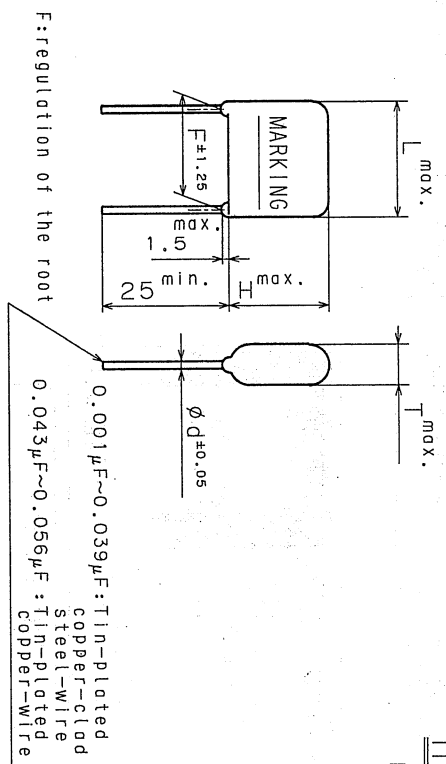


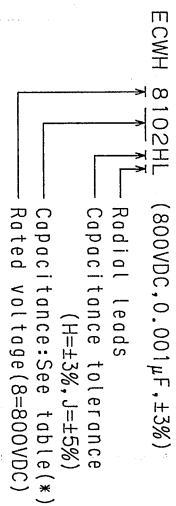
THIRD ANGLE PROJECTION

ITEM CODE	CAPACITANCE μF (*)	DIMENSIONS				MARKING STYLE	ITEM CODE	CAPACITANCE μF (*)	DIMENSIONS				MARKING STYLE		
		L	T	H	F				d	L	T	H		F	d
ECWH 8102(L)	0.001 (102)	18.0	5.0	11.5	15.0	0.6	1	ECWH 8273(L)	0.027 (273)	23.0	5.0	13.5	20.0	0.6	1
# 8112(L)	0.0011 (112)	#	#	#	#	#	#	# 8303(L)	0.03 (303)	#	#	#	#	#	#
# 8122(L)	0.0012 (122)	#	#	#	#	#	#	# 8333(L)	0.033 (333)	#	#	#	#	#	#
# 8132(L)	0.0013 (132)	#	#	#	#	#	#	# 8363(L)	0.036 (363)	#	#	#	#	#	#
# 8152(L)	0.0015 (152)	#	#	#	#	#	#	# 8393(L)	0.039 (393)	#	#	#	#	#	#
# 8162(L)	0.0016 (162)	#	#	#	#	#	#	# 8433(L)	0.043 (433)	#	#	#	#	#	#
# 8182(L)	0.0018 (182)	#	#	#	#	#	#	# 8473(L)	0.047 (473)	#	#	#	#	#	#
# 8202(L)	0.002 (202)	#	#	#	#	#	#	# 8513(L)	0.051 (513)	#	#	#	#	#	#
# 8222(L)	0.0022 (222)	#	#	#	#	#	#	# 8563(L)	0.056 (563)	#	#	#	#	#	#
# 8242(L)	0.0024 (242)	#	#	#	#	#	#								
# 8272(L)	0.0027 (272)	#	#	#	#	#	#								
# 8302(L)	0.003 (302)	#	#	#	#	#	#								
# 8332(L)	0.0033 (332)	#	#	#	#	#	#								
# 8362(L)	0.0036 (362)	#	#	#	#	#	#								
# 8392(L)	0.0039 (392)	#	#	#	#	#	#								
# 8432(L)	0.0043 (432)	#	#	#	#	#	#								
# 8472(L)	0.0047 (472)	#	#	#	#	#	#								
# 8512(L)	0.0051 (512)	#	#	#	#	#	#								
# 8562(L)	0.0056 (562)	#	#	#	#	#	#								
# 8622(L)	0.0062 (622)	#	#	#	#	#	#								
# 8682(L)	0.0068 (682)	#	#	#	#	#	#								
# 8752(L)	0.0075 (752)	#	#	#	#	#	#								
# 8822(L)	0.0082 (822)	#	#	#	#	#	#								
# 8912(L)	0.0091 (912)	#	#	#	#	#	#								
# 8103(L)	0.01 (103)	#	#	#	#	#	#								
# 8113(L)	0.011 (113)	#	#	#	#	#	#								
# 8123(L)	0.012 (123)	#	#	#	#	#	#								
# 8133(L)	0.013 (133)	#	#	#	#	#	#								
# 8153(L)	0.015 (153)	#	#	#	#	#	#								
# 8163(L)	0.016 (163)	#	#	#	#	#	#								
# 8183(L)	0.018 (183)	#	#	#	#	#	#								
# 8203(L)	0.02 (203)	#	#	#	#	#	#								
# 8223(L)	0.022 (223)	#	#	#	#	#	#								
# 8243(L)	0.024 (243)	#	#	#	#	#	#								

ITEM CODE	CAPACITANCE μF (*)	DIMENSIONS				MARKING STYLE	ITEM CODE	CAPACITANCE μF (*)	DIMENSIONS				MARKING STYLE		
		L	T	H	F				d	L	T	H		F	d
ECWH 8102(L)	0.001 (102)	18.0	5.0	11.5	15.0	0.6	1	ECWH 8273(L)	0.027 (273)	23.0	5.0	13.5	20.0	0.6	1
# 8112(L)	0.0011 (112)	#	#	#	#	#	#	# 8303(L)	0.03 (303)	#	#	#	#	#	#
# 8122(L)	0.0012 (122)	#	#	#	#	#	#	# 8333(L)	0.033 (333)	#	#	#	#	#	#
# 8132(L)	0.0013 (132)	#	#	#	#	#	#	# 8363(L)	0.036 (363)	#	#	#	#	#	#
# 8152(L)	0.0015 (152)	#	#	#	#	#	#	# 8393(L)	0.039 (393)	#	#	#	#	#	#
# 8162(L)	0.0016 (162)	#	#	#	#	#	#	# 8433(L)	0.043 (433)	#	#	#	#	#	#
# 8182(L)	0.0018 (182)	#	#	#	#	#	#	# 8473(L)	0.047 (473)	#	#	#	#	#	#
# 8202(L)	0.002 (202)	#	#	#	#	#	#	# 8513(L)	0.051 (513)	#	#	#	#	#	#
# 8222(L)	0.0022 (222)	#	#	#	#	#	#	# 8563(L)	0.056 (563)	#	#	#	#	#	#
# 8242(L)	0.0024 (242)	#	#	#	#	#	#								
# 8272(L)	0.0027 (272)	#	#	#	#	#	#								
# 8302(L)	0.003 (302)	#	#	#	#	#	#								
# 8332(L)	0.0033 (332)	#	#	#	#	#	#								
# 8362(L)	0.0036 (362)	#	#	#	#	#	#								
# 8392(L)	0.0039 (392)	#	#	#	#	#	#								
# 8432(L)	0.0043 (432)	#	#	#	#	#	#								
# 8472(L)	0.0047 (472)	#	#	#	#	#	#								
# 8512(L)	0.0051 (512)	#	#	#	#	#	#								
# 8562(L)	0.0056 (562)	#	#	#	#	#	#								
# 8622(L)	0.0062 (622)	#	#	#	#	#	#								
# 8682(L)	0.0068 (682)	#	#	#	#	#	#								
# 8752(L)	0.0075 (752)	#	#	#	#	#	#								
# 8822(L)	0.0082 (822)	#	#	#	#	#	#								
# 8912(L)	0.0091 (912)	#	#	#	#	#	#								
# 8103(L)	0.01 (103)	#	#	#	#	#	#								
# 8113(L)	0.011 (113)	#	#	#	#	#	#								
# 8123(L)	0.012 (123)	#	#	#	#	#	#								
# 8133(L)	0.013 (133)	#	#	#	#	#	#								
# 8153(L)	0.015 (153)	#	#	#	#	#	#								
# 8163(L)	0.016 (163)	#	#	#	#	#	#								
# 8183(L)	0.018 (183)	#	#	#	#	#	#								
# 8203(L)	0.02 (203)	#	#	#	#	#	#								
# 8223(L)	0.022 (223)	#	#	#	#	#	#								
# 8243(L)	0.024 (243)	#	#	#	#	#	#								



ITEM CODE NUMBER STRUCTURE



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 "WHL" and manufacturer's date code.

PROPERTIES

- Capacitance : See table at 1kHz
- Capacitance tolerance : ±3%(H), ±5%(J)
- Rated voltage : 800VDC
- Withstand voltage : DC Rated voltage X 140% for 60S
- (terminal-terminal) : 1500VAC for 60S
- (terminal-enclosure) : 30,000MQ or more, at 500VDC, 20V for 60S
- Insulation resistor : 0.1% or less at 1kHz, 0.2% or less at 10kHz
- Dissipation factor : From -40V to +110V
- Category temperature range : (including temperature rise on unit surface)

(example)

STYLE 1	STYLE 2
WHL 102 H 800VDC	WHL 433 H 800VDC
date code	date code

*The marking of "M" with the underline means that the copper wire is used for the lead wire, while the one without the underline means that tinned copper clad-steel wire is used.

ISSUE	ALTERATION DESCRIPTION	DATE

SPECIFICATIONS No.

DESIGN & DRAWING

CHECKED: *M. Hoshino*

APPROVAL: *S. Yamamoto*

ESTABLISHMENT: Sep. 5. 2003

TYPE NAME: ECWH 8xxx(L)

NAME: METALLIZED POLYPROPYLENE CAPACITOR

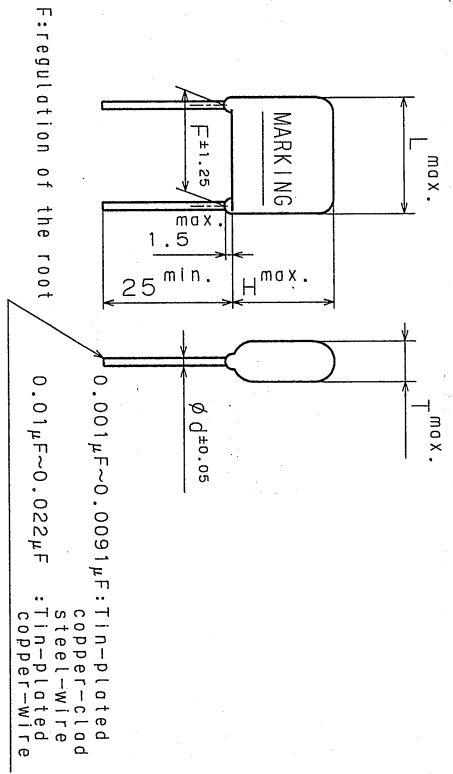
DRAWING NAME: PRODUCT DRAWING

DRAWING No.: 3085J-J-E(1/1)

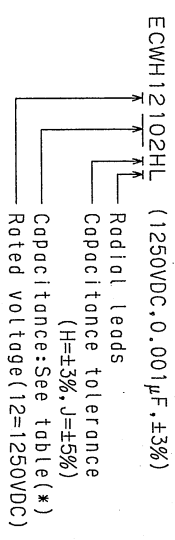
Panasonic Electronic Circuit Capacitor Division, Matsushita Electric Industrial Co., Ltd.

THIRD ANGLE PROJECTION

ITEM CODE	CAPACITANCE μF (* J)	DIMENSIONS				MARKING STYLE
		L	T	H	F	
ECWH 12102(L)	0.001 (102)	18.0	5.0	11.5	0.6	1
# 12112(L)	0.0011 (112)	#	#	12.0	#	#
# 12122(L)	0.0012 (122)	#	#	#	#	#
# 12132(L)	0.0013 (132)	#	5.5	#	#	#
# 12152(L)	0.0015 (152)	#	#	12.5	#	#
# 12162(L)	0.0016 (162)	#	#	#	#	#
# 12182(L)	0.0018 (182)	#	6.0	#	#	#
# 12202(L)	0.002 (202)	#	#	13.0	#	#
# 12222(L)	0.0022 (222)	#	5.0	11.5	#	#
# 12242(L)	0.0024 (242)	#	#	12.0	#	#
# 12272(L)	0.0027 (272)	#	#	#	#	#
# 12302(L)	0.003 (302)	#	5.5	#	#	#
# 12332(L)	0.0033 (332)	#	#	#	#	#
# 12362(L)	0.0036 (362)	#	#	12.5	#	#
# 12392(L)	0.0039 (392)	#	#	#	#	#
# 12432(L)	0.0043 (432)	#	6.0	#	#	#
# 12472(L)	0.0047 (472)	#	5.0	12.0	#	#
# 12512(L)	0.0051 (512)	#	5.5	#	#	#
# 12562(L)	0.0056 (562)	#	#	#	#	#
# 12622(L)	0.0062 (622)	#	#	12.5	#	#
# 12682(L)	0.0068 (682)	#	6.0	#	#	#
# 12752(L)	0.0075 (752)	#	#	13.0	#	#
# 12822(L)	0.0082 (822)	#	#	#	#	#
# 12912(L)	0.0091 (912)	#	6.5	#	#	#
# 12103(L)	0.01 (103)	#	#	13.5	#	2
# 12113(L)	0.011 (113)	#	7.0	#	#	#
# 12123(L)	0.012 (123)	#	#	14.0	#	#
# 12133(L)	0.013 (133)	#	7.5	#	#	#
# 12153(L)	0.015 (153)	#	#	14.5	#	#
# 12163(L)	0.016 (163)	#	8.0	15.0	#	#
# 12183(L)	0.018 (183)	23.0	6.5	15.0	20.0	#
# 12203(L)	0.02 (203)	#	#	#	#	#
# 12230(L)	0.022 (223)	#	7.0	15.5	#	#



ITEM CODE NUMBER STRUCTURE



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 "WHL" and manufacturer's date code.

PROPERTIES

- Capacitance : See table at 1kHz
- Capacitance tolerance : ±3%(H), ±5%(J)
- Rated voltage : 1250VDC
- Withstand voltage : DC Rated voltage X 140% for 60s
- (terminal-terminal) : 1500VAC for 60s
- (terminal-enclosure) : 30,000MQ or more, at 500VDC, 20% for 60s
- Insulation resistance : 0.1% or less at 1kHz, 0.2% or less at 10kHz
- Dissipation factor : From -40°C to +110°C
- Category temperature range : (Including temperature rise on unit surface)

(example)

STYLE 1	STYLE 2
WHL 102 H ① 1.25KVDC □ date code	WHL 103 H ② 1.25KVDC □ date code

*The marking of "①" with the underline means that the copper wire is used for the lead wire, while the one without the underline means that tinned copper steel wire is used.

ALTERATION	ISSUE	DESCRIPTION	DATE

Reference
DESIGN: M. Kobayashi
CHECKED: M. Kobayashi
APPROVAL: S. Yamamura
ESTABLISHMENT: Sep. 5, 2003
TYPE NAME: ECWH 12xxx(L)

NAME: METALLIZED POLYPROPYLENE CAPACITOR
DRAWING NAME: PRODUCT DRAWING
DRAWING No.: 3086J-J-E(1/1)

DO NOT SCALE DRAWING

REVISIONS INDICATED BY Δ

ALL DIMENSIONS ARE IN MILLI

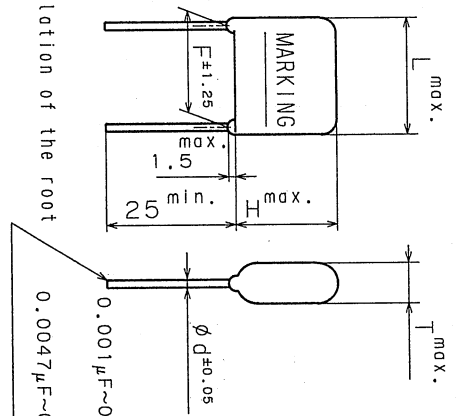
RS

Parasonic

Electronic Circuit Capacitor Division, Matsushita Electric Industrial CO., Ltd.

THIRD ANGLE PROJECTION

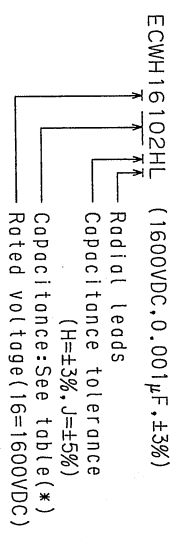
ITEM CODE	CAPACITANCE μF (*)	DIMENSIONS				MARKING STYLE	
		L	T	H	F		
ECWH 16102H(L)	0.001 (102)	18.0	5.0	11.5	15.0	0.6	1
ECWH 16112(L)	0.001 (112)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16122(L)	0.001 (122)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16132(L)	0.001 (132)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16152(L)	0.001 (152)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16162(L)	0.001 (162)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16182(L)	0.001 (182)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16202(L)	0.002 (202)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16222(L)	0.002 (222)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16242(L)	0.002 (242)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16272(L)	0.002 (272)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16302(L)	0.003 (302)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16332(L)	0.003 (332)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16362(L)	0.003 (362)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16392(L)	0.003 (392)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16432(L)	0.004 (432)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16472(L)	0.004 (472)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16512(L)	0.005 (512)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16562(L)	0.005 (562)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16622(L)	0.006 (622)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16752(L)	0.007 (752)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16822(L)	0.008 (822)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16912(L)	0.009 (912)	18.0	5.0	12.0	15.0	0.6	1
ECWH 16103(L)	0.01 (103)	23.0	7.0	15.0	20.0	0.6	1
ECWH 16113(L)	0.01 (113)	23.0	7.0	15.0	20.0	0.6	1
ECWH 16123(L)	0.01 (123)	23.0	7.0	15.0	20.0	0.6	1
ECWH 16133(L)	0.01 (133)	23.0	7.0	15.0	20.0	0.6	1
ECWH 16153(L)	0.01 (153)	23.0	7.0	15.0	20.0	0.6	1
ECWH 16163(L)	0.01 (163)	23.0	7.0	15.0	20.0	0.6	1
ECWH 16183(L)	0.01 (183)	23.0	7.0	15.0	20.0	0.6	1
ECWH 16203(L)	0.02 (203)	23.0	7.0	15.0	20.0	0.6	1
ECWH 16223(L)	0.02 (223)	23.0	7.0	15.0	20.0	0.6	1



F: regulation of the root

0.001 μF ~ 0.0043 μF: Tin-plated copper-clad steel-wire
 0.0047 μF ~ 0.022 μF: Tin-plated copper-wire

ITEM CODE NUMBER STRUCTURE



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 "WHL" and manufacturer's date code.

PROPERTIES

- Capacitance : See table at 1KHz
- Capacitance tolerance : ±3%(H), ±5%(J)
- Rated voltage : 1600VDC
- Withstand voltage : DC Rated voltage X 140% for 60S
- (terminal-terminal) : 1500VAC for 60S
- (terminal-enclosure) : 30,000MΩ or more, at 500VDC, 20° for 60S
- Insulation resistance : 0.1% or less at 1kHz, 0.2% or less at 10kHz
- Dissipation factor : From -40° to +110°
- Category temperature range (including temperature rise on unit surface)

(example)

STYLE 1	STYLE 2
WHL102H Ⓜ 1.6KVDC date code	WHL472H Ⓜ 1.6KVDC date code

*The marking of 'Ⓜ' with the underline means that the copper wire is used for the lead wire, while the one without the underline means that tinned copper clad-steel wire is used.

ALTERATION	DATE
ISSUE	DESCRIPTION

SPECIFICATIONS No.

Reference
 DESIGN: S. Nakano
 CHECKED: M. Kudo
 APPROVAL: S. Yamaguchi
 ESTABLISHMENT: Sep. 5. 2003
 TYPE NAME: ECWH 16xxx(L)

NAME: METALLIZED POLYPROPYLENE CAPACITOR
 DRAWING NAME: PRODUCT DRAWING
 DRAWING No.: 3087J-J-E(1/1)

Panasonic

Electronic Circuit Capacitor Division,
 Matsushita Electric Industrial Co., Ltd.