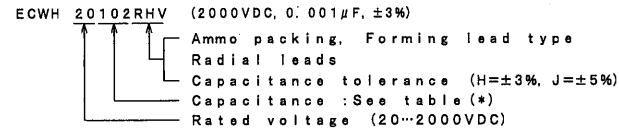


THIRD ANGLE PROJECTION

ITEM CODE	CAPACITANCE μF ( * )	DIMENSIONS			
		※L	※T	※H	※H <sub>1</sub>
ECWH 20102R ( ) V	0.001 (102)	18.0	6.5	13.5	35.5
" 20112R ( ) V	0.0011 (112)	"	"	"	"
" 20122R ( ) V	0.0012 (122)	"	7.0	"	"
" 20132R ( ) V	0.0013 (132)	"	"	14.0	36.0
" 20152R ( ) V	0.0015 (152)	"	7.5	"	"
" 20162R ( ) V	0.0016 (162)	"	"	14.5	36.5
△ " 20172R ( ) V	0.0017 (172)	"	"	"	"
" 20182R ( ) V	0.0018 (182)	"	8.0	"	"
" 20202R ( ) V	0.002 (202)	"	"	15.0	37.0
" 20222R ( ) V	0.0022 (222)	"	8.5	"	"
" 20242R ( ) V	0.0024 (242)	"	"	15.5	37.5
" 20272R ( ) V	0.0027 (272)	"	9.0	16.0	38.0
" 20302R ( ) V	0.003 (302)	"	9.5	"	"
" 20332R ( ) V	0.0033 (332)	"	8.5	15.5	37.5
" 20362R ( ) V	0.0036 (242)	"	9.0	"	"
" 20392R ( ) V	0.0039 (392)	"	"	16.0	38.0
" 20432R ( ) V	0.0043 (432)	"	9.5	"	"
" 20472R ( ) V	0.0047 (472)	23.0	7.0	15.5	37.5
" 20512R ( ) V	0.0051 (512)	"	7.5	16.0	38.0
" 20562R ( ) V	0.0056 (562)	"	"	"	"
" 20622R ( ) V	0.0062 (622)	"	8.0	16.5	38.5
" 20682R ( ) V	0.0068 (682)	"	8.5	"	"
" 20722R ( ) V	0.0072 (722)	"	"	17.0	39.0
" 20752R ( ) V	0.0075 (752)	"	9.5	18.0	40.0
" 20822R ( ) V	0.0082 (822)	"	10.0	"	"
" 20912R ( ) V	0.0091 (912)	"	"	19.0	41.0
" 20103R ( ) V	0.01 (103)	"	10.5	19.5	41.5
" 20113R ( ) V	0.011 (113)	"	11.0	20.0	42.0
" 20123R ( ) V	0.012 (123)	"	11.5	20.5	42.5
" 20133R ( ) V	0.013 (133)	"	12.0	21.0	43.0
" 20153R ( ) V	0.015 (153)	"	"	21.5	43.5

ITEM CODE NUMBER STRUCTURE



ALTERATION		
ISSUE	DESCRIPTION	DATE
△	Company name changed	Oct. 1 2004
△	Company name changed	Apr. 1 2005
△	Addition (172) Modification Case Size (360→410max.)	Dec. 15 2005
△	Company name changed	Apr. 1 2006
△	Alteration: Category temperature range (-25℃→-40℃)	Apr. 20 2007
△	Correction: category temperature range (-40℃→+85℃→-40℃→+105℃) Addition: rated voltage (Derating of rated voltage by 1.25%/℃ at more than 85℃) Company name changed	Apr. 1 2008
△	Company name changed	Apr. 1 2012
△	Company name changed	Apr. 1 2013
△	Company name changed	Apr. 1 2016

SPECIFICATIONS No.

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

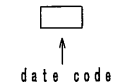
Marking comprises capacitance, capacitance tolerance, rated voltage, manufacturer's trademark and type name "WHV" and manufacturer's date code.

PROPERTIES

Capacitance : See table at 1kHz  
 Capacitance tolerance : ±3% (H), ±5% (J)  
 Rated voltage : 2000VDC △ (Derating of rated voltage by 1.25%/℃ at more than 85℃)  
 Withstand voltage (terminal-terminal) : DC Rated voltage x 150% for 60s  
 (terminal-enclosure) : 1500VAC for 60s  
 Insulation resistance : 30,000MΩ or more, at 500VDC, 20℃ for 60s  
 Dissipation factor : 0.1% or less at 1kHz, 0.2% or less at 10kHz  
 Category temperature range : △△ From -40℃ to +105℃ (including temperature rise on unit surface)

(example)

WHV 102 H  
 (M) 2.0kVDC

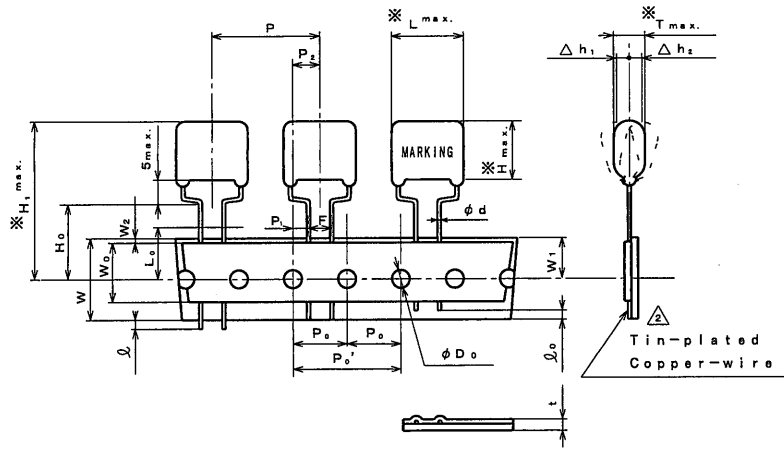


Reference

DESIGN	<i>Ch. Mochida</i>
CHECKED	<i>M. Yamaguchi</i>
APPROVAL	<i>Y. Takata</i>
ESTABLISHMENT	May. 28. 1997
TYPE NAME	
ECWH 20***R ( ) V	
NAME METALLIZED POLYPROPYLENE CAPACITOR	
DRAWING NAME PRODUCT DRAWING	
DRAWING No. CH-H-739J (1/2)	

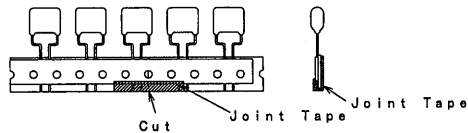
Toyama-Matsue Plant  
 Device Solutions Business Division  
 Panasonic Corporation

THIRD ANGLE PROJECTION



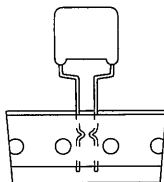
SYMBOL	ITEM	VALUE	TOLERANCE	REMARKS
P	Pitch of component	30.0	±1.0	Tilt of component and curvature of leads shall be included.
P <sub>0</sub> '	Feed hole pitch	30.0	±0.2	
P <sub>0</sub>	Feed hole pitch	15.0	±0.2	
P <sub>1</sub>	Feed hole center to lead	3.75	±0.5	
P <sub>2</sub>	Hole center to comp. center	7.5	±1.3	Tilt of component due to curvature of leads shall be included.
φd	Lead-wire diameter	0.8	±0.05	
F	Lead-to-lead distance	7.5	+0.8 -0.2	
Δh <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	±0.5	
W <sub>0</sub>	Adhesive tape width	12.5	min.	The hold down tape shall not protrude beyond the carrier tape.
W <sub>1</sub>	Hole position	9.0	±0.5	
W <sub>2</sub>	Hold-down tape position	0~3.0		
H <sub>0</sub>	Lead-wire clinch height	16.0	+1.0 0	
ℓ	Lead wire protrusion	0	max.	
ℓ <sub>0</sub>	Lead wire depression	7.0	max.	
φD <sub>0</sub>	Feed hole diameter	4.0	±0.2	
t	Total tape thickness	0.7	±0.2	Total thickness including the hold down tape.
L <sub>0</sub>	Length of snapped lead	11.0	max.	

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



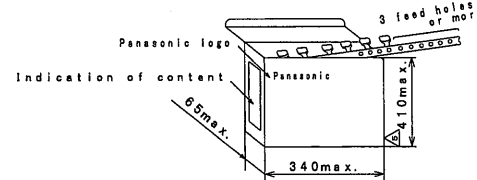
A tape sliding shall not exceed in an allowance of "P<sub>0</sub>" dimension.  
 A joint tape put on the back side of paper backing, and turn up the lower part to the front.

- Note 3. 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

- Case size (Ammo pack)
- Packaging quantity



Capacitance range (μF)	Quantity (pcs.)
0.001~0.0013	500
0.0015~0.0024	400
0.0027~0.003	300
0.0033	400
0.0036~0.0043	300
0.0047	500
0.0051~0.0072	400
0.0075~0.015	300

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 packaging box must be handled with care and never thrown out.

TYPE NAME **Reference**  
 ECNH 20V4R (V)  
 DRAWING No.  
 CH-H-739J (2/2)

Toyama-Matsue Plant  
 Device Solutions Business Division  
 Panasonic Corporation