u·p·t·o·d·a·t·e Newsletter



December 11, 2015

Product change

New soldering process for EPCOS PEC MKP AC capacitor terminals M6, M8 and M10

The soldering flux used for soldering the terminals of M6, M8 and M10 of EPCOS PEC MKP AC capacitors, which contains ammonium chloride, will be replaced by a flux without chloride in future.

Also, the length of the M6 screw terminals will be increased by 1 mm and a chamfer will be added. During soldering the screw terminals will be covered with a mask. In combination with the newly introduced chamfer this will prevent melted tin from flowing over the surface of the screw. The terminals M8 and M10 are not affected by this change.

For details please refer annex.

The changes will be implemented in the plants in Gravataí, Brazil, and Zhuhai, China.

Affected products

| Ordering code |
|---------------|
| B32361* |
| B32352* |
| B32364* |

Scheduled date of introduction: March 18, 2016 (earlier if customer requests)

Enclosure PCN (ID No. FILM P15-21)

Modified dimensions of M6 screw terminals Tin soldering flux changed for M6, M8 and M10 screw terminals Type tests qualification for improved M6, M8 and M10 screw terminals

Contact Ayse Kartal, CAP FILM P PM, Munich

Customers are asked to address inquiries directly to their sales contacts.



Product / Process Change Notification

| 1. | ID No.: FILM P15-21 | | 2. Date of announcement: December 11, 2015 | | |
|----|--|-------------------------------|--|-----------------------|--|
| 3. | Product / product group: EPCOS PEC MKP AC | Old ordering code: B32361* | New ordering code: No change | Customer part number: | |
| | capacitors | B32362* B32364* | | | |

4. Description of change:

The soldering flux used for soldering the terminals of M6, M8 and M10 of EPCOS PEC MKP AC capacitors will be changed. Instead of the flux (ammonium chloride) presently used, a flux without chloride will be used in future.

Also, the M6 screw terminals will be increased by 1 mm and a chamfer will be added. During the soldering process the screw terminals will be covered by a mask. In combination with the newly introduced chamfer this will avoid that melted tin can flow over the surface of the screw. The terminals M8 and M10 are not affected by this change.

For details please refer annex.

The changes will be implemented in the plants Gravataí, Brazil, and Zhuhai, China.

5. Effect on the product or for the customer (benefit, quality, specification, lead time):

The changes will improve the quallity of screw terminals of PEC MKP AC capacitors.

6. Quality assurance measures / risk assessment:

Quality procedures will remain unchanged.

- 7. Scheduled date of change: March 18, 2016
- **8.** Estimated date of first delivery of changed product: March 18, 2016; earlier if requested by the customer.

If EPCOS does not receive notification to the contrary within a period of 10 weeks, EPCOS assumes that the customer agrees to the change. For an interim period we cannot rule out that old as well as new products will be shipped.

Quality Management Signature
Name Manuela Alvarez signed by Manuela Alvarez

Product Marketing
Name Ayse Kartal Signature
Tel. +49 89 54020 2482 signed by Ayse Kartal
Email ayse.kartal@epcos.com

| Customer feedback | | |
|--------------------------|-----------|--|
| Customer acknowledgement | Signature | |



Annex to UPtoDATE 151211PC2 and PCN FILM P15-21of December 11, 2015 / New soldering process for EPCOS PEC MKP AC capacitor terminals M6, M8 and M10

1) Modified dimensions of M6 screw terminals

The length of M6 screw terminal has been increased by 1 mm and a chamfer has been added—Fig. 01 (b). The chamfer will work with a mask introduced in the process improvement to protect the screw thread during tin soldering process and prevent melted tin from flowing over to the surface of screw.

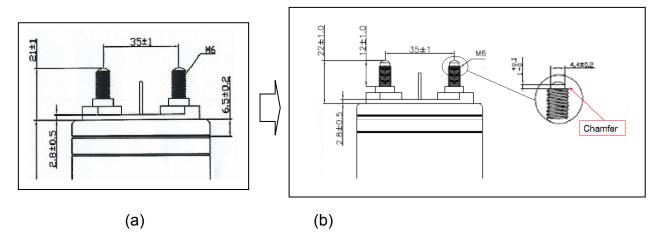


Fig. 1 – Drawing of M6 screw terminal

- (a) Current M6 terminal
- (b) Improved M6 terminal with chamfer and increased length of 1 mm

2) Tin soldering flux changed for M6, M8 and M10 screw terminals

From urea base flux (ammonium-chloride) to rosin flux (no chlorine)



3) Type tests qualification for improved M6, M8 and M10 screw terminals

| Item | Type test | Test specification | Approval criteria | Results |
|----------------------|-----------------|--|-------------------------------|----------|
| Screw terminal M6 | Damp heat test | 40 °C/93 % RH/1000 h | Capacitance variation max. 3% | Approved |
| | Salt spray test | As per ASTMB117 duration: 72 h | no oxidation | Approved |
| | Torque test | Torque≥4 N · m | ≥4 N .m | Approved |
| | Leakage test | Temperature:80±5°C Vacuum pressure≤0.5mbar | no leakage | Approved |
| Screw terminal M8 | Damp heat test | 40 °C /93 %RH/1000 h | Capacitance variation max. 3% | Approved |
| | Salt spray test | As per ASTMB117 duration: 72 h | no oxidation | Approved |
| | Torque test | Torque≥10 N ⋅m | ≥10 N ·m | Approved |
| | Leakage test | Temperature:80±5 °C Vacuum pressure ≤ 0.5 mbar | no leakage | Approved |
| Screw terminal M10 | Damp heat test | 40 °C /93 %RH/1000 h | Capacitance variation max. 3% | Approved |
| | Salt spray test | As per ASTMB117 duration: 72 h | no oxidation | Approved |
| | Torque test | Torque ≥ 12 N ·m | ≥12 N ·m | Approved |
| | Leakage test | Temperature:80±5 °C Vacuum pressure ≤ 0.5 mbar | no leakage | Approved |