

Aluminum Electrolytic Capacitors

NRE-HL Series

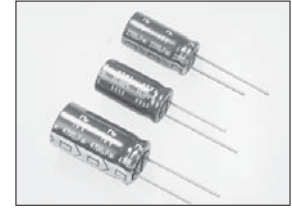
LONG LIFE, LOW IMPEDANCE, HIGH TEMPERATURE, RADIAL LEADS,
POLARIZED ALUMINUM ELECTROLYTIC CAPACITORS

FEATURES

- LONG LIFE AT 105°C (4000 ~ 10,000 hrs.)
- HIGH CAPACITANCE (UP TO 18,000µF)
- LOW IMPEDANCE

**RoHS
Compliant**
includes all homogeneous materials

*See Part Number System for Details



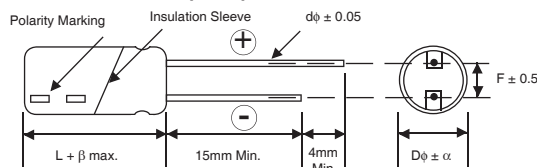
CHARACTERISTICS

Rated Voltage Range		6.3 ~ 100Vdc							
Rated Capacitance Range		6.8 ~ 18,000µF							
Operating Temperature Range		-40°C ~ +105°C							
Capacitance Tolerance		±20% (M)							
Max. Leakage Current After 2 Minutes		0.01CV or 3µA whichever is greater							
Maximum Tanδ @ 120Hz/20°C		(See Specifications Tables)							
Low Temperature Stability (Impedance Ratio @ 120Hz)	W.V. (Vdc)	6.3	10	16	25	35	50	63	100
	Z -25°C/+20°C	4	3	2	2	2	2	2	2
	Z -40°C/+20°C	8	6	4	3	3	3	3	3
Load Life @ 105°C		Allowable Change							
Case Size	6.3V ~ 10V	16V ~ 100V	Appearance		No Notable Changes (except sleeving)				
5mm ~ 6.3mm	4,000 hrs	5,000 hrs	Capacitance Change		Within ±25% of initial measured value				
8mm ~ 10mm	6,000 hrs	7,000 hrs	Tan δ		Less than 200% of specified value				
12.5mm ~ 18mm	8,000 hrs	10,000 hrs	Leakage Current		Less than the specified maximum value				
Shelf Life After storage for 1,000 hours @ 105°C		Appearance		No Notable Changes (except sleeving)					
		Capacitance Change		Within ±25% of initial measured value					
		Tan δ		Less than 200% of specified value					
		Leakage Current		Less than the specified maximum value					

LEAD SPACING AND DIAMETER (mm)

Case Dia. (Dφ)	5	6.3	8	10	12.5	16	18
Lead Space (F)	2.0	2.5	3.5	5.0	7.5		
Lead Dia. (dφ)	0.5		0.6			0.8	
Dim. β	1.5			2.0			

DIMENSIONS (mm)

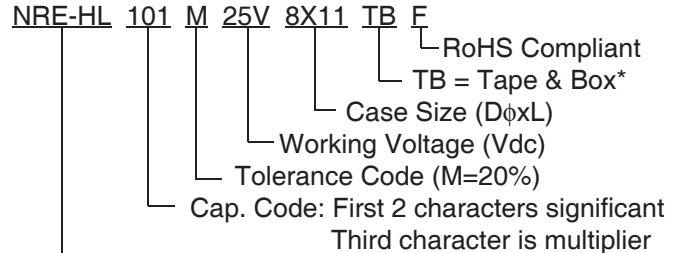


Drawing is representative of parts as supplied in bulk or straight lead format, please see taping specification for details on taped format packaging.

RIPPLE CURRENT FREQUENCY CORRECTION FACTOR

Capacitance Value	120Hz	1KHz	10KHz	100KHz
6.8µF ~ 33µF	0.42	0.70	0.90	1.00
39µF ~ 270µF	0.50	0.73	0.92	1.00
330µF ~ 680µF	0.55	0.77	0.94	1.00
820µF ~ 1800µF	0.60	0.80	0.96	1.00
2200µF ~ 18000µF	0.70	0.85	0.98	1.00

PART NUMBERING SYSTEM



*see tape specification for details

PRECAUTIONS

Please review the notes on correct use, safety and precautions found on pages T10 & T11 of NIC's Electrolytic Capacitor catalog.
Also found at www.niccomp.com/precautions
If in doubt or uncertainty, please review your specific application - process details with NIC's technical support personnel: tpmg@niccomp.com



STANDARD PRODUCTS, CASE SIZES AND SPECIFICATIONS

Part Number	Cap. (μF)	W.V. (Vdc)	Max. Tanδ	Max. Impedance		Max. Ripple Current at 100KHz/105°C (mA rms)	Load Life Hours @ +105°C	
				100KHz/20°C	100KHz/-10°C			
NRE-HL151M6.3V5x11F	150	6.3	0.22	0.58	2.30	210	4,000 hrs	
NRE-HL331M6.3V6.3x11F	330		0.22	0.22	0.87	340	4,000 hrs	
NRE-HL681M6.3V8x11.5F	680		0.22	0.13	0.52	640	6,000 hrs	
NRE-HL821M6.3V10x12.5F	820		0.22	0.080	0.32	865	6,000 hrs	
NRE-HL102M6.3V8x16F	1000		0.22	0.087	0.35	840	6,000 hrs	
NRE-HL122M6.3V8x20F	1200		0.22	0.069	0.27	1050	6,000 hrs	
NRE-HL122M6.3V10x16F	1200		0.22	0.060	0.24	1210	6,000 hrs	
NRE-HL152M6.3V10x20F	1500		0.22	0.046	0.18	1400	6,000 hrs	
NRE-HL182M6.3V12.5x16F	1800		0.22	0.049	0.16	1450	8,000 hrs	
NRE-HL222M6.3V10x23F	2200		0.24	0.042	0.17	1650	6,000 hrs	
NRE-HL272M6.3V10x28F	2700		0.24	0.031	0.12	1910	6,000 hrs	
NRE-HL272M6.3V16x16F	2700		0.24	0.042	0.12	1940	8,000 hrs	
NRE-HL332M6.3V12.5x20F	3300		0.26	0.035	0.12	1900	8,000 hrs	
NRE-HL392M6.3V12.5x25F	3900		0.28	0.027	0.089	2230	8,000 hrs	
NRE-HL392M6.3V18x16F	3900		0.28	0.043	0.11	2210	8,000 hrs	
NRE-HL472M6.3V12.5x30F	4700		0.28	0.024	0.078	2650	8,000 hrs	
NRE-HL562M6.3V12.5x35F	5600		0.30	0.020	0.065	2880	8,000 hrs	
NRE-HL562M6.3V16x20F	5600		0.30	0.027	0.078	2530	8,000 hrs	
NRE-HL682M6.3V12.5x40F	6800		0.32	0.017	0.056	3350	8,000 hrs	
NRE-HL682M6.3V16x25F	6800		0.32	0.021	0.060	2930	8,000 hrs	
NRE-HL682M6.3V18x20F	6800		0.32	0.026	0.067	2860	8,000 hrs	
NRE-HL822M6.3V16x31.5F	8200		0.36	0.017	0.050	3450	8,000 hrs	
NRE-HL103M6.3V16x35.5F	10000		0.40	0.015	0.044	3610	8,000 hrs	
NRE-HL103M6.3V18x25F	10000		0.40	0.019	0.049	3140	8,000 hrs	
NRE-HL123M6.3V16x40F	12000		0.44	0.013	0.038	4080	8,000 hrs	
NRE-HL123M6.3V18x31.5F	12000		0.44	0.015	0.040	4170	8,000 hrs	
NRE-HL153M6.3V18x35.5F	15000		0.50	0.014	0.038	4220	8,000 hrs	
NRE-HL183M6.3V18x40F	18000		0.56	0.012	0.032	4280	8,000 hrs	
NRE-HL101M10V5x11F	100		10	0.19	0.58	2.3	210	4,000 hrs
NRE-HL221M10V6.3x11F	220			0.19	0.22	0.87	340	4,000 hrs
NRE-HL471M10V8x11.5F	470	0.19		0.13	0.52	640	6,000 hrs	
NRE-HL681M10V8x16F	680	0.19		0.087	0.35	840	6,000 hrs	
NRE-HL681M10V10x12.5F	680	0.19		0.080	0.32	865	6,000 hrs	
NRE-HL102M10V8x20F	1000	0.19		0.069	0.27	1050	6,000 hrs	
NRE-HL102M10V10x16F	1000	0.19		0.060	0.24	1210	6,000 hrs	
NRE-HL122M10V10x20F	1200	0.19		0.046	0.18	1400	6,000 hrs	
NRE-HL152M10V10x23F	1500	0.19		0.042	0.17	1650	6,000 hrs	
NRE-HL152M10V12.5x16F	1500	0.19		0.049	0.16	1450	8,000 hrs	
NRE-HL222M10V10x28F	2200	0.21		0.031	0.12	1910	6,000 hrs	
NRE-HL222M10V12.5x20F	2200	0.21		0.035	0.12	1900	8,000 hrs	
NRE-HL222M10V16x16F	2200	0.21		0.042	0.12	1940	8,000 hrs	
NRE-HL272M10V18x16F	2700	0.21		0.043	0.11	2210	8,000 hrs	
NRE-HL332M10V12.5x25F	3300	0.23		0.027	0.089	2230	8,000 hrs	
NRE-HL392M10V12.5x30F	3900	0.23		0.024	0.078	2650	8,000 hrs	
NRE-HL392M10V16x20F	3900	0.23		0.027	0.078	2530	8,000 hrs	
NRE-HL472M10V12.5x35F	4700	0.25		0.020	0.065	2880	8,000 hrs	
NRE-HL562M10V12.5x40F	5600	0.27		0.017	0.056	3350	8,000 hrs	
NRE-HL562M10V16x25F	5600	0.27		0.021	0.060	2930	8,000 hrs	
NRE-HL562M10V18x20F	5600	0.27		0.026	0.067	2860	8,000 hrs	
NRE-HL682M10V16x31.5F	6800	0.29		0.017	0.050	3450	8,000 hrs	
NRE-HL682M10V18x25F	6800	0.29		0.019	0.049	3140	8,000 hrs	
NRE-HL822M10V16x35.5F	8200	0.33		0.015	0.044	3610	8,000 hrs	
NRE-HL822M10V18x31.5F	8200	0.33		0.015	0.040	4170	8,000 hrs	
NRE-HL103M10V16x40F	10000	0.37		0.013	0.038	4080	8,000 hrs	
NRE-HL103M10V18x35.5F	10000	0.37		0.014	0.038	4220	8,000 hrs	
NRE-HL123M10V18x40F	12000	0.41		0.012	0.032	4280	8,000 hrs	



STANDARD PRODUCTS, CASE SIZES AND SPECIFICATIONS

Part Number	Cap. (μF)	W.V. (Vdc)	Max. Tanδ	Max. Impedance		Max. Ripple Current at 100KHz/105°C (mA rms)	Load Life Hours @ +105°C	
				100KHz/20°C	100KHz/-10°C			
NRE-HL560M16V5x11F	56	16	0.16	0.58	2.3	210	5,000 hrs	
NRE-HL121M16V6.3x11F	120		0.16	0.22	0.87	340	5,000 hrs	
NRE-HL331M16V8x11.5F	330		0.16	0.13	0.52	640	7,000 hrs	
NRE-HL471M16V8x16F	470		0.16	0.87	0.35	840	7,000 hrs	
NRE-HL471M16V10x12.5F	470		0.16	0.080	0.32	865	7,000 hrs	
NRE-HL681M16V8x20F	680		0.16	0.069	0.27	1050	7,000 hrs	
NRE-HL681M16V10x16F	680		0.16	0.060	0.24	1210	7,000 hrs	
NRE-HL102M16V10x20F	1000		0.16	0.046	0.18	1400	7,000 hrs	
NRE-HL102M16V12.5x16F	1000		0.16	0.049	0.16	1450	10,000 hrs	
NRE-HL122M16V10x23F	1200		0.16	0.042	0.17	1650	7,000 hrs	
NRE-HL152M16V10x28F	1500		0.16	0.031	0.12	1910	7,000 hrs	
NRE-HL152M16V12.5x20F	1500		0.16	0.035	0.12	1900	10,000 hrs	
NRE-HL152M16V16x16F	1500		0.16	0.042	0.12	1940	10,000 hrs	
NRE-HL222M16V12.5x25F	2200		0.18	0.027	0.12	2230	10,000 hrs	
NRE-HL222M16V18x16F	2200		0.18	0.043	0.11	2210	10,000 hrs	
NRE-HL272M16V12.5x30F	2700		0.18	0.024	0.078	2650	10,000 hrs	
NRE-HL272M16V16x20F	2700		0.18	0.027	0.078	2530	10,000 hrs	
NRE-HL332M16V12.5x35F	3300		0.20	0.020	0.065	2880	10,000 hrs	
NRE-HL392M16V12.5x40F	3900		0.20	0.017	0.056	3350	10,000 hrs	
NRE-HL392M16V16x25F	3900		0.20	0.021	0.060	2930	10,000 hrs	
NRE-HL392M16V18x20F	3900		0.20	0.026	0.067	2860	10,000 hrs	
NRE-HL472M16V16x31.5F	4700		0.22	0.017	0.050	3450	10,000 hrs	
NRE-HL472M16V18x25F	4700		0.22	0.019	0.049	3140	10,000 hrs	
NRE-HL562M16V16x35.5F	5600		0.24	0.015	0.044	3610	10,000 hrs	
NRE-HL562M16V18x31.5F	5600		0.24	0.015	0.040	4170	10,000 hrs	
NRE-HL682M16V16x40F	6800		0.26	0.013	0.038	4080	10,000 hrs	
NRE-HL822M16V18x35.5F	8200		0.30	0.014	0.038	4220	10,000 hrs	
NRE-HL103M16V18x40F	10000		0.34	0.012	0.032	4280	10,000 hrs	
NRE-HL470M25V5x11F	47		25V	0.14	0.58	2.3	210	5,000 hrs
NRE-HL101M25V6.3x11F	100			0.14	0.22	0.87	340	5,000 hrs
NRE-HL221M25V8x11.5F	220	0.14		0.13	0.52	640	7,000 hrs	
NRE-HL331M25V8x16F	330	0.14		0.087	0.35	840	7,000 hrs	
NRE-HL331M25V10x12.5F	330	0.14		0.080	0.32	865	7,000 hrs	
NRE-HL471M25V8x20F	470	0.14		0.069	0.27	1050	7,000 hrs	
NRE-HL471M25V10x16F	470	0.14		0.060	0.24	1210	7,000 hrs	
NRE-HL681M25V10x20F	680	0.14		0.046	0.18	1400	7,000 hrs	
NRE-HL681M25V12.5x16F	680	0.14		0.049	0.16	1450	10,000 hrs	
NRE-HL821M25V10x23F	820	0.14		0.042	0.17	1650	7,000 hrs	
NRE-HL102M25V10x28F	1000	0.14		0.031	0.12	1910	7,000 hrs	
NRE-HL102M25V12.5x20F	1000	0.14		0.035	0.12	1900	10,000 hrs	
NRE-HL102M25V16x16F	1000	0.14		0.042	0.12	1940	10,000 hrs	
NRE-HL122M25V18x16F	1200	0.14		0.043	0.11	2210	10,000 hrs	
NRE-HL152M25V12.5x25F	1500	0.14		0.027	0.089	2230	10,000 hrs	
NRE-HL182M25V12.5x30F	1800	0.14		0.024	0.078	2650	10,000 hrs	
NRE-HL182M25V16x20F	1800	0.14		0.027	0.078	2530	10,000 hrs	
NRE-HL222M25V12.5x35F	2200	0.16		0.020	0.065	2880	10,000 hrs	
NRE-HL222M25V18x20F	2200	0.16		0.026	0.067	2860	10,000 hrs	
NRE-HL272M25V12.5x40F	2700	0.16		0.017	0.056	3350	10,000 hrs	
NRE-HL272M25V16x25F	2700	0.16		0.021	0.060	2930	10,000 hrs	
NRE-HL332M25V16x31.5F	3300	0.18		0.017	0.050	3450	10,000 hrs	
NRE-HL332M25V18x25F	3300	0.18		0.019	0.049	3140	10,000 hrs	
NRE-HL392M25V16x35.5F	3900	0.18		0.015	0.044	3610	10,000 hrs	
NRE-HL392M25V18x31.5F	3900	0.18		0.015	0.040	4170	10,000 hrs	
NRE-HL472M25V16x40F	4700	0.20		0.013	0.038	4080	10,000 hrs	
NRE-HL472M25V18x35.5F	4700	0.20		0.014	0.038	4220	10,000 hrs	
NRE-HL562M25V18x40F	5600	0.22		0.012	0.032	4280	10,000 hrs	



STANDARD PRODUCTS, CASE SIZES AND SPECIFICATIONS

Part Number	Cap. (µF)	W.V. (Vdc)	Max. Tanδ	Max. Impedance		Max. Ripple Current at 100KHz/105°C (mA rms)	Load Life Hours @ +105°C
				100KHz/20°C	100KHz/-10°C		
NRE-HL330M35V5x11F	33	35V	0.12	0.58	2.3	210	5,000 hrs
NRE-HL560M35V6.3x11F	56		0.12	0.22	0.87	340	5,000 hrs
NRE-HL151M35V8x11.5F	150		0.12	0.13	0.52	640	7,000 hrs
NRE-HL221M35V8x16F	220		0.12	0.087	0.35	840	7,000 hrs
NRE-HL221M35V10x12.5F	220		0.12	0.080	0.32	865	7,000 hrs
NRE-HL271M35V8x20F	270		0.12	0.069	0.27	1050	7,000 hrs
NRE-HL331M35V10x16F	330		0.12	0.060	0.24	1210	7,000 hrs
NRE-HL471M35V10x20F	470		0.12	0.046	0.18	1400	7,000 hrs
NRE-HL471M35V12.5x16F	470		0.12	0.049	0.16	1450	10,000 hrs
NRE-HL561M35V10x23F	560		0.12	0.042	0.17	1650	7,000 hrs
NRE-HL681M35V10x28F	680		0.12	0.031	0.12	1910	7,000 hrs
NRE-HL681M35V12.5x20F	680		0.12	0.035	0.12	1900	10,000 hrs
NRE-HL681M35V16x16F	680		0.12	0.042	0.12	1940	10,000 hrs
NRE-HL102M35V12.5x25F	1000		0.12	0.027	0.12	2230	10,000 hrs
NRE-HL102M35V18x16F	1000		0.12	0.043	0.11	2210	10,000 hrs
NRE-HL122M35V12.5x30F	1200		0.12	0.024	0.078	2650	10,000 hrs
NRE-HL122M35V16x20F	1200		0.12	0.027	0.078	2530	10,000 hrs
NRE-HL152M35V12.5x35F	1500		0.12	0.020	0.065	2880	10,000 hrs
NRE-HL182M35V12.5x40F	1800		0.12	0.017	0.056	3350	10,000 hrs
NRE-HL182M35V16x25F	1800		0.12	0.021	0.060	2930	10,000 hrs
NRE-HL182M35V18x20F	1800		0.12	0.026	0.067	2860	10,000 hrs
NRE-HL222M35V16x31.5F	2200		0.14	0.017	0.050	3450	10,000 hrs
NRE-HL222M35V18x25F	2200		0.14	0.019	0.049	3140	10,000 hrs
NRE-HL272M35V16x35.5F	2700		0.14	0.015	0.044	3610	10,000 hrs
NRE-HL272M35V18x31.5F	2700		0.14	0.015	0.040	4170	10,000 hrs
NRE-HL332M35V16x40F	3300		0.16	0.013	0.038	4080	10,000 hrs
NRE-HL332M35V18x35.5F	3300		0.16	0.014	0.038	4220	10,000 hrs
NRE-HL392M35V18x40F	3900		0.16	0.012	0.032	4280	10,000 hrs
NRE-HL220M50V5x11F	22	50V	0.10	0.70	2.8	180	5,000 hrs
NRE-HL560M50V6.3x11F	56		0.10	0.30	1.2	295	5,000 hrs
NRE-HL101M50V8x11.5F	100		0.10	0.17	0.68	555	7,000 hrs
NRE-HL121M50V8x16F	120		0.10	0.12	0.48	730	7,000 hrs
NRE-HL151M50V10x12.5F	150		0.10	0.12	0.48	760	7,000 hrs
NRE-HL181M50V8x20F	180		0.10	0.091	0.36	910	7,000 hrs
NRE-HL221M50V10x16F	220		0.10	0.084	0.34	1050	7,000 hrs
NRE-HL271M50V10x20F	270		0.10	0.060	0.24	1220	7,000 hrs
NRE-HL271M50V12.5x16F	270		0.10	0.061	0.20	1260	10,000 hrs
NRE-HL331M50V10x23F	330		0.10	0.055	0.22	1440	7,000 hrs
NRE-HL471M50V10x28F	470		0.10	0.043	0.17	1690	7,000 hrs
NRE-HL471M50V12.5x20F	470		0.10	0.045	0.15	1660	10,000 hrs
NRE-HL471M50V16x16F	470		0.10	0.055	0.17	1690	10,000 hrs
NRE-HL561M50V12.5x25F	560		0.10	0.034	0.11	1950	10,000 hrs
NRE-HL561M50V18x16F	560		0.10	0.054	0.15	1930	10,000 hrs
NRE-HL681M50V12.5x30F	680		0.10	0.030	0.10	2310	10,000 hrs
NRE-HL821M50V12.5x35F	820		0.10	0.025	0.083	2510	10,000 hrs
NRE-HL821M50V16x20F	820		0.10	0.034	0.10	2210	10,000 hrs
NRE-HL102M50V12.5x40F	1000		0.10	0.021	0.069	2920	10,000 hrs
NRE-HL102M50V16x25F	1000		0.10	0.025	0.075	2555	10,000 hrs
NRE-HL102M50V18x20F	1000		0.10	0.036	0.097	2490	10,000 hrs
NRE-HL122M50V16x31.5F	1200		0.10	0.022	0.066	3010	10,000 hrs
NRE-HL122M50V18x25F	1200		0.10	0.026	0.070	2740	10,000 hrs
NRE-HL152M50V16x35.5F	1500		0.10	0.019	0.057	3150	10,000 hrs
NRE-HL182M50V16x40F	1800		0.10	0.016	0.048	3710	10,000 hrs
NRE-HL182M50V18x31.5F	1800		0.10	0.021	0.057	3635	10,000 hrs
NRE-HL222M50V18x35.5F	2200		0.10	0.017	0.046	3680	10,000 hrs
NRE-HL272M50V18x40F	2700		0.12	0.014	0.038	3800	10,000 hrs



STANDARD PRODUCTS, CASE SIZES AND SPECIFICATIONS

Part Number	Cap. (µF)	W.V. (Vdc)	Max. Tanδ	Max. Impedance		Max. Ripple Current at 100KHz/105°C (mA rms)	Load Life Hours @ +105°C	
				100KHz/20°C	100KHz/-10°C			
NRE-HL150M63V5x11F	15	63V	0.09	1.8	7.3	62	5,000	
NRE-HL330M63V6.3x11F	33		0.09	1.0	4.1	126	5,000	
NRE-HL560M63V8x11.5F	56		0.09	0.50	2.2	260	7,000	
NRE-HL820M63V8x16F	82		0.09	0.36	1.7	335	7,000	
NRE-HL820M63V10x12.5F	82		0.09	0.34	1.4	325	7,000	
NRE-HL121M63V8x20F	120		0.09	0.26	1.3	408	7,000	
NRE-HL121M63V10x16F	120		0.09	0.25	1.2	400	7,000	
NRE-HL181M63V10x20F	180		0.09	0.17	0.76	518	7,000	
NRE-HL181M63V12.5x16F	180		0.09	0.18	0.86	527	10,000	
NRE-HL221M63V10x23F	220		0.09	0.16	0.67	595	7,000	
NRE-HL271M63V10x28F	270		0.09	0.12	0.57	740	7,000	
NRE-HL271M63V12.5x20F	270		0.09	0.13	0.52	765	10,000	
NRE-HL271M63V16x16F	270		0.09	0.11	0.52	895	10,000	
NRE-HL331M63V12.5x25F	330		0.09	0.096	0.36	875	10,000	
NRE-HL391M63V18x16F	390		0.09	0.096	0.40	1030	10,000	
NRE-HL471M63V12.5x30F	470		0.09	0.080	0.34	1010	10,000	
NRE-HL471M63V16x20F	470		0.09	0.077	0.32	1130	10,000	
NRE-HL561M63V12.5x35F	560		0.09	0.070	0.30	1140	10,000	
NRE-HL561M63V16x25F	560		0.09	0.062	0.23	1350	10,000	
NRE-HL681M63V12.5x40F	680		0.09	0.060	0.25	1280	10,000	
NRE-HL681M63V18x20F	680		0.09	0.072	0.27	1300	10,000	
NRE-HL821M63V16x31.5F	820		0.09	0.049	0.18	1650	10,000	
NRE-HL821M63V18x25F	820		0.09	0.052	0.19	1560	10,000	
NRE-HL102M63V16x35.5F	1000		0.09	0.040	0.15	1900	10,000	
NRE-HL102M63V18x31.5F	1000		0.09	0.042	0.15	1720	10,000	
NRE-HL122M63V16x40F	1200		0.09	0.036	0.13	2130	10,000	
NRE-HL122M63V18x35.5F	1200		0.09	0.036	0.13	1890	10,000	
NRE-HL152M63V18x40F	1500		0.09	0.032	0.12	2470	10,000	
NRE-HL6R8M100V5x11F	6.8		100V	0.08	1.8	7.3	62	5,000
NRE-HL150M100V6.3x11F	15			0.08	1.0	4.1	126	5,000
NRE-HL270M100V8x11.5F	27			0.08	0.50	2.2	260	7,000
NRE-HL390M100V8x16F	39			0.08	0.36	1.7	335	7,000
NRE-HL470M100V10x12.5F	47			0.08	0.34	1.4	325	7,000
NRE-HL560M100V8x20F	56	0.08		0.26	1.3	408	7,000	
NRE-HL680M100V10x16F	68	0.08		0.25	1.2	400	7,000	
NRE-HL820M100V10x20F	82	0.08		0.17	0.76	518	7,000	
NRE-HL820M100V12.5x16F	82	0.08		0.18	0.86	527	10,000	
NRE-HL101M100V10x23F	100	0.08		0.16	0.67	595	7,000	
NRE-HL121M100V10x28F	120	0.08		0.12	0.57	740	7,000	
NRE-HL121M100V12.5x20F	120	0.08		0.13	0.52	765	10,000	
NRE-HL151M100V16x16F	150	0.08		0.11	0.52	895	10,000	
NRE-HL181M100V12.5x25F	180	0.08		0.096	0.36	875	10,000	
NRE-HL181M100V18x16F	180	0.08		0.096	0.40	1030	10,000	
NRE-HL221M100V12.5x30F	220	0.08		0.080	0.34	1010	10,000	
NRE-HL221M100V16x20F	220	0.08		0.077	0.32	1130	10,000	
NRE-HL271M100V12.5x35F	270	0.08		0.070	0.30	1140	10,000	
NRE-HL271M100V16x25F	270	0.08		0.062	0.23	1350	10,000	
NRE-HL331M100V12.5x40F	330	0.08		0.060	0.25	1280	10,000	
NRE-HL331M100V18x20F	330	0.08		0.072	0.27	1300	10,000	
NRE-HL391M100V16x31.5F	390	0.08		0.049	0.18	1650	10,000	
NRE-HL391M100V18x25F	390	0.08		0.052	0.19	1560	10,000	
NRE-HL471M100V16x35.5F	470	0.08		0.040	0.15	1900	10,000	
NRE-HL471M100V18x31.5F	470	0.08		0.042	0.15	1720	10,000	
NRE-HL561M100V16x40F	560	0.08		0.036	0.13	2130	10,000	
NRE-HL681M100V18x35.5F	680	0.08		0.036	0.13	1890	10,000	
NRE-HL821M100V18x40F	820	0.08		0.032	0.12	2470	10,000	

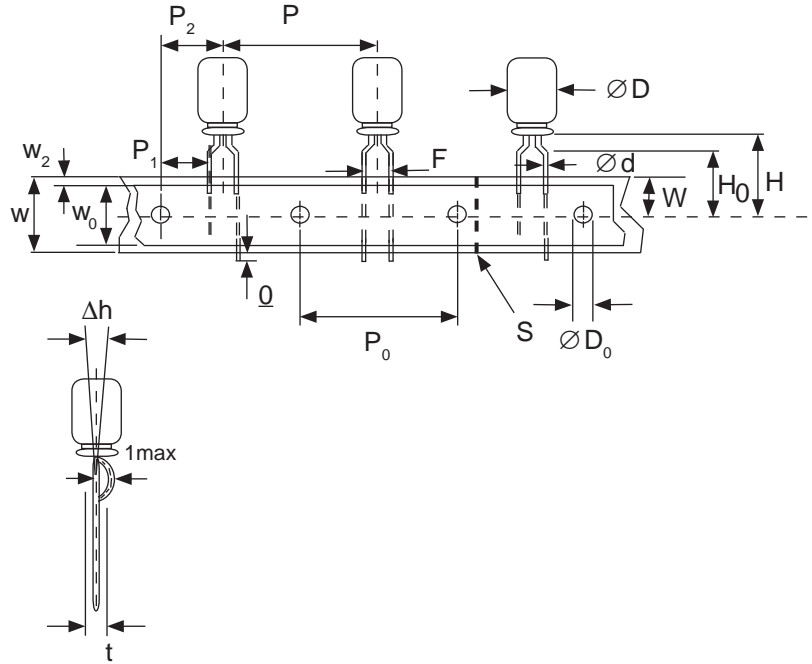


Miniature Aluminum Electrolytic Capacitors Taping Specifications

STANDARD RADIAL TAPING (5mm LEAD SPACING, FORMED LEADS) TB

Taping Dimensions (mm)

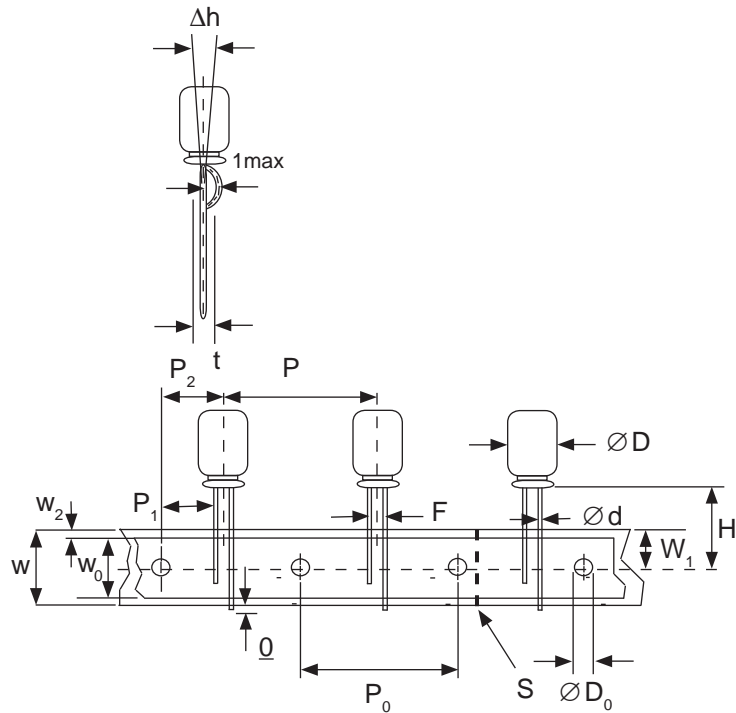
Case Dia. (D ϕ)	4	5	6.3	8
Case Size	4x5	5x5	6.3x5	8x11.5
Dim.	4x7	5x7	6.3x7	6.3x11
d ϕ \pm 0.05	0.45	0.45	0.5	0.5
H \pm 0.75	17.5	17.5	18.5	17.5
F +0.8 ~ -0.2	5.0 -0.2 ~ +0.8			
P	12.7 \pm 1.0			
P ₀	12.7 \pm 0.2			
P ₁	3.85 \pm 0.5 (at end of tape)			
P ₂	6.35 \pm 1.0			
W	18.0 \pm 0.5			
W ₀	11.5 min.			
W ₁	9.0 \pm 0.5			
W ₂	0 ~ 2.5			
H ₀	16.0 \pm 0.5			
l	1.0 max.			
D ₀ ϕ	4.0 \pm 0.2			
Δ h	0 \pm 1.0 (at top of can)			
t	0.7 \pm 0.2 (not including lead)			



STANDARD RADIAL TAPING (5mm LEAD SPACING, STRAIGHT LEADS) TB

Taping Dimensions (mm)

Case Dia. (D ϕ)	10	12.5
Case Size	All	All
Dim.	All	All
d ϕ \pm 0.05	0.6	0.6
H \pm 0.75	19.0	19.0
F +0.8 ~ -0.2	5.0	5.0
P \pm 1.0	25.4*	
P ₀	12.7 \pm 0.2	
P ₁	3.85	
P ₂	6.35 \pm 1.0	
W	18.0 \pm 0.5	
W ₀	11.5 min	
W ₁	9.0 \pm 0.5	
W ₂	0 ~ 2.5	
H ₀	16.0 \pm 0.5	
l	1.0 max.	
D ₀ ϕ	4.0 \pm 0.2	
Δ h	0 \pm 1.0 (at top of can)	
t	0.7 \pm 0.2 (not including lead)	



*Optional Taping Specifications

10mm diameter available with P dim. = 12.7mm
(P/N Suffix: TB12.7MMP)

12.5mm diameter available with P dim. = 15mm, P₁ = 5.0mm,
P₀ = 15.0mm & P₂ = 7.5mm (P/N Suffix: TB15MMP)

NOTE: ANODE (+) LEAD FEEDS OFF FIRST.
FOR OPTION OF NEGATIVE (-) LEAD FIRST,
SPECIFY "TBN".

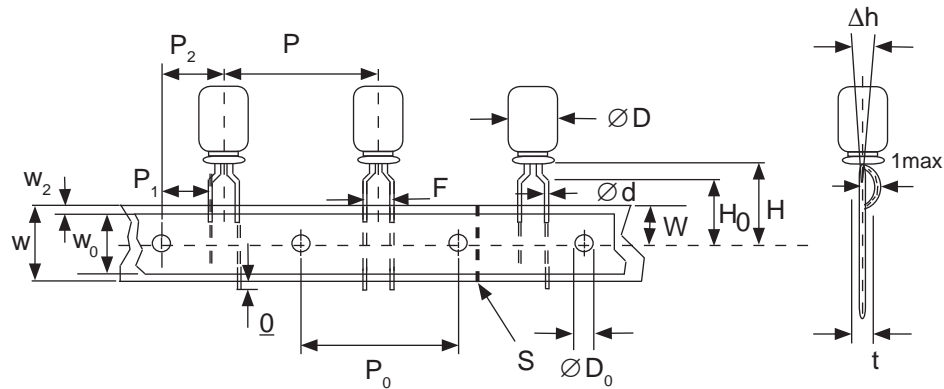


Miniature Aluminum Electrolytic Capacitors Taping Specifications

SPECIAL RADIAL TAPING (2.5mm LEAD SPACING, FORMED LEADS) TBF1

Taping Dimensions (mm)

Case Dia. (D ϕ)	4	5	
Case Size Dim.	4x5 4x7	5x5 5x7	5x11
d ϕ \pm 0.05	0.45	0.45	0.5
H \pm 0.75	17.5	17.5	18.5
H ₀ \pm 0.5	16.0	-	-
F	2.5 -0.2 ~ +0.8		
P	12.7 \pm 1.0		
P ₀	12.7 \pm 0.2		
P ₁	5.1 \pm 0.5		
P ₂	6.35 \pm 1.0		
W	18.0 \pm 0.5		
W ₀	11.5 min.		
W ₁	9.0 \pm 0.5		
W ₂	0 ~ 1.5		
l	1.0 max.		
D ₀ ϕ	4.0 \pm 0.2		
Δ h	0 \pm 1.0		
t	0.7 \pm 0.2		

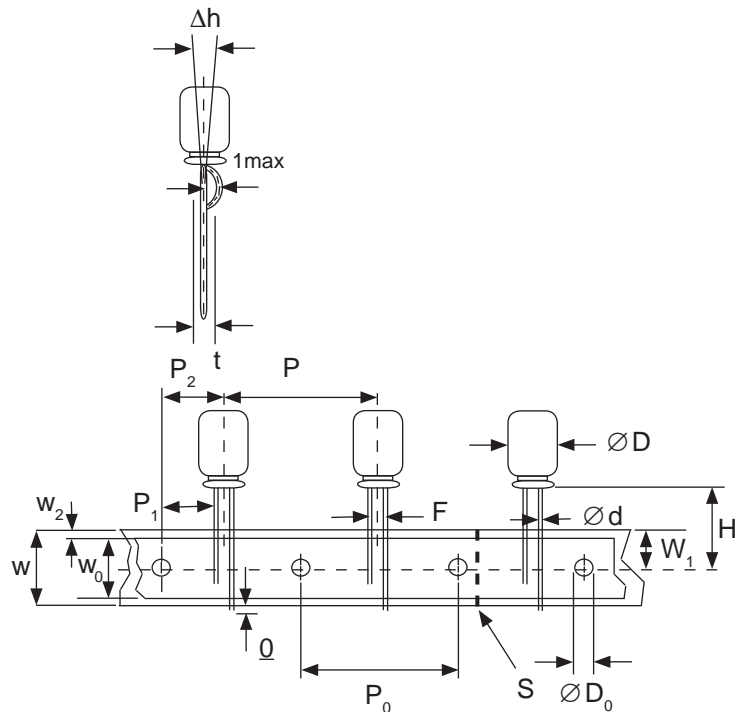


SPECIAL STRAIGHT LEAD TAPING TBST

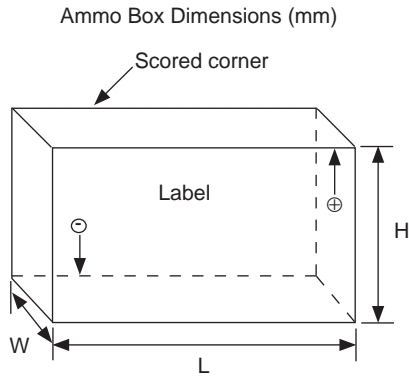
Taping Dimensions (mm)

Case Dia. (D ϕ)	4	5			6.3		8
Case Size Dim.	4x5 4x7	5x5 5x7	5x11	6.3x5 6.3x7	6.3x11	8x11.5	
d ϕ \pm 0.05	0.45	0.45	0.5	0.45	0.5	0.6	
H \pm 0.75	17.5	17.5	18.5	17.5	18.5	20.0	
F +0.8 ~ -0.2	2.0*	2.0	2.0	2.5	2.5	3.5	
P \pm 1.0	12.7 \pm 0.2						
P ₀	12.7 \pm 0.2						
P ₁	5.1	5.1	5.1	5.1	5.1	4.6	
P ₂	6.35 \pm 1.0						
W	18.0 \pm 0.5						
W ₀	11.5 min.						
W ₁	9.0 \pm 0.5						
W ₂	0 ~ 2.5						
H ₀	16.0 \pm 0.5						
l	1.0 max.						
D ₀ ϕ	4.0 \pm 0.2						
Δ h	0 \pm 1.0 (at top of can)						
t	0.7 \pm 0.2 (not including lead)						

* Parts with 4mm diameter are taped with a slight flare in the lead and a 2.0mm lead-space.



RADIAL TAPED PACKAGING



Ammo Box (Tape & Box) TB, TBF1, TBST

Size of box and component quantity

Case Dia (D ϕ) or Case Size	Q'ty per Box (pcs)	Dim. L	Dim. H	Dim. W
4x5, 4x7	2,000	331	175	43
5x5, 5x7	2,000	331	220	43
5x11	2,000	340	255	55
6.3x5, 6.3x7	2,000	331	280	43
6.3x11	2,000	331	280	48
8x11.5, 8x12.5	1,000	335	235	53
10x12.5*	500	335	190	53
10x16*	500	335	300	53
10x20*	500	335	300	55
12.x20*	500	335	300	55
12.5x25*	500	335	300	61

*Special Taping Consult Factory For Availability