Actual Situation of Lead Free Soldering for MMC

July 13th, 2007

All following MMC5.7 and MMC7.3 capacitors, with manufacturing code V7 (July 2007) and later, are capable to fulfil the recommended reflow soldering profile for lead free process presented at end of this document.

50 VDC/30 VAC

CHIP LENGTH 5.7 MM CODE 2220

Capacitance µF	Size code	Dimensions in mm ±0.2 B	H	Max dU/dt V/µs	Article code
0.010	J31	5.0	2.5	40	MMC5.7 103K50J31 TR12
0.012	J31	5.0	2.5	40	MMC5.7 123K50J31 TR12
0.015	J31	5.0	2.5	30	MMC5.7 153K50J31 TR12
0.018	J31	5.0	2.5	30	MMC5.7 183K50J31 TR12
0.022	J31	5.0	2.5	30	MMC5.7 223K50J31 TR12
0.027	J31	5.0	2.5	30	MMC5.7 273K50J31 TR12
0.033	J31	5.0	2.5	30	MMC5.7 333K50J31 TR12
0.039	J31	5.0	2.5	30	MMC5.7 393K50J31 TR12
0.047	J31	5.0	2.5	30	MMC5.7 473K50J31 TR12
0.056	J31	5.0	2.5	30	MMC5.7 563K50J31 TR12
0.068	J31	5.0	2.5	20	MMC5.7 683K50J31 TR12
0.082	J31	5.0	2.5	20	MMC5.7 823K50J31 TR12
0.10	J31	5.0	2.5	20	MMC5.7 104K50J31 TR12
0.12	J33	5.0	3.0	20	MMC5.7 124K50J33 TR12
0.15	J33	5.0	3.0	20	MMC5.7 154K50J33 TR12
0.18	J35	5.0	4.0	20	MMC5.7 184K50J35 TR12
0.22	J35	5.0	4.0	20	MMC5.7 224K50J35 TR12

CHIP LENGTH 7.3 MM CODE 2824

Capacitance µF	Size code	Dimensions in mm ±0.2 B	H	Max dU/dt V/µs	Article code
0.022	K31	6.0	2.5	30	MMC7.3 223K50K31 TR12
0.027	K31	6.0	2.5	30	MMC7.3 273K50K31 TR12
0.033	K31	6.0	2.5	30	MMC7.3 333K50K31 TR12
0.039	K31	6.0	2.5	30	MMC7.3 393K50K31 TR12
0.047	K31	6.0	2.5	30	MMC7.3 473K50K31 TR12
0.056	K31	6.0	2.5	30	MMC7.3 563K50K31 TR12
0.068	K31	6.0	2.5	30	MMC7.3 683K50K31 TR12
0.082	K31	6.0	2.5	30	MMC7.3 823K50K31 TR12
0.10	K31	6.0	2.5	30	MMC7.3 104K50K31 TR12
0.12	K31	6.0	2.5	30	MMC7.3 124K50K31 TR12
0.15	K31	6.0	2.5	25	MMC7.3 154K50K31 TR12
0.18	K33	6.0	3.0	25	MMC7.3 184K50K33 TR12
0.22	K33	6.0	3.0	25	MMC7.3 224K50K33 TR12
0.27	K35	6.0	3.5	25	MMC7.3 274K50K35 TR12
0.33	K35	6.0	3.5	25	MMC7.3 334K50K35 TR12
0.39	K35	6.0	3.5	25	MMC7.3 394K50K35 TR12
0.47	K35	6.0	3.5	25	MMC7.3 474K50K35 TR12
0.56	K37	6.0	4.5	12	MMC7.3 564K50K37 TR12
0.68	K37	6.0	4.5	12	MMC7.3 684K50K37 TR12
0.82	K37	6.0	4.5	12	MMC7.3 824K50K37 TR12
1.0	K37	6.0	4.5	12	MMC7.3 105K50K37 TR12

63 VDC/40 VAC

CHIP LENGTH 7.3 MM CODE 2824

Capacitance µF	Size code	Dimensions in mm ±0.2 B	H	Max dU/dt V/µs	Article code
0.022	K31	6.0	2.5	30	MMC7.3 223K63K31 TR12
0.027	K31	6.0	2.5	30	MMC7.3 273K63K31 TR12
0.033	K31	6.0	2.5	30	MMC7.3 333K63K31 TR12
0.039	K31	6.0	2.5	30	MMC7.3 393K63K31 TR12
0.047	K31	6.0	2.5	30	MMC7.3 473K63K31 TR12
0.056	K31	6.0	2.5	30	MMC7.3 563K63K31 TR12
0.068	K31	6.0	2.5	30	MMC7.3 683K63K31 TR12
0.082	K31	6.0	2.5	30	MMC7.3 823K63K31 TR12
0.10	K31	6.0	2.5	30	MMC7.3 104K63K31 TR12
0.12	K31	6.0	2.5	30	MMC7.3 124K63K31 TR12
0.15	K31	6.0	2.5	30	MMC7.3 154K63K31 TR12
0.18	K33	6.0	3.0	25	MMC7.3 184K63K33 TR12
0.22	K33	6.0	3.0	25	MMC7.3 224K63K33 TR12
0.27	K35	6.0	3.5	25	MMC7.3 274K63K35 TR12
0.33	K35	6.0	3.5	25	MMC7.3 334K63K35 TR12
0.39	K35	6.0	3.5	25	MMC7.3 394K63K35 TR12
0.47	K35	6.0	3.5	25	MMC7.3 474K63K35 TR12

100 VDC/63 VAC

CHIP LENGTH 5.7 MM CODE 2220

Capacitance µF	Size code	Dimensions in mm ±0.2 B	H	Max dU/dt V/µs	Article code
0.010	J31	5.0	2.5	40	MMC5.7 103K100J31 TR12
0.012	J31	5.0	2.5	40	MMC5.7 123K100J31 TR12
0.015	J31	5.0	2.5	30	MMC5.7 153K100J31 TR12
0.018	J31	5.0	2.5	30	MMC5.7 183K100J31 TR12
0.022	J31	5.0	2.5	30	MMC5.7 223K100J31 TR12
0.027	J31	5.0	2.5	30	MMC5.7 273K100J31 TR12
0.033	J31	5.0	2.5	30	MMC5.7 333K100J31 TR12
0.039	J31	5.0	2.5	30	MMC5.7 393K100J31 TR12
0.047	J31	5.0	2.5	30	MMC5.7 473K100J31 TR12
0.056	J33	5.0	3.0	30	MMC5.7 563K100J33 TR12
0.068	J33	5.0	3.0	30	MMC5.7 683K100J33 TR12
0.082	J35	5.0	4.0	30	MMC5.7 823K100J35 TR12
0.10	J35	5.0	4.0	30	MMC5.7 104K100J35 TR12

CHIP LENGTH 7.3 MM CODE 2824

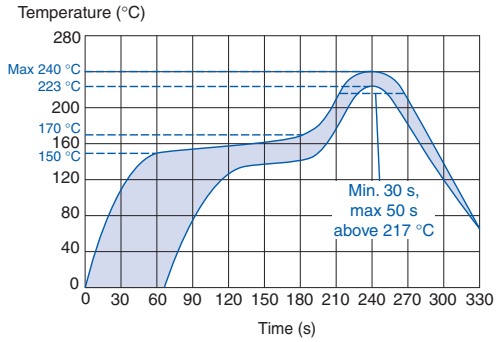
Capacitance µF	Size code	Dimensions in mm ±0.2 B	H	Max dU/dt V/µs	Article code
0.022	K31	6.0	2.5	30	MMC7.3 223K100K31 TR12
0.027	K31	6.0	2.5	30	MMC7.3 273K100K31 TR12
0.033	K31	6.0	2.5	30	MMC7.3 333K100K31 TR12
0.039	K31	6.0	2.5	30	MMC7.3 393K100K31 TR12
0.047	K31	6.0	2.5	30	MMC7.3 473K100K31 TR12
0.056	K31	6.0	2.5	30	MMC7.3 563K100K31 TR12
0.068	K31	6.0	2.5	30	MMC7.3 683K100K31 TR12
0.082	K31	6.0	2.5	30	MMC7.3 823K100K31 TR12
0.10	K31	6.0	2.5	30	MMC7.3 104K100K31 TR12
0.12	K33	6.0	3.0	30	MMC7.3 124K100K33 TR12
0.15	K35	6.0	3.5	30	MMC7.3 154K100K35 TR12
0.18	K35	6.0	3.5	30	MMC7.3 184K100K35 TR12
0.22	K35	6.0	4.5	30	MMC7.3 224K100K37 TR12

250 VDC/160 VAC

CHIP LENGTH 5.7 MM CODE 2220

Capacitance µF	Size code	Dimensions in mm ±0.2 B	H	Max dU/dt V/µs	Article code
0.010	J31	5.0	2.5	40	MMC5.7 103K250J31 TR12
0.012	J31	5.0	2.5	40	MMC5.7 123K250J31 TR12
0.015	J33	5.0	3.0	40	MMC5.7 153K250J33 TR12
0.018	J35	5.0	4.0	40	MMC5.7 183K250J35 TR12
0.022	J35	5.0	4.0	40	MMC5.7 223K250J35 TR12

Reflow soldering on the top body surface of the component
Preheating temperature should be less than 170°C. The time above 217°C should be less than 50 s. The peak temperature must not exceed 240°C.
This profile is recommended for convection reflow ovens and IR reflow ovens. If vapour phase reflow oven is used, please consult Evox Rifa.



This recommended reflow soldering profile for lead free soldering is valid for those MMC products listed above, which have manufacturing code V7 (July 2007) and later.
For marking of our SMD capacitors, please see page 18 in the Evox Rifa SMD Film Capacitors catalogue or www.evoxrifa.com/smd_catalog/wound_tech_caps/gen_info_wound_smd.pdf

Exceeding the manufacturer's process recommendations may harm the component and keep the manufacturer not liable for any defect caused by exceeding the recommendations.

According to international standards, the maximum temperature capability shall be measured on the top surface of a component. Any of the international standards do not define how the thermocouple should be fastened on the component. Our recommendation for attaching the thermocouple on the top surface of the component is glueing with high temperature resistant glue.

All updates for SMD capacitors reflow capability will be informed through www.evoxrifa.com.
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