

HPR Series

Features

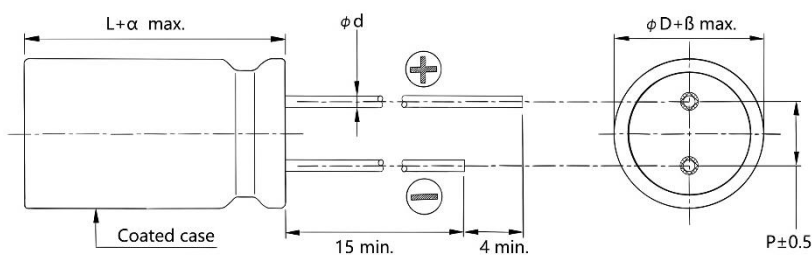
- $\phi 8 \sim \phi 10$, 125°C, 4000 hours assured
- Low ESR and high ripple current
- RoHS 2.0 compliant,
- 247 SVHC & REACH compliant



Marking color: Black

Specifications								
Category temp. range	-55°C to +125°C							
Capacitance tolerance	±20% (120 Hz / +20 °C)							
Leakage current	I ≤ 0.01 CV or 3 μA whichever is greater (after 2 minutes)							
Tan δ	Please see the attached characteristics list							
Characteristics at low temperature	Rated voltage (V)	16	25	35	50	63	80	Impedance ratio at 120 Hz
	Z (-25 °C) / Z (+20 °C)	2.0	2.0	2.0	2.0	2.0	2.0	
	Z (-55 °C) / Z (+20 °C)	2.5	2.5	2.5	2.5	2.5	2.5	
Endurance	After applying rated working voltage and rated ripple current for 4000 hours at +125 °C ± 2 °C, and then being stabilized at +20 °C, capacitors shall meet the following limits.							
	Capacitance change	Within ±30% of the initial value						
	Dissipation factor (tan δ)	Less than 200% of the initial value						
	ESR	Less than 200% of the initial value						
	Leakage current	Within the initial limit						
Shelf life	After storage for 1000 h at +125 °C ± 2 °C with no voltage applied and then being stabilized at +20 °C, capacitors shall meet the limits specified in endurance.							
Resistance to soldering heat	After reflow soldering and then being stabilized at +20 °C, capacitors shall meet the following limits.							
	Capacitance change	Within ±10% of the initial value						
	Dissipation factor (tan δ)	Within the initial limit						
	ESR	Within the initial limit						
	Leakage current	Within the initial limit						
Frequency correction factor for ripple current	Frequency	120s f < 1k		1k≤ f < 10k		10k≤ f < 100k		100k≤ f < 500k
	Correction Factor	0.1		0.3		0.6		1.0

Dimensions:



Dimensions			Unit: mm
ϕD	8	10	10
L	9	10	12
P	3.5	5.0	5.0
ϕd	0.6		
α	1.0		
β	0.5		

Marking:

Part Number System:

Negative polarity marking



Category code	Hybrid Capacitors	HPR series	35V	220 μ F	$\pm 20\%$	10 ϕ x10L
Series name						
Rated capacitance	H	PR	1V	221	M	1010
Rated voltage						
Product category		Series name	Rated voltage	Capacitance	Capacitance tolerance	Case Size

Characteristics list

Rated voltage (V)	Capacitance (±20%) (μF)	Case size		Specification			Part Number④
		øD (mm)	L (mm)	Rated ripple current① (mA rms)	Imp.② (Ω)	tan δ③	
16	270	8	9	1600	27	0.16	HPR1C271M0809
	470	10	10	2000	20	0.16	HPR1C471M1010
25	220	8	9	1600	27	0.14	HPR1E221M0809
	330	8	9	1600	27	0.14	HPR1E331M0809
		10	10	2000	20	0.14	HPR1E331M1010
	470	10	10	2000	20	0.14	HPR1E471M1010
	680	10	12	2800	15	0.14	HPR1E681M1012
35	100	8	9	1600	27	0.12	HPR1V101M0809
	150	8	9	1600	27	0.12	HPR1V151M0809
	220	10	10	2000	20	0.12	HPR1V221M1010
	330	10	10	2000	20	0.12	HPR1V331M1010
	470	10	12	2800	16	0.12	HPR1V471M1012
50	47	8	9	1250	30	0.10	HPR1H470M0809
	68	8	9	1250	30	0.10	HPR1H680M0809
	100	10	10	1600	28	0.10	HPR1H101M1010
	150	10	10	1600	28	0.10	HPR1H151M1010
	220	10	12	1800	23	0.10	HPR1H221M1012
63	33	8	9	1100	40	0.08	HPR1J330M0809
	47	8	9	1100	40	0.08	HPR1J470M0809
	68	10	10	1400	30	0.08	HPR1J680M1010
	100	10	10	1400	30	0.08	HPR1J101M1010
	120	10	12	1600	26	0.08	HPR1J121M1012
80	22	8	9	1050	45	0.08	HPR1K220M0809
	33	10	10	1350	36	0.08	HPR1K330M1010
	47	10	10	1350	36	0.08	HPR1K470M1010
	56	10	12	1550	32	0.08	HPR1K560M1012

① Rated ripple current (100kHz / +105°C) ② ESR (100kHz / +20°C) ③ tan δ (120Hz / +20°C)

※Please refer to the page of reflow conditions for reflow profile.