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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 |
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| Ripple Current Correction Factor | 0.35 | 0.57 | 0.8 | 1 | 1.04 | | | | | | | | |
| Low Temperature Characteristics | Impedance ratio: $Z_{-40^\circ C} / Z_{+25^\circ C} @ 120 \text{ Hz} \leq 3$ | | | | | | | | | | | | |
| DC Life Test | 2000 h @ rated voltage at 175 °C Δ Capacitance 30V and 40V $\pm 20\%$, 16V $\pm 25\%$ 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 | | | | | | | | | | | | |

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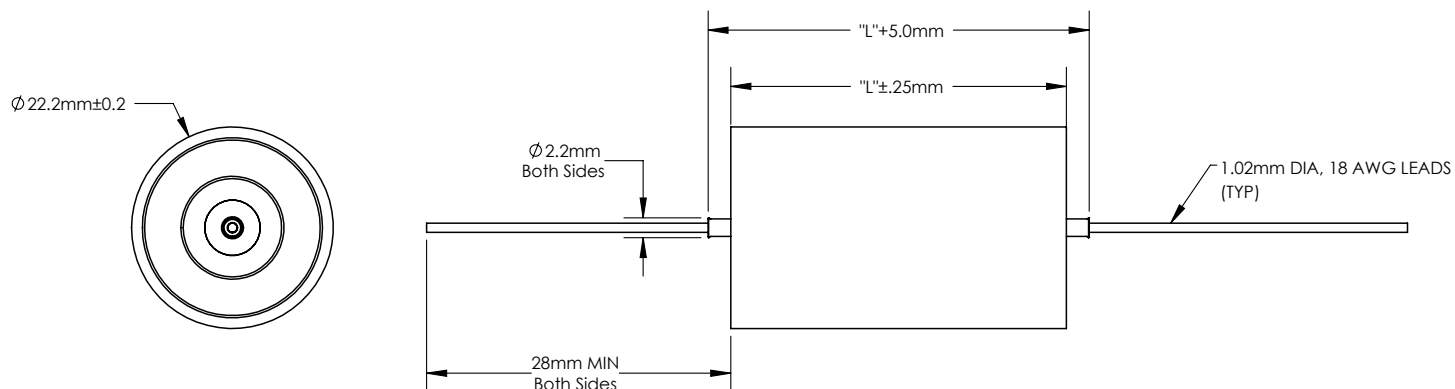
| | |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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>Test Subject the capacitor to 72 hours at -55°C. After 16 hours at room temperature, measure the capacitance and DCL.</p> <p>ΔC Capacitance change from the initial measurement must not exceed 10%.</p> <p>DCL Leakage current will meet the initial specification.</p> <p>Appearance No electrolyte leakage or other visible damage. The markings are to be legible.</p> |

Part Numbering System

| | | | | | | |
|-------------|-------------------------------|------------------|----------------------------------------------|----------------------|----------------------------------|-------------------------|
| HHT | 332 | P | 016 | H | J | 0 |
| ↓ | ↓ | ↓ | ↓ | ↓ | ↓ | ↓ |
| Type | Capacitance | Tolerance | Rated Voltage | Case Diameter | Case Length Code | Sleeve/Label |
| 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 |

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Outline Drawing



| |
|-----------------------|
| Typical Weight |
| HE = 43 g |
| HJ = 50 g |
| HL = 56 g |

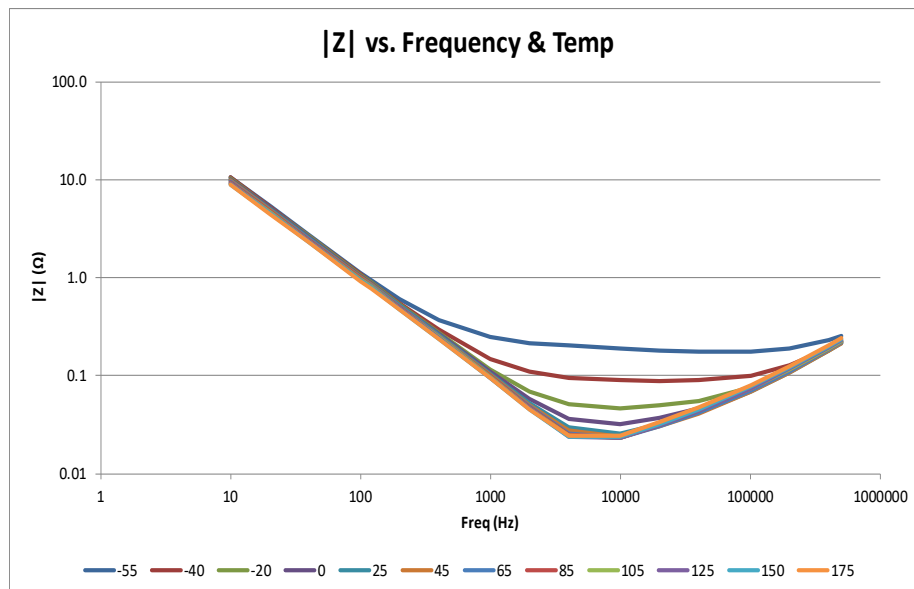
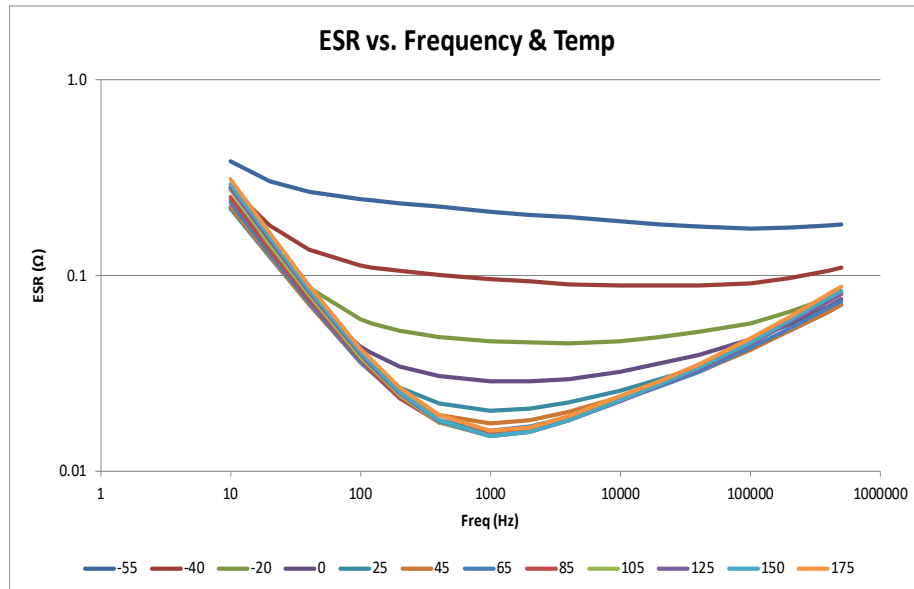
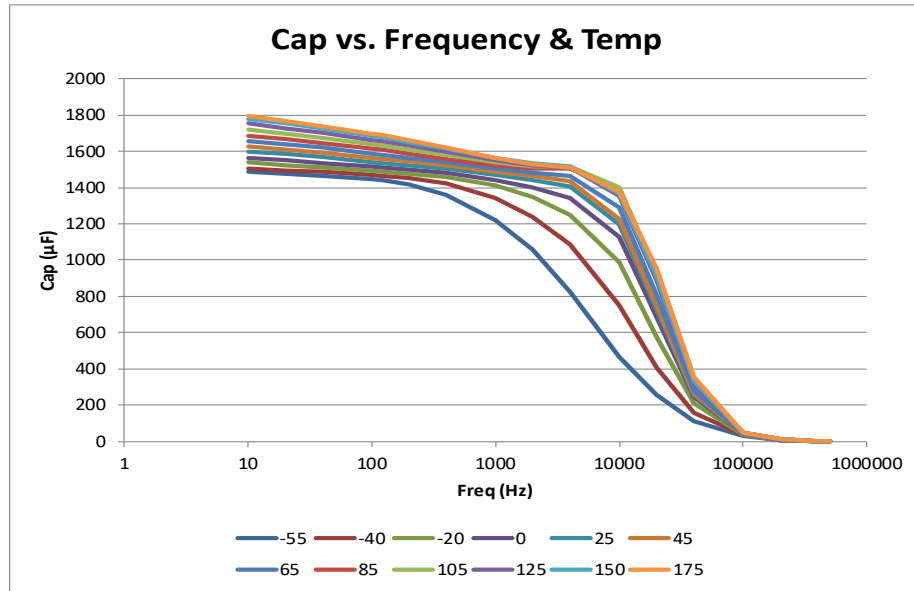
Ratings

| 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 |
| 16 Vdc @ 175 °C 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 |
| 30 Vdc @ 175 °C 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 |
| 40 Vdc @ 175 °C 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 |

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Typical Performance Curves

Part Number: HHT152PO30HE



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