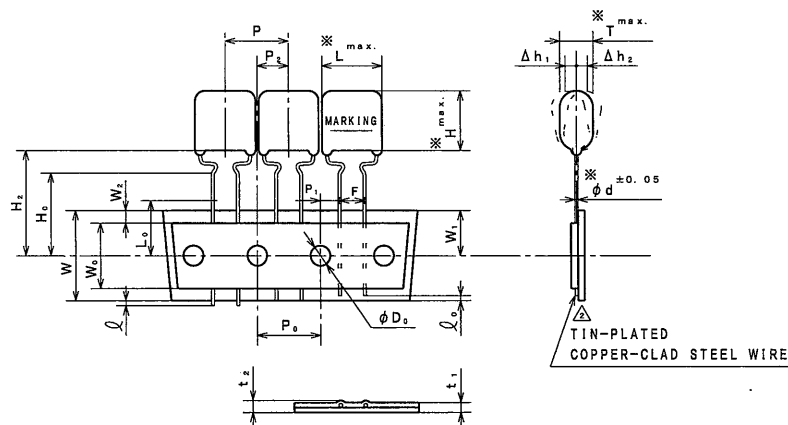


THIRD ANGLE PROJECTION

ITEM CODE	RATED VOLTAGE	CAP. ( $\mu$ F)	DIMENSIONS			
			$\times$ L	$\times$ T	$\times$ H	$\times$ d
ECQE4103 () F3	400VDC	0.01	10.3	4.3	7.4	0.6
" 4123 () F3	"	0.012	"	4.4	7.5	"
" 4153 () F3	"	0.015	"	"	"	"
" 4183 () F3	"	0.018	"	"	"	"
" 4223 () F3	"	0.022	"	4.8	7.9	"
" 4273 () F3	"	0.027	"	5.5	8.0	"
" 4333 () F3	"	0.033	"	6.0	9.0	"
" 4393 () F3	"	0.039	12.0	4.9	8.0	"
" 4473 () F3	"	0.047	"	5.0	8.3	"
" 4563 () F3	"	0.056	"	"	10.0	"
" 4683 () F3	"	0.068	"	5.4	10.5	"
" 4823 () F3	"	0.082	"	5.8	11.0	"
" 4104 () F3	"	0.1	"	6.3	12.0	"

TOL. SYMBOL (J or K)



## ITEM CODE NUMBER STRUCTURE

ECQE 4103KF3 (400VDC, 0.01 $\mu$ F,  $\pm$ 10%)

Ammo packing  
 Forming lead type  
 Radial leads  
 Capacitance tolerance (J= $\pm$ 5%, K= $\pm$ 10%)  
 Capacitance  
 Rated voltage (4...400VDC)

SYMBOL	ITEM	DIMENSION	REMARKS
P	Pitch of component	12.7 $\pm$ 1.0	Tilt of component and curvature of leads shall be included.
P <sub>0</sub>	Feed hole pitch	12.7 $\pm$ 0.2	
P <sub>1</sub>	Feed hole center to lead	3.85 $\pm$ 0.5	
P <sub>2</sub>	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	
$\Delta h_1$	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 <sub>0</sub>	Adhesive tape width	9.5min.	The hold down tape shall not protrude beyond the carrier tape.
W <sub>1</sub>	Hole position	9.0 $\pm$ 0.5	
W <sub>2</sub>	Hold-down tape position	0~3.0	
H <sub>2</sub>	Component height	22.0 $\pm$ 0.75	
H <sub>0</sub>	Lead-wire clinch height	16.0 $\pm$ 0.5	
$\phi$	Lead-wire protrusion	0max.	
$\phi$ <sub>0</sub>	Lead-wire depression	7.0max.	
$\phi$ D <sub>0</sub>	Feed hole diameter	4.0 $\pm$ 0.2	
t <sub>1</sub>	Total tape thickness	0.7 $\pm$ 0.2	Total thickness including the hold down tape.
t <sub>2</sub>	Total thickness	1.5max.	
L <sub>0</sub>	Length of shipped 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 : 400VDC  $\Delta$  (Derating of rated voltage by 1.25%/°C at more than 85°C)  
 Withstand voltage : 400VDC $\times$ 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 :  $\Delta$  From -40°C to +105°C (including temperature rise on unit surface)

## MARKING EXAMPLE

103K  
400  $\square$   $\rightarrow$  date code

## ALTERATION

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

SPECIFICATIONS No.

TE72032Y

Reference

DESIGN	APR-1000000
CHECKED	Y. Osaka
APPROVAL	Y. Takato
ESTABLISHMENT	Apr. 27, 1987
TYPE NAME	ECQE4*** () F3
NAME	Metallized Polyester Film Capacitor
DRAWING NAME	PRODUCT DRAWING
DRAWING No.	CT-H-C016 (1/2)

Toyama-Matsue Plant  
Device Solutions Business Division  
Panasonic Corporation

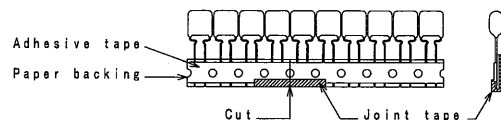
DO NOT SCALE DRAWING

REVISIONS INDICATED BY  $\Delta$ 

ALL DIMENSIONS ARE IN MILLIMETERS

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 "P<sub>0</sub>" dimension.  
A joint tape put on the back side of paper backing, and turn up the lower part to the front.

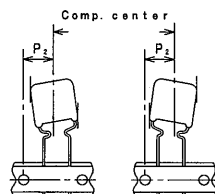
Note 3. Marking on components may not be the same side.

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

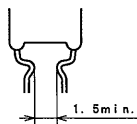
Note 5. A tape trailer having at least 3 feed holes is required at the end of the tape.

Note 6. 1) The P<sub>1</sub> and P<sub>2</sub> 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 P<sub>2</sub> dimension shall be measured between center of a vertical projection plane for tape plane and center of sprocket hole.



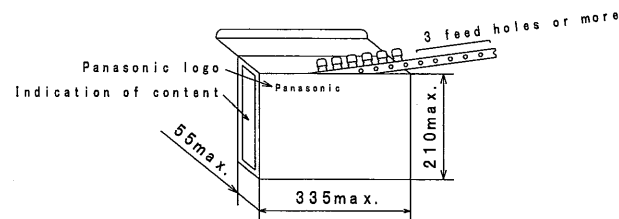
Note 7. The lead crimping shape shows as follows.



## Packing specification

### 1. Case size

#### Ammo pack



### 2. Packing quantity

Capacitance range	Packing quantity
0.01 ~ 0.027 $\mu$ F	1000
0.033 ~ 0.1 $\mu$ 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

ECQE4\*\*\*() F3

DRAWING No.

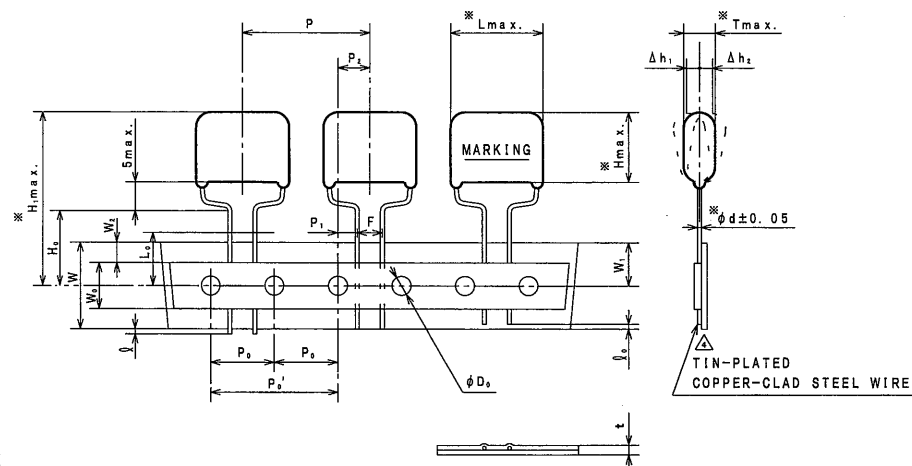
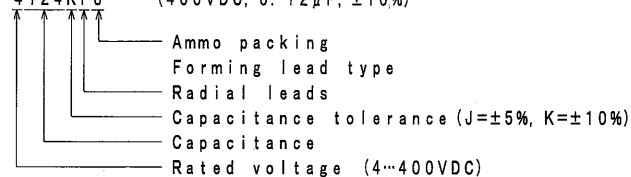
CT-H-C016 (2/2)

Toyama-Matsue Plant  
Device Solutions Business Division  
Panasonic Corporation

THIRD ANGLE PROJECTION

ITEM CODE	RATED VOLTAGE	CAP. ( $\mu$ F)	DIMENSIONS				
			$\times$ L	$\times$ T	$\times$ H	$\times$ d	$\times$ H <sub>1</sub>
ECQE4124 () F3	400VDC	0.12	18.5	5.0	10.0	0.6	31.5
" 4154 () F3	"	0.15	"	"	12.4	"	33.9
" 4184 () F3	"	0.18	"	"	12.5	"	34.0
" 4224 () F3	"	0.22	"	"	13.0	"	34.5
" 4274 () F3	"	0.27	"	"	14.3	0.8	35.8
" 4334 () F3	"	0.33	"	"	14.9	"	36.4
" 4394 () F3	"	0.39	"	"	15.4	"	36.9
" 4474 () F3	"	0.47	"	"	17.0	"	38.5

## ITEM CODE NUMBER STRUCTURE

ECQE 4124KF3 (400VDC, 0.12 $\mu$ 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 <sub>0</sub>	Feed hole pitch	12.7 $\pm$ 0.2	
P <sub>0</sub> '	"	25.4 $\pm$ 0.2	
P <sub>1</sub>	Feed hole center to lead	3.85 $\pm$ 0.5	
P <sub>2</sub>	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 <sub>1,2</sub>	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 <sub>0</sub>	Adhesive tape width	12.5min.	The hold down tape shall not protrude beyond the carrier tape.
W <sub>1</sub>	Hole position	9.0 $\pm$ 0.5	
W <sub>2</sub>	Hold-down tape position	0~3.0	
H <sub>2</sub>	Lead-wire clinch height	16.0 $\pm$ 0.5	
l	Lead-wire protrusion	0max.	
l <sub>0</sub>	Lead-wire depression	7.0max.	
phi D <sub>0</sub>	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 <sub>2</sub>	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	: 400VDC $\Delta$ (Derating of rated voltage by 1.25%/°C at more than 85°C)	
Withstand voltage	: 400VDC $\times$ 150% for 60s	
Insulation resistance	: $\geq$ 3000M $\Omega$ · $\mu$ F (C>0.33 $\mu$ F) at 100VDC, 20°C for 60s	
	: $\geq$ 9000M $\Omega$ (C $\leq$ 0.33 $\mu$ F) at 100VDC, 20°C for 60s	
Dissipation factor	: $\leq$ 1.0% at 1kHz, 20°C	
Category temperature range	: $\Delta$ From -40°C to +105°C	
	(including temperature rise on unit surface)	

DO NOT SCALE DRAWING

REVISIONS INDICATED BY  $\Delta$ 

ALL DIMENSIONS ARE IN MILLIMETERS

## ALTERATION

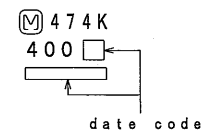
ISSUE	DESCRIPTION	DATE
$\Delta$	Company name changed	Oct. 1 2004
$\Delta$	Company name changed	Apr. 1 2005
$\Delta$	Company name changed	Apr. 1 2006
$\Delta$	Correction: category temperature range (-40°C~+85°C--40°C~+105°C) Addition: rated voltage (Derating of rated voltage by 1.25%/°C at more than 85°C)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

SPECIFICATIONS No.

TEB8250H

Reference

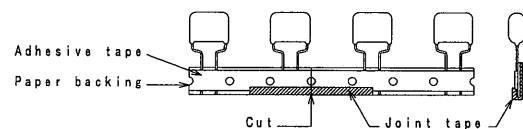
## MARKING EXAMPLE



DESIGN	Apr. Michigoda
CHECKED	K. Ozaki
APPROVAL	Y. Takata
ESTABLISHMENT	Apr. 28, 1994
TYPE NAME	ECQE4*** () F3
NAME	Metallized Polyester Film Capacitor
DRAWING NAME	PRODUCT DRAWING
DRAWING No.	CT-H-154E (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.

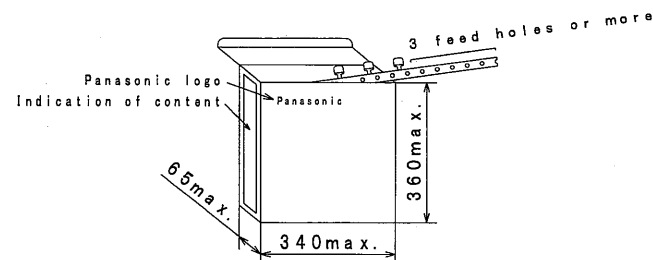


A tape sliding shall not exceed in an allowance of "P<sub>0</sub>" dimension.  
 A joint tape put on the back side of paper backing, and turn up the lower part to the front.

- 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
0.12~0.47μF	500

### 3. Handling notes

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

Reference

TYPE NAME
ECQE4*** () F3
DRAWING No.
CT-H-154E (2/2)

Toyama-Matsue Plant  
 Device Solutions Business Division  
 Panasonic Corporation