

Charging

■ Charging circuits

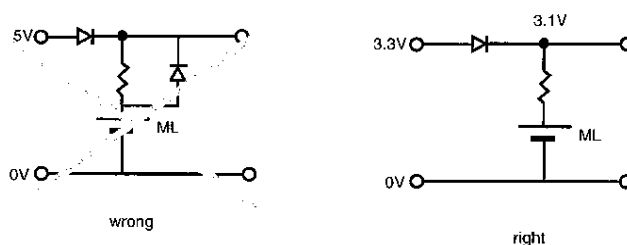
Charging/discharging cycle	Approx. 1,000 times at 10% discharge depth to nominal capacity
Charging system*	Constant-voltage charging (Please strictly adhere to the specified charge voltage)
Operating temperature	-20°C ~ +60°C

* Consult with Panasonic concerning constant-current charging systems.

The charging circuit is crucial in terms of ensuring that full justice will be done to the battery characteristics. Consider it carefully as the wrong charging circuit can cause trouble.

■ Precautions regarding the charge voltage setting

Under no circumstances should trickle charging, which is used for nickel-cadmium batteries, be used. Ignoring this precaution will cause the battery voltage to rise to about 5V, resulting in a deterioration of performance.



■ Charge voltage range

If a fixed-charging method is applied, please adhere to the specified charging voltage.

Guaranteed voltage is 2.8V ~ 3.2V at the temperature of -20°C~60°C.

* If the charging voltage exceeds the specifications, the internal resistance of the battery will rise and may cause battery deterioration. Also, with a charge voltage around 4V, corrosion of the (+)terminal (case) may occur, causing leakage. ("Influence of the charge voltage on ML batteries" in chapter 3-66.)

* It is not possible for the battery capacity to recover completely when the charging voltage is below the specification.

■ Recommended charging circuits

● Basic conditions

Fixed-voltage charge

Charge voltage: 2.8~3.2V (Standard voltage: 3.1V)

Charge current: For a battery voltage of 2.5V

ML414S Approx. 0.2 mA or below

ML421S Approx. 0.15 mA or below

ML612S,ML614S,ML616S Approx. 0.3 mA or below

ML621S Approx. 0.6 mA or below

ML920S Approx. 1.2 mA or below

ML1220 Approx. 1.2 mA or below

ML2020 Approx. 3.0 mA or below

■ Mixed usage of batteries

Do not use these batteries and lithium primary batteries or other rechargeable batteries together, and do not use new batteries and old batteries together even if they are of the same type.