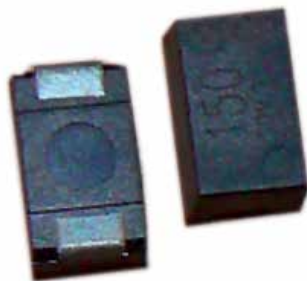




**THE DATASHEET OF  
SPCX151M04R**



# Type SPCX Solid Polymer Aluminum SMT Capacitors



The solid polymer SPCX aluminum capacitor is an ideal choice for general purpose applications in audio-visual equipment, home appliances, computers, office equipment, optical and measuring equipment and industrial robots. The SPCX is a very cost effective capacitor in a compact low-profile package that is offered on tape and reel. The SPCX is environmentally green and RoHS compliant.

## Highlights

- A low-profile height of 1.9 mm
- Offered on tape and reel
- Can withstand 260 °C reflow for 10 s
- 15 mΩ ESR @ 100 kHz
- A great value in a small package



Complies with the EU Directive 2002/95/EC requirement restricting the use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent chromium (Cr(VI)), PolyBrominated Biphenyls (PBB) and PolyBrominated Diphenyl Ethers (PBDE).

## Specifications

**Operating Temperature Range:** -40 °C to +105 °C

**Capacitance Range:** 100 µF to 470 µF

**Operating Working Range:** 2.0, 2.5, 4.0, 6.3 Vdc

**Capacitance Tolerance:** ±20 % (120 Hz @ 20 °C)

**Surge Voltage:**

Vdc	2.0	2.5	4.0	6.3
Surge	2.5	3.1	5.0	8.0

**Rated Ripple Current:** See ratings table

### Life Test:

Apply rated voltage at +105 °C ±2 °C for 1000 h

- \* Leakage current: ≤ ratings table values
- \* Capacitance: ±10% of initial measured value
- \* DF: ≤ ratings table values
- \* Appearance: No abnormal change to occur

### Moisture Resis-

+60 °C ±2 °C @ 90% RH; rated voltage for 500 h

- \* Leakage current: ≤ rating table values
- \* Capacitance: +70%, -20% (2V, 2.5V)  
+60%, -20% (4V)  
+50%, -20% (6.3V)  
of initial measured value
- \* DF: ≤200% of initial specified value
- \* Appearance: No abnormal change to occur

### Shelf Life Test:

+105 °C ±2 °C for 500 h

- Leakage current: ≤ rating table values
- Capacitance: ±10% of initial measured value
- DF: ≤ ratings table values
- Appearance: No abnormal change to occur

### Surge Test:

Test temperature is +15 °C to +35 °C in series with a 1000 Ω resistor with the surge voltage applied for 1000 cycles of 30±5 s (ON) and 5 min 30 s (OFF)

- Leakage current: I≤0.1CV
- Capacitance: ±10% of initial measured value
- DF: ≤ the values in the ratings table
- Appearance: No abnormal change to occur

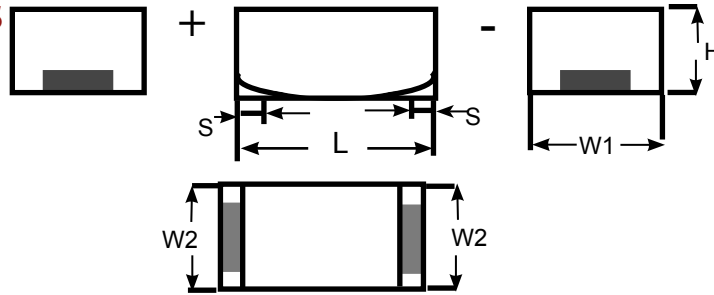
### Vibration

10 Hz to 2000 Hz to 10 Hz frequency applied one cycle per 20 min at a total amplitude of 1.5 mm. Direction and duration of vibration will be 2 h each in the X,Y and Z planes for total of 6 h with the capacitor soldered in place.

- Appearance; No abnormal change to occur.
- Capacitance: Measured value to be stabilized during test, when measured several times within 30 min before completion of test.

# Type SPCX Solid Polymer Aluminum SMT Capacitors

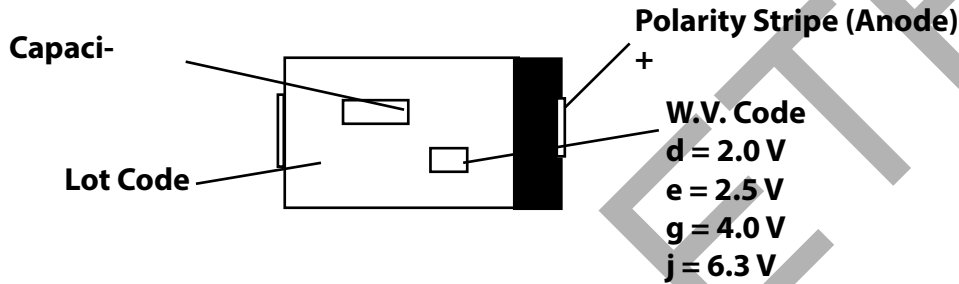
## Outline Drawings



Surface finish of terminal; Tin (Sn)

L ( $\pm 0.2$ )	W1 ( $\pm 0.2$ )	W2 ( $\pm 0.1$ )	H ( $\pm 0.2$ )	S ( $\pm 0.3$ )
7.3 mm	4.3 mm	2.4 mm	1.9 mm	1.3 mm

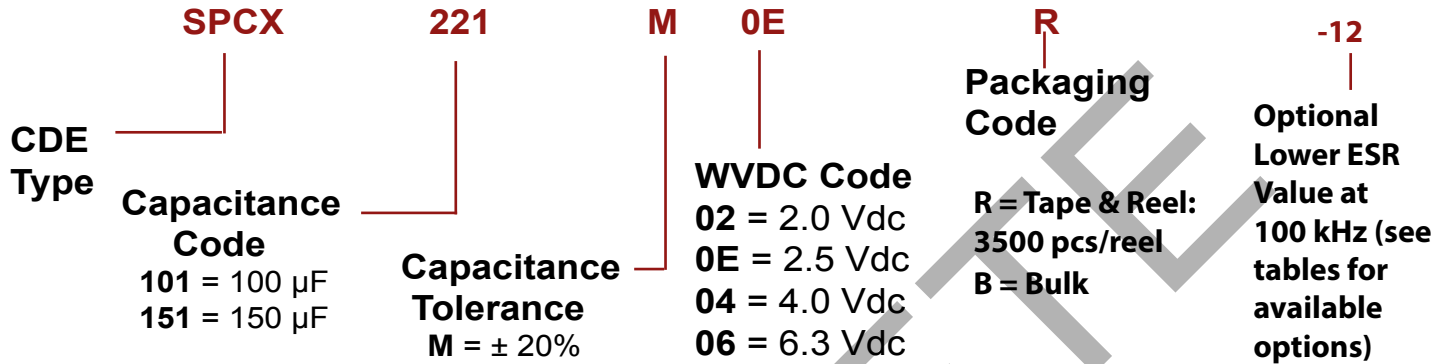
## Marking



## Ratings

Cap ( $\mu\text{F}$ )	Catalog Part Number	Max. D.F. @ 120Hz	Max. Leakage Current ( $\mu\text{A}$ )	Max. ESR @ 100kHz/20°C (m $\Omega$ )	Max. Ripple Current @ 100kHz/20° to 105°C (Arms)
<b>2.0 Vdc (Surge 2.5Vdc)</b>					
220	SPCX221M02R	0.06	44	15	2.7
270	SPCX271M02R-12	0.06	54	12	3.0
330	SPCX331M02R	0.06	66	15	2.7
330	SPCX331M02R-12	0.06	66	12	3.0
390	SPCX391M02R	0.06	78	15	2.7
470	SPCX471M02R	0.06	94	15	2.7
<b>2.5 Vdc (Surge 3.1Vdc)</b>					
220	SPCX221M0ER	0.06	55	15	2.7
330	SPCX331M0ER	0.06	82.5	15	2.7
390	SPCX391M0ER	0.06	97.5	15	2.7
470	SPCX471M0ER	0.06	117.5	15	2.7
<b>4.0 Vdc (Surge 5.0Vdc)</b>					
150	SPCX151M04R	0.06	60	15	2.7
180	SPCX181M04R	0.06	72	15	2.7
180	SPCX181M04R-12	0.06	72	12	3.0
220	SPCX221M04R	0.06	88	15	2.7
220	SPCX221M04R-12	0.06	88	12	3.0
<b>6.3 Vdc (Surge 8.0Vdc)</b>					
100	SPCX101M06R	0.06	63	15	2.7
120	SPCX121M06R	0.06	75.6	15	2.7
150	SPCX151M06R	0.06	94.5	15	2.7
150	SPCX151M06R-12	0.06	94.5	12	3.0

## Part Numbering System



Tape: 12 mm wide; negative terminal towards the sprocket holes

Reel: 330 mm Dia.

MSL 2 – when in the bag

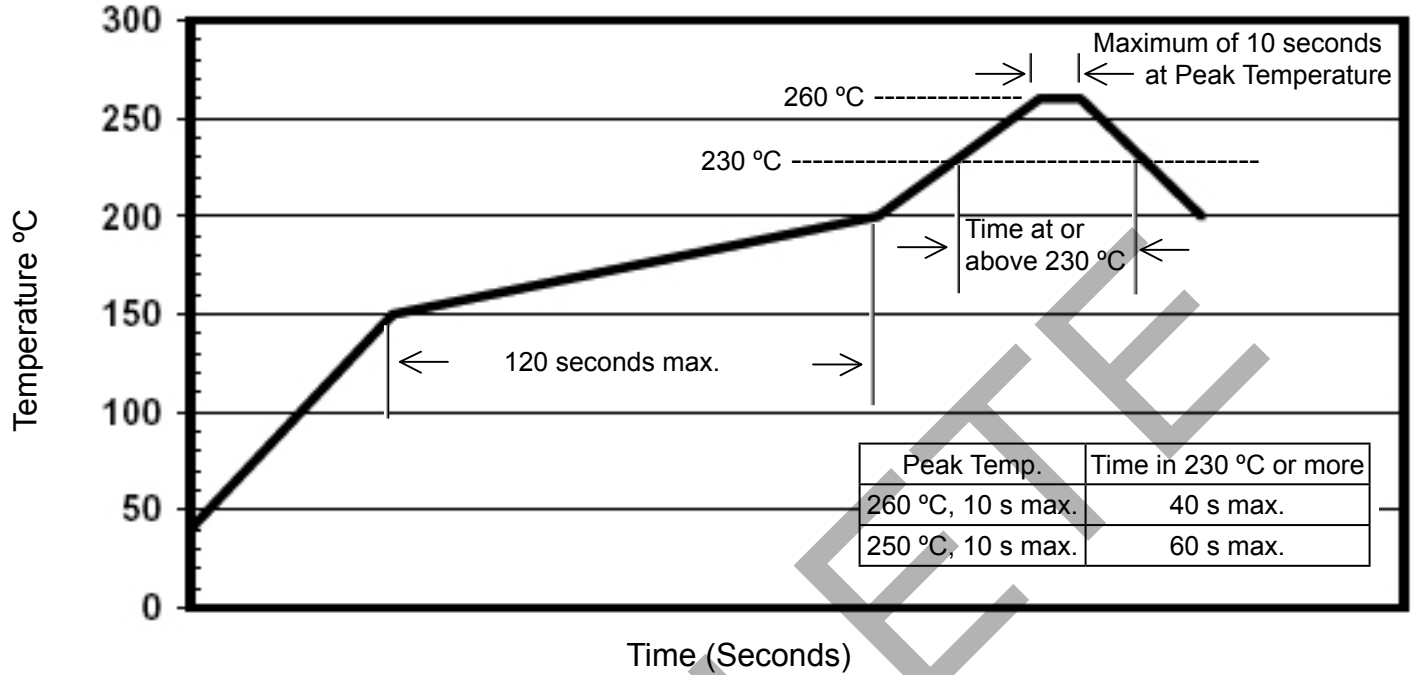
MSL 3 – when outside the bag

Maximum of 2 reflow solderings; 2nd reflow should be within 5 days of the first reflow soldering.

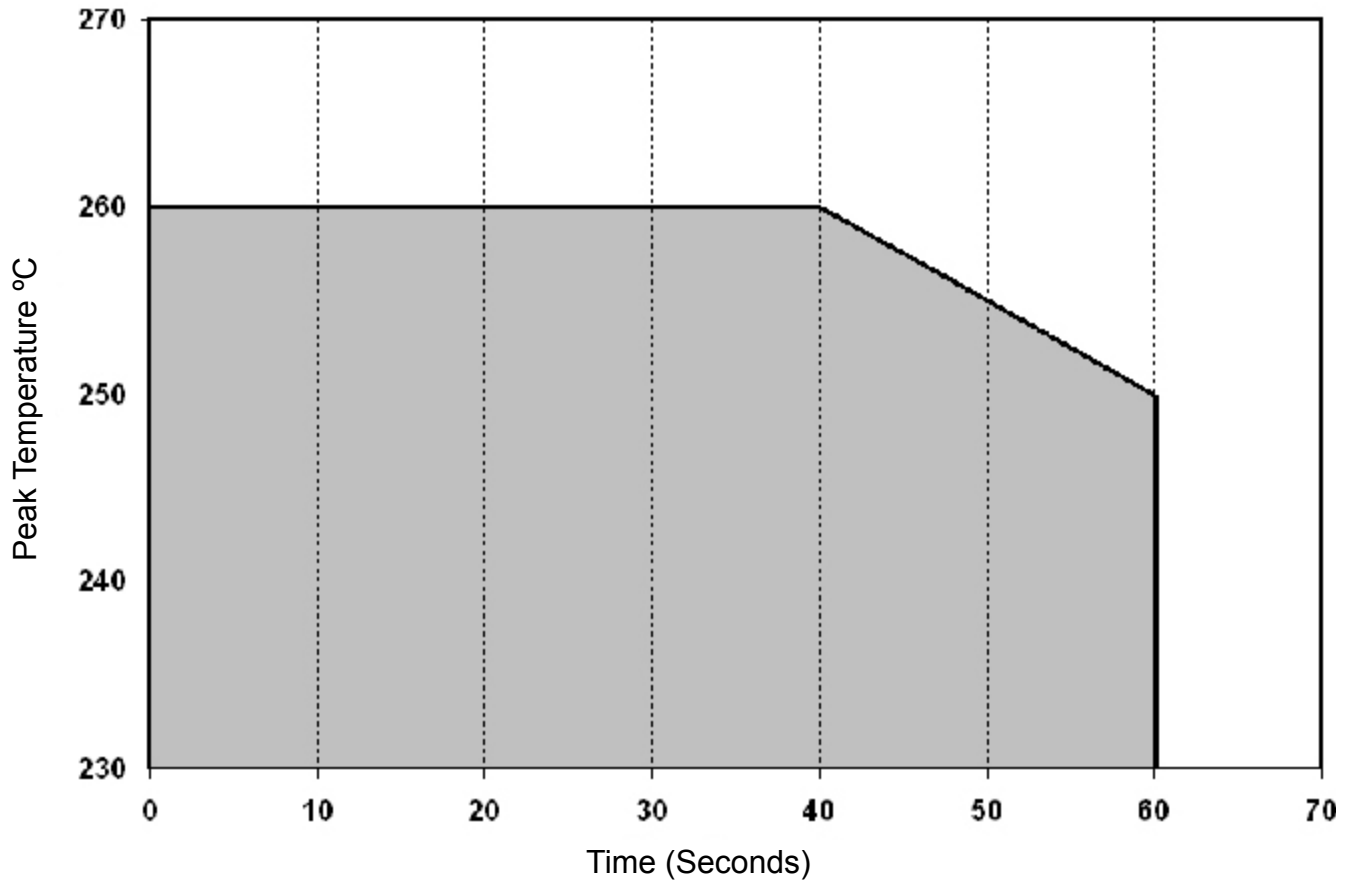
# Type SPCX Solid Polymer Aluminum SMT Capacitors

## Reflow Soldering Profile

### Temperature on Surface of Capacitor



### Time At or Above 230 °C



## Type SPCX Solid Polymer Aluminum SMT Capacitors

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OBSOLETE

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