ (J), $\pm 10\%$ (K) at 1kHz
 Rated voltage : 250VDC \triangle/\triangle (Derating of rated voltage by 1.25%/°C at more than 85°C)
 Withstand voltage : 250VDC \times 150% for 60s
 Insulation resistance : $\geq 9000\Omega$ at 100VDC, 20°C for 60s
 Dissipation factor : $\leq 1.0\%$ at 1kHz, 20°C
 Category temperature range : \triangle From -40°C to +105°C
 (including temperature rise on unit surface)

MARKING EXAMPLE

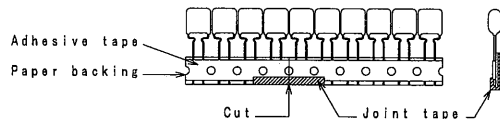


Reference

DESIGN	<i>A. Mochida</i>
CHECKED	<i>K. Osaki</i>
APPROVAL	<i>Y. Takata</i>
ESTABLISHMENT	Jan. 5. 1994
TYPE NAME	ECQE2334 () F3
NAME	Metallized Polyester Film Capacitor
DRAWING NAME	PRODUCT DRAWING
DRAWING No.	CT-H-3B4E (1/2)

Toyama-Matsue Plant
Device Solutions Business Division
Panasonic Corporation

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

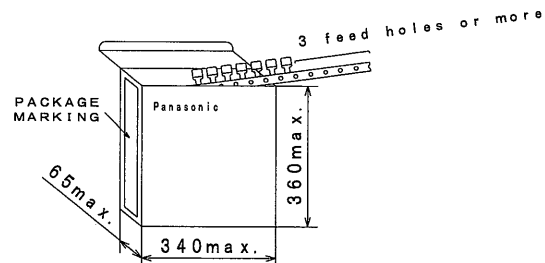


A tape sliding shall not exceed in an allowance of "P₀" dimension.
 A joint tape put on the back side of paper backing, and turn up the lower part to the front.

- 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.

Packing specification

1. Case size
Ammo pack



2. Packing quantity

Capacitance range	Packing quantity
0.33μF	1000

3. 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	ECQE2334 () F3
DRAWING No.	CT-H-3B4E (2/2)

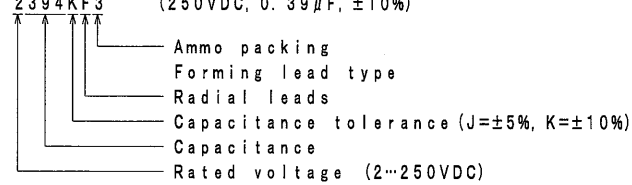
Toyama·Matsue Plant
 Device Solutions Business Division
 Panasonic Corporation

THIRD ANGLE PROJECTION

ITEM CODE	RATED VOLTAGE	CAP. (μ F)	DIMENSIONS				
			\times L	\times T	\times H	\times d	\times H ₁
ECQE2394 () F3	250VDC	0.39	18.5	4.9	12.0	0.6	33.5
" 2474 () F3	"	0.47	"	5.3	12.5	"	34.0
" 2564 () F3	"	0.56	"	5.5	13.0	"	34.5
" 2684 () F3	"	0.68	"	6.0	13.5	0.8	35.0
" 2824 () F3	"	0.82	"	6.5	14.5	"	36.0
" 2105 () F3	"	1.0	"	7.4	15.0	"	36.5
" 2125 () F3	"	1.2	"	8.0	15.9	"	37.4
" 2155 () F3	"	1.5	"	9.0	16.8	"	38.3

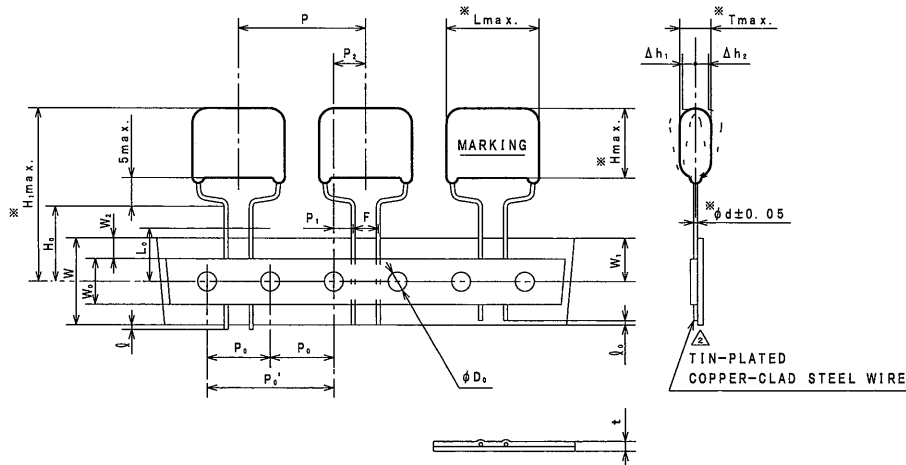
ITEM CODE NUMBER STRUCTURE

ECQE 2394KF3 (250VDC, 0.39 μ F, \pm 10%)



ALTERATION		
ISSUE	DESCRIPTION	DATE
\triangle A	Company name changed	Oct. 1 2004
\triangle A	Company name changed	Apr. 1 2005
\triangle B	Company name changed	Apr. 1 2006
\triangle A	Correction: category temperature range (-40°C~+85°C~40°C~+105°C) Addition: rated voltage (Derating of rated voltage by 1.25%/°C at more than 85°C)	Jan. 22 2008
\triangle A	Company name changed Error correction	Apr. 1 2008
\triangle A	Company name changed	Apr. 1 2012
\triangle A	Company name changed	Apr. 1 2013
\triangle A	Company name changed	Apr. 1 2015

SPECIFICATIONS No.
TE88119H



SYMBOL	ITEM	DIMENSION	REMARKS
P	Pitch of component	25.4 \pm 1.0	Tilt of component and curvature of leads shall be included.
P ₂	Feed hole pitch	12.7 \pm 0.2	
P ₀ '	"	25.4 \pm 0.2	
P ₁	Feed hole center to lead	3.85 \pm 0.5	
P ₂	Hole center to comp. center	6.35 \pm 1.3	Tilt of component due to curvature of leads shall be included.
F	Lead-to-lead distance	5.0 \pm 0.2	
Δ 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 \pm 0.5	
W ₀	Adhesive tape width	12.5min.	The hold down tape shall not protrude beyond the carrier tape.
W ₁	Hole position	9.0 \pm 0.5	
W ₂	Hold-down tape position	0~3.0	
H ₂	Lead-wire clinch height	18.0 \pm 0.5	
f	Lead-wire protrusion	0max.	
f ₀	Lead-wire depression	7.0max.	
ϕ D ₀	Feed hole diameter	4.0 \pm 0.2	
t	Total tape thickness	0.7 \pm 0.2	Total thickness including the hold down tape.
L ₀	Length of snapped lead	11.0max.	

CONSTRUCTION

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

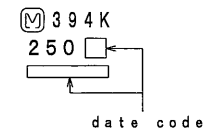
MARKING

Marking comprises capacitance, capacitance tolerance, rated voltage, manufacturer's trademark and date code.

PROPERTIES

Capacitance : See table at 1kHz
 Capacitance tolerance : \pm 5% (J), \pm 10% (K) at 1kHz
 Rated voltage : 250VDC \triangle (Derating of rated voltage by 1.25%/°C at more than 85°C)
 Withstand voltage : 250VDC \times 150% for 60s
 Insulation resistance : \geq 3000M Ω · μ F at 100VDC, 20°C for 60s
 Dissipation factor : \leq 1.0% at 1kHz, 20°C
 Category temperature range : \triangle From -40°C to +105°C
 (including temperature rise on unit surface)

MARKING EXAMPLE

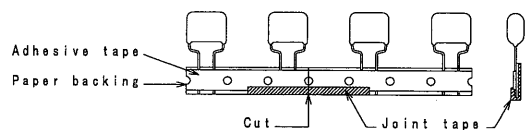


Reference

DESIGN	<i>M. M. Bando</i>
CHECKED	<i>K. Osaki</i>
APPROVAL	<i>T. Takata</i>
ESTABLISHMENT	Jan. 5, 1994
TYPE NAME	ECQE2*** () F3
NAME	Metallized Polyester Film Capacitor
DRAWING NAME	PRODUCT DRAWING
DRAWING No.	CT-H-3B6E (1/2)

Toyama-Matsue Plant
Device Solutions Business Division
Panasonic Corporation

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

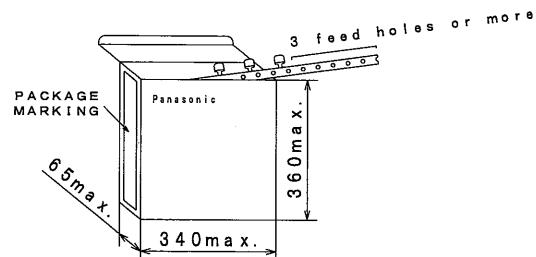


A tape sliding shall not exceed in an allowance of "P," dimension.
 A joint tape put on the back side of paper backing, and turn up the lower part to the front.

- 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.

Packing specification

1. Case size
Ammo pack



2. Packing quantity

Capacitance range	Packing quantity
0.39~1.2μF	500
1.5μF	400

3. 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	ECQE2*** () F3
DRAWING No.	CT-H-3B6E (2/2)

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