

# Type HHT 175 °C, Aluminum Electrolytic Capacitor



Type HHT has long life and rugged construction for high temperature environments. HHT capacitors are rated for full operating voltage at 175 °C and tested to 2000 hrs at rated voltage and temperature. 5000 hours of life at 150 °C with ripple current ratings up to 10 Arms.

## Highlights.

- Rated for +175 °C without voltage derating
- High capacitance retention @ -40 °C
- Up to 20g vibration

## Specifications

Temperature Range	-40 °C to +175 °C												
Rated Voltage Range	16 Vdc to 40 Vdc												
Capacitance Range	470 µF to 4700 µF												
Capacitance Tolerance	-10 / +30%												
Leakage Current (at 20 °C)	$I = 0.003 CV + 4.0 \mu A$ ; after 5 minutes at rated voltage I = leakage current in µAmps C = rated capacitance in µF V = rated DC Working voltage in Volts												
Ripple Current vs. Frequency Correction Factors	<table border="1"> <thead> <tr> <th>Frequency (Hz)</th> <th>100</th> <th>300</th> <th>1000</th> <th>5000</th> <th>100 kHz</th> </tr> </thead> <tbody> <tr> <td>Ripple Current Correction Factor</td> <td>0.35</td> <td>0.57</td> <td>0.8</td> <td>1</td> <td>1.04</td> </tr> </tbody> </table>	Frequency (Hz)	100	300	1000	5000	100 kHz	Ripple Current Correction Factor	0.35	0.57	0.8	1	1.04
Frequency (Hz)	100	300	1000	5000	100 kHz								
Ripple Current Correction Factor	0.35	0.57	0.8	1	1.04								
Low Temperature Characteristics	<b>Impedance ratio: <math>Z_{-40^\circ C} / Z_{+25^\circ C} @ 120 \text{ Hz} \leq 3</math></b>												
DC Life Test	2000 h @ rated voltage at 175 °C Δ Capacitance 30V and 40V ±20% , 16V ±25% ESR 200% of limit DCL 100% of limit												
Shelf Life Test	(+105 °C/0 Vdc): 1000 hours (+40 °C/0 Vdc): 10 years												
Case Material	Stainless Steel												

# Type HHT 175 °C, Aluminum Electrolytic Capacitor

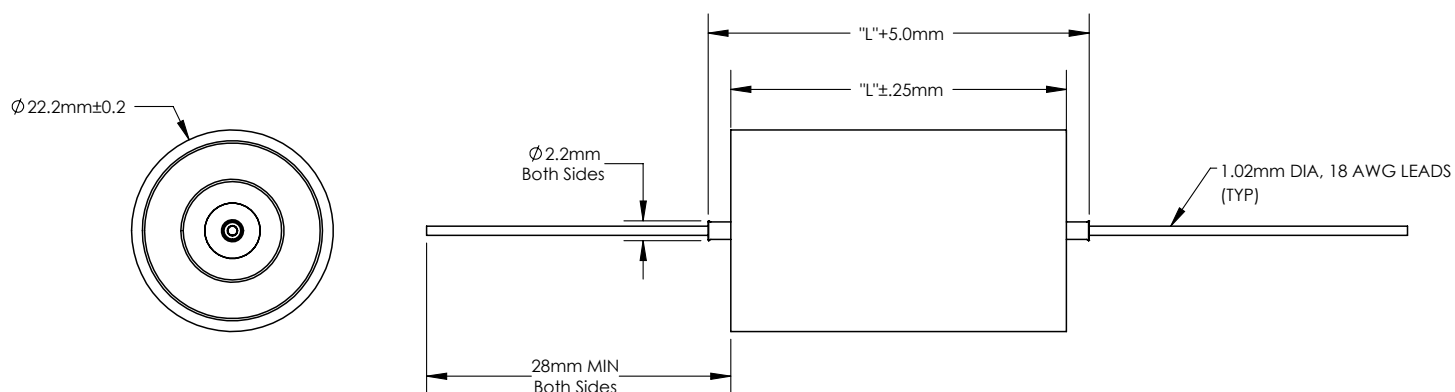
Vibration Test	Mil standard 202, method 204, high frequency 20g's
Surge Voltage Test	Subject the capacitors to their rated surge voltage at normal room temperature and through a 1000 Ω ±10% resistor (except for capacitances of 2500 μF and up, use a higher value resistor calculated as 2,500,000/C Ω ±10% where C is the capacitance in μF). Cycle the voltage ½ minute on followed by 4½ minutes off during which each capacitor is discharged through the charging resistor or equal resistor. Repeat the cycles for 120 h. Post test requirements are for DCL, ESR and DF to meet initial requirements and for there to be no evidence of mechanical damage or electrolyte leakage.
Storage at Low Temperature Test	<p><b>Test</b> Subject the capacitor to 72 hours at -55°C. After 16 hours at room temperature, measure the capacitance and DCL.</p> <p><b>ΔC</b> Capacitance change from the initial measurement must not exceed 10%.</p> <p><b>DCL</b> Leakage current will meet the initial specification.</p> <p><b>Appearance</b> No electrolyte leakage or other visible damage. The markings are to be legible.</p>

## Part Numbering System

<b>HHT</b>	<b>332</b>	<b>P</b>	<b>016</b>	<b>H</b>	<b>J</b>	<b>0</b>
↓	↓	↓	↓	↓	↓	↓
<b>Type</b>	<b>Capacitance</b>	<b>Tolerance</b>	<b>Rated Voltage</b>	<b>Case Diameter</b>	<b>Case Length Code</b>	<b>Sleeve/Label</b>
HHT	332 = 3300 μF 471 = 470 μF	P = -10/+30%	016 = 16 Vdc 030 = 30 Vdc 040 = 40 Vdc	H = 22mm	E = 37mm J = 45mm L = 53mm	0 = Label 1 = Sleeve

# Type HHT 175 °C, Aluminum Electrolytic Capacitor

## Outline Drawing



<b>Typical Weight</b>
<b>HE</b> = 43 g
<b>HJ</b> = 50 g
<b>HL</b> = 56 g

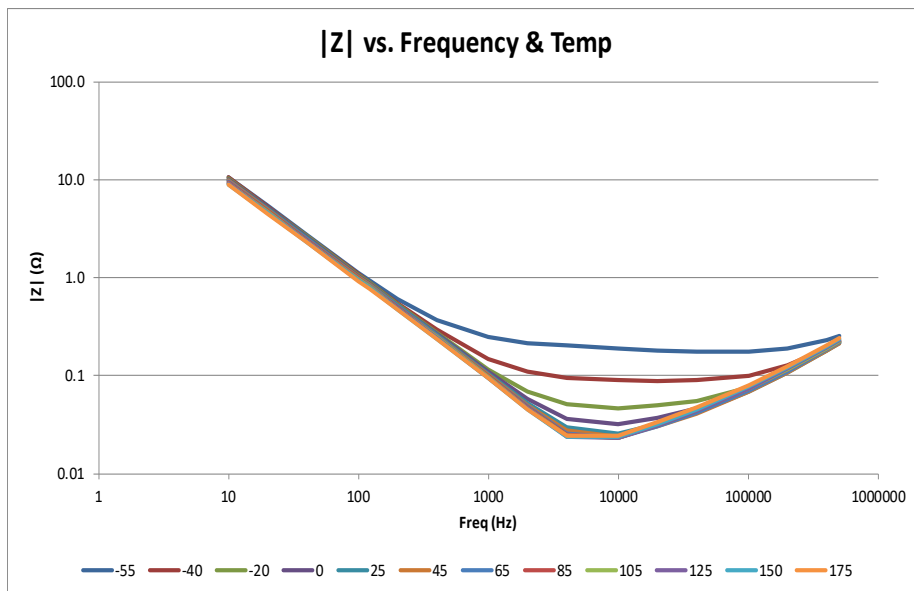
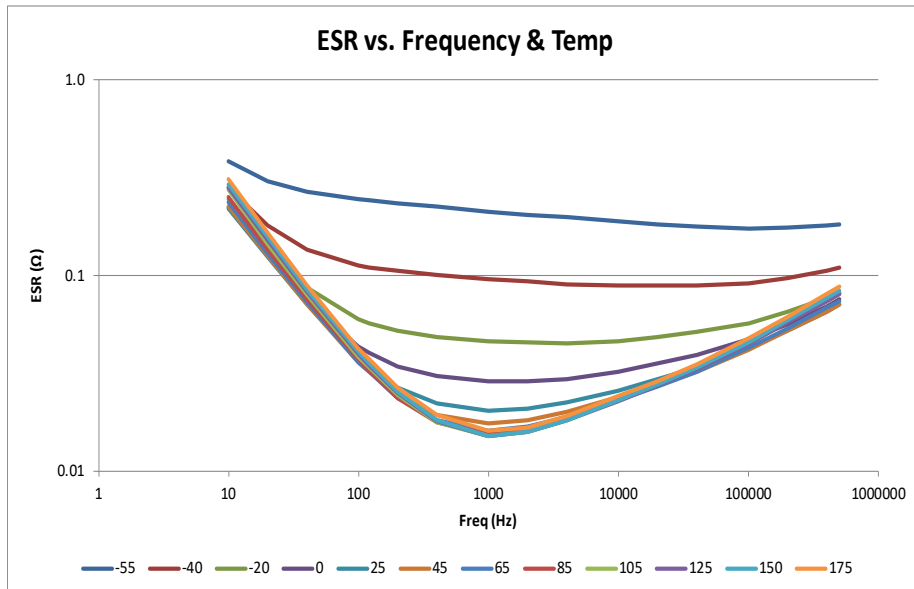
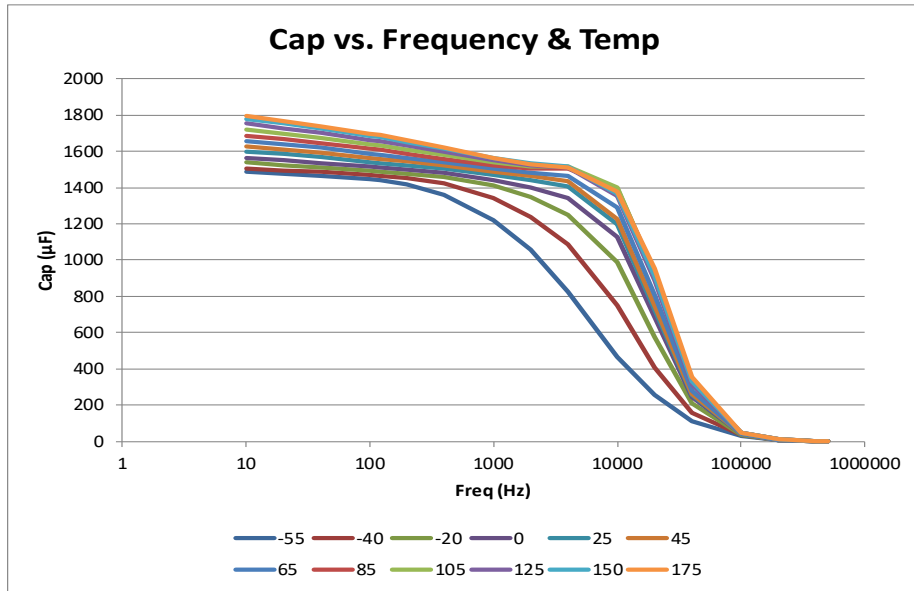
## Ratings

Voltage	Cap (µF) 120Hz 25 °C	Catalog Part Number	Case Size D x L mm	ESR max	
				25 °C (mΩ) 120 Hz	150 °C Ambient 5 KHz
<b>16 Vdc @ 175 °C</b> 25 Vdc Surge @25 °C	2200	HHT222P016HE0	22 x 37	90	7.1
	3300	HHT332P016HJ0	22 x 45	60	8.9
	4700	HHT472P016HL0	22 x 53	42	10.3
<b>30 Vdc @ 175 °C</b> 40 Vdc Surge @25 °C	1500	HHT152P030HE0	22 x 37	133	7.3
	2200	HHT222P030HJ0	22 x 45	90	8.9
	2700	HHT272P030HL0	22 x 53	74	10.1
<b>40 Vdc @ 175 °C</b> 63 Vdc Surge @25 °C	470	HHT471P040HE0	22 x 37	423	5.5
	680	HHT681P040HJ0	22 x 45	293	6.9
	900	HHT901P040HL0	22 x 53	221	8.1

# Type HHT 175 °C, Aluminum Electrolytic Capacitor

## Typical Performance Curves

Part Number: HHT152PO30HE



**Notice and Disclaimer:** All product drawings, descriptions, specifications, statements, information and data (collectively, the "Information") in this datasheet or other publication are subject to change. The customer is responsible for checking, confirming and verifying the extent to which the Information contained in this datasheet or other publication is applicable to an order at the time the order is placed. All Information given herein is believed to be accurate and reliable, but it is presented without any guarantee, warranty, representation or responsibility of any kind, expressed or implied. Statements of suitability for certain applications are based on the knowledge that the Cornell Dubilier company providing such statements ("Cornell Dubilier") has of operating conditions that such Cornell Dubilier company regards as typical for such applications, but are not intended to constitute any guarantee, warranty or representation regarding any such matter – and Cornell Dubilier specifically and expressly disclaims any guarantee, warranty or representation concerning the suitability for a specific customer application, use, storage, transportation, or operating environment. The Information is intended for use only by customers who have the requisite experience and capability to determine the correct products for their application. Any technical advice inferred from this Information or otherwise provided by Cornell Dubilier with reference to the use of any Cornell Dubilier products is given gratis (unless otherwise specified by Cornell Dubilier), and Cornell Dubilier assumes no obligation or liability for the advice given or results obtained. Although Cornell Dubilier strives to apply the most stringent quality and safety standards regarding the design and manufacturing of its products, in light of the current state of the art, isolated component failures may still occur. Accordingly, customer applications which require a high degree of reliability or safety should employ suitable designs or other safeguards (such as installation of protective circuitry or redundancies or other appropriate protective measures) in order to ensure that the failure of an electrical component does not result in a risk of personal injury or property damage. Although all product-related warnings, cautions and notes must be observed, the customer should not assume that all safety measures are indicated in such warnings, cautions and notes, or that other safety measures may not be required.