



Press Release

Nippon Chemi-Con Corporation

September 20, 2013

Large Capacitance ϕ 12.5 to ϕ 18 mm Products Added to the “MHB Series” SMD Type Aluminum Electrolytic Capacitors

Nippon Chemi-Con has now expanded the product lineup of the MHB series SMD type aluminum electrolytic capacitors by newly adding ϕ 12.5 to ϕ 18 mm products.

The products added this time have guaranteed durability of 1,500 to 3,000 hours at 125°C, and the ESR has been decreased by more than 50% compared to conventional products (MVH series) of the same size while the capacitance has been increased to a maximum of two times. The targets of these products are intended to be automotive electronics and power supplies.

In recent years, electronic control of automobiles has progressed rapidly, and even the installing position of electric control units (ECUs) has changed from the conventional inside cabin of the vehicle to outside the cabin and further to the engine room. While the engine ECUs installed in the engine room or near it are exposed to the radiation heat from the engine when the vehicle is traveling, they can also be exposed to extremely cold external air temperatures in cold regions. Therefore, the performance expected of capacitors installed in an engine ECU is of course thermal stability in the high temperature region, and also stable electrical properties (ESR properties) at temperatures near -40°C.

While the MVH series has been available as products with high-temperature tolerance (125°C) with sizes of ϕ 12.5 to ϕ 18 mm, the MHB series developed this time uses a high capacitance electrode foil and has a large area of the electrode opposite the aluminum electrode foil, achieving the capacitance to a maximum of two times that of the conventional products.

Further, in order to improve the electrical characteristics under low temperatures required in the automotive electronics field, the MHB series employs a high performance electrolyte that has low variations in the properties at low temperatures and low transpiration at high temperatures. Because of this, a low ESR at -40°C is realized.

Apart from this, the MHB series also has vibration proof structures and can be used with lead-free mounting methods.

Mass Production: Already started.

Specifications:

- Category temperature range: -40°C to $+125^{\circ}\text{C}$
- Rated voltage: 25 V to 100 V
- Capacitance: 75 to 3,300 μF
- Case size: Total 6 sizes from $\phi 12.5 \times 13.5$ L mm to $\phi 18 \times 21.5$ L mm
- Endurance with ripple current: at 125°C :
 - 1,500 hours (KE0, KG5)
 - 2,000 hours (LH0, MH0)
 - 3,000 hours (LN0, MN0)
 After durability test ESR (20°C , -40°C) standard
- Initial ESR typical values (MVH/MHB comparison, ratio of MHB grade is ratio of reduction of ESR relative to MVH)

Unit: $\Omega_{\text{max.}}/100$ kHz, 20°C

	35 V		50 V		100 V	
	MVH	MHB	MVH	MHB	MVH	MHB
$\phi 12.5 \times 13.5$ L	0.14	0.060 -57%	0.23	0.110 -52%	0.33	0.28 -15%
$\phi 16 \times 21.5$ L	0.10	0.047 -53%	0.15	0.087 -42%	0.24	0.18 -25%
$\phi 18 \times 21.5$	0.10	0.045 -55%	0.15	0.087 -42%	—	0.15

- Typical values of rated capacitances (MVH/MHB comparison, ratio of MHB grade is ratio of increase of capacitance relative to MVH)

	35 V		50 V		100 V	
	MVH	MHB	MVH	MHB	MVH	MHB
$\phi 12.5 \times 13.5$ L	330	560 170%	100	200 200%	47	75 160%
$\phi 16 \times 21.5$ L	470	1,000 213%	330	360 109%	100	130 130%
$\phi 18 \times 21.5$	680	1,300 191%	—	470	—	180

