

- Metallized polyethylene naphthalate (PEN) SMD
- Miniature size naked capacitor
- Low profile
- Wound construction
- According to IEC 60384-23

## TYPICAL APPLICATIONS

Bypassing, signal coupling. General purpose for highest reliability. High temperature service.

## CONSTRUCTION

Polyethylene naphthalate (PEN) film capacitor for surface mounting.

## TECHNICAL DATA

Rated voltage $U_{R^1}$ , VDC	63	100	250	400	630
Rated voltage $U_{R^1}$ , VAC	40	63	160	200	220
Capacitance range, nF	1 - 470	1 - 220	1 - 68	1 - 15	1 - 6.8

**Capacitance tolerance**  $\pm 20\%$ ,  $\pm 10\%$  standard;  $\pm 5\%$  on request.

**Category temperature range**  $-55^\circ\text{C}$  to  $+125^\circ\text{C}$

**Rated temperature**  $+100^\circ\text{C}$

**Voltage derating** The rated voltage should be decreased with  $1.25\%/^\circ\text{C}$  from  $+100^\circ\text{C}$  to  $+125^\circ\text{C}$  and  $1.5\%/^\circ\text{C}$  from  $+125^\circ\text{C}$  to  $175^\circ\text{C}$ .

**Climatic category** 55/125/21

**Voltage proof**  $1.6 \times U_{R^1}$ , 60s

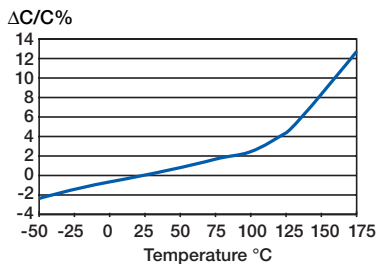
**Insulation resistance** Minimum value between terminals  
Measured at  $+20^\circ\text{C}$

	$C \leq 0.47 \mu\text{F}$
$U_R \leq 100 \text{ V}$	10 000 M $\Omega$
$U_R > 100 \text{ V}$	30 000 M $\Omega$

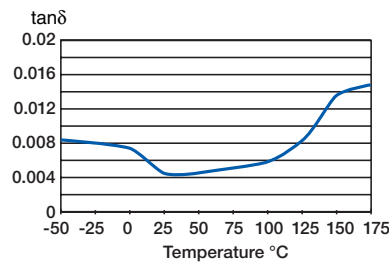
**Dissipation factor** Max values at  $+23^\circ\text{C}$

	$C \leq 100 \text{ nF}$	$100 \text{ nF} < C \leq 470 \text{ nF}$
1 kHz	0.6 %	0.6 %
10 kHz	1.0 %	1.0 %
100 kHz	2.0 %	2.5 %

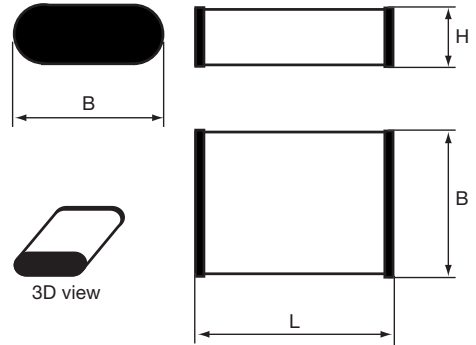
**Pulse rise time** The capacitors can withstand an unlimited number of pulses with a  $dU/dt$  according to article table. For voltages (U) lower than the rated voltage ( $U_{R^1}$ ), the specified  $dU/dt$  can be multiplied by  $U_R/U$ .



Typical capacitance vs temperature at 1 kHz



Typical dissipation factor vs temperature at 1 kHz

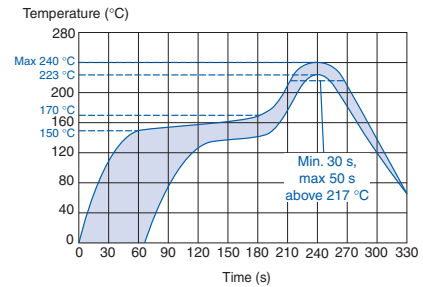


## RECOMMENDED SOLDERING CONDITIONS

**Reflow soldering temperature measured on the top body surface of the component**

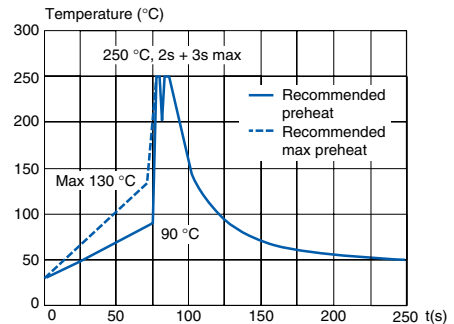
Preheating temperature should be less than  $170^\circ\text{C}$ . The time above  $217^\circ\text{C}$  should be less than 50 s. The peak temperature must not exceed  $240^\circ\text{C}$ .

This series for Lead Free soldering process is partly under development. Please consult manufacturer.



**Electrode temperature, Wave soldering**

The recommended preheating temperature is  $90^\circ\text{C}$ , max  $130^\circ\text{C}$ . The peak temperature  $250^\circ\text{C}$  may be applied for 2 + 3 s max. Evox Rifa recommends wave soldering for GMW parts with up to  $H = 2 \text{ mm}$ .



Recommended wave soldering profile

## MARKING

- Rated capacitance
- Capacitance tolerance code
- Rated voltage code
- Capacitor type G for GMW
- Manufacturing date code according to IEC 60062 (year, month)

## ORDERING INFORMATION

See article table and page 10 for options and article code construction.

**ARTICLE TABLE**

Capacitance µF	Size code	Dimensions in mm		Max dU/dt V/µs	Article code
		B ±0.4	H max		

Capacitance µF	Size code	Dimensions in mm		Max dU/dt V/µs	Article code
		B ±0.4	H max		

**63 VDC/40 VAC**

**100 VDC/63 VAC**

**CHIP LENGTH 5.7 MM CODE 2220**

**CHIP LENGTH 5.7 MM CODE 2220**

0.0010	J91	5.0	2.0	50	GMW5.7 102K63J91 TR12
0.0012	J91	5.0	2.0	50	GMW5.7 122K63J91 TR12
0.0015	J91	5.0	2.0	50	GMW5.7 152K63J91 TR12
0.0018	J91	5.0	2.0	50	GMW5.7 182K63J91 TR12
0.0022	J91	5.0	2.0	50	GMW5.7 222K63J91 TR12
0.0027	J91	5.0	2.0	50	GMW5.7 272K63J91 TR12
0.0033	J91	5.0	2.0	50	GMW5.7 332K63J91 TR12
0.0039	J91	5.0	2.0	50	GMW5.7 392K63J91 TR12
0.0047	J91	5.0	2.0	50	GMW5.7 472K63J91 TR12
0.0056	J91	5.0	2.0	50	GMW5.7 562K63J91 TR12
0.0068	J91	5.0	2.0	50	GMW5.7 682K63J91 TR12
0.0082	J91	5.0	2.0	40	GMW5.7 822K63J91 TR12
0.010	J91	5.0	2.0	40	GMW5.7 103K63J91 TR12
0.012	J91	5.0	2.0	40	GMW5.7 123K63J91 TR12
0.015	J91	5.0	2.0	40	GMW5.7 153K63J91 TR12
0.018	J91	5.0	2.0	40	GMW5.7 183K63J91 TR12
0.022	J91	5.0	2.0	40	GMW5.7 223K63J91 TR12
0.027	J91	5.0	2.0	40	GMW5.7 273K63J91 TR12
0.033	J91	5.0	2.0	40	GMW5.7 333K63J91 TR12
0.039	J91	5.0	2.0	30	GMW5.7 393K63J91 TR12
0.047	J91	5.0	2.0	30	GMW5.7 473K63J91 TR12
0.056	J91	5.0	2.0	30	GMW5.7 563K63J91 TR12
0.068	J91	5.0	2.0	30	GMW5.7 683K63J91 TR12
0.082	J91	5.0	2.0	30	GMW5.7 823K63J91 TR12
0.10	J91	5.0	2.0	30	GMW5.7 104K63J91 TR12
0.12	J91	5.0	2.0	20	GMW5.7 124K63J91 TR12
0.15	J91	5.0	2.0	20	GMW5.7 154K63J91 TR12
0.18	J91	5.0	2.0	20	GMW5.7 184K63J91 TR12
0.22	J91	5.0	2.0	20	GMW5.7 224K63J91 TR12
0.27	J91	5.0	2.0	20	GMW5.7 274K63J91 TR12
0.33	J93	5.0	3.0	20	GMW5.7 334K63J93 TR12
0.39	J93	5.0	3.0	20	GMW5.7 394K63J93 TR12
0.47	J95	5.0	4.0	20	GMW5.7 474K63J95 TR12

0.068	J91	5.0	2.0	30	GMW5.7 683K100J91 TR12
0.082	J91	5.0	2.0	30	GMW5.7 823K100J91 TR12
0.10	J91	5.0	2.0	30	GMW5.7 104K100J91 TR12
0.12	J93	5.0	3.0	30	GMW5.7 124K100J93 TR12
0.15	J93	5.0	3.0	30	GMW5.7 154K100J93 TR12
0.18	J95	5.0	4.0	30	GMW5.7 184K100J95 TR12
0.22	J95	5.0	4.0	30	GMW5.7 224K100J95 TR12

**250 VDC/160 VAC**

**CHIP LENGTH 5.7 MM CODE 2220**

0.0010	J91	5.0	2.0	50	GMW5.7 102K250J91 TR12
0.0012	J91	5.0	2.0	50	GMW5.7 122K250J91 TR12
0.0015	J91	5.0	2.0	50	GMW5.7 152K250J91 TR12
0.0018	J91	5.0	2.0	50	GMW5.7 182K250J91 TR12
0.0022	J91	5.0	2.0	50	GMW5.7 222K250J91 TR12
0.0027	J91	5.0	2.0	50	GMW5.7 272K250J91 TR12
0.0033	J91	5.0	2.0	50	GMW5.7 332K250J91 TR12
0.0039	J91	5.0	2.0	50	GMW5.7 392K250J91 TR12
0.0047	J91	5.0	2.0	50	GMW5.7 472K250J91 TR12
0.0056	J91	5.0	2.0	50	GMW5.7 562K250J91 TR12
0.0068	J91	5.0	2.0	50	GMW5.7 682K250J91 TR12
0.0082	J91	5.0	2.0	40	GMW5.7 822K250J91 TR12
0.010	J91	5.0	2.0	40	GMW5.7 103K250J91 TR12
0.012	J91	5.0	2.0	40	GMW5.7 123K250J91 TR12
0.015	J91	5.0	2.0	40	GMW5.7 153K250J91 TR12
0.018	J91	5.0	2.0	40	GMW5.7 183K250J91 TR12
0.022	J91	5.0	2.0	40	GMW5.7 223K250J91 TR12
0.027	J91	5.0	2.0	40	GMW5.7 273K250J91 TR12
0.033	J91	5.0	2.0	40	GMW5.7 333K250J91 TR12
0.039	J93	5.0	3.0	40	GMW5.7 393K250J93 TR12
0.047	J93	5.0	3.0	40	GMW5.7 473K250J93 TR12
0.056	J93	5.0	3.0	40	GMW5.7 563K250J93 TR12
0.068	J95	5.0	4.0	40	GMW5.7 683K250J95 TR12

**100 VDC/63 VAC**

**400 VDC/200 VAC**

**CHIP LENGTH 5.7 MM CODE 2220**

**CHIP LENGTH 5.7 MM CODE 2220**

0.0010	J91	5.0	2.0	50	GMW5.7 102K100J91 TR12
0.0012	J91	5.0	2.0	50	GMW5.7 122K100J91 TR12
0.0015	J91	5.0	2.0	50	GMW5.7 152K100J91 TR12
0.0018	J91	5.0	2.0	50	GMW5.7 182K100J91 TR12
0.0022	J91	5.0	2.0	50	GMW5.7 222K100J91 TR12
0.0027	J91	5.0	2.0	50	GMW5.7 272K100J91 TR12
0.0033	J91	5.0	2.0	50	GMW5.7 332K100J91 TR12
0.0039	J91	5.0	2.0	50	GMW5.7 392K100J91 TR12
0.0047	J91	5.0	2.0	50	GMW5.7 472K100J91 TR12
0.0056	J91	5.0	2.0	50	GMW5.7 562K100J91 TR12
0.0068	J91	5.0	2.0	50	GMW5.7 682K100J91 TR12
0.0082	J91	5.0	2.0	40	GMW5.7 822K100J91 TR12
0.010	J91	5.0	2.0	40	GMW5.7 103K100J91 TR12
0.012	J91	5.0	2.0	40	GMW5.7 123K100J91 TR12
0.015	J91	5.0	2.0	40	GMW5.7 153K100J91 TR12
0.018	J91	5.0	2.0	40	GMW5.7 183K100J91 TR12
0.022	J91	5.0	2.0	40	GMW5.7 223K100J91 TR12
0.027	J91	5.0	2.0	40	GMW5.7 273K100J91 TR12
0.033	J91	5.0	2.0	40	GMW5.7 333K100J91 TR12
0.039	J91	5.0	2.0	30	GMW5.7 393K100J91 TR12
0.047	J91	5.0	2.0	30	GMW5.7 473K100J91 TR12
0.056	J91	5.0	2.0	30	GMW5.7 563K100J91 TR12

0.0010	J91	5.0	2.0	50	GMW5.7 102K400J91 TR12
0.0012	J91	5.0	2.0	50	GMW5.7 122K400J91 TR12
0.0015	J91	5.0	2.0	50	GMW5.7 152K400J91 TR12
0.0018	J91	5.0	2.0	50	GMW5.7 182K400J91 TR12
0.0022	J91	5.0	2.0	50	GMW5.7 222K400J91 TR12
0.0027	J91	5.0	2.0	50	GMW5.7 272K400J91 TR12
0.0033	J91	5.0	2.0	50	GMW5.7 332K400J91 TR12
0.0039	J91	5.0	2.0	50	GMW5.7 392K400J91 TR12
0.0047	J91	5.0	2.0	50	GMW5.7 472K400J91 TR12
0.0056	J91	5.0	2.0	50	GMW5.7 562K400J91 TR12
0.0068	J91	5.0	2.0	50	GMW5.7 682K400J91 TR12
0.0082	J93	5.0	3.0	50	GMW5.7 822K400J93 TR12
0.010	J93	5.0	3.0	50	GMW5.7 103K400J93 TR12
0.012	J93	5.0	3.0	50	GMW5.7 123K400J93 TR12
0.015	J95	5.0	4.0	50	GMW5.7 153K400J95 TR12

## ARTICLE TABLE

Capacitance $\mu\text{F}$	Size code	Dimensions in mm		Max $dU/dt$ $\text{V}/\mu\text{s}$	Article code
		B $\pm 0.4$	H max		
<b>630 VDC/220 VAC</b>					
<b>CHIP LENGTH 5.7 MM CODE 2220</b>					
0.0010	J91	5.0	2.0	50	GMW5.7 102K630J91 TR12
0.0012	J91	5.0	2.0	50	GMW5.7 122K630J91 TR12
0.0015	J91	5.0	2.0	50	GMW5.7 152K630J91 TR12
0.0018	J91	5.0	2.0	50	GMW5.7 182K630J91 TR12
0.0022	J91	5.0	2.0	50	GMW5.7 222K630J91 TR12
0.0027	J91	5.0	2.0	50	GMW5.7 272K630J91 TR12
0.0033	J93	5.0	3.0	50	GMW5.7 332K630J93 TR12
0.0039	J93	5.0	3.0	50	GMW5.7 392K630J93 TR12
0.0047	J95	5.0	4.0	50	GMW5.7 472K630J95 TR12
0.0056	J95	5.0	4.0	50	GMW5.7 562K630J95 TR12
0.0068	J95	5.0	4.0	50	GMW5.7 682K630J95 TR12

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