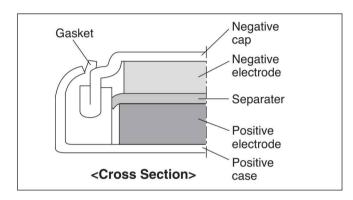
MS412FE/MS518SE/MS614E/MS614SE/MS621FE/MS920SE



MS (Manganese Silicon) lithium rechargeable batteries, developed by Seiko Instruments Inc., use silicon oxide as the anode and a lithium manganese composite oxide as the cathode. As a result, they offer long cycle life and highly stable overdischarge characteristics.



FEATURES

- Large discharge capacity:
 For high operational voltage range of 3.3V to 2.0V.
- Long cycle life:
 Cycle life of over 100 cycles under charge/discharge conditions of 3.3V to 2.0V (D.O.D.100%).
- Excellent overdischarge characteristics:
 Continued stable capacity characteristics even after the battery is overdischarged down to 0.0V.
- Operation over a wide temperature range:
 Operating temperature range : -20°C to +60°C
 Consult us for using the battery at a temperature beyond the above temperature range.
- · RoHS Compliant

APPLICATIONS

- Backup power supply for memory or clock function in various types of electronic equipment for mobile communication, office automation, audio-visual equipment, mobile information equipment, etc. (cellphone, PHS, cordless phone, pager, memory card, fax machine, PC, video camera, digital camera, tuner, handy terminal, PDA, etc.)
- · Hybrid power supply in combination with solar cells.
- · Main power supply for small and slim portable equipment.

SPECIFICATIONS

Туре	Nominal Voltage (V)	Charge Voltage (Standard Charge Voltage)*6 (V)	Nominal	Internal Impedance (Ω)*2	Standard Charge/ Discharge Current (mA)	Maximum Discharge Current (Continuous) (mA)*3	Cycle Life (Time)*4		Size (mm)		
							(2001.0.	20%*5 D.O.D. (Depth of Discharge)	Diameter	Height	Weight (g)
MS412FE	3	2.8 to 3.3 (3.1)	1.0	100	0.010	0.10	100	1000	4.8	1.2	0.07
MS518SE	3	2.8 to 3.3 (3.1)	3.4	60	0.010	0.15	100	1000	5.8	1.8	0.13
MS614E	3	2.8 to 3.3 (3.3)	2.3	50	0.015	0.25	100	1000	6.8	1.4	0.17
MS614SE	3	2.8 to 3.3 (3.1)	3.4	80	0.015	0.25	100	1000	6.8	1.4	0.17
MS621FE	3	2.8 to 3.3 (3.1)	5.5	80	0.015	0.25	100	1000	6.8	2.1	0.23
MS920SE	3	2.8 to 3.3 (3.1)	11.0	35	0.050	0.80	100	1000	9.5	2.1	0.47

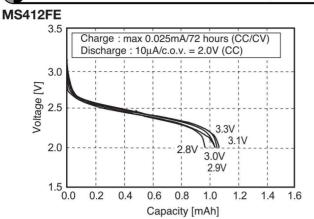
- *1. Nominal capacity: Typical value of discharge capacity between 3.1V and 2.0V (Note that the discharge capacity of MS614E is between 3.3V and 2.0V.)
- *2. Internal impedance is measured using an AC (Alternating Current) method at the fully charged state.
- *3. Maximum discharge current indicates the value of a current for approximately 50% of the nominal capacity.
- *4. Cycle Life indicates the times charge/discharge is repeated for approximately 50% of the capacity values in the specification sheet.
- *5. 100% and 20% are based on nominal capacity.
- *6. A constant voltage charge is recommended, but due to a limit in charge current, it is necessary to insert a resistor to regulate the charge current.

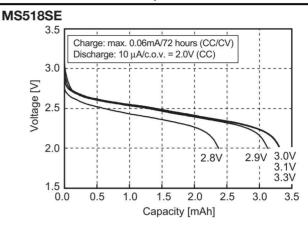
Contact us for further details.

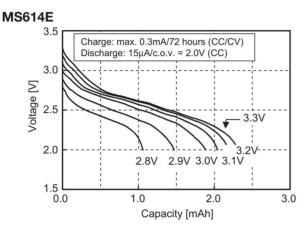
If a constant current charge is required, contact us for more information.

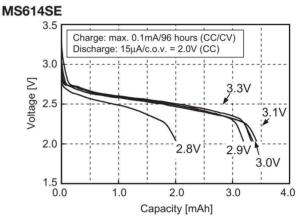
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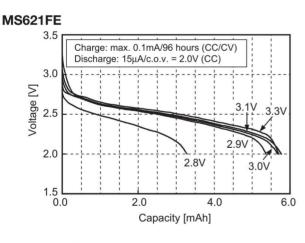
DISCHARGE CHARACTERISTICS (CHARGE VOLTAGE DEPENDENCE)

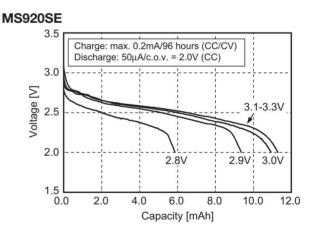




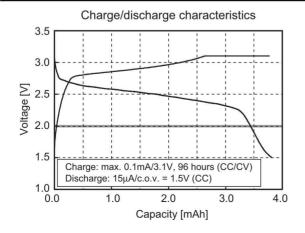




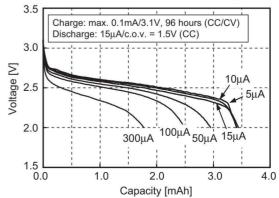




CHARACTERISTICS (MS614SE)



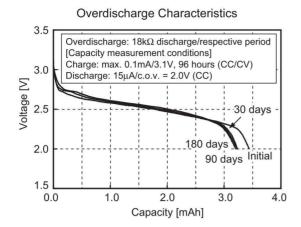


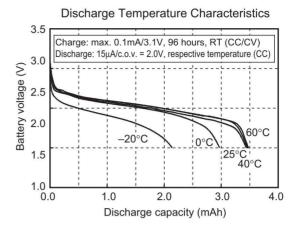


^{*} c.o.v. : Cut Off Voltage (final voltage)

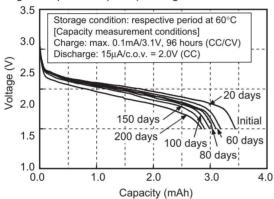
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CHARACTERISTICS (MS614SE)

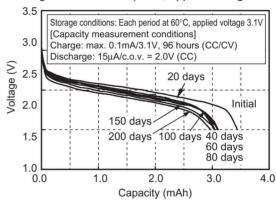




High Temperature (60°C) Storage Characteristics



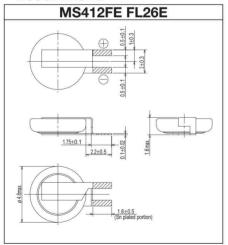
Floating Characteristics (60°C, applied voltage 3.1V)



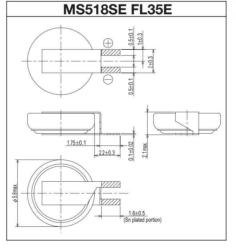
DIME

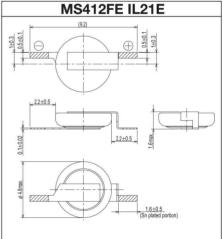
DIMENSIONS OF STANDARD TERMINALS OF MS LITHIUM RECHARGEABLE BATTERIES

Recommend



Recommend



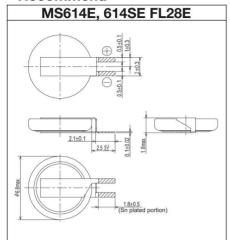


- Contact Seiko Instruments Inc. for batteries with terminals other than the above shapes.
- Units: mm
- The hatched parts are tin plated (Sn: 100%).

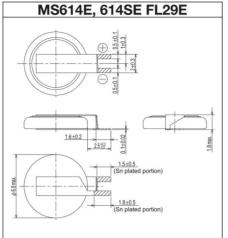


DIMENSIONS OF STANDARD TERMINALS OF MS LITHIUM RECHARGEABLE BATTERIES

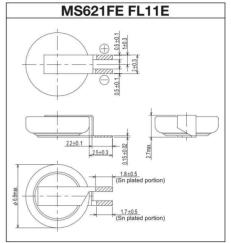
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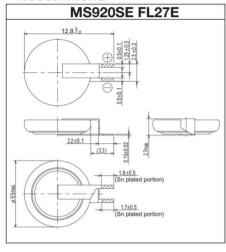
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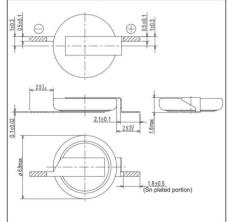
Recommend

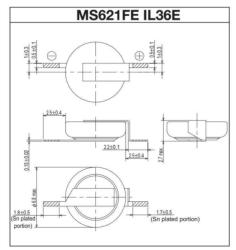


Recommend



MS614E, 614SE IL38E





MS920SE IL37E 25:10.4 22:40.1 25:10.4 25:10.