# XV Supercapacitor Cylindrical snap-in











### Description

Eaton supercapacitors are unique, ultra-high capacitance devices utilizing electrochemical double layer capacitor (EDLC) construction combined with new, high performance materials. This combination of advanced technologies allows Eaton to offer a wide variety of capacitor solutions tailored to specific applications that range from a few microamps for several days to several amps for milliseconds.

#### Features and benefits

- Over 10-year operating life at room temperature
- · Ultra low ESR for high power density
- · Large capacitance for high energy density
- · Long cycle life
- · UL Recognized

### **Applications**

- · Hybrid battery or fuel cell systems
- · High pulse current applications
- · UPS / hold up power



## **Specifications**

Capacitance	300 F to 600 F
Working voltage	2.7 V
Surge voltage	2.85 V
Capacitance tolerance	-5% to +10%
Operating temperature range	-40 °C to +65 °C
Extended operating temperature range	-40 °C to +85 °C (with voltage derating to 2.3 V @ +85 °C)

### Standard Product<sup>1</sup>

Capacitance (F)	Part Number	Max. initial DC ESR (mΩ) (Equivalent Series Resistance)	Max continuous current <sup>2</sup> (A)	Peak current³ (A)	Max leakage current⁴ (mA)	Max power⁵ (W)	Stored energy <sup>6</sup> (Wh)	Typical mass (g)
300	XV3550-2R7307-R	4.5	20	160	0.60	410	0.30	62
400	XV3560-2R7407-R	3.2	26	220	0.85	570	0.41	72
600	XV3585-2R7607-R	2.6	33	320	1.30	790	0.60	108

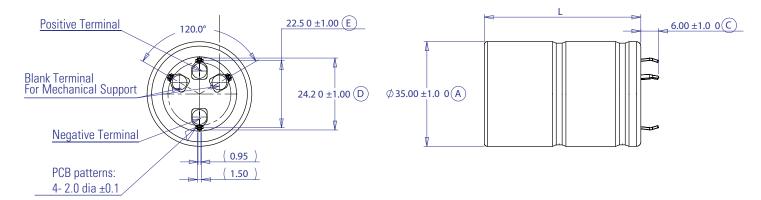
- Capacitance, ESR and Leakage current are all measured according to IEC 62391-1 at +20 °C
  Sec Temperature Rise
  Peak Current is for 1 second = 1/2 Working Voltage x Capacitance / (1 + DC ESR x Capacitance)
  Leakage current measured after 72 hours, +20 °C
  Max. Power = Working Voltage² / 4 / DC ESR
  Stored energy = 1/2 Capacitance x Working Voltage² / 3600

### **Performance**

Parameter		Capacitance Change (% of initial value)	ESR (% of max. initial value)	
Life	'		'	
@ Max. operating voltage and temp)	1500 hours	≤ 20%	≤ 200%	
Charge/discharge cycling <sup>1</sup>	500,000	≤ 20%	≤ 200%	
Storage Life- uncharged				
-40 °C to +65 °C	1500 hours	≤ 20%	≤ 200%	
≤ 30 °C	3 years	≤ 5%	≤ 10%	

<sup>1.</sup> Cycling between max operating and 50% of max operating voltage at room temperature

## Dimensions (mm)



Part Number	L ±1.0
XV3550-2R7307-R	53
XV3560-2R7407-R	63
XV3585-2R7607-R	87.5

## **Part Numbering System**

xv	3560		-	2R7	40	7	-R
Family Code	Size reference-	mm		Voltage (V)	Capacitance (µF)		
Family Code	Diameter	Length		R = Decimal	Value	Multiplier	
XV = Family Code	35	60		2R7= 2.7 V	Example: 407= 40 x 10 <sup>7</sup> µF or 400 F		Standard product

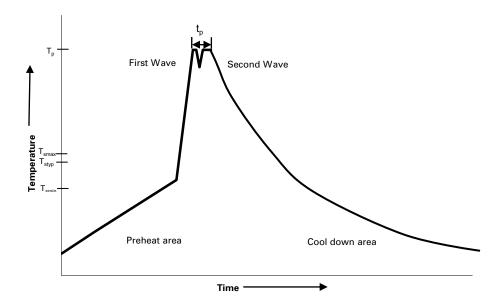
# **Packaging Information**

• Standard packaging: 20 pieces per box

## **Part Marking**

- Manufacturer
- Capacitance (F)
- Max operating voltage (V)
- Series code (or part number) Polarity

# Wave solder profile



Profile Feature	Standard SnPb Solder	Lead (Pb) Free Solder		
Preheat and soak • Temperature max. (T <sub>smax</sub> )	100 °C	100 °C		
Time max.	60 seconds	60 seconds		
$\Delta$ preheat to max Temperature	160 °C max.	160 °C max.		
Peak temperature (Tp)*	220 °C − 260 °C	250 °C – 260 °C		
Time at peak temperature (t <sub>p</sub> )	10 seconds max 5 seconds max each wave	10 seconds max 5 seconds max each wave		
Ramp-down rate	~ 2 K/s min ~3.5 K/s typ ~5 K/s max	~ 2 K/s min ~3.5 K/s typ ~5 K/s max		
Time 25 °C to 25 °C	4 minutes	4 minutes		

#### Manual solder

+350 °C, 4-5 seconds. (by soldering iron), generally manual, hand soldering is not recommended.

## Cleaning/Washing

Avoid cleaning of circuit boards, however if the circuit board must be cleaned use static or ultrasonic immersion in a standard circuit board cleaning fluid for no more than 5 minutes and a maximum temperature of +60 °C. Afterwards thoroughly rinse and dry the circuit boards. In general, treat supercapacitors in the same manner you would an aluminum electrolytic capacitor.

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