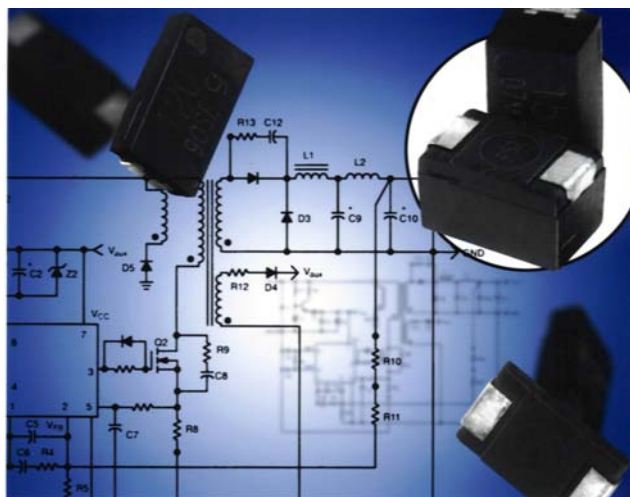


# Type ESRH Solid Polymer Aluminum SMT Capacitors



Solid Polymer Aluminum capacitors are now available with a +125°C temperature rating. CDE's type ESRH capacitors are rated at +125°C for 1000 hours when operated at 3/4 of the 105°C rated voltage. Solid Polymer Aluminum electrolytic capacitors feature extremely low ESR which yields a capacitor with very low high frequency impedance and high ripple current capability. When low ESR is your requirement, one type ESRH capacitor can replace three or more tantalum or aluminum electrolytic capacitors. The solid electrolyte in a polymer aluminum capacitor results in a long (and ignition free) life, and the 7.3 x 4.3 footprint is compatible with "D" case solid tantalum capacitors.

## Specifications

### Operating Temperature Range:

-55 °C to +105 °C at rated voltage  
(+125 °C at .75 x rated voltage)

### Capacitance Tolerance:

±20% at 120 Hz and +20 °C

### Dissipation Factor (DF):

≤0.10 at 120 Hz and +20 °C

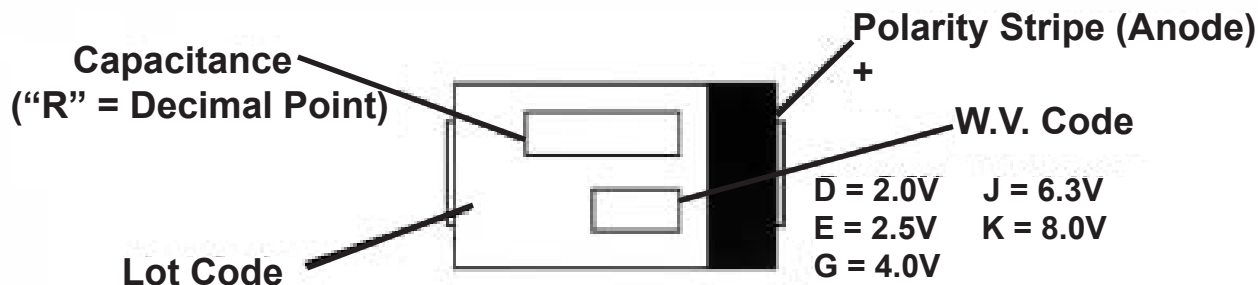
### Surge Voltage:

1.25 x rated voltage

### DC Leakage Current (after 2 minutes):

$I \leq .1 \text{ CV}$

## Markings



## Ordering Information

**ESRH**

CDE  
Type

**101**

Capacitance  
Code  
  
680 = 68  $\mu\text{F}$   
101 = 100  $\mu\text{F}$

**M**

Capacitance  
Tolerance  
  
M = ±20%

**08**

WVDC Code  
  
02 = 2.0 Vdc    06 = 6.3 Vdc  
0E = 2.5 Vdc    08 = 8.0 Vdc  
04 = 4.0 Vdc

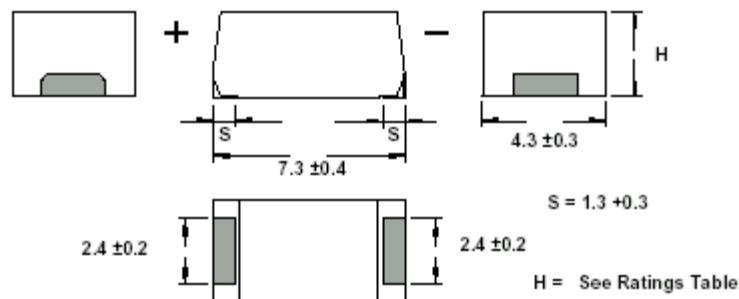
**R**

Packaging Code  
R = Tape & Reel 2000 pcs/reel

# Type ESRH Solid Polymer Aluminum SMT Capacitors

## Low E.S.R. and High Temperature

### Outline Drawing



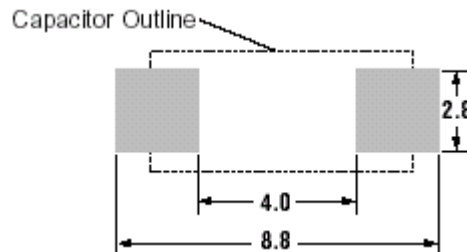
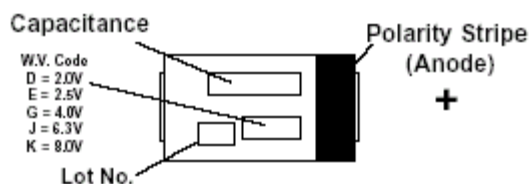
### Ratings

| Capacitance<br>( $\mu\text{F}$ ) | Rated<br>Voltage<br>WVDC | Catalog<br>Part Number<br>Tape* and Reel<br>(2000 pcs/reel) | Maximum<br>E.S.R.<br>100 kHz/20 °C<br>( $\Omega$ ) | Ripple Current<br>at 100 kHz<br>+20 °C to +125 °C<br>( $A_{\text{rms}}$ ) | H $\pm 0.2$<br>(mm) |
|----------------------------------|--------------------------|-------------------------------------------------------------|----------------------------------------------------|---------------------------------------------------------------------------|---------------------|
| 180                              | 2.0                      | ESRH181M02R                                                 | 0.015                                              | 2.5                                                                       | 2.8                 |
| 150                              | 2.5                      | ESRH151M0ER                                                 | 0.015                                              | 2.5                                                                       | 2.8                 |
| 120                              | 4.0                      | ESRH121M04R                                                 | 0.015                                              | 2.5                                                                       | 2.8                 |
| 100                              | 6.3                      | ESRH101M06R                                                 | 0.015                                              | 2.5                                                                       | 2.8                 |
| 68                               | 8.0                      | ESRH680M08R                                                 | 0.015                                              | 2.5                                                                       | 2.8                 |
| 270                              | 2.0                      | ESRH271M02R                                                 | 0.012                                              | 3.0                                                                       | 4.1                 |
| 220                              | 2.5                      | ESRH221M0ER                                                 | 0.012                                              | 3.0                                                                       | 4.1                 |
| 180                              | 4.0                      | ESRH181M04R                                                 | 0.012                                              | 3.0                                                                       | 4.1                 |
| 150                              | 6.3                      | ESRH151M06R                                                 | 0.012                                              | 3.0                                                                       | 4.1                 |
| 100                              | 8.0                      | ESRH101M08R                                                 | 0.012                                              | 3.0                                                                       | 4.1                 |

\*12mm wide tape — 13" diameter reel

### Markings

### Land Pattern



# Type ESRH Solid Polymer Aluminum SMT Capacitors

## Specifications (continued)

### Life Test:

Apply rated DC working voltage at 105 °C (or 0.75 x WVDC at 125 °C) for 1000 hours, and then stabilize them to +20 °C. Capacitors will meet the following limits:

$\Delta C = \pm 10\%$  of the initial measured value

DF & DCL  $\leq$  the initial specified value

### Shelf Life Test:

Shelf life is typically 5 to 10 years. Accelerated test: after 500 hours at 125 °C, capacitors will meet the following limits after stabilization at 20 °C:

$\Delta C = \pm 10\%$  of the initial measured value

DF & DCL  $\leq$  the initial specified value

### Moisture Resistance:

After 500 hours storage at +60 °C and 90% R.H. without load, the capacitor will meet the following limits:

$\Delta C = +70\%/-20\%$  of the initial measured value (2.0 & 2.5 Vdc),  $+60\%/-20\%$  of the initial measured value (4.0 Vdc),  $+50\%/-20\%$  of the initial measured value (6.3 Vdc),  $+40\%/-20\%$  of the initial measured value (8.0 Vdc).

DF  $\leq$  two times the initial specified value

DCL  $\leq$  the initial specified value

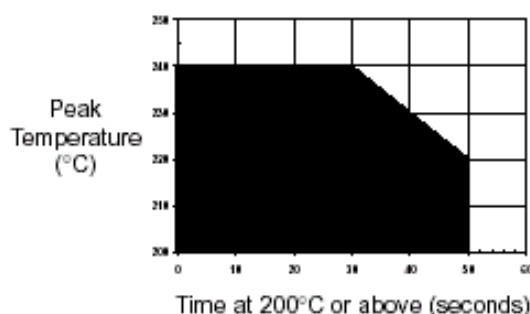
### Resistance to Soldering Heat:

Capacitors withstand being heated in an oven at 235 °C for 200 seconds.

### Soldering:

Solid Polymer Aluminum capacitors are designed for reflow soldering.

Preheat the capacitors at 160 °C for a maximum of 120 seconds. The time at or above 200 °C on the surface of the capacitor should be per the following chart:



(For more information on this product see the Solid Polymer Aluminum Application Guide)

## Typical Impedance & ESR

