

Radial Lead Type

Series: **NHG** Type: **A**



■ Features

- Endurance : 105 °C 1000 h to 2000 h
- RoHS directive compliant

■ Specifications

Category Temp. Range	-55 °C to +105 °C	-25 °C to +105 °C
Rated W.V. Range	6.3 V.DC to 100 V.DC	160 V.DC to 450 V.DC
Nominal Cap. Range	0.1 μF to 22000 μF	1.0 μF to 330 μF
Capacitance Tolerance	±20 % (120 Hz/+20 °C)	
DC Leakage Current	$I \leq 0.01 CV$ or $3 (\mu A)$ After 2 minutes (Which is greater)	$I \leq 0.06 CV + 10 (\mu A)$ After 2 minutes
tan δ	Please see the attached standard products list	
Endurance	<p>After following life test with DC voltage and +105 °C±2 °C ripple current value applied (The sum of DC and ripple peak voltage shall not exceed the rated working voltage), When the capacitors are restored to 20 °C, the capacitors shall meet the limits specified below.</p> <p>Duration : 6.3 V.DC to 100 V.DC : (φ5 to φ8)=1000 hours, (φ10 to φ18)=2000 hours 160 V.DC to 450 V.DC : 2000 hours</p>	
	Capacitance change	±20 % of initial measured value
	tan δ	≤ 200 % of initial specified value
	DC leakage current	≤ initial specified value
Shelf Life	After storage for 1000 hours at +105 °C±2 °C with no voltage applied and then being stabilized at +20 °C, capacitors shall meet the limits specified in Endurance. (With voltage treatment)	

■ Frequency correction factor for ripple current

W.V.(V.DC)	Cap. (μF)	Frequency (Hz)				
		60	120	1 k	10 k	100 k
6.3 to 100	0.1 to 33	0.75	1.00	1.55	1.80	2.00
	47 to 470	0.80	1.00	1.35	1.50	1.50
	1000 to 22000	0.85	1.00	1.10	1.15	1.15
160 to 450	1 to 330	0.80	1.00	1.35	1.50	1.50

■ Dimensions in mm (not to scale)



(mm)

	5	6.3	8	10	12.5	16	18
Body Dia. φD	5	6.3	8	10	12.5	16	18
Lead Dia. φd	0.5	0.5	0.6	0.6	0.6	0.8	0.8
Lead space F	2.0	2.5	3.5	5.0	5.0	7.5	7.5

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use. Should a safety concern arise regarding this product, please be sure to contact us immediately.

00 Sep. 2010

Standard Products

W.V.	Cap. (±20 %)	Case size		Specification			Lead Length				Part No.	Min. Packaging Q'ty	
		Dia.	Length	Ripple Current (120 Hz) (+105 °C)	tan δ (120 Hz) (+20 °C)	Endur- ance	Lead Dia.	Lead Space				Straight Leads	Taping
								Straight	Taping *B	Taping *i			
(V)	(μF)	(mm)	(mm)	(mA r.m.s.)		(hours)	(mm)	(mm)	(mm)	(mm)			
50	0.1	5	11	1.1	0.12	1000	0.5	2.0	5.0	2.5	ECA1HHG0R1()	200	2000
	0.22	5	11	2.3	0.12	1000	0.5	2.0	5.0	2.5	ECA1HHGR22()	200	2000
	0.33	5	11	3.5	0.12	1000	0.5	2.0	5.0	2.5	ECA1HHGR33()	200	2000
	0.47	5	11	5	0.12	1000	0.5	2.0	5.0	2.5	ECA1HHGR47()	200	2000
	1	5	11	10	0.12	1000	0.5	2.0	5.0	2.5	ECA1HHG010()	200	2000
	2.2	5	11	18	0.12	1000	0.5	2.0	5.0	2.5	ECA1HHG2R2()	200	2000
	3.3	5	11	22	0.12	1000	0.5	2.0	5.0	2.5	ECA1HHG3R3()	200	2000
	4.7	5	11	26	0.12	1000	0.5	2.0	5.0	2.5	ECA1HHG4R7()	200	2000
	10	5	11	39	0.12	1000	0.5	2.0	5.0	2.5	ECA1HHG100()	200	2000
	22	5	11	65	0.12	1000	0.5	2.0	5.0	2.5	ECA1HHG220()	200	2000
	33	5	11	90	0.12	1000	0.5	2.0	5.0	2.5	ECA1HHG330()	200	2000
	47	6.3	11.2	110	0.12	1000	0.5	2.5	5.0	2.5	ECA1HHG470()	200	2000
	100	8	11.5	180	0.12	1000	0.6	3.5	5.0		ECA1HHG101()	200	1000
	220	10	12.5	300	0.12	2000	0.6	5.0	5.0		ECA1HHG221()	200	500
	330	10	16	410	0.12	2000	0.6	5.0	5.0		ECA1HHG331()	200	500
	470	10	20	530	0.12	2000	0.6	5.0	5.0		ECA1HHG471()	200	500
	1000	12.5	25	950	0.12	2000	0.6	5.0	5.0		ECA1HHG102()	200	500
	2200	16	31.5	1470	0.14	2000	0.8	7.5			ECA1HHG222	100	
3300	18	35.5	1770	0.16	2000	0.8	7.5			ECA1HHG332	50		
63	10	5	11	46	0.10	1000	0.5	2.0	5.0	2.5	ECA1JHG100()	200	2000
	22	5	11	71	0.10	1000	0.5	2.0	5.0	2.5	ECA1JHG220()	200	2000
	33	6.3	11.2	100	0.10	1000	0.5	2.5	5.0	2.5	ECA1JHG330()	200	2000
	47	6.3	11.2	120	0.10	1000	0.5	2.5	5.0	2.5	ECA1JHG470()	200	2000
	100	10	12.5	215	0.10	2000	0.6	5.0	5.0		ECA1JHG101()	200	500
	220	10	16	335	0.10	2000	0.6	5.0	5.0		ECA1JHG221()	200	500
	330	10	20	510	0.10	2000	0.6	5.0	5.0		ECA1JHG331()	200	500
	470	12.5	20	640	0.10	2000	0.6	5.0	5.0		ECA1JHG471()	200	500
	1000	16	25	930	0.10	2000	0.8	7.5	7.5		ECA1JHG102()	100	250
2200	18	35.5	1610	0.12	2000	0.8	7.5			ECA1JHG222	50		
100	0.47	5	11	9	0.08	1000	0.5	2.0	5.0	2.5	ECA2AHGR47()	200	2000
	1	5	11	14	0.08	1000	0.5	2.0	5.0	2.5	ECA2AHG010()	200	2000
	2.2	5	11	21	0.08	1000	0.5	2.0	5.0	2.5	ECA2AHG2R2()	200	2000
	3.3	5	11	31	0.08	1000	0.5	2.0	5.0	2.5	ECA2AHG3R3()	200	2000
	4.7	5	11	38	0.08	1000	0.5	2.0	5.0	2.5	ECA2AHG4R7()	200	2000
	10	6.3	11.2	54	0.08	1000	0.5	2.5	5.0	2.5	ECA2AHG100()	200	2000
22	6.3	11.2	93	0.08	1000	0.5	2.5	5.0	2.5	ECA2AHG220()	200	2000	

When requesting taped product, please put the letter "B" or "i" between the "()". Lead wire pitch B=5 mm, 7.5 mm, i=2.5 mm. The taping dimensions are explained on EE189 of our Catalog. Please use it as a reference guide.

■ Standard Products

W.V. (V)	Cap. (±20 %) (μF)	Case size		Specification			Lead Length			Part No.	Min. Packaging Q'ty		
		Dia. (mm)	Length (mm)	Ripple Current (120 Hz) (+105 °C) (mA r.m.s.)	tan δ (120 Hz) (+20 °C)	Endur- ance (hours)	Lead Dia. (mm)	Lead Space			Straight Leads (pcs)	Taping (pcs)	
								Straight (mm)	Taping *B (mm)				Taping *i (mm)
400	1	6.3	11.2	18	0.24	2000	0.5	2.5	5.0	2.5	ECA2GHG010()	200	2000
	2.2	8	11.5	30	0.24	2000	0.6	3.5	5.0		ECA2GHG2R2()	200	1000
	3.3	10	12.5	40	0.24	2000	0.6	5.0	5.0		ECA2GHG3R3()	200	500
	4.7	10	16	50	0.24	2000	0.6	5.0	5.0		ECA2GHG4R7()	200	500
	10	10	20	80	0.24	2000	0.6	5.0	5.0		ECA2GHG100()	200	500
	22	12.5	25	145	0.24	2000	0.6	5.0	5.0		ECA2GHG220()	200	500
	33	16	25	195	0.24	2000	0.8	7.5	7.5		ECA2GHG330()	100	250
450	1	8	11.5	18	0.24	2000	0.6	3.5	5.0		ECA2WHG010()	200	1000
	2.2	10	12.5	29	0.24	2000	0.6	5.0	5.0		ECA2WHG2R2()	200	500
	3.3	10	16	41	0.24	2000	0.6	5.0	5.0		ECA2WHG3R3()	200	500
	4.7	10	20	49	0.24	2000	0.6	5.0	5.0		ECA2WHG4R7()	200	500
	10	12.5	20	75	0.24	2000	0.6	5.0	5.0		ECA2WHG100()	200	500
	22	16	25	115	0.24	2000	0.8	7.5	7.5		ECA2WHG220()	100	250
	33	16	31.5	155	0.24	2000	0.8	7.5			ECA2WHG330	100	

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