GMW

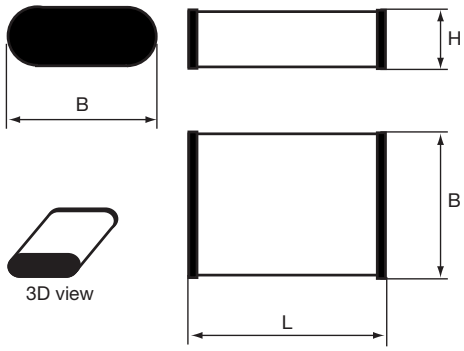
- **Metallized polyethylene naphthalate (PEN) SMD**
- **Miniature size naked capacitor**
- **Low profile**
- **Wound construction**

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, VDC	63	100	250	400	630
Rated voltage U_R, VAC	40	63	160	200	220
Capacitance range, nF	1 - 470	1 - 220	1 - 68	1 - 15	1 - 6.8

Capacitance tolerance ±20%, ±10% standard; ±5% on request.

Category temperature range -55°C to +125°C

Rated temperature +100°C

Voltage derating The rated voltage is decreased with 1.25%/°C from +100°C.

Climatic category 55/125/21

Voltage proof 1.6 x U_R, 60s

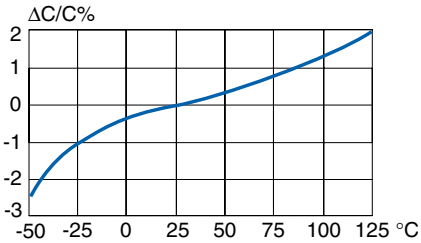
Insulation resistance Minimum value between terminals
Measured at +20°C

	C ≤ 0.47 µF
U_R ≤ 100 V	10 000 MΩ
U_R > 100 V	30 000 MΩ

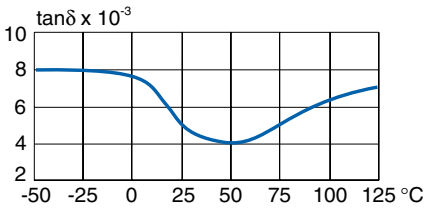
Dissipation factor Max values at +23°C

	C ≤ 100 nF	100 nF < C ≤ 470 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), the specified dU/dt can be multiplied by U_R/U.



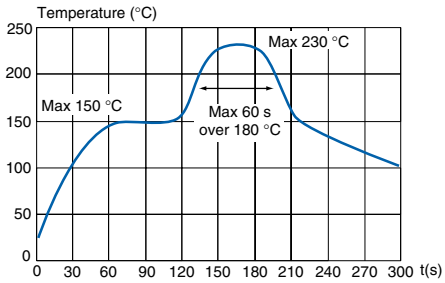
Capacitance vs temperature at 1 kHz



Dissipation factor vs temperature at 1 kHz

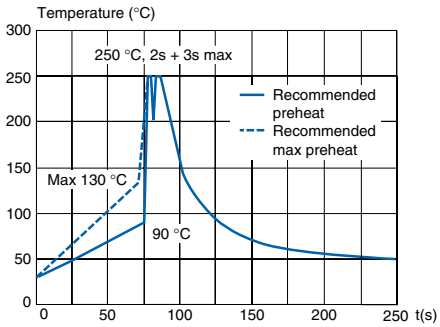
RECOMMENDED SOLDERING CONDITIONS

Electrode temperature, Reflow soldering
Preheating temperature should be less than 150 °C. The time above 180 °C should be less than 1 minute. The peak temperature must not exceed 230 °C.



Recommended reflow soldering profile

Electrode temperature, Wave soldering
The recommended preheating temperature is 90 °C, max 130 °C. The peak temperature 250°C may be applied for 2 + 3 s max.



Recommended wave soldering profile

ARTICLE TABLE

Capacitance µF	Dimensions in mm B ±0.4	H max	L ±0.4	Quantity per package Bulk	Reel	Max dU/dt V/µs	Article code
63 VDC/40 VAC							
CHIP LENGTH 5.7 MM CODE 2220							
0.0010	5.0	2.0	5.7	2000	3100	50	GMW5.7 102K63J91 TR12
0.0012	5.0	2.0	5.7	2000	3100	50	GMW5.7 122K63J91 TR12
0.0015	5.0	2.0	5.7	2000	3100	50	GMW5.7 152K63J91 TR12
0.0018	5.0	2.0	5.7	2000	3100	50	GMW5.7 182K63J91 TR12
0.0022	5.0	2.0	5.7	2000	3100	50	GMW5.7 222K63J91 TR12
0.0027	5.0	2.0	5.7	2000	3100	50	GMW5.7 272K63J91 TR12
0.0033	5.0	2.0	5.7	2000	3100	50	GMW5.7 332K63J91 TR12
0.0039	5.0	2.0	5.7	2000	3100	50	GMW5.7 392K63J91 TR12
0.0047	5.0	2.0	5.7	2000	3100	50	GMW5.7 472K63J91 TR12
0.0056	5.0	2.0	5.7	2000	3100	50	GMW5.7 562K63J91 TR12
0.0068	5.0	2.0	5.7	2000	3100	50	GMW5.7 682K63J91 TR12
0.0082	5.0	2.0	5.7	2000	3100	40	GMW5.7 822K63J91 TR12
0.010	5.0	2.0	5.7	2000	3100	40	GMW5.7 103K63J91 TR12
0.012	5.0	2.0	5.7	2000	3100	40	GMW5.7 123K63J91 TR12
0.015	5.0	2.0	5.7	2000	3100	40	GMW5.7 153K63J91 TR12
0.018	5.0	2.0	5.7	2000	3100	40	GMW5.7 183K63J91 TR12
0.022	5.0	2.0	5.7	2000	3100	40	GMW5.7 223K63J91 TR12
0.027	5.0	2.0	5.7	2000	3100	40	GMW5.7 273K63J91 TR12
0.033	5.0	2.0	5.7	2000	3100	40	GMW5.7 333K63J91 TR12
0.039	5.0	2.0	5.7	2000	3100	30	GMW5.7 393K63J91 TR12
0.047	5.0	2.0	5.7	2000	3100	30	GMW5.7 473K63J91 TR12
0.056	5.0	2.0	5.7	2000	3100	30	GMW5.7 563K63J91 TR12
0.068	5.0	2.0	5.7	2000	3100	30	GMW5.7 683K63J91 TR12
0.082	5.0	2.0	5.7	2000	3100	30	GMW5.7 823K63J91 TR12
0.10	5.0	2.0	5.7	2000	3100	30	GMW5.7 104K63J91 TR12
0.12	5.0	2.0	5.7	2000	3100	20	GMW5.7 124K63J91 TR12
0.15	5.0	2.0	5.7	2000	3100	20	GMW5.7 154K63J91 TR12
0.18	5.0	2.0	5.7	2000	3100	20	GMW5.7 184K63J91 TR12
0.22	5.0	2.0	5.7	2000	3100	20	GMW5.7 224K63J91 TR12
0.27	5.0	2.0	5.7	2000	3100	20	GMW5.7 274K63J91 TR12
0.33	5.0	3.0	5.7	2000	2400	20	GMW5.7 334K63J93 TR12
0.39	5.0	3.0	5.7	2000	2400	20	GMW5.7 394K63J93 TR12
0.47	5.0	4.0	5.7	2000	2100	20	GMW5.7 474K63J95 TR12
100 VDC/63 VAC							
CHIP LENGTH 5.7 MM CODE 2220							
0.0010	5.0	2.0	5.7	2000	3100	50	GMW5.7 102K100J91 TR12
0.0012	5.0	2.0	5.7	2000	3100	50	GMW5.7 122K100J91 TR12
0.0015	5.0	2.0	5.7	2000	3100	50	GMW5.7 152K100J91 TR12
0.0018	5.0	2.0	5.7	2000	3100	50	GMW5.7 182K100J91 TR12
0.0022	5.0	2.0	5.7	2000	3100	50	GMW5.7 222K100J91 TR12
0.0027	5.0	2.0	5.7	2000	3100	50	GMW5.7 272K100J91 TR12
0.0033	5.0	2.0	5.7	2000	3100	50	GMW5.7 332K100J91 TR12
0.0039	5.0	2.0	5.7	2000	3100	50	GMW5.7 392K100J91 TR12
0.0047	5.0	2.0	5.7	2000	3100	50	GMW5.7 472K100J91 TR12
0.0056	5.0	2.0	5.7	2000	3100	50	GMW5.7 562K100J91 TR12
0.0068	5.0	2.0	5.7	2000	3100	50	GMW5.7 682K100J91 TR12
0.0082	5.0	2.0	5.7	2000	3100	40	GMW5.7 822K100J91 TR12
0.010	5.0	2.0	5.7	2000	3100	40	GMW5.7 103K100J91 TR12
0.012	5.0	2.0	5.7	2000	3100	40	GMW5.7 123K100J91 TR12
0.015	5.0	2.0	5.7	2000	3100	40	GMW5.7 153K100J91 TR12
0.018	5.0	2.0	5.7	2000	3100	40	GMW5.7 183K100J91 TR12
0.022	5.0	2.0	5.7	2000	3100	40	GMW5.7 223K100J91 TR12
0.027	5.0	2.0	5.7	2000	3100	40	GMW5.7 273K100J91 TR12
0.033	5.0	2.0	5.7	2000	3100	40	GMW5.7 333K100J91 TR12
0.039	5.0	2.0	5.7	2000	3100	30	GMW5.7 393K100J91 TR12
0.047	5.0	2.0	5.7	2000	3100	30	GMW5.7 473K100J91 TR12
0.056	5.0	2.0	5.7	2000	3100	30	GMW5.7 563K100J91 TR12

ARTICLE TABLE

Capacitance µF	Dimensions in mm B ±0.4	H max	L ±0.4	Quantity per package Bulk	Reel	Max dU/dt V/µs	Article code
100 VDC/63 VAC							
CHIP LENGTH 5.7 MM CODE 2220							
0.068	5.0	2.0	5.7	2000	3100	30	GMW5.7 683K100J91 TR12
0.082	5.0	2.0	5.7	2000	3100	30	GMW5.7 823K100J91 TR12
0.10	5.0	2.0	5.7	2000	3100	30	GMW5.7 104K100J91 TR12
0.12	5.0	3.0	5.7	2000	2400	30	GMW5.7 124K100J93 TR12
0.15	5.0	3.0	5.7	2000	2400	30	GMW5.7 154K100J93 TR12
0.18	5.0	4.0	5.7	2000	2100	30	GMW5.7 184K100J95 TR12
0.22	5.0	4.0	5.7	2000	2100	30	GMW5.7 224K100J95 TR12
250 VDC/160 VAC							
CHIP LENGTH 5.7 MM CODE 2220							
0.0010	5.0	2.0	5.7	2000	3100	50	GMW5.7 102K250J91 TR12
0.0012	5.0	2.0	5.7	2000	3100	50	GMW5.7 122K250J91 TR12
0.0015	5.0	2.0	5.7	2000	3100	50	GMW5.7 152K250J91 TR12
0.0018	5.0	2.0	5.7	2000	3100	50	GMW5.7 182K250J91 TR12
0.0022	5.0	2.0	5.7	2000	3100	50	GMW5.7 222K250J91 TR12
0.0027	5.0	2.0	5.7	2000	3100	50	GMW5.7 272K250J91 TR12
0.0033	5.0	2.0	5.7	2000	3100	50	GMW5.7 332K250J91 TR12
0.0039	5.0	2.0	5.7	2000	3100	50	GMW5.7 392K250J91 TR12
0.0047	5.0	2.0	5.7	2000	3100	50	GMW5.7 472K250J91 TR12
0.0056	5.0	2.0	5.7	2000	3100	50	GMW5.7 562K250J91 TR12
0.0068	5.0	2.0	5.7	2000	3100	50	GMW5.7 682K250J91 TR12
0.0082	5.0	2.0	5.7	2000	3100	40	GMW5.7 822K250J91 TR12
0.010	5.0	2.0	5.7	2000	3100	40	GMW5.7 103K250J91 TR12
0.012	5.0	2.0	5.7	2000	3100	40	GMW5.7 123K250J91 TR12
0.015	5.0	2.0	5.7	2000	3100	40	GMW5.7 153K250J91 TR12
0.018	5.0	2.0	5.7	2000	3100	40	GMW5.7 183K250J91 TR12
0.022	5.0	2.0	5.7	2000	3100	40	GMW5.7 223K250J91 TR12
0.027	5.0	2.0	5.7	2000	3100	40	GMW5.7 273K250J91 TR12
0.033	5.0	2.0	5.7	2000	3100	40	GMW5.7 333K250J91 TR12
0.039	5.0	3.0	5.7	2000	2400	40	GMW5.7 393K250J93 TR12
0.047	5.0	3.0	5.7	2000	2400	40	GMW5.7 473K250J93 TR12
0.056	5.0	4.0	5.7	2000	2100	40	GMW5.7 563K250J95 TR12
0.068	5.0	4.0	5.7	2000	2100	40	GMW5.7 683K250J95 TR12
400 VDC/200 VAC							
CHIP LENGTH 5.7 MM CODE 2220							
0.0010	5.0	2.0	5.7	2000	3100	50	GMW5.7 102K400J91 TR12
0.0012	5.0	2.0	5.7	2000	3100	50	GMW5.7 122K400J91 TR12
0.0015	5.0	2.0	5.7	2000	3100	50	GMW5.7 152K400J91 TR12
0.0018	5.0	2.0	5.7	2000	3100	50	GMW5.7 182K400J91 TR12
0.0022	5.0	2.0	5.7	2000	3100	50	GMW5.7 222K400J91 TR12
0.0027	5.0	2.0	5.7	2000	3100	50	GMW5.7 272K400J91 TR12
0.0033	5.0	2.0	5.7	2000	3100	50	GMW5.7 332K400J91 TR12
0.0039	5.0	2.0	5.7	2000	3100	50	GMW5.7 392K400J91 TR12
0.0047	5.0	2.0	5.7	2000	3100	50	GMW5.7 472K400J91 TR12
0.0056	5.0	2.0	5.7	2000	3100	50	GMW5.7 562K400J91 TR12
0.0068	5.0	2.0	5.7	2000	3100	50	GMW5.7 682K400J91 TR12
0.0082	5.0	3.0	5.7	2000	2400	50	GMW5.7 822K400J93 TR12
0.010	5.0	3.0	5.7	2000	2400	50	GMW5.7 103K400J93 TR12
0.012	5.0	3.0	5.7	2000	2400	50	GMW5.7 123K400J93 TR12
0.015	5.0	4.0	5.7	2000	2100	50	GMW5.7 153K400J95 TR12

ARTICLE TABLE

Capacitance µF	Dimensions in mm B ±0.4	H max	L ±0.4	Quantity per package Bulk	Reel	Max dU/dt V/µs	Article code
630 VDC/220 VAC							
CHIP LENGTH 5.7 MM CODE 2220							
0.0010	5.0	2.0	5.7	2000	3100	50	GMW5.7 102K630J91 TR12
0.0012	5.0	2.0	5.7	2000	3100	50	GMW5.7 122K630J91 TR12
0.0015	5.0	2.0	5.7	2000	3100	50	GMW5.7 152K630J91 TR12
0.0018	5.0	2.0	5.7	2000	3100	50	GMW5.7 182K630J91 TR12
0.0022	5.0	2.0	5.7	2000	3100	50	GMW5.7 222K630J91 TR12
0.0027	5.0	2.0	5.7	2000	3100	50	GMW5.7 272K630J91 TR12
0.0033	5.0	3.0	5.7	2000	2400	50	GMW5.7 332K630J93 TR12
0.0039	5.0	3.0	5.7	2000	2400	50	GMW5.7 392K630J93 TR12
0.0047	5.0	4.0	5.7	2000	2100	50	GMW5.7 472K630J95 TR12
0.0056	5.0	4.0	5.7	2000	2100	50	GMW5.7 562K630J95 TR12
0.0068	5.0	4.0	5.7	2000	2100	50	GMW5.7 682K630J95 TR12

ORDERING INFORMATION

See article table and pages 18 to 23 for options and article code construction.

MARKING

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