

Not Recommended for New Design: EEC-HZ, HW, HL Series Electric Double Layer Capacitors (Gold Capacitors)

NRFND.PG19.06.25.2019

06.25.2019

About This Notice:	The EEC-HZ, HW and HL Series of Electric Double Layer Capacitors (Wound Type) have been designated Not Recommended For New Design by Panasonic.
Features:	
Effective Date:	July 1, 2019
Affected Parts and/or Replacements:	See Attached.
Datasheet(s):	See Attached.
Notes:	

Radial Lead Type

Series : **HL**
Small size

! This series is not a recommended product.
Not recommended for new design.



Features

- Guaranteed 70 °C 2.7 V.DC 2000 h
Guaranteed 85 °C 2.5 V.DC 1000 h
- Low resistance : 30 mΩ max. (1 kHz)*1
- Low temperature : -40 °C guaranteed
- RoHS compliant

Recommended Applications

- Backup power supply of E-meter, storage (SSD)
- Driver assist of motor, actuator
- Backup for power supply of drive recorder, emergency brake, door lock releasing device

Specifications

Category temp. range	-40 °C to +70 °C (+85 °C)		
Maximum operating voltage	2.7 V.DC (2.5 V.DC)		
Nominal cap. range	2.5 F	4.0 F	7.5 F
Characteristics at low temperature	Capacitance change	±30 % of initial measured value at +20 °C (at -40 °C)	
	Internal resistance	≤ 4 times of initial specified value. (at -40 °C)	
Endurance 1	After 2000 hours application of 2.7 V.DC at +70 °C		
	Capacitance change	Within ±40 % of the initial value	
	Internal resistance	≤ 4 times of initial specified value.	
Endurance 2	After 1000 hours application of 2.5 V.DC at +85 °C		
	Capacitance change	Within ±40 % of the initial value	
	Internal resistance	≤ 4 times of initial specified value.	
Shelf life	After 1000 hours storage at +85 °C 1000 h without load (voltage)		
	Capacitance change	Within ±40 % of the initial value	
	Internal resistance	≤ 4 times of initial specified value.	

Dimensions (not to scale)

		Unit : mm		
Capacitance (F)	φD	L	φd	P
2.5	8.0	20.0	0.6	3.5
4.0	10.0	20.0	0.6	5.0
7.5	10.0	30.0	0.6	5.0

Characteristics list

Category temp. range (°C)	Maximum operating voltage (V.DC)	Capacitance (F)	Capacitance tolerance (F)	Internal resistance (Initial specified value) (Ω) at 1 kHz	Recommended *2 discharge current	Parts number	Mass (Reference value) (g)	Min. Packaging Q'ty (pcs)
-40 to +70 (+85)	2.7 (2.5)	2.5	2.0 to 3.0	≤ 0.07	≤ 2.5 A	EECHL0E255	1.5	200
		4.0	3.2 to 4.8	≤ 0.05	≤ 3.5 A	EECHL0E405	2.3	200
		7.5	6.0 to 9.0	≤ 0.03	≤ 6.0 A	EECHL0E755	3.4	200

*1 φ10×L30

*2 The recommended discharge current is a reference value. Please design your equipment (circuit) in consideration of IR drop.

Do not use reflow soldering. Please refer to the page of "Application guidelines".

Remark1: Install the space of 2 mm or more in the upper part of the product so as not to disturb the movement of the pressure valve.

Guidelines and precautions regarding the technical information and use of our products described in this online catalog.

- If you want to use our products described in this online catalog for applications requiring special qualities or reliability, or for applications where the failure or malfunction of the products may directly jeopardize human life or potentially cause personal injury (e.g. aircraft and aerospace equipment, traffic and transportation equipment, combustion equipment, medical equipment, accident prevention, anti-crime equipment, and/or safety equipment), it is necessary to verify whether the specifications of our products fit to such applications. Please ensure that you will ask and check with our inquiry desk as to whether the specifications of our products fit to such applications use before you use our products.
- The quality and performance of our products as described in this online catalog only apply to our products when used in isolation. Therefore, please ensure you evaluate and verify our products under the specific circumstances in which our products are assembled in your own products and in which our products will actually be used.
- If you use our products in equipment that requires a high degree of reliability, regardless of the application, it is recommended that you set up protection circuits and redundancy circuits in order to ensure safety of your equipment.
- The products and product specifications described in this online catalog are subject to change for improvement without prior notice. Therefore, please be sure to request and confirm the latest product specifications which explain the specifications of our products in detail, before you finalize the design of your applications, purchase, or use our products.
- The technical information in this online catalog provides examples of our products' typical operations and application circuits. We do not guarantee the non-infringement of third party's intellectual property rights and we do not grant any license, right, or interest in our intellectual property.
- If any of our products, product specifications and/or technical information in this online catalog is to be exported or provided to non-residents, the laws and regulations of the exporting country, especially with regard to security and export control, shall be observed.

<Regarding the Certificate of Compliance with the EU RoHS Directive/REACH Regulations>

- The switchover date for compliance with the RoHS Directive/REACH Regulations varies depending on the part number or series of our products.
- When you use the inventory of our products for which it is unclear whether those products are compliant with the RoHS Directive/REACH Regulation, please select "Sales Inquiry" in the website inquiry form and contact us.

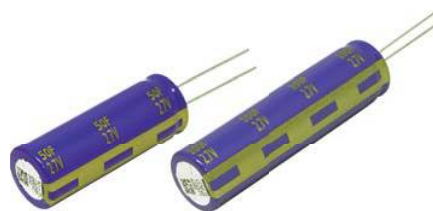
We do not take any responsibility for the use of our products outside the scope of the specifications, descriptions, guidelines and precautions described in this online catalog.

Radial Lead Type

Series : HL



This series is not a recommended product.
Not recommended for new design.



Features

- Low resistance
- 2.7 V.DC
- Guaranteed at 65 °C 2000 h
- Low temperature -40 °C guaranteed
- RoHS compliant

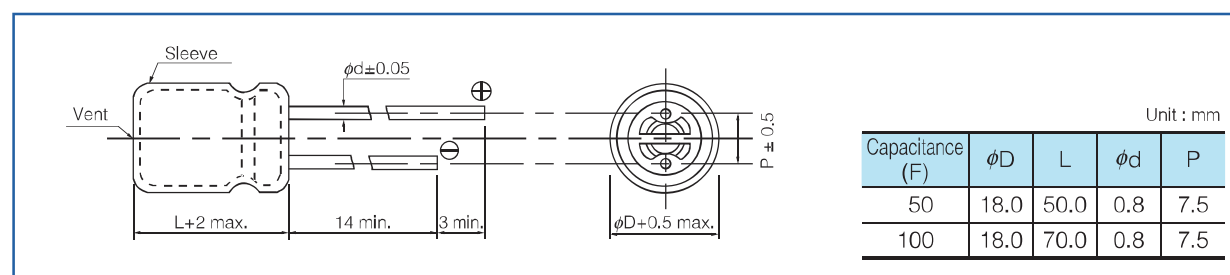
Recommended Applications

- Backup power supply of server, storage
- Driver assist of motor, actuator
- Auxiliary power supply of solar power (Road stand, Street light)

Specifications

Category temp. range	-40 °C to +65 °C	
Maximum operating voltage	2.7 V.DC	
Nominal cap. range	50 F	100 F
Characteristics at low temperature	Capacitance change	±30 % of initial measured value at +20 °C (at -40 °C)
	Internal resistance	≤ 7 times of initial specified value. (at -40 °C)
Endurance	After 2000 hours application of 2.7 V.DC at +65 °C	
	Capacitance change	Within ±30 % of the initial value
	Internal resistance	≤ 2 times of initial specified value.
Shelf life	After 1000 hours storage at +85 °C 1000 h without load (voltage)	
	Capacitance change	Within ±30 % of the initial value
	Internal resistance	≤ 2 times of initial specified value.

Dimensions (not to scale)



Characteristics list

Category temp. range (°C)	Maximum operating voltage (V.DC)	Capacitance (F)	Capacitance tolerance (F)	Internal resistance (Initial specified value) (Ω) at 1 kHz	Recommended *1 discharge current	Parts number	Mass (Reference value) (g)	Min. Packaging Q'ty (pcs)
-40 to +65	2.7	50	40 to 60	≤ 0.015	≤ 10 A	EECHL0E506	19	100
		100	80 to 120	≤ 0.010	≤ 15 A	EECHL0E107	25	100

*1 The recommended discharge current is a reference value. Please design your equipment (circuit) in consideration of IR drop.

Do not use reflow soldering. Please refer to the page of "Application guidelines".

Remark1: Install the space of 2 mm or more in the upper part of the product so as not to disturb the movement of the pressure valve.

Guidelines and precautions regarding the technical information and use of our products described in this online catalog.

- If you want to use our products described in this online catalog for applications requiring special qualities or reliability, or for applications where the failure or malfunction of the products may directly jeopardize human life or potentially cause personal injury (e.g. aircraft and aerospace equipment, traffic and transportation equipment, combustion equipment, medical equipment, accident prevention, anti-crime equipment, and/or safety equipment), it is necessary to verify whether the specifications of our products fit to such applications. Please ensure that you will ask and check with our inquiry desk as to whether the specifications of our products fit to such applications use before you use our products.
- The quality and performance of our products as described in this online catalog only apply to our products when used in isolation. Therefore, please ensure you evaluate and verify our products under the specific circumstances in which our products are assembled in your own products and in which our products will actually be used.
- If you use our products in equipment that requires a high degree of reliability, regardless of the application, it is recommended that you set up protection circuits and redundancy circuits in order to ensure safety of your equipment.
- The products and product specifications described in this online catalog are subject to change for improvement without prior notice. Therefore, please be sure to request and confirm the latest product specifications which explain the specifications of our products in detail, before you finalize the design of your applications, purchase, or use our products.
- The technical information in this online catalog provides examples of our products' typical operations and application circuits. We do not guarantee the non-infringement of third party's intellectual property rights and we do not grant any license, right, or interest in our intellectual property.
- If any of our products, product specifications and/or technical information in this online catalog is to be exported or provided to non-residents, the laws and regulations of the exporting country, especially with regard to security and export control, shall be observed.

<Regarding the Certificate of Compliance with the EU RoHS Directive/REACH Regulations>

- The switchover date for compliance with the RoHS Directive/REACH Regulations varies depending on the part number or series of our products.
- When you use the inventory of our products for which it is unclear whether those products are compliant with the RoHS Directive/REACH Regulation, please select "Sales Inquiry" in the website inquiry form and contact us.

We do not take any responsibility for the use of our products outside the scope of the specifications, descriptions, guidelines and precautions described in this online catalog.

Radial lead Type

Series : HW

! This series is not a recommended product.
Not recommended for new design.



Features

- Guaranteed at 70 °C (60°C 1000 h)
- Can be discharge mA or more current
- RoHS compliant

Recommended Applications

- Solar battery operated circuits (Road guidance flasher), Quick charging motor drives (Toy car)
- Back-up Power Supplies (UPS)

Specifications

Category temp. range	-25 °C to +70 °C		-25 °C to +60 °C	
Maximum operating voltage	2.3 V.DC		2.3 V.DC	2.1 V.DC
Nominal cap. range	22 F		30, 50 F	70 F
Characteristics at low Temperature	Capacitance change	±30 % of initial measured value at +20 °C (at -25 °C)		
	Internal resistance	≤ 4 times of initial measured value at +20 °C (at -25 °C)		
Endurance	After 1000 hours application of 2.3 V.DC at +70 °C (+60 °C), the capacitor shall meet the following limits.			
	Capacitance change	±30 % of initial measured value		
	Internal resistance	≤ 2 time of initial specified value		
Shelf Life	After 1000 hours storage at +70 °C (+60 °C) without load, the capacitor shall meet the specified limits for Endurance.			

Dimensions in mm(not to scale)

		(Unit : mm)				
		Capacitance (F)	φD	L	φd	P
		22	18.0	35.0	0.8	7.5
		30	18.0	35.0	0.8	7.5
		50	18.0	40.0	0.8	7.5
		70	18.0	50.0	0.8	7.5

Characteristics list

* : 10 F or less HW series is not recommended for new design. Please consider HZ series.

Category temp. range (°C)	Maximum operating voltage (V.DC)	Capacitance (F)	Capacitance tolerance (F)	Internal resistance (Initial specified value) (Ω) at 1 kHz	Recommended discharge current (A)	Parts number	Mass (Reference value) (g)	Min. packaging q'ty (pcs)
-25 to +70	2.3	22	17.6 to 30.8	≤ 0.1	1 or less	EECHW0D226	12.0	50
		30	24.0 to 42.0	≤ 0.1	1 or less	EECHW0D306	14.0	50
-25 to +60	2.1	50	40.0 to 70.0	≤ 0.1	1 or less	EECHW0D506	15.0	50
		70	56.0 to 98.0	≤ 0.1	1 or less	EECHW0D706	19.0	50

Note : 1. Do not use reflow soldering. (IR, Atmosphere heating methods, etc.)
Please refer to the page of "Application guidelines".

Guidelines and precautions regarding the technical information and use of our products described in this online catalog.

- If you want to use our products described in this online catalog for applications requiring special qualities or reliability, or for applications where the failure or malfunction of the products may directly jeopardize human life or potentially cause personal injury (e.g. aircraft and aerospace equipment, traffic and transportation equipment, combustion equipment, medical equipment, accident prevention, anti-crime equipment, and/or safety equipment), it is necessary to verify whether the specifications of our products fit to such applications. Please ensure that you will ask and check with our inquiry desk as to whether the specifications of our products fit to such applications use before you use our products.
- The quality and performance of our products as described in this online catalog only apply to our products when used in isolation. Therefore, please ensure you evaluate and verify our products under the specific circumstances in which our products are assembled in your own products and in which our products will actually be used.
- If you use our products in equipment that requires a high degree of reliability, regardless of the application, it is recommended that you set up protection circuits and redundancy circuits in order to ensure safety of your equipment.
- The products and product specifications described in this online catalog are subject to change for improvement without prior notice. Therefore, please be sure to request and confirm the latest product specifications which explain the specifications of our products in detail, before you finalize the design of your applications, purchase, or use our products.
- The technical information in this online catalog provides examples of our products' typical operations and application circuits. We do not guarantee the non-infringement of third party's intellectual property rights and we do not grant any license, right, or interest in our intellectual property.
- If any of our products, product specifications and/or technical information in this online catalog is to be exported or provided to non-residents, the laws and regulations of the exporting country, especially with regard to security and export control, shall be observed.

<Regarding the Certificate of Compliance with the EU RoHS Directive/REACH Regulations>

- The switchover date for compliance with the RoHS Directive/REACH Regulations varies depending on the part number or series of our products.
- When you use the inventory of our products for which it is unclear whether those products are compliant with the RoHS Directive/REACH Regulation, please select "Sales Inquiry" in the website inquiry form and contact us.

We do not take any responsibility for the use of our products outside the scope of the specifications, descriptions, guidelines and precautions described in this online catalog.

Panasonic NRFND.PG19.06.25.2019 Affected Parts

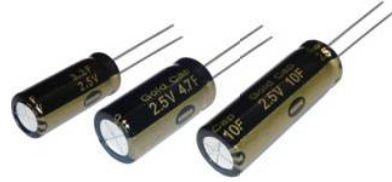
Series	Affected Parts
HZ	EEC-HZ0E335
HZ	EEC-HZ0E475
HZ	EEC-HZ0E106
HW	EEC-HW0D226
HW	EEC-HW0D306
HW	EEC-HW0D506
HW	EEC-HW0D706
HL	EEC-HL0E506
HL	EEC-HL0E107
HL (85°C)	EEC-HL0E255
HL (85°C)	EEC-HL0E405
HL (85°C)	EEC-HL0E755
HZ	EEC-HZ0E106B
HZ	EEC-HZ0E106D
HW	EEC-HW0D406D
HW	EEC-HW0D506K
HW	EEC-HW0D726H
HW	EEC-HW0D726H2
HW	EEC-HW0D726H3
HL	EEC-HL0E476E
HL	EEC-HL0E476H3

Radial lead Type

Series : HZ



This series is not a recommended product.
Not recommended for new design.



Features

- Miniaturized, High withstand voltage
- Can be discharge mA or more current
- RoHS compliant

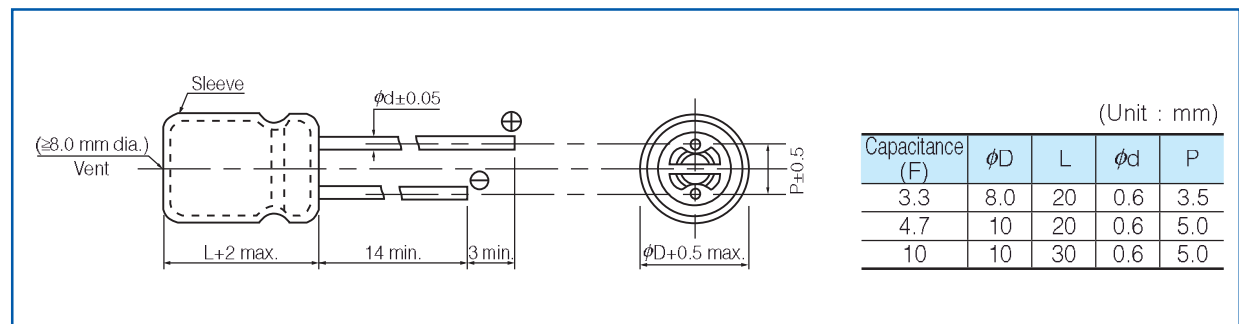
Recommended Applications

- Solar battery operated circuits
- Back-up Power Supplies (UPS)

Specifications

Category temp. range	-25 °C to +70 °C		
Maximum operating voltage	2.5 V.DC		
Nominal cap. range	3.3 F	4.7 F	10 F
Characteristics at low temperature	Capacitance change	±30 % of initial measured value at 20 °C (at -25 °C)	
	Internal resistance	≤ 4 times of initial specified value. (at -25 °C)	
Endurance	After 1000 hours application of 2.5 V.DC at +70 °C		
	Capacitance change	±30 % of initial measured value at 20 °C	
	Internal resistance	≤ 4 times of initial specified value.	
Shelf Life	After 1000 hours storage at +70 °C without load (voltage)		
	Capacitance change	±30 % of initial measured value at 20 °C	
	Internal resistance	≤ 4 times of initial specified value.	

Dimensions in mm(not to scale)



Characteristics list

Category temp. range (°C)	Maximum operating voltage (V.DC)	Capacitance (F)	Capacitance tolerance (F)	Internal resistance (Initial specified value) (Ω) at 1 kHz	Recommended discharge current	Parts number	Mass (Reference value) (g)	Min. packaging q'ty (pcs)
-25 to +70	2.5	3.3	2.64 to 4.62	≤ 0.3	300 mA or less	EECHZ0E335	1.5	200
		4.7	3.76 to 6.58	≤ 0.3	300 mA or less	EECHZ0E475	2.1	200
		10	8 to 14	≤ 0.2	1 A or less	EECHZ0E106	3.1	200

Note : Do not use reflow soldering, (IR, Atmosphere heating methods, etc.)
Please refer to the page of "Application guidelines".

Guidelines and precautions regarding the technical information and use of our products described in this online catalog.

- If you want to use our products described in this online catalog for applications requiring special qualities or reliability, or for applications where the failure or malfunction of the products may directly jeopardize human life or potentially cause personal injury (e.g. aircraft and aerospace equipment, traffic and transportation equipment, combustion equipment, medical equipment, accident prevention, anti-crime equipment, and/or safety equipment), it is necessary to verify whether the specifications of our products fit to such applications. Please ensure that you will ask and check with our inquiry desk as to whether the specifications of our products fit to such applications use before you use our products.
- The quality and performance of our products as described in this online catalog only apply to our products when used in isolation. Therefore, please ensure you evaluate and verify our products under the specific circumstances in which our products are assembled in your own products and in which our products will actually be used.
- If you use our products in equipment that requires a high degree of reliability, regardless of the application, it is recommended that you set up protection circuits and redundancy circuits in order to ensure safety of your equipment.
- The products and product specifications described in this online catalog are subject to change for improvement without prior notice. Therefore, please be sure to request and confirm the latest product specifications which explain the specifications of our products in detail, before you finalize the design of your applications, purchase, or use our products.
- The technical information in this online catalog provides examples of our products' typical operations and application circuits. We do not guarantee the non-infringement of third party's intellectual property rights and we do not grant any license, right, or interest in our intellectual property.
- If any of our products, product specifications and/or technical information in this online catalog is to be exported or provided to non-residents, the laws and regulations of the exporting country, especially with regard to security and export control, shall be observed.

<Regarding the Certificate of Compliance with the EU RoHS Directive/REACH Regulations>

- The switchover date for compliance with the RoHS Directive/REACH Regulations varies depending on the part number or series of our products.
- When you use the inventory of our products for which it is unclear whether those products are compliant with the RoHS Directive/REACH Regulation, please select "Sales Inquiry" in the website inquiry form and contact us.

We do not take any responsibility for the use of our products outside the scope of the specifications, descriptions, guidelines and precautions described in this online catalog.