



## Fidelity Components Electrolytecapacitors Power Supply



The **MLytic® HV • High Voltage Power Cap series** is especially engineered for use in tube amplifiers. Two classic double-capacity versions are available immediately ex stock.

The ultra compact, axial leaded **MLAL** capacitors feature 450V and non-magnetic, tinned copper wires.

The superior **MLSL** 500V offers more powerful, non-magnetic DIN connectors for higher currents.

**NOTE:** MLGO Caps are simply the previous MLPI Caps with the MPSA mounting Pads applied, for “Glue-On” Style Mounting.



### MLAL High Voltage Power Cap, Axial-Leaded, 3Pin

Rated Voltage [VDC]	Capacitance [ $\mu$ F] $\pm$ 20%	Case Size $\varnothing$ * L [mm]	Wire Size $\varnothing$ * L [mm]	Rated Ripple Current IR~ at Tmax and 100Hz [A]	Surge Voltage [VDC]	ESR at 100 Hz [mOhm]	Tan $\delta$ @ 100Hz	Nominal Current IR for 5 Min. [ $\mu$ A]
450	15+15	25 * 38	1,4 * 50	0,2	495	10610	10	40
450	33+33	25 * 49	1,4 * 50	0,3	495	4823	10	400
450	47+47	30 * 50	1,4 * 50	0,3	495	3386	10	1500
450	100+100	35 * 50	1,4 * 50	0,5	495	1592	10	270

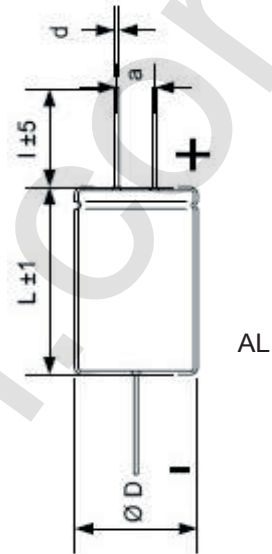
### MLSL High Voltage Power Cap, Solder-Lugs, 3Pin

Rated Voltage [VDC]	Capacitance [ $\mu$ F] $\pm$ 20%	Case Size $\varnothing$ * L [mm]	Wire Size $\varnothing$ * L [mm]	Rated Ripple Current IR~ at Tmax and 100Hz [A]	Surge Voltage [VDC]	ESR at 100 Hz [mOhm]	Tan $\delta$ @ 100Hz	Nominal Current IR for 5 Min. [ $\mu$ A]
500	16+16	35 * 50	1 * 4 * 7	0,2	550	9947	10	48
500	32+32	35 * 50	1 * 4 * 7	0,3	550	4974	10	420
500	50+50	35 * 50	1 * 4 * 7	0,4	550	3183	10	420
500	100+100	35 * 66	1 * 4 * 7	0,6	550	1592	10	140
500	200+200	35 * 80	1 * 4 * 7	0,9	550	796	10	300
500	300+300	35 * 80	1 * 4 * 7	1,1	550	531	10	900



The **MLytic® HV · High Voltage Power Cap** series offers all benefits of Mundorf's unique MLYtic® technology as described in detail on page 16 plus the following features:

Supply availability	Typically immediately ex stock for all types listed on page 22  4-6 weeks for your individual combination of features · from 144pcs only
Versatile applicable	RoHS-compliant · lead free REACH compliant Finest UL-listed ingredients only Sectional specification DIN 41332 · IEC 60384-4 Climatic category IEC 60068 40/105/56
Indication of origin	Made in Germany with greatest care
Capacitance range	4,7µF to 4 700µF
DC voltage range	250 · 350 · 400 · 450 · 500 · 550
Temperature range	-25°C/-13°F to 105°C/+220°F for 250V to 450V -40°C/-40°F to 85°C/+185°F for 500V to 550V
Diverse connectors	AL · axial leaded PI · plug-in GO · glue-on SL · solder-lugs
Useful lifetime [U <sub>R</sub> · I <sub>R</sub> ]	8 000 hours at +105°C/+220°F for 250V to 450V 16 000 hours at +85°C/+185°F for 250V to 450V 8 000 hours at +85°C/+185°F for 500V to 550V
Rated lifetime [U <sub>R</sub> ]	2 000 hours at +105°C/+220°F for 250V to 450V 2 000 hours at +125°C/+255°F for 500V to 550V
Case diameters [mm]	10 · 12 · 14 · 16 · 18 · 20 · 25 · 30 · 35 · 40 · 45
Case heights [mm]	Customized from 25 to 100 [typically in 5mm steps]
Case diameters [inch]	0.39 · 0.47 · 0.55 · 0.63 · 0.71 · 0.79 · 0.98 · 1.18 · 1.38 · 1.57 · 1.77
Case heights [inch]	Customized from 0.98 to 3.94 [typically in 0.2inch steps]
External insulation	Lead free PVC sleeve with end disk · voltage proof ≥2500 AC
Leakage current [I <sub>L</sub> ]	≤ 0,008 * C <sub>R</sub> [µF] * U <sub>R</sub> [V] + 6µA after 5 minutes at U <sub>R</sub>
[ESL]	20nH equivalent series inductance
Maximal reverse voltage	2V
Smooth transition to the following Mundorf® product-lines:	
Minor series Differentiating factors	<b>MLytic® AG · Audio Grade Power Cap</b> [see page 17] DC voltages 16 · 25 · 35 · 40 · 50 · 63 · 80 · 100 · 160
Superior series Differentiating factors	<b>MLytic® HV+ · High Voltage Power Cap</b> [see page 23] 4-Pole Technology
Superior series Differentiating factors	<b>MLytic® HP · High Performance Power Cap</b> [see page 25] larger capacitances · screw-terminals



The newest generation of our electrolytic capacitors features a range of distinctive features, which all have one sole objective: **the most authentic music performance possible**. The basic requirement for achieving this goal is the minimisation of unwanted losses [ESR] and inductances [ESL] that occur in the capacitor and affect the signal.

To this end, we have given careful consideration to even the smallest details and have scrutinised and radically reconsidered all existing solutions. You will find the results of our extensive developments below.

**The black cathode:** The use of special titanium-coated cathode foil has brought about metrologically impressive and tonally spectacular benefits. The matte black polished vacuum-deposited titanium layer thereby substitutes the usual aluminium oxide layer and this then works as an insulator [dielectric] between the aluminium contact foil and the electrolyte, thus forming a second capacitor that negatively influences the overall performance within the capacitor. In this way, the black cathode stops the electrolyte acting simultaneously as a cathode [negative pole] towards the anode foil and as an anode [positive pole] towards the aluminium contact foil.

**MUNDORF electrolytic capacitors** with black cathodes feature a real cathode foil! This enables extremely fast and almost lossless ion movements, reducing the ESR, distortions and noises it produces itself to an absolute minimum. The positive effects are comparable to when modified electrolytes are used, which are produced for example with the addition of graphite, although the effects of the former are more pronounced. The result is a holographic music playback with a wide and deep on-stage representation and a completely stable focus.

**High purity anode foil:** Utmost precision during the manufacture and use of high purity materials guarantees a homogeneous etch pattern, as well as a crystalline aluminium oxide layer. Due to this  $\text{Al}_2\text{O}_3$  layer being the dielectric of the capacitor, it is this balance and precision that also characterises the tone quality of the whole capacitor.

**Abaca-esparto paper:** The introduction of esparto grass [aka alfa grass] and abaca [also known as Manila hemp or *musa textilis*] into the capacitor paper simultaneously ensures a high mechanical stability and an extremely soft, open structure. The high internal damping of this special paper has a mechanically-appeasing effect on the capacitor and gives the music playback a high degree of neutrality.

**Electrolytes:** For capacitors of up to 100VDC we only use GBL [also known as butyro-1,4-lactone or *gamma*-butyrolactone], for higher electrical strengths, however, MEG [also known as ethane-1,2-diol or ethylene glycol] is used. The use of this high purity electrolyte, which is chloride-free and largely free from water, considerably improves the long-term stability and thereby also the lifecycle. These electrolytes also feature a low viscosity [that is, a high flow], which has a positive effect on the electrical conductivity. This results in a fast and precise music playback.

**Strong together:** Thanks to its large surface area, the open structure of abaca-esparto paper possesses an outstanding electrolyte absorption capacity and in combination with its good formability and the outstanding flow of the used electrolytes, guarantees the best possible contact between the electrolyte and the titanium-coated cathode foil. Together, they form the highly-efficient negative pole of the electrolytic capacitor and ensure the smallest possible physical dimensions and optimal performance.

**The renouncement of steel:** From now on, steel attachments are a thing of the past at MUNDORF! The use of steel as a material for attachments [worldwide standard for snap-ins] brings about a number of disadvantages. Amongst other things, steel attachments cause unwanted eddy currents as a result of their magnetisability, possess a poor electrical conductivity [ $\sigma_{25^\circ\text{C}}$  6,2MS/m = 10,7% IACS =  $160\text{m}\Omega\cdot\text{mm}^2/\text{m}$ ] and a low thermal conductivity [ $\lambda_{25^\circ\text{C}}$  50W/(m\*K)]. Furthermore, the high elasticity [200 GPa] and rigidity [7 Mohs] of the steel snap-in claw fasteners put permanent pressure on the soldered joints, which can impair their joining quality.

**Highly-conductive contacts:** Alongside the familiar, solid aluminium screw terminals [ $\sigma_{25^\circ\text{C}}$  36,5MS/m = 63% IACS =  $27,5\text{m}\Omega\cdot\text{mm}^2/\text{m} \cdot \lambda_{25^\circ\text{C}}$  235W/(m\*K)] for the highest currents, all MLYtics® with the most compact design possible possess tin-plated copper attachments [ $\sigma_{25^\circ\text{C}}$  58,0MS/m = 100% IACS =  $17,2\text{m}\Omega\cdot\text{mm}^2/\text{m} \lambda_{25^\circ\text{C}}$  400W/(m\*K) 120 GPA 3 Mohs]. In order to establish the best possible electrical connection between the individual components, all contacts are welded together.

All of the remarkable technologies mentioned above come together in the new **MLytic®** series to bring about the least losses and maximum high fidelity. Capacitors with **MLytic®** technology: the best MUNDORF electrolytic capacitors of all time!