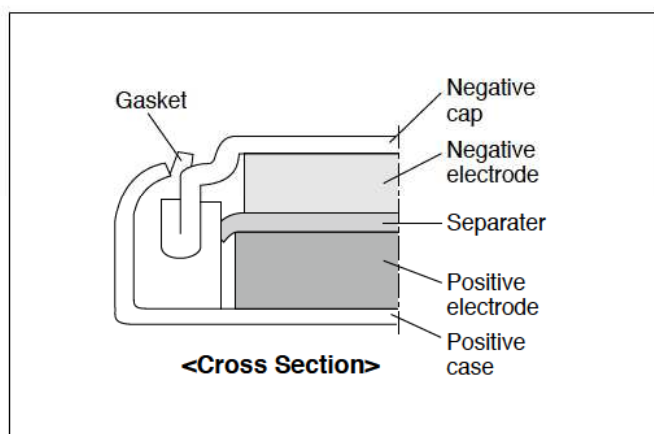


Non-Reflowable

MS412FE / MS414GE / MS518SE / MS614SE / MS621FE / MS920SE

MS (Manganese Silicon) lithium rechargeable batteries, developed by SII, 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 (over 50 cycles for MS414GE) under charge/discharge conditions of 3.1V 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**
- **Approved by UL (Underwriters Laboratories Inc.)**
UL File No. MH15628

APPLICATIONS

Backup power for Real Time Clock, or memory.
E.g. Security Camera, Digital Camera, Action Camera, GPS equipments, Event Data Recorder, Handy Terminal, PC, Smart phone.

Type	Nominal Voltage (V)	Charge Voltage (Standard Charge Voltage) ^{*6} (V)	Nominal Capacity (mAh) ^{*1}	Internal Impedance (Ω) ^{*2}	Standard Discharge Current (mA)	Maximum Discharge Current (Continuous) (mA) ^{*3}	Cycle Life (Time) ^{*4}		Size (mm)		Weight (g)
							100% ^{*5} D.O.D. (Depth of Discharge)	20% ^{*5} D.O.D. (Depth of Discharge)	Diameter	Height	
MS412FE	3	2.8 to 3.3 (3.1)	1.0	100	0.010	0.10	100	1000	4.8	1.2	0.07
MS414GE	3	2.8 to 3.3 (3.1)	2.0	100	0.010	0.05	50	500	4.8	1.4	0.08
MS518SE	3	2.8 to 3.3 (3.1)	3.4	90	0.010	0.15	100	1000	5.8	1.8	0.13
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

*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.

Please see Page 7 for resistor value. Contact us for further details.

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

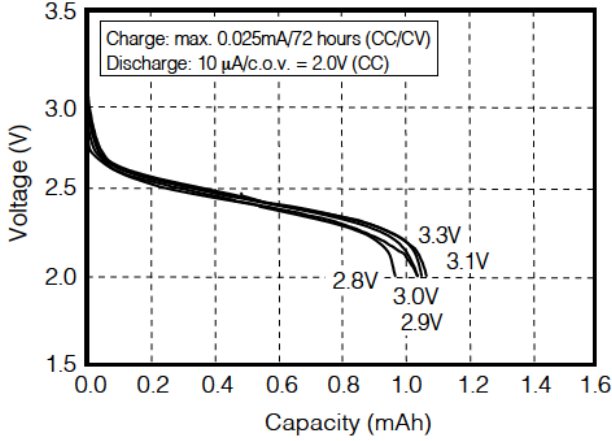
⚠ CAUTION

MS Lithium Rechargeable Batteries are not reflowable. Please mount them on PCB by hand soldering.

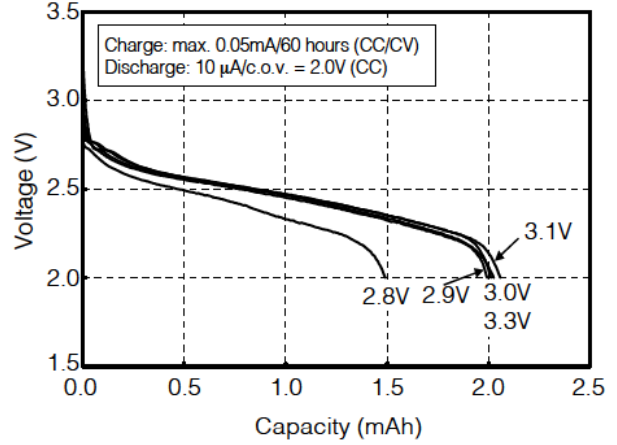
CHARACTERISTICS

DISCHARGE (CHARGE VOLTAGE DEPENDENCE)

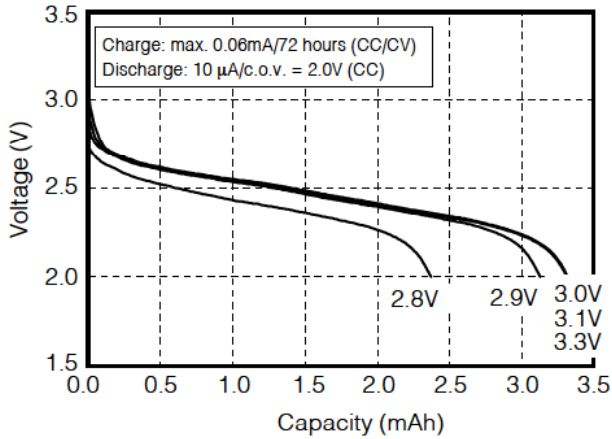
MS412FE



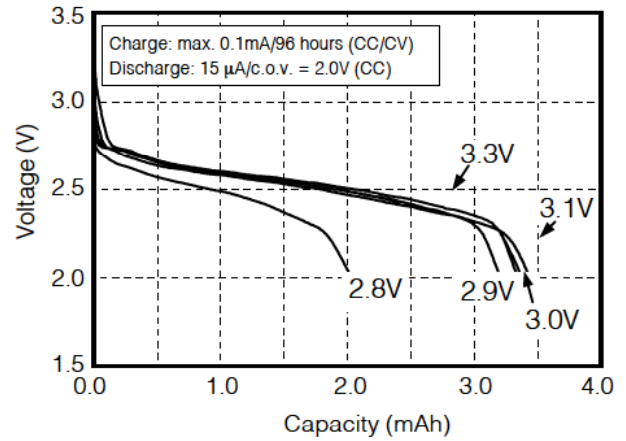
MS414GE



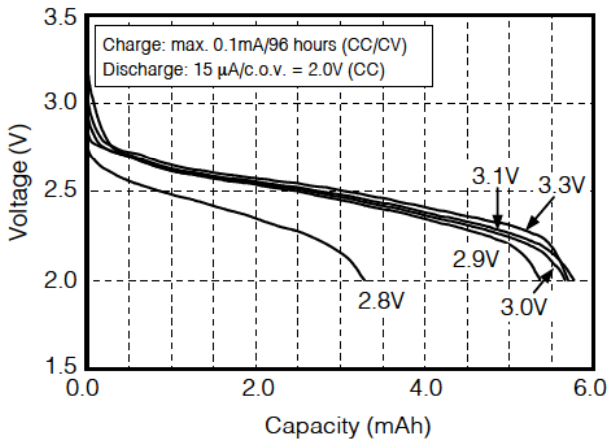
MS518SE



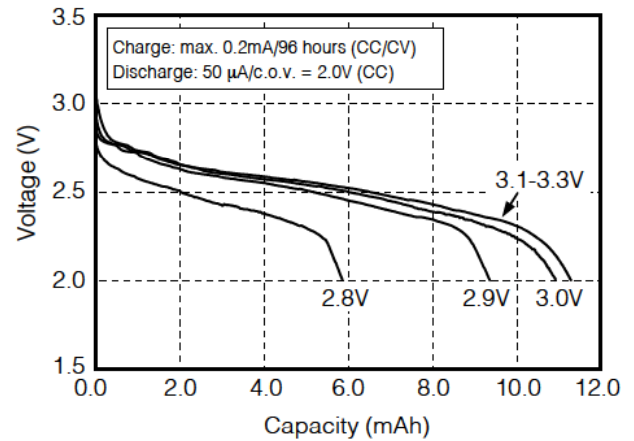
MS614SE



MS621FE



MS920SE

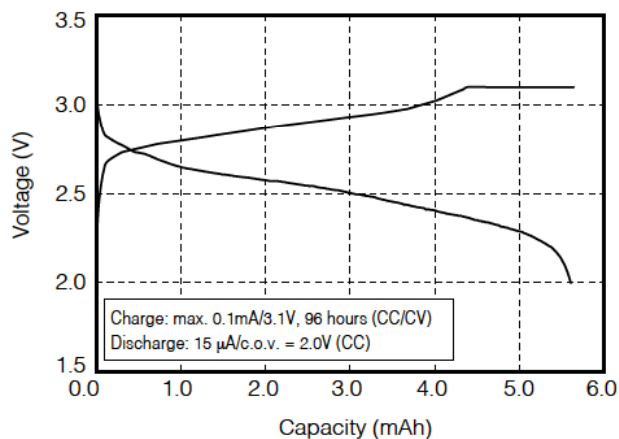


*c.o.v....cut off voltage

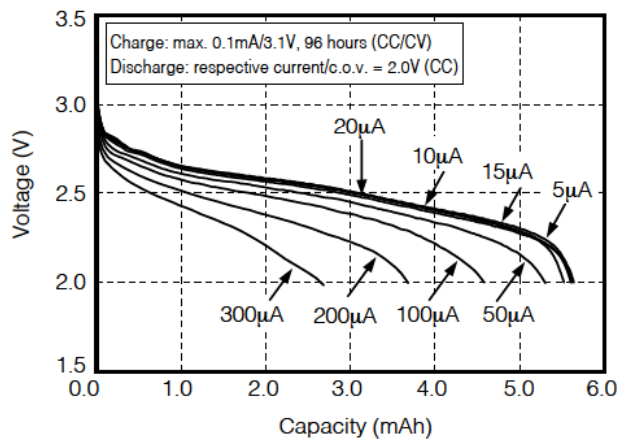
CHARACTERISTICS

MS621FE

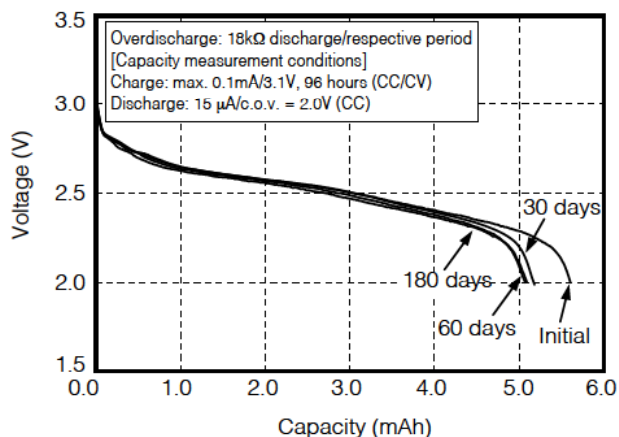
Charge/discharge characteristics



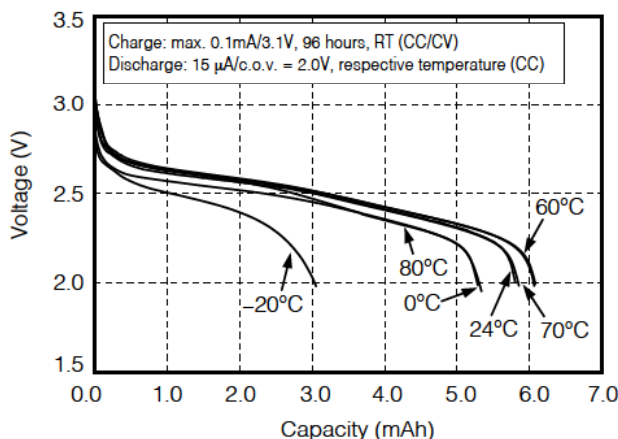
Discharge Current characteristics



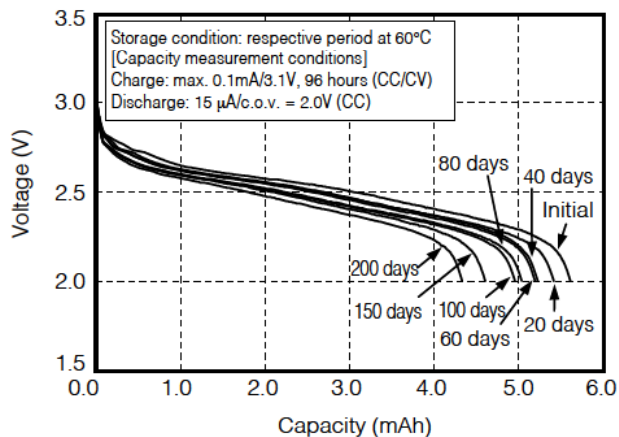
Overdischarge Characteristics



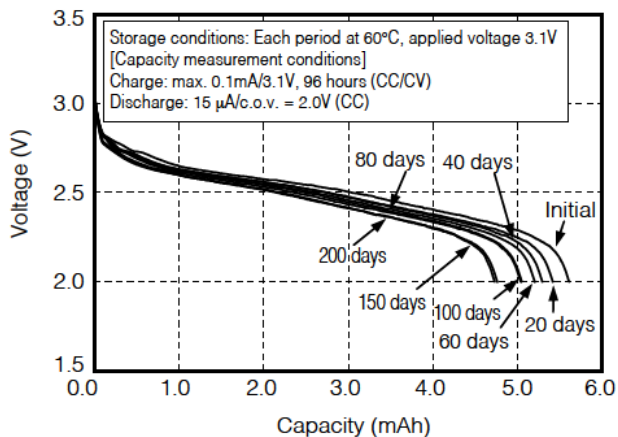
Discharge Temperature Characteristics



High Temperature (60 $^{\circ}$ C) Storage Characteristics



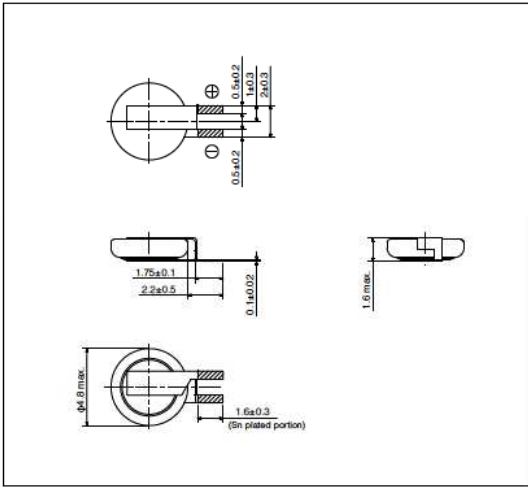
Floating Characteristics (60 $^{\circ}$ C, applied voltage 3.1V)



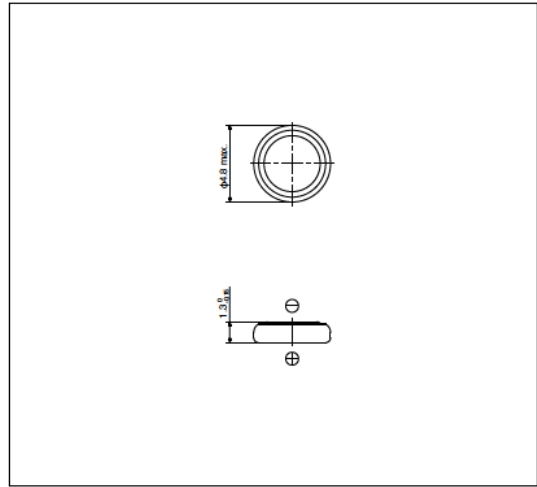
*c.o.v....cut off voltage

DIMENSIONS

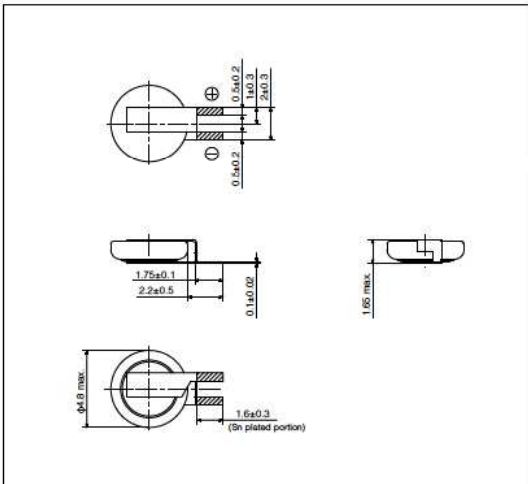
MS412FE FL26E



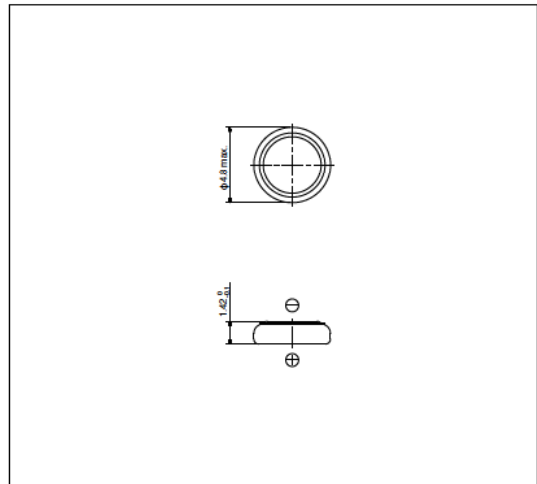
MS412FE



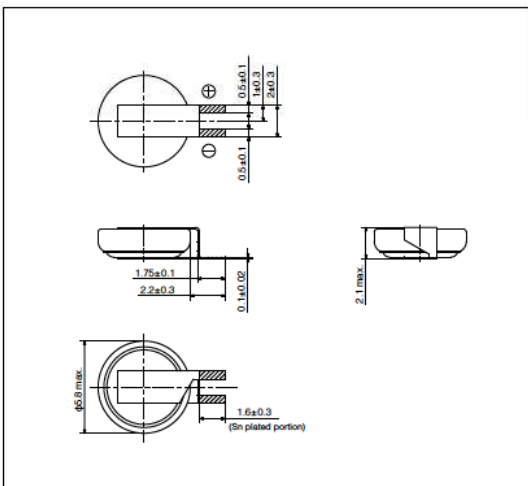
MS414GE FL26E



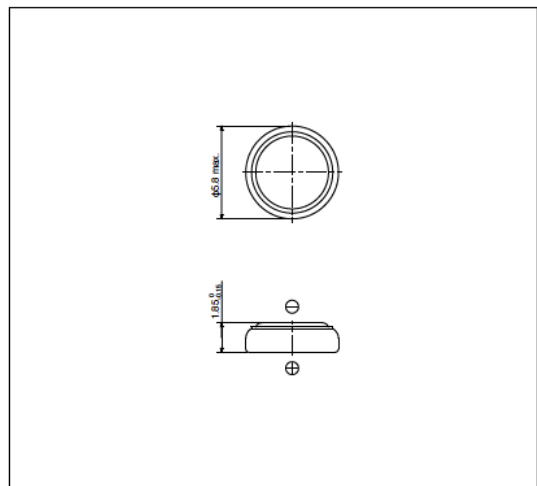
MS414GE



MS518SE FL35E



MS518SE

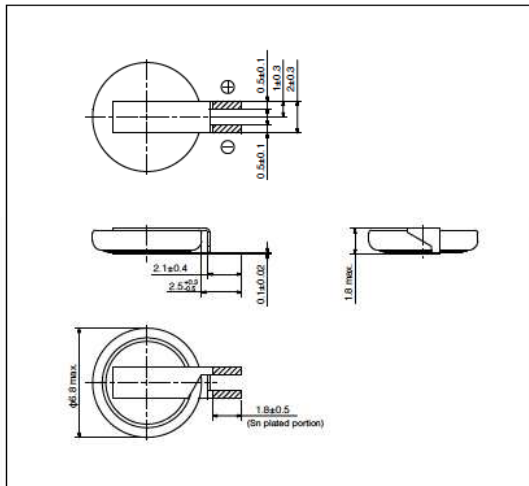


- Units: mm

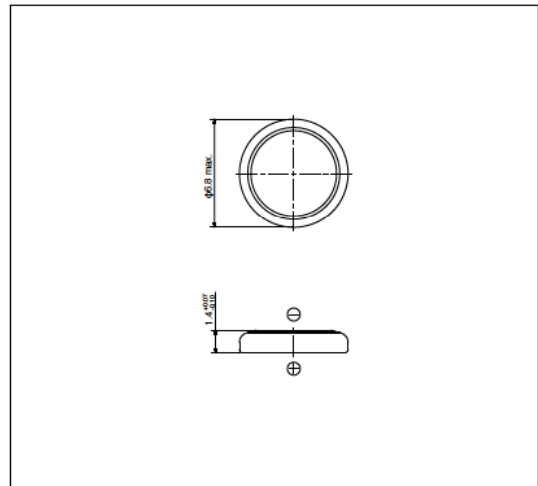
- The shaded parts are tin plated (Sn: 100%).

DIMENSIONS

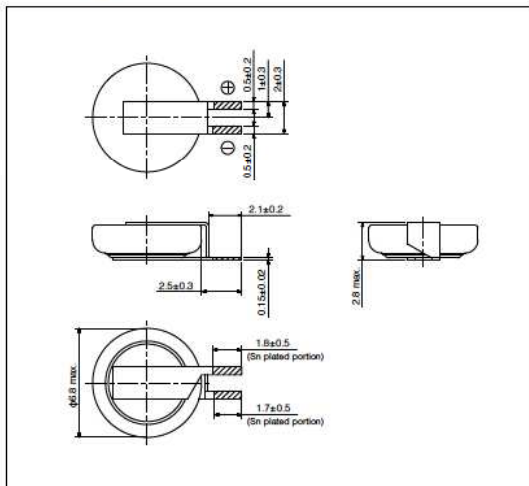
MS614SE FL28E



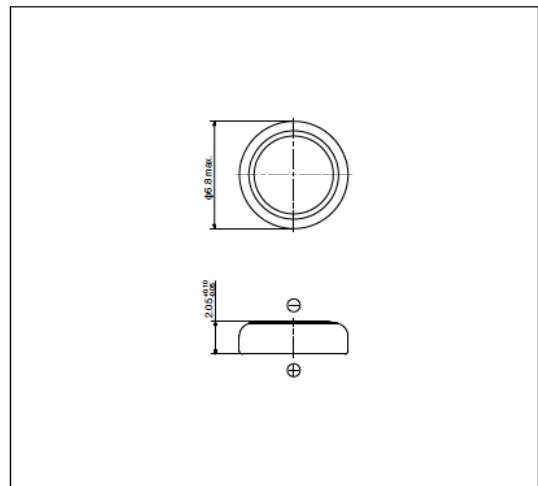
MS614SE



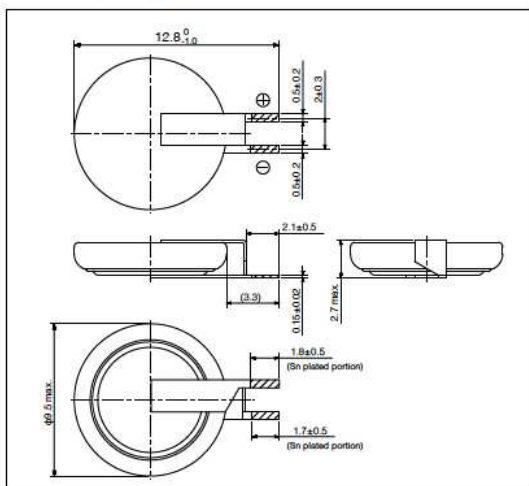
MS621FE FL11E



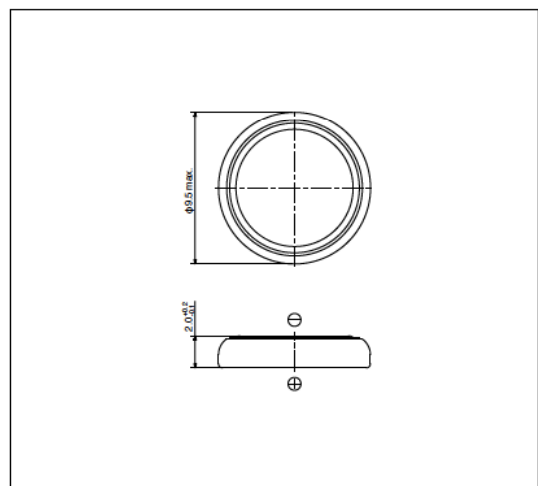
MS621FE



MS920SE FL27E



MS920SE

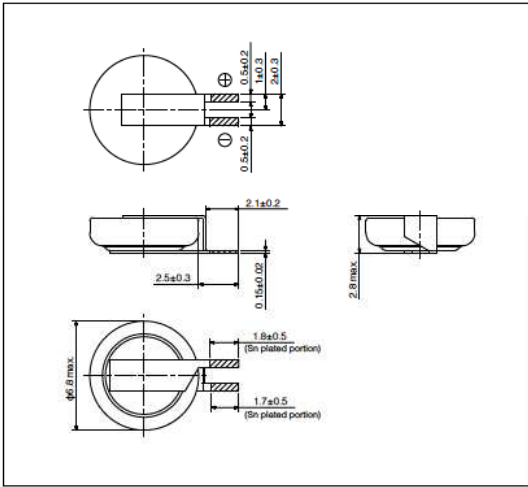


- Units: mm

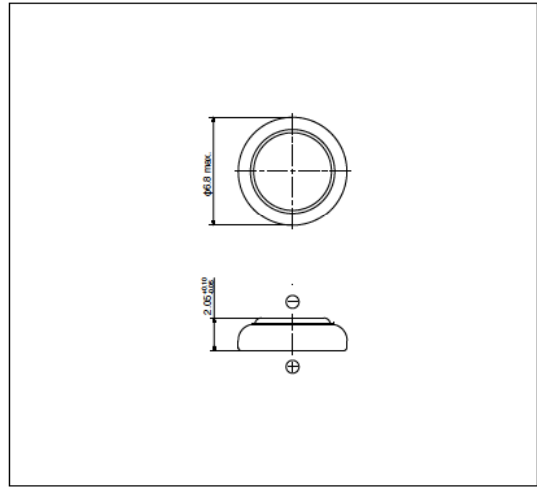
- The shaded parts are tin plated (Sn: 100%).

DIMENSIONS

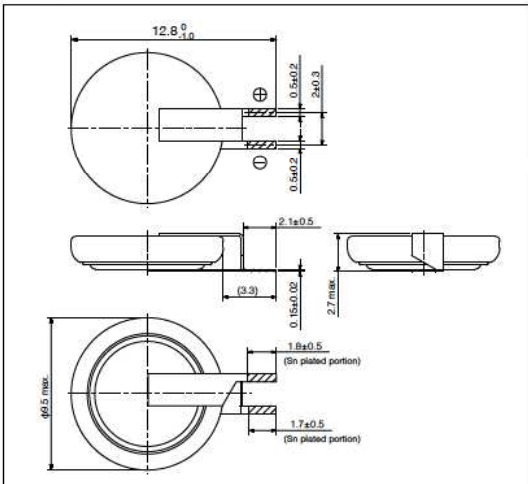
MS621T FL11E



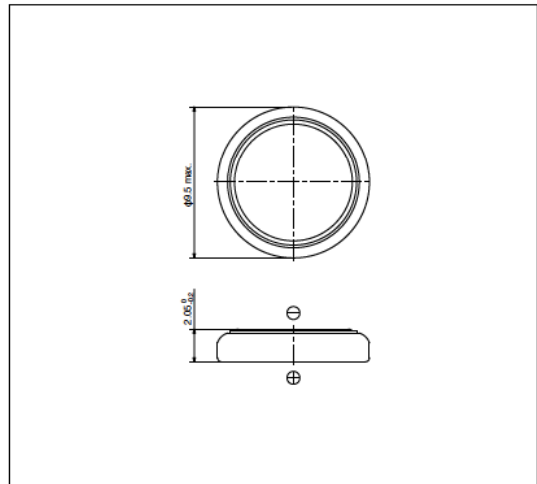
MS621T



MS920T FL27E



MS920T



- Units: mm

- The shaded parts are tin plated (Sn: 100%).