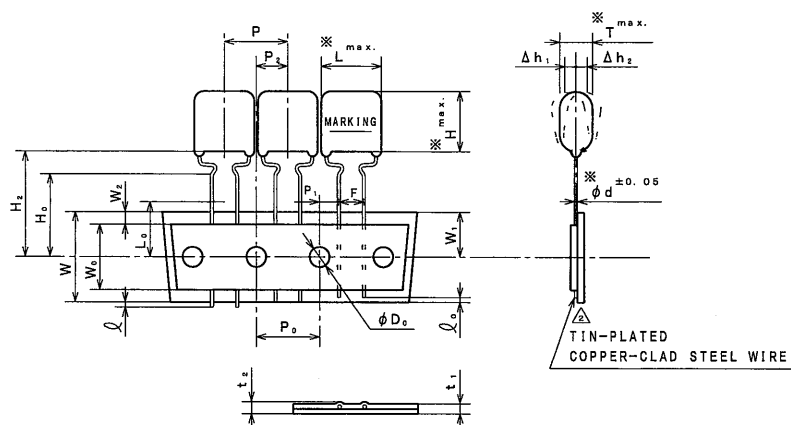


THIRD ANGLE PROJECTION

ITEM CODE	RATED VOLTAGE	CAP. (μ F)	DIMENSIONS			
			\times L	\times T	\times H	\times 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)



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

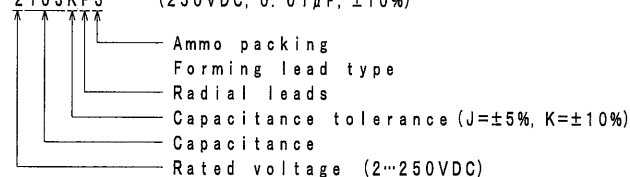
Capacitance	: See table	at 1kHz
Capacitance tolerance	: $\pm 5\%$ (J), $\pm 10\%$ (K)	at 1kHz
Rated voltage	: 250VDC Δ (Derating of rated voltage by 1.25%/°C at more than 85°C)	
Withstand voltage	: 250VDC $\times 150\%$ for 60s	
Insulation resistance	: $\geq 9000M\Omega$ at 100VDC, 20°C for 60s	
Dissipation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

DO NOT SCALE DRAWING

REVISIONS INDICATED BY Δ

ALL DIMENSIONS ARE IN MILLIMETERS

ITEM CODE NUMBER STRUCTURE

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

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°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
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

SYMBOL	ITEM	DIMENSION	REMARKS
P	Pitch of component	12.7 \pm 1.0	Tilt of component and curvature of leads shall be included.
P ₀	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	
$\Delta h_{1,2}$	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 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.	

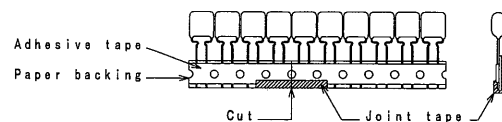
Reference

DESIGN	<i>Th. 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.

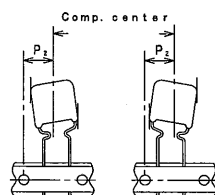
Note 4. The tape adhesion is more than 3.92N (400gf) / 25mm.

Note 5. A tape trailer having at least 3 feed holes is required at the end of the tape.

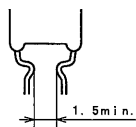
Note 6. 1) The P₁ and P₂ dimension shall be measured as shown in the figure after the adhesive tape placing upward.

(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.



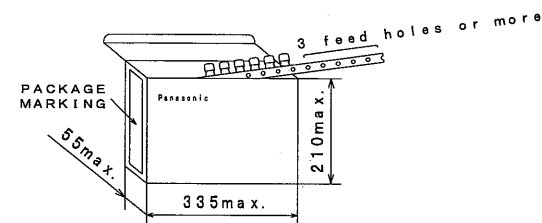
Note 7. The lead crimping shape shows as follows.



Packing specification

1. Case size

Ammo pack



2. Packing quantity

Capacitance range	Packing quantity
0.01~0.082 μ F	1000
0.1 ~0.27 μ F	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. (μ F)	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

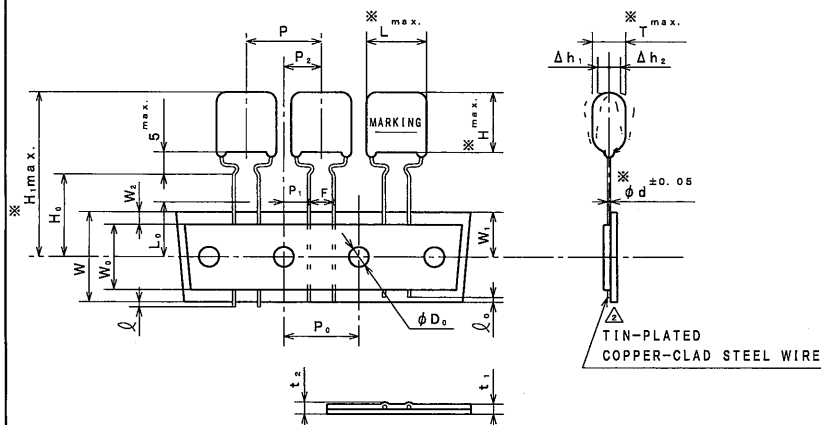
ECQE 2334KF3 (250VDC, 0.33 μ F, \pm 10%)

Ammo packing
 Forming lead type
 Radial leads
 Capacitance tolerance (J= \pm 5%, K= \pm 10%)
 Capacitance
 Rated voltage (2...250VDC)

ALTERATION		
ISSUE	DESCRIPTION	DATE
Δ	Modification	Jun. 20 2002
Δ	Company name changed	Oct. 1 2004
Δ	Company name changed	Apr. 1 2005
Δ	Company name changed	Apr. 1 2006
Δ	Correction: category temperature range (-40 $^{\circ}$ C~+85 $^{\circ}$ C~+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	Company name changed Error correction	Apr. 1 2008
Δ	Company name changed	Apr. 1 2012
Δ	Company name changed	Apr. 1 2013
Δ	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 ₁	Feed hole pitch	15.0 \pm 0.2	
P ₂	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 0.5	
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 ₂	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	Lead-wire clinch height	16.0 \pm 0.5	
g	Lead-wire protrusion	0max.	
g 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

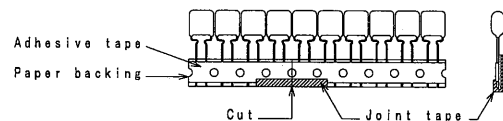
Reference

DESIGN	<i>K. 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.

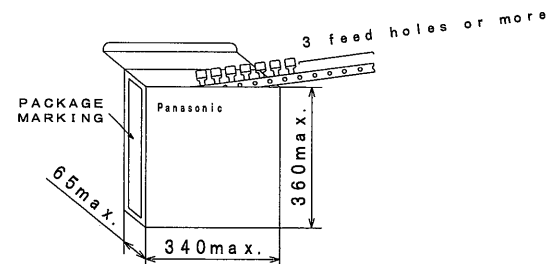
Note 4. The tape adhesion is more than 3.92N (400gf)/25mm.

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.

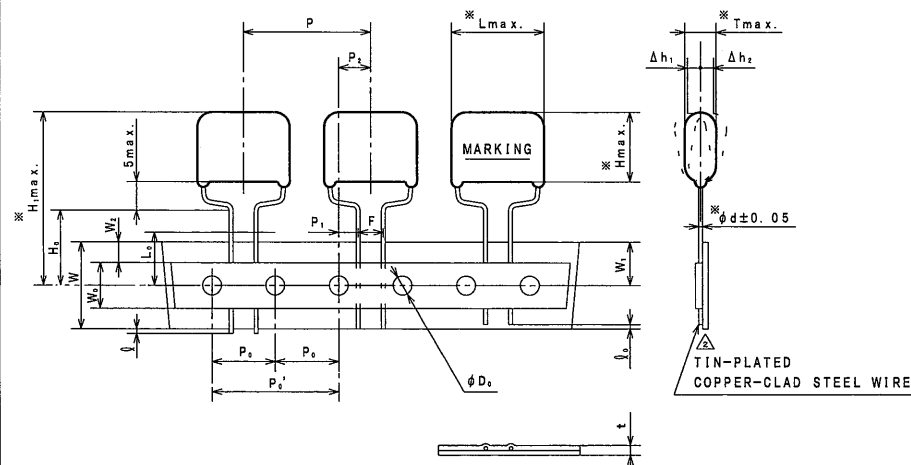
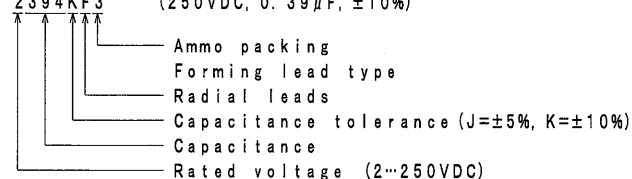
CT-H-3B4E (2/2)

Toyama-Matsue Plant
Device Solutions Business Division
Panasonic Corporation

THIRD ANGLE PROJECTION

ITEM CODE	RATED VOLTAGE	CAP. (μ F)	DIMENSIONS				
			* L	* T	* H	* d	* 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%)

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 ₂ '	"	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	
$\Delta h_{1,2}$	Component alignment	0 \sim 2.0	Tilt of component due to curvature of leads shall be included.
W	Paper backing width	18.0 \pm 0.5	
W ₂	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 \sim 3.0	
H ₂	Lead-wire clinch height	16.0 \pm 0.5	
l	Lead-wire protrusion	0max.	
l ₂	Lead-wire depression	7.0max.	
ϕD_2	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 ₂	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 $\Delta\Delta$ (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 : Δ From -40°C to +105°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 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°C \sim +85°C \rightarrow -40°C \sim +105°C) Addition: rated voltage (Derating of rated voltage by 1.25%/°C at more than 85°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.

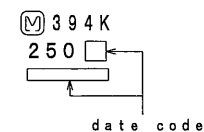
TE88119H

Reference

DESIGN	<i>Y. Takata</i>
CHECKED	<i>K. Osaki</i>
APPROVAL	<i>Y. 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)

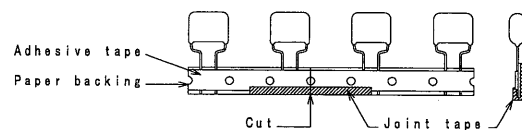
Toyama Matsue Plant
 Device Solutions Business Division
 Panasonic Corporation

MARKING EXAMPLE



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 "P₁" 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.

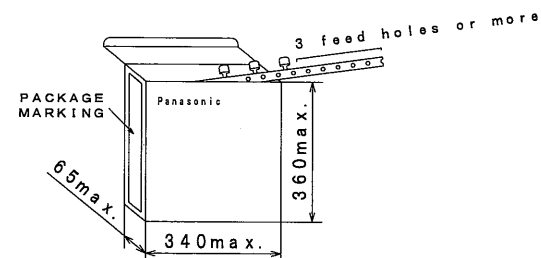
Note 4. The tape adhesion is more than 3.92N (400gf) / 25mm.

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)

Toyama-Matsue Plant
Device Solutions Business Division
Panasonic Corporation