Data Sheet

Customer :

Product : Aluminum Electrolytic Capacitors – ENR Series

Size : 5x11mm ~ 16x32mm

Issued Date : 30-May-2023

Edition : Ver. 3

Record of change

Date	Ver.	Description	Page
15-Aug.-2016	1		
29-Mar.-2023	2	Revised 220uF/100V Size 16x26	2
30-May-2023	3	Life time 105℃ 2000 Hours	1

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30-May-2023	30-May-2023	30-May-2023	
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Subject : Storage of Aluminium Electrolytic Capacitors

We recommend the following conditions for storage :

1. It is recommended to keep capacitors between the ambient temperatures of 5℃to 35℃ and a relative humidity of 75% or below.

2. Confirm that the environment does not have any of the following conditions :
   (1) Damp conditions such as water, saltwater spray, or oil spray or fumes. High humidity or humidity condensation situations.
   (2) In an atmosphere filled with toxic gasses (such as hydrogen sulfide, sulfurous acid, nitrous acid, chlorine, ammonia, elc.)
   (3) Being exposed to direct sunlight, ozone, ultraviolet ray, or radiation.
   (4) Being exposed to acidic or alkaline solutions.

3. Keep capacitors in the original package.

4. Storage life & Re-aging :
   When Aluminium Electrolytic Capacitors are stored without applied voltage, their L.C. (Leakage Current) characteristic increases over time. For long-term stored products, the following treatments must be performed before use :
   (1) For Low Voltage Aluminium Electrolytic Capacitors (i.e., Working Voltage W.V. ≦ 120V) :
   After one year of storage, a test must be performed before use. If the L.C. value exceeds the specified value,it is recommended not to use them, as lifespan and quality cannot be 100% guaranteed.
   (2) For Medium/High Voltage Aluminium Electrolytic Capacitors (i.e., Working Voltage W.V. ≧160V) :
   (A) If stored for more than 6 months, a test must be performed before use to ensure lifespan and quality.
   (B) If stored for 6-24 months and the L.C. value is between 25% and 40% of the specified value, it is recommended to recharge (re-agent) before use. If the L.C. value exceeds 40% of the specified value, do not use.
   (3) Re-aging condition : It is recommended to apply D.C. working voltage to the capacitor for 2 hours through 1KΩ of protective series resistor.

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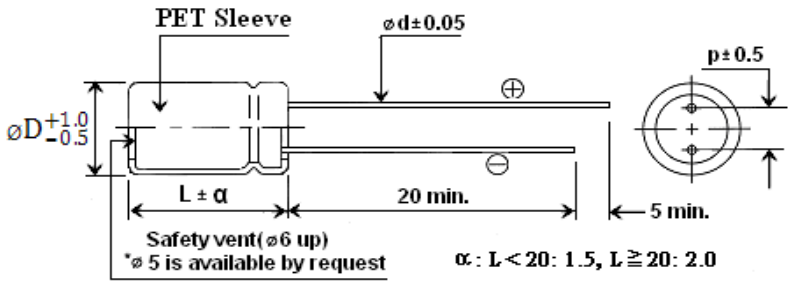
ENR SERIES

- These are non-polar capacitors designed for circuits with reversing polarity.
- Tolerance of ± 10% (K) if required can also be available on request.
- Life time 105℃ 2000 Hours

Characteristics

Voltage Range	10~100V						
Capacitance Range	0.47~3300uF						
Temperature Range	-40 ~ + 105℃						
Capacitance Tolerance	+20% -20% (at 20℃, 120Hz)						
Leakage Current	I=0.03CV or 3uA max. (After 3 minutes)						
Dissipation Factor(tanδ) (at 20℃, 120Hz)	Rated voltage	10V	16V	25V	35V	50V	63V	100V
	tanδ	0.25	0.20	0.18	0.15	0.15	0.12	0.10
Stability at Low Temperature	Impedance ration at 120Hz							
	Rated Voltage (V)	10V	16V	25V	35V	50V	63V	100V
	Z-25℃/Z 20℃	3	2	2	2	2	2	2
	Z-40℃/Z 20℃	6	4	4	4	4	4	3
Load Life	After 2000hrs. application of DC rated working voltage at +105℃,with the polarity inverted every 250hrs,capacitors meet the characteristic of following requirements.		Capacitance change		≤±20% of initial measured value			
			D.F. (tanδ)		≤200% of initial specified value			
			Leakage current		≤200% of initial specified value			

Diagram of dimensions (Unit:mm)



Dϕ	4	5	6.3	8	10	13	16	18
p	1.5	2.0	2.5	3.5	5.0	5.0	7.5	7.5
dϕ	0.45	0.5	0.5	0.5	0.6	0.6	0.8	0.8

Ripple Current Coefficients

Frequency (Hz)	50(60)	120	400	1K	10K	100K
Cap.(uF) / Hz	Multiplier					
Cap. ≦ 10	0.75	1	1.30	1.55	2.0	2.0
10＜Cap.≦100	0.75	1	1.3	1.55	2.0	2.0
100＜Cap.≦1000	0.8	1	1.2	1.3	1.5	1.5
1000＜Cap.	0.85	1	1.10	1.10	1.15	1.15

Case Size of Standard Products & Maximum Ripple Current (mA rms 105℃, 120Hz)

Cap. \ WV	10		16		25		35		50		63		100	
uF	Size	R.C.	Size	R.C.	Size	R.C.	Size	R.C.	Size	R.C.	Size	R.C.	Size	R.C.
0.47									4x7 5x11	5 8	5x11	9	5x11	10
1									4x7 5x11	10 12	5x11	14	5x11	15
2.2							4x7	13	5x7 5x11	16 17	5x11	20	6.3x11	22
3.3					4x7	14	5x7	18	5x7 5x11	20 23	5x11	25	6.3x11	22
4.7			4x7	18	5x7	19	5x7	22	6.3x7 5x11	27 30	5x11	30	8x12	36
10			5x7 5x11	30 34	6.3x7 5x11	34 35	6.3x7 5x11	35 38	8x7 6.3x11	44 50	6.3x11	52	8x12	52
22	5x7	38	6.3x7 5x11	51 53	6.3x7 6.3x11	53 55	8x7 6.3x11	58 65	8x12	85	8x12	88	10x16	120
33	6.3x7	52	6.3x7 5x11	58 62	8x7 6.3x11	72 70	8x7 8x12	70 75	8x12	89	10x13	115	10x21	175
47	5x11	79	8x7 6.3x11	73 90	8x7 6.3x11	80 96	8x12	107	8x12	123	10x16	150	13x21	187
100	8x7 6.3x11	105 99	8x7 6.3x11	120 123	8x12	152	10x13	198	10x16	220	13x21	295	16x26	399
220	8x12	157	10x13	234	10x13	245	10x21	320	13x21	340	13x26	420	16x26	520
330	10x13	235	10x13	255	10x16	310	13x21	370	16x26	500	16x26	520		
470	10x13	290	10x16	360	13x21	420	13x26	495	16x32	590				
1000	10x21	430	13x21	511	16x26	1120	16x31	1270						
2200	16x26	830	16x32	950										
3300	16x32	1150												

Unit: mm

Part Numbering System

ENR	101	M	25	A	–	T1
SERIES	CAPACITANCE	TOL.	W.V.	PACKAGE	SIZE	LEAD SPACE
	IN 3DIGITS	K= ± 10%	0J= 6.3V	B= Bulk	Omit if only	Omit if Bulk
	010= 1.0uF	M= ± 20%	10= 10V	C5= Cut 5mm	one size	T1= L/S 2.5mm Taped
	4R7= 4.7 uF		25= 25V	A= Ammo Pack	A=Size of	TA= Lead forming space 5mm Taped
	101= 100uF		63= 63V	R= Tape&Reel	7mm height	T35= L/S 3.5mm Taped
	102= 1000uF		2A= 100V	F5= Lead formed & cut 5mm		T2=L/S 5mm Taped
						T3= L/S 7.5mm Taped