

# 2.7V High Temperature & Humidity Supercapacitors

**ADCR-X02R7S**

Request Samples



Check Inventory



Various Sizes

RoHS/RoHS II Compliant

MSL Level = 1

## Features

- High Energy density of over 4.0Wh/Kg
- Extreme ambient operating temperature range as cold as -40°C and as hot as +85°C.
- Operation in High Humidity up to 85%
- Excellent cycle life of >50K cycles

## Applications

- Smart Meter Applications
- Power Assist Circuits
- Power Backup
- Micro Energy Storage
- IoT Energy Harvesting

## Electrical Specifications

Part Number	Nominal Voltage (U <sub>R</sub> )	Capacitance	Tolerance Code	DC ESR (Max)	Continuous Current (Max)	Peak Current (Max)	Leakage Current (72hrs)	Stored Energy (Max)	Gravimetric Energy Density
ADCR-X02R7S	DC(V)	Farads		mΩ	A	A	μA	Wh	Wh/kg
ADCR-X02R7SA105	2.7V	1.0	P	300	0.37	1.04	6	0.0010	1.61
ADCR-X02R7SB105	2.7V	1.0	P	240	0.47	1.09	7	0.0010	0.92
ADCR-X02R7SA205	2.7V	2.0	P	180	0.61	1.99	10	0.0020	1.50
ADCR-X02R7SA335	2.7V	3.3	P	180	0.62	2.79	12	0.0033	3.04
ADCR-X02R7SB335	2.7V	3.3	P	150	0.74	2.98	12	0.0033	2.09
ADCR-X02R7SA505	2.7V	5.0	P	135	0.87	4.03	16	0.0051	2.43
ADCR-X02R7SB505	2.7V	5.0	P	113	0.97	4.32	16	0.0051	1.94
ADCR-X02R7SA705	2.7V	7.0	M, Q	90	1.20	5.80	22	0.0071	2.29
ADCR-X02R7SA106	2.7V	10.0	M, Q	83	1.25	7.40	30	0.0101	3.12
ADCR-X02R7SB106	2.7V	10.0	M, Q	68	1.51	8.06	32	0.0101	2.72
ADCR-X02R7SC106	2.7V	10.0	M, Q	68	1.42	8.06	32	0.0101	2.49
ADCR-X02R7SA126	2.7V	12.0	M, Q	60	1.66	9.42	40	0.0122	2.83
ADCR-X02R7SA156	2.7V	15.0	M, Q	53	1.93	11.33	55	0.0152	3.05
ADCR-X02R7SA256	2.7V	25.0	M, Q	38	2.41	17.42	78	0.0253	3.03
ADCR-X02R7SA306	2.7V	30.0	M, Q	30	2.92	21.32	85	0.0304	3.28
ADCR-X02R7SA506 <sup>§</sup>	2.7V	50.0	M, Q	24	3.96	30.68	120	0.0506	3.51
ADCR-X02R7SA107 <sup>§</sup>	2.7V	100.0	M, Q	20	5.30	45.76	250	0.1013	4.59

§ This part has not been tested to 85% humidity.

**Operating Temperature:** -40°C to +85°C

**Operating Humidity:** ≤85%

**Storage:** Temperature 10°C to +50°C, RH<60%, Max. Humidity <85% RH

**Test Conditions:** +25°C

All parameters are measured according to the IEC 62391-1 standard.

Capacitance is measured with  $I(\text{mA})= 4(C*U_R)$  and DC ESR is measured with  $I(\text{mA})= 40(C*U_R)$

**Continuous Current (Δ15°C):**  $\sqrt{15 \times \text{SurfaceArea}/\text{ESR}}$

**Peak Current (Max.):**  $0.5U_R/(ESR + 1/C)$



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**REVISION Initial Release :**  
 9/3/2024

ABRACON IS  
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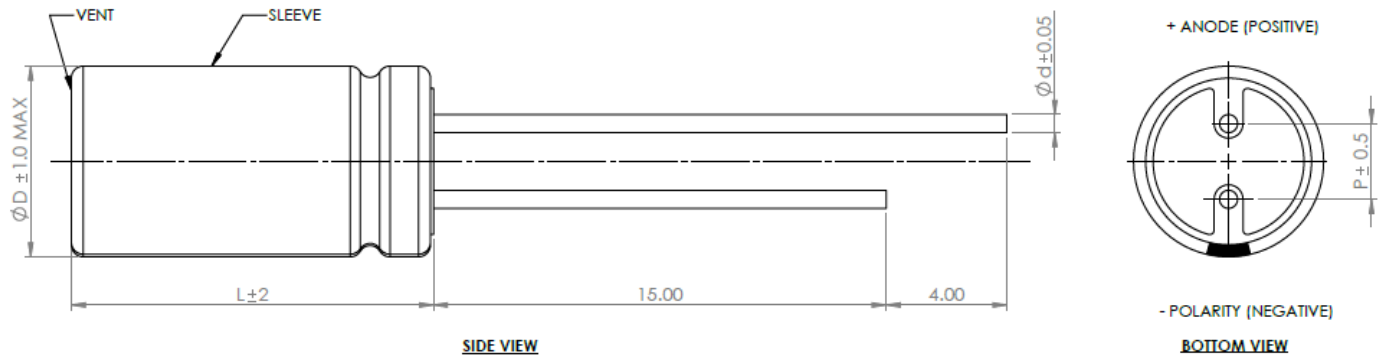


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MSL Level = 1

## Mechanical Specifications



Part Number	D	L	P	d
ADCR-X02R7SA105	6.3	12.0	2.5	0.6
ADCR-X02R7SB105	8.0	12.0	3.5	0.6
ADCR-X02R7SA205	8.0	16.0	3.5	0.6
ADCR-X02R7SA335	6.3	22.0	2.5	0.6
ADCR-X02R7SB335	8.0	20.0	3.5	0.6
ADCR-X02R7SA505	8.0	25.0	3.5	0.6
ADCR-X02R7SB505	10.0	20.0	5.0	0.6
ADCR-X02R7SA705	10.0	20.0	5.0	0.6
ADCR-X02R7SA106	10.0	25.0	5.0	0.6
ADCR-X02R7SB106	10.0	30.0	5.0	0.6
ADCR-X02R7SC106	12.5	20.0	5.0	0.6
ADCR-X02R7SA126	12.5	25.0	5.0	0.6
ADCR-X02R7SA156	12.5	30.0	5.0	0.6
ADCR-X02R7SA256	16.0	25.0	7.5	0.8
ADCR-X02R7SA306	16.0	30.0	7.5	0.8
ADCR-X02R7SA506	18.0	40.0	7.5	0.8
ADCR-X02R7SA107	18.0	60.0	7.5	0.8

Dimensions: mm



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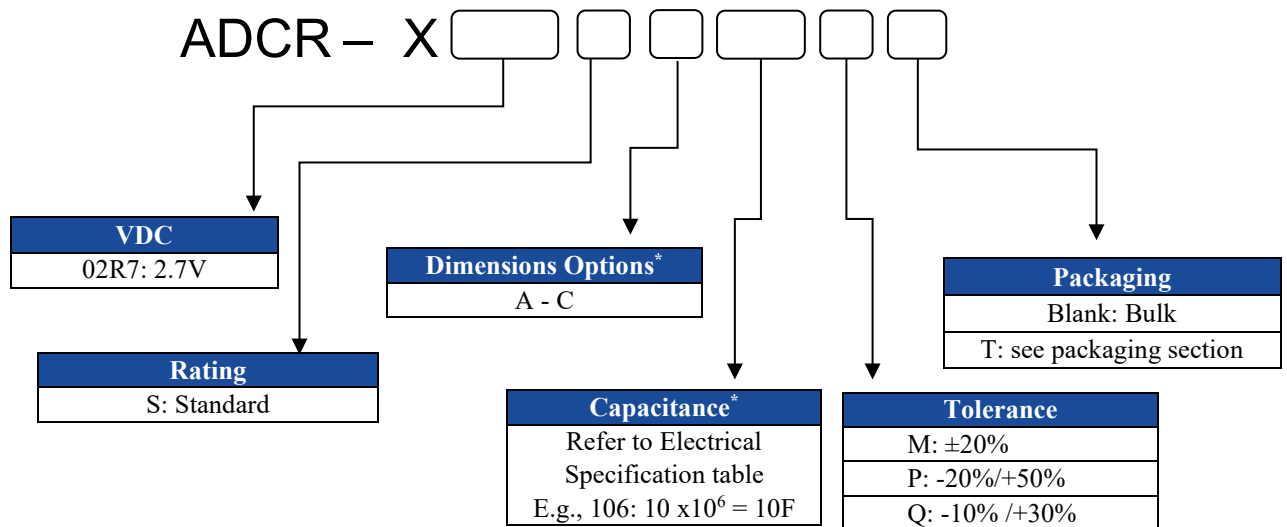


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## Part Number Identification



\*Only part numbers listed in the Electrical Specs table are available. For custom builds, please contact us.

## Part Marking



Example of the Markings of a 10F 2.7V capacitor

- Capacitance (F)
- Rated Voltage (V)
- Polarity (negative bar on the sleeve to indicate the cathode)

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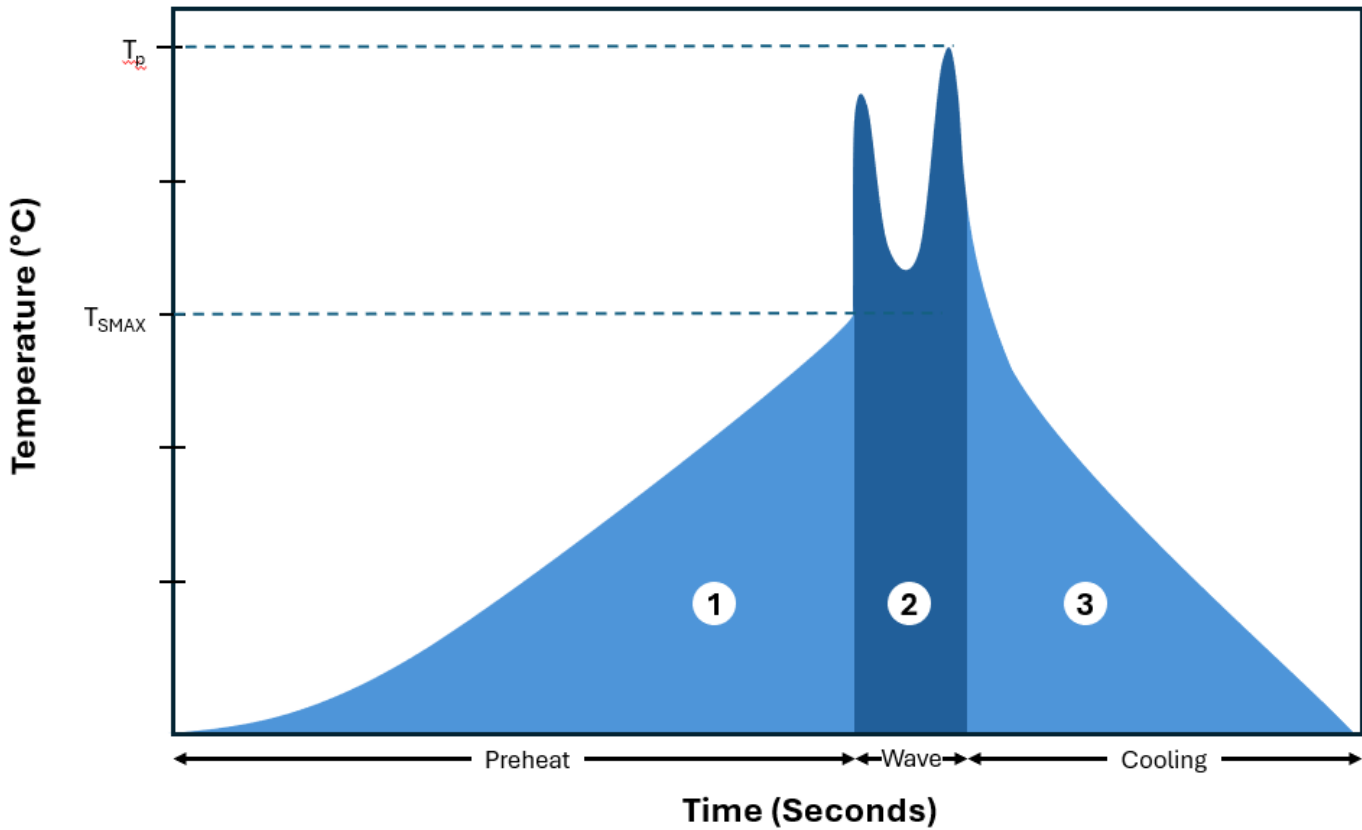


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## Wave Profile



Zone	Description	Temperature	Times
1	Preheat	$T_{SMIN} \sim T_{SMAX}$ 25°C ~ 130°C	80 sec. MAX
	Preheat Rate	$T_{PREHEAT}$ +4°C/Sec MAX	
2	Wave Temperature	$T_w$ 245°C ~ 260°C	10 sec. MAX Dual wave
	Wave Peak Temperature	$T_p$ 260°C	5 sec. MAX/wave
3	Cooling Rate	$T_{COOLING}$	-5°C/Sec MAX

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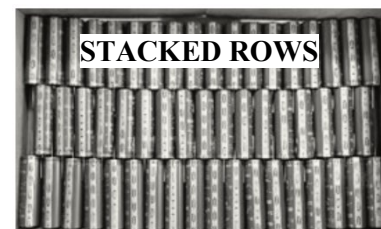
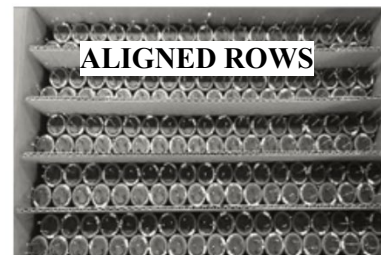
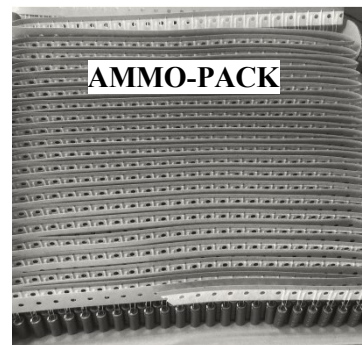
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## Packaging

Product is packaged in a carton containing multiple inner boxes, each containing several boxes, etc.

Part Number	SPQ	Format
ADCR-X02R7SA105	1,500	Ammo Pack
ADCR-X02R7SB105	1,000	Ammo Pack
ADCR-X02R7SA205	1,000	Ammo Pack
ADCR-X02R7SA335	1,500	Ammo Pack
ADCR-X02R7SB335	1,000	Ammo Pack
ADCR-X02R7SA505	1,000	Ammo Pack
ADCR-X02R7SB505	600	Ammo Pack
ADCR-X02R7SA705	600	Ammo Pack
ADCR-X02R7SA106	600	Ammo Pack
ADCR-X02R7SB106	600	Ammo Pack
ADCR-X02R7SC106	400	Ammo Pack
ADCR-X02R7SA126	400	Ammo Pack
ADCR-X02R7SA156	400	Ammo Pack
ADCR-X02R7SA256	220	Box, Aligned Rows
ADCR-X02R7SA306	220	Box, Aligned Rows
ADCR-X02R7SA506	180	Box, Aligned Rows
ADCR-X02R7SA107	106	Box, Stacked Rows



## Transport of Product

This product is not subject to US DOT or IATA regulations UN3499 since maximum stored energy is below 10Wh and can be considered Non-Hazardous Goods.

**ATTENTION:** Abracon LLC's products are Commercial-Off-The-Shelf (COTS, which are designed, intended and validated for use in commercial, industrial and automotive applications. The customer is responsible for testing and verifying the performance of an Abracon solution to meet their system-level requirements.



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