PCH

Chip Type, Higher Capacitance
High Temperature Range

For SMD | HR High Ripple Current | Z Low Impedance | F For High Frequency | L Long Life | Anti-Solvent Feature

PCZ (High Temperature) — PCH — (High Temperature) PCR

- High reliability, High voltage (to 80V).
- Low ESR, High ripple current.
- Long life of 4000 hours at 135°C.
- SMD type : Lead free reflow soldering condition at 260°C peak complete correspondence.
- Compliant to the RoHS directive (2011/65/EU,(EU)2015/863).
- ESR after Endurance at -40°C.
- AEC-Q200 compliant. Please contact us for details.

■Specifications

Item	Performance Characteristics
Category Temperature Range	−55 to +135°C
Rated Voltage Range	16 to 80V
Rated Capacitance Range	12 to 1000μF
Capacitance Tolerance	±20% at 120Hz, 20°C
Tangent of loss angle (tan δ)	Less than or equal to the specified value at 120Hz, 20°C
ESR (※1)	Less than or equal to the specified value at 100kHz, 20°C
Leakage Current (※2)	After 2 minutes' application of rated voltage, leakage current is not more than 0.03CV or 3(μA), whichever is greater. ※
Temperature Characteristics (Max.Impedance Ratio)	Z(−55°C) / Z(+20°C) ≦ 1.25 (100kHz)
Endurance	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 4000 hours at 135°C.
Shelf Life	After storing the capacitors under no load at 135°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified values for the endurance characteristics listed above.
ESR after Endurance (※1)	Less than or equal to the specified value at 100kHz, -40°C
Damp Heat (Steady State)	The specifications listed at right shall be met when the capacitors are restored to 20°C after the rated voltage is applied for 2000 hours at 85°C, 85% RH.
Resistance to Soldering Heat	After soldering the capacitor under the soldering conditions prescribed here, the capacitor shall meet the specifications listed at right. Pre-heating shall be done at 150 to 200°C and for 60 to 180 sec. The duration for over +230°C temperature at capacitor surface shall not exceed 60 seconds. In case peak temperature is 260°C or less, reflow soldering shall be two times maximum. Measurement for solder temperature profile shall be made at the capacitor top.
Marking	Navy blue print on the case top

Endurance

Capacitance change	Within ± 20% of initial capacitance value (※3)
tan δ	150% or less of the initial specified value
ESR (※1)	200% or less of the initial specified value
Leakage current (※2)	Less than or equal to the initial specified value

Damp Heat (Steady State)

Capacitance change	Within ± 20% of initial capacitance value (※3)
tan δ	150% or less of the initial specified value
ESR (※1)	200% or less of the initial specified value
Leakage current (※2)	Less than or equal to the initial specified value

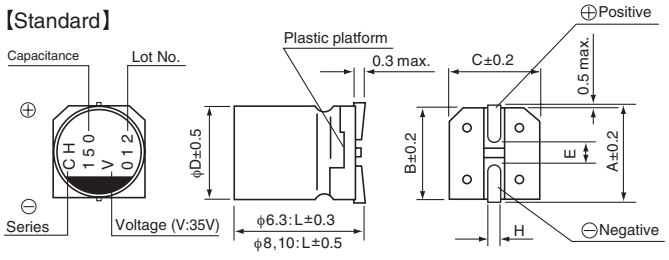
Resistance to Soldering Heat

Capacitance change	Within ± 10% of the initial capacitance value (※3)
tan δ	130% or less than the initial specified value
ESR (※1)	130% or less than the initial specified value
Leakage current (※2)	Less than or equal to the initial specified value

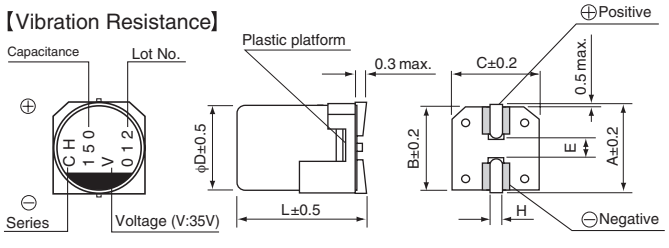
※1 ESR should be measured at both of the terminal ends closest where the terminals protrude through the plastic platform.
※2 Conditioning : If any doubt arises, measure the leakage current after the voltage treatment of applying DC rated voltage continuously to the capacitor for 120 minutes at 105°C.
※3 Initial value : The value before test of examination of resistance to soldering.

■Dimensions

【Standard】



【Vibration Resistance】



Aid electrode

●Dimension table in next page.

※ I : Leakage Current (μA), C : Rated Capacitance (μF), V : Rated Voltage (V)

Type numbering system (Example : 35V 150μF)

1	2	3	4	5	6	7	8	9	10	11	12	13	14
P	C	H	1	V	1	5	1	M	C	L	1	G	S

- Taping code
- Size code
- Configuration
- Capacitance tolerance (±20%)
- Rated capacitance (150μF)
- Rated voltage (35V)
- Series name
- Type

Size	Code
Standard	L
Vibration Resistance	S

Standard (mm)

Size	φ6.3×6L	φ6.3×8L	φ8×7L	φ8×10L	φ8×12L	φ10×8L	φ10×10L	φ10×12.7L
φD	6.3	6.3	8.0	8.0	8.0	10.0	10.0	10.0
L	5.9	7.9	6.9	9.9	11.9	7.9	9.9	12.6
A	7.3	7.3	9.0	9.0	9.0	11.0	11.0	11.0
B	6.6	6.6	8.3	8.3	8.3	10.3	10.3	10.3
C	6.6	6.6	8.3	8.3	8.3	10.3	10.3	10.3
E	2.1	2.1	3.2	3.2	3.2	4.6	4.6	4.6
H	0.5 to 0.8	0.5 to 0.8	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1

Vibration Resistance (mm)

Size	φ6.3×8L	φ8×10.5L	φ10×10.5L	φ10×13.2L
φD	6.3	8.0	10.0	10.0
L	7.5	10.0	10.0	12.7
A	7.3	9.0	11.0	11.0
B	6.6	8.3	10.3	10.3
C	6.6	8.3	10.3	10.3
E	2.5	3.1	4.6	4.6
H	0.5 to 0.8	1.1 to 1.5	1.1 to 1.5	1.1 to 1.5

Voltage

V	16	20	25	35	50	63	80
Code	C	D	E	V	H	J	K

●Frequency coefficient of rated ripple current

Frequency	120Hz	1kHz	10kHz	100kHz or more
Coefficient	0.05	0.30	0.70	1.00

※ φ6.3×8L(φ6.3×8L),φ8×10L(φ8×10.5L),φ10×10L(φ10×10.5L),φ10×12.7L(φ10×13.2L) : The vibration structure-resistant product is also available upon request, please ask for details.
( ) : Size of the vibration structure-resistant product.

PCH

■Dimensions

Rated Voltage (V) (code)	Surge Voltage (V)	Rated Capacitance (μF)	Case Size φD×L (mm)	tan δ	Leakage Current (μA) (at 20℃ after 2 minutes)	Initial ESR (mΩ) (20℃/100kHz)	Low temp. ESR after Endurance (mΩ) (−40℃ /100kHz)	Rated Ripple (mArms) (135℃ /100kHz)	Part Number
16 (1C)	20	120	6.3×6	0.08	57	36	72	900	PCH1C121MCL1GS
		220	■6.3×8	0.08	105	23	46	1500	PCH1C221MCL4GS
		220	8×7	0.08	105	30	60	1100	PCH1C221MCL1GS
		470	▲ 8×10	0.08	225	17	34	2400	PCH1C471MCL6GS
		470	10×8	0.08	225	22	44	1900	PCH1C471MCL1GS
		560	8×12	0.08	268	16	32	2700	PCH1C561MCL1GS
		680	10×10	0.08	326	19	38	2300	PCH1C681MCL1GS
		1000	10×12.7	0.08	480	13	26	2500	PCH1C102MCL1GS
20 (1D)	25	100	6.3×6	0.08	60	41	82	900	PCH1D101MCL1GS
		150	■6.3×8	0.08	90	25	50	1200	PCH1D151MCL4GS
		150	8×7	0.08	90	39	78	800	PCH1D151MCL1GS
		330	▲ 8×10	0.08	198	19	38	2300	PCH1D331MCL6GS
		330	10×8	0.08	198	23	46	1800	PCH1D331MCL1GS
		470	8×12	0.08	282	18	36	2500	PCH1D471MCL1GS
		560	10×10	0.08	336	20	40	2200	PCH1D561MCL1GS
		680	10×12.7	0.08	408	14	28	3000	PCH1D681MCL1GS
25 (1E)	31	56	6.3×6	0.08	42	43	86	900	PCH1E560MCL1GS
		100	■6.3×8	0.08	75	27	54	1100	PCH1E101MCL4GS
		100	8×7	0.08	75	41	82	800	PCH1E101MCL1GS
		220	▲ 8×10	0.08	165	20	40	2300	PCH1E221MCL6GS
		220	10×8	0.08	165	24	48	1800	PCH1E221MCL1GS
		270	8×12	0.08	202	19	38	2300	PCH1E271MCL1GS
		330	10×10	0.08	247	20	40	2200	PCH1E331MCL1GS
		470	10×12.7	0.08	352	15	30	2900	PCH1E471MCL1GS
35 (1V)	43	47	6.3×6	0.08	49	48	96	800	PCH1V470MCL1GS
		68	■6.3×8	0.08	71	31	62	1100	PCH1V680MCL4GS
		68	8×7	0.08	71	44	88	800	PCH1V680MCL1GS
		150	▲ 8×10	0.08	157	22	44	2200	PCH1V151MCL6GS
		150	10×8	0.08	157	25	50	1800	PCH1V151MCL1GS
		220	8×12	0.08	231	21	42	2300	PCH1V221MCL1GS
		270	10×10	0.08	283	20	40	2200	PCH1V271MCL1GS
		330	10×12.7	0.08	346	16	32	2800	PCH1V331MCL1GS
50 (1H)	63	22	6.3×6	0.08	33	50	100	700	PCH1H220MCL1GS
		39	■6.3×8	0.08	58	36	72	900	PCH1H390MCL4GS
		39	8×7	0.08	58	45	90	900	PCH1H390MCL1GS
		82	▲ 8×10	0.08	123	26	52	2100	PCH1H820MCL6GS
		82	10×8	0.08	123	34	68	1600	PCH1H820MCL1GS
		120	△ 8×12	0.08	180	25	50	2100	PCH1H121MCL2GS
		120	10×10	0.08	180	25	50	2100	PCH1H121MCL1GS
		180	10×12.7	0.08	270	19	38	2500	PCH1H181MCL1GS
63 (1J)	79	12	6.3×6	0.08	22	51	102	700	PCH1J120MCL1GS
		22	■6.3×8	0.08	41	45	90	800	PCH1J220MCL4GS
		22	8×7	0.08	41	48	96	800	PCH1J220MCL1GS
		39	8×10	0.08	73	28	56	1900	PCH1J390MCL1GS
		47	10×8	0.08	88	35	70	1500	PCH1J470MCL1GS
		56	8×12	0.08	105	27	54	2100	PCH1J560MCL1GS
		68	10×10	0.08	128	28	56	2000	PCH1J680MCL1GS
		100	10×12.7	0.08	189	24	48	2100	PCH1J101MCL1GS
80 (1K)	100	12	6.3×8	0.08	28	50	100	800	PCH1K120MCL1GS
		27	8×10	0.08	64	38	76	1000	PCH1K270MCL1GS
		39	8×12	0.08	93	35	70	1100	PCH1K390MCL1GS
		47	10×10	0.08	112	33	66	1200	PCH1K470MCL1GS
		68	10×12.7	0.08	163	28	56	1500	PCH1K680MCL1GS

• For taping specifications, recommended land size/soldering by reflow and minimum order quantity, please refer to the Guidelines for Aluminum Electrolytic Capacitors.

No marked, [1] will be put at 12th digit of type numbering system.
△: In this case, [2] will be put at 12th digit of type numbering system.
■: In this case, [4] will be put at 12th digit of type numbering system.
▲: In this case, [6] will be put at 12th digit of type numbering system.