

HLC – 1020



Hybrid Layer Capacitor (HLC) For *PulsesPlus™* batteries

Electrical characteristics (For batteries stored at RT for 1 year or less)

Capacity when charge to 3.67 V	45 As
Capacity when charge to 3.90 V	70 As
Discharge end voltage	2.5 V (discharge below 2.5 V at RT may increase the HLC internal impedance). For other temperatures and discharge condition please contact Tadiran for these end voltage conditions.

Mechanical characteristics

Length	21 -1 mm.
Diameter	10.0 +0.5/-0.0 mm.
Weight	4.2 gr. max

Operating conditions

Maximum discharge current:	
Continuous	250 mA
Pulse	750 mA
Charge (for HLC testing purpose only)	
Max. charge voltage	3.95 V
Max. charge current	8 mA
Operating & Storage temperature range	
HLC in Pulses Plus™ battery	-40 °C ÷ +85 °C
Storage temperature range for HLC	-40 °C ÷ +60 °C
Cell impedance at RT	< 400 mΩ at 1 kHz
Self discharge in PulsesPlus™ battery at RT	1 µA
Self discharge in PulsesPlus™ battery at 80 °C	5 µA

Shelf life at different storage temperature to 80% of initial capacity

Temperature	HLC	HLC in Pulses Plus™ battery
RT	1 years	>10 years
60 °C	2 weeks	10 years
80 °C	1 week	2 years

Safety

Tested according to:

Short circuit at RT and at +55 °C	UL, UN, IEC
Oven at +150 °C	UL, IEC
Over-charge & over-discharge (200 % at currents up to 80 mA)	UL, UN, IEC
Impact	UL, UN, IEC
Compression	UL, IEC
Shock and vibration	UL, IEC

UN Manual of Tests and Criteria, UL 1642, IEC 60086



Technology

- ☒ Anode: Carbon based
- ☒ Cathode: Multi metal oxides
- ☒ Electrolyte: Organic

Key Features

- ☒ Hermetically sealed (glass-to-metal)
- ☒ Wide operating temperature range
- ☒ Low self discharge
- ☒ End of life indication capability
- ☒ High reliability
- ☒ Lightweight
- ☒ Shut down separator
- ☒ Safe design

Main Applications

- ☒ Utility Meters (AMR)
- ☒ Asset, Container & Cargo Tracking
- ☒ RFID Devices
- ☒ Sonar Buoys
- ☒ Communication Equipment
- ☒ Emergency & Medical Devices

Ordering Part No.

- ☒ HLC-1020/S 61102022000
- ☒ HLC-1020/T 61102022150

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WARNING:
Fire, Explosion, And Severe Burn Hazard.
Do Not Recharge, Crush, Disassemble, Heat
Above 100°C, Incinerate Or Short Circuit.

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Rev D, November 2009

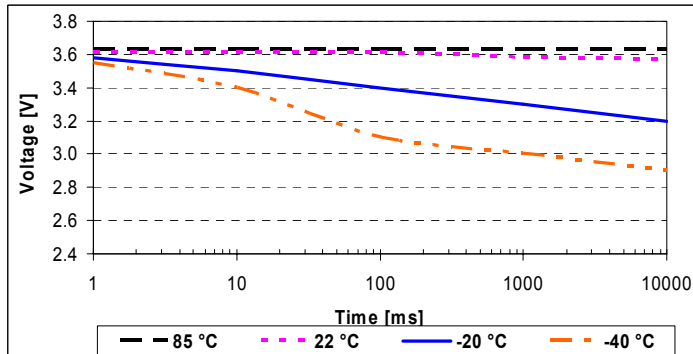
ECN 6101088

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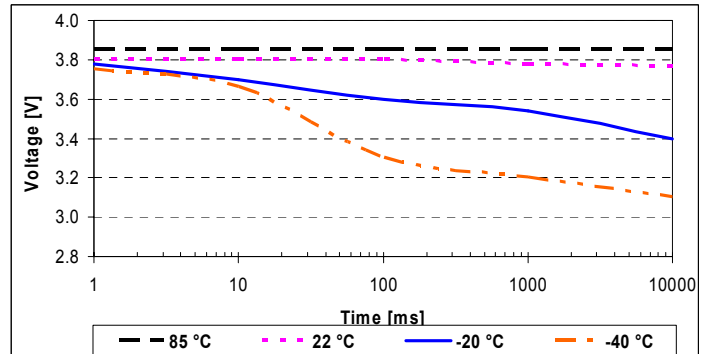


Performance data

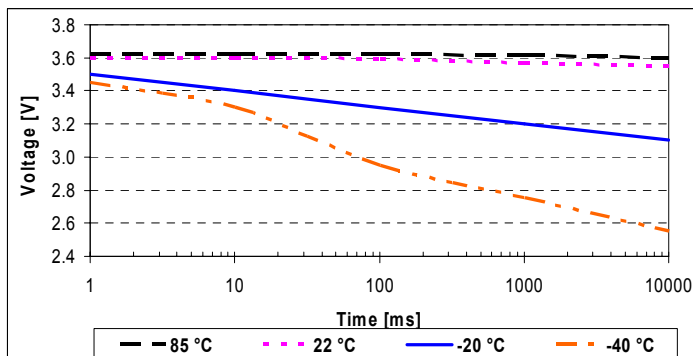
Voltage curves for HLC1020 at Li/SOCl₂ potential (3.67 V), 60 mA



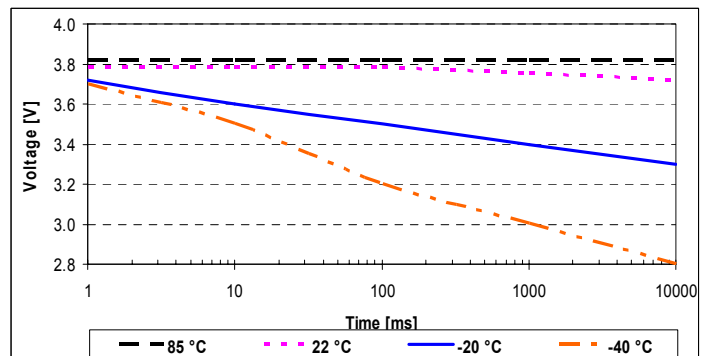
Voltage curves for HLC1020 at Li/SO₂Cl₂ potential (3.90 V), 60 mA



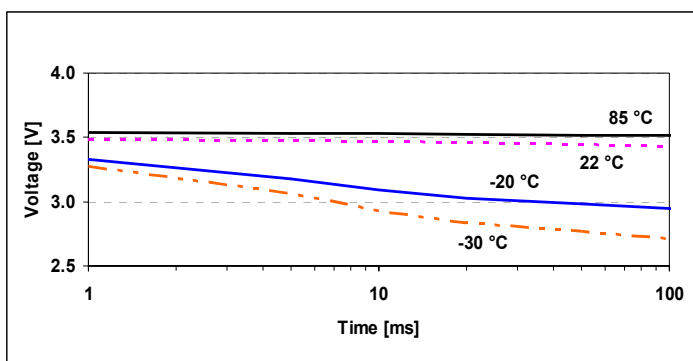
Voltage curves for HLC1020 at Li/SOCl₂ potential (3.67 V), 100 mA



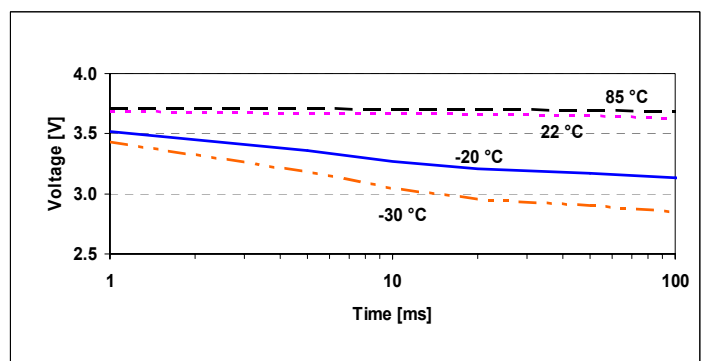
Voltage curves for HLC1020 at Li/SO₂Cl₂ potential (3.90 V), 100 mA



Voltage curves for HLC1020 at Li/SOCl₂ potential (3.67 V), 320 mA



Voltage curves for HLC1020 at Li/SO₂Cl₂ potential (3.90 V), 320 mA

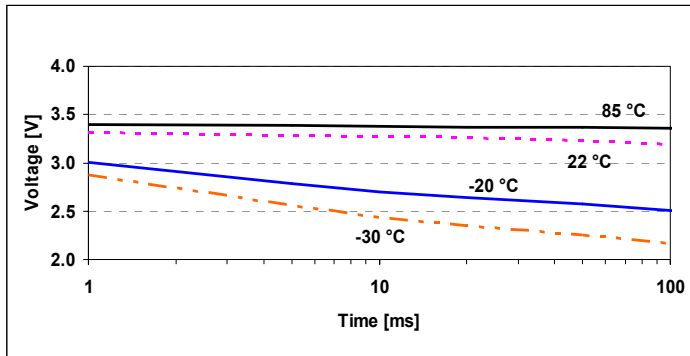


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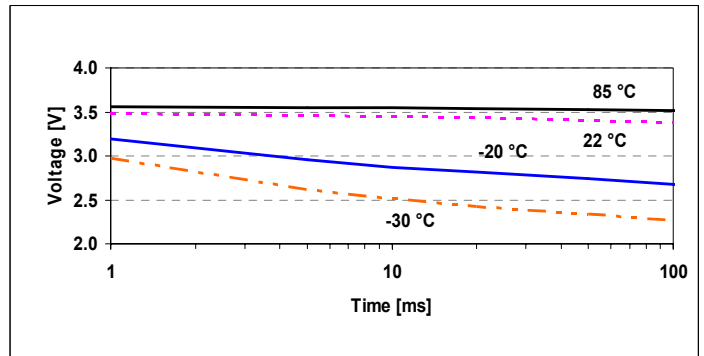
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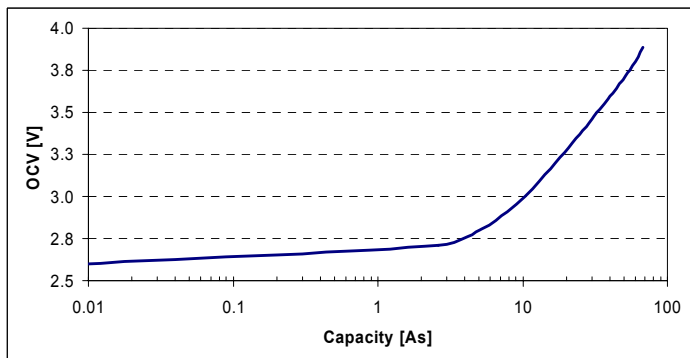
Voltage curves for HLC1020 at Li/SOCl₂ potential (3.67 V), 650 mA



Voltage curves for HLC1020 at Li/SO₂Cl₂ potential (3.90 V), 650 mA



Discharge capacity vs. OCV for HLC1020 (at RT, 15 mA discharge)



Warning:

- The HLC is designed for use in a PulsesPlus™ battery or in low charge current as specified only. The HLC may explode or violently vent if over-charge above 4.4V.
- Charging the HLC at above 3.95 V may lead to capacity loss and / or internal impedance rise.
- Do not charge the HLC higher than 4.1 V, over discharge, short circuit, heat above 100 °C, incinerate or expose content to water.

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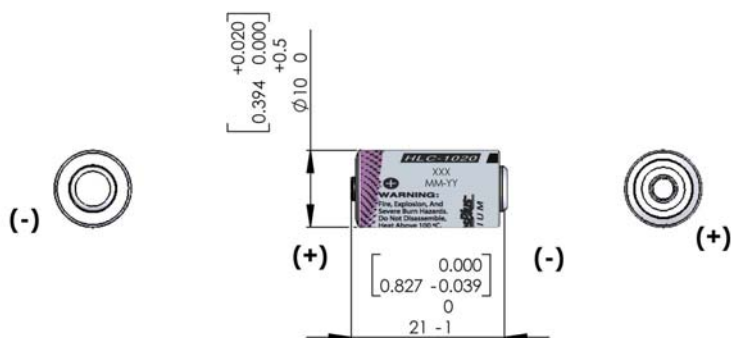
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Lead terminations

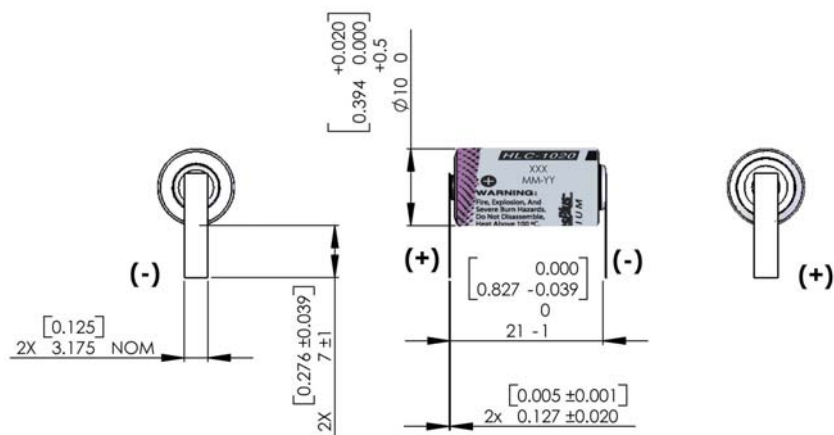
HLC-1020/S (Standard Contacts)

Cat. # 61102022000



HLC-1020/T (Soldering Tabs)

Cat. # 61102022150



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