

## PRODUCT CHANGE NOTICE

### PCN Form (D4-E000-73)

**PCN#25-032****NOTIFICATION DATE: May 2, 2025****MODELS AFFECTED:**

Please see pages 4 and 5 for affected models

**EXTENT OF CHANGE:**

Transition to alternate qualified ceramic substrate materials

**EFFECT OF CHANGE:**

- Alternate alpha numeric might appear on device marking
- Change of Form (Color) of Substrate to Burgandy & Metallization from AgPd to ENIG
- No change to **Fit** (Dimensions)
- No change to **Function** (Performance) is anticipated based on evaluations

**REASON FOR CHANGE:**

- Discontinuation of supplier Pb containing ceramic substrate material that is critical to RF performance.
- Alternate Pb-free material currently under evaluation and qualification to comply with EU RoHS expiration of exemption 7(c)I

**NOTE:** Our objective is that 'NEW' parts will be equivalent in performance to discontinued parts.

**EFFECTIVE DATE OF CHANGE:**

Immediate on exhaustion of existing stock and timing of the decision to not extend the exemption plus the grace period (12-18 months based on previous practice). Last Time Buy may be available for orders to be placed within 6 months from the PCN date and for parts to ship in full within 6 months from the LTB order date. Inventory may be limited. LTB orders are subject to review and acceptance.

**QUESTIONS?**

Please refer to **FAQ** (Frequently Asked Questions) and/or [CONTACT US](#).

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#### **FREQUENTLY ASKED QUESTIONS:**

**1) Please explain reason for the PCN**

As a continuation of previous PCN#21-003, this PCN is issued to notify customers of a change to the materials used in the LTCC substrate.

**2) Why are materials being changed?**

The ceramics used until now have been discontinued by the manufacturer to comply with the EU RoHS regulation to eliminate Pb (lead) content. The current schedule date for expiration of exemption is July 2024. Additionally, previous practice was to add a 12–18-month grace period after expiration of the exemption.

**3) Why was Pb considered RoHS compliant until now?**

Since origination in 2006, the EU RoHS allowed for several exemptions, including 7(C)I for Pb in ceramic. This exemption was originally scheduled to expire in 2021. This expiration, however, was suspended in 2020 pending review of appeals by major component manufacturers to allow for time to implement Pb-free product. This is now scheduled to expire in July 2024.

Such applications typically ‘freeze’ the process for 18 to 24 months. See reference below including links to other exemptions under review. [https://ec.europa.eu/environment/waste/rohs\\_eee/adaptation\\_en.htm](https://ec.europa.eu/environment/waste/rohs_eee/adaptation_en.htm)

**4) What were Mini-Circuits’ actions in preparation for the expiration?**

Mini-Circuits selected a wide-ranging group of representative models to evaluate the change in material system. This evaluation has been completed allowing Mini-Circuits to formally transition to the fully compliant material.

**5) Will the Pb-free ceramic be a direct equivalent to the existing ceramic?**

Evaluations done to date give us confidence in our ability to meet current specifications and we have not seen any changes in models that have been converted to the new material system. Mini-Circuits will continue to do our due diligence in verifying the change in material. We will, however, provide notification of change to Function (Performance) in situations where changes are needed.

**6) How is the transition being handled? Can we continue to receive the ‘original’ parts?**

Based on reviewing forecasts and historical demand of the models, Mini-Circuits has been able to procure stock of the legacy models as we transition to the new material system. This material will be allocated based on our projections of usage by individual part numbers. Our plan, however, is to only order fully RoHS compliant material based on the scheduled expiration of the exemption.

**7) Will customers be able to have a last time buy of the original part numbers during the transition?**

Please, contact your Account Manager or [PCN@minicircuits.com](mailto:PCN@minicircuits.com) with the Part Number and LTB quantity required and we will review for feasibility to support

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**8) How will we know which version we will be receiving? Will part number be changed?**

Our approach is maintaining dual stocks of product with 7(c)I exempt and fully compliant when appropriate. On depletion of the 7(c)I exempt legacy stock, Mini-Circuits will start to ship the new fully compliant version.

NOTE: alternative alpha numeric might appear on device marking with new material system (Mini-Circuits is working on a device marking cross-reference list to publish with this PCN as the information becomes available.)

NOTE: Part number will NOT change

**9) What is your Qualification process?**

Mini-Circuits is performing detailed qualifications for key part categories based on function, frequency range and case style. Our experience is that there is no change in quality or reliability based on the prior PCN.

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Affected Models				
AMCY-1000-1	BDCA-7-25+	KSX2-14-2+	LFTC-850L	MCA1-60-6+
AMCY-2005H-1FD+	BDCA-7-25-1+	KSX2-14-4+	LPCH-1000	MCA1-60-7+
AMCY-2220-1+	BFTC-415+	KSX2-24+	LPCH-600	MCA1-60LH+
AMCY-908H-1FD+	BFTC-415-1+	KSX2-24-1+	LPCH-800	MCA1-60MH+
BDCA-10-25	BFTC-500+	KSX2-24-2+	MACA-63H+	MCA1-60MH-1
BDCA-10-25+	BFTC-500-1+	KSX2-24-4+	MACY-1910H	MCA1-80H+
BDCA-10-35-1	BFTC-615+	KSX2-24-4QA+	MAX-2170H-1	MCA1-80LH+
BDCA1-10-40+	BFTC-615-1+	KSX2-442+	MCA1-113H+	MCA1-80MH+
BDCA1-10-40-1+	BFTC-618+	KSX2-442-2+	MCA1-11GMH-1	MCA1-80MH-1+
BDCA1-10-40-3+	GVA-123-DG-1F	KSX2-442-3+	MCA1-12G+	MCA1-85+
BDCA1-20-12	HFTC-16+	KSX2-442-5+	MCA1-12G-2+	MCA1-85-1
BDCA1-22-20	HFTC-16L	KSX2-442-5QA+	MCA1-12GL+	MCA1-85-2+
BDCA-15-25+	HFTC-19+	KSX2-722+	MCA1-12GLH	MCA1-85-3+
BDCA-15-25-1	HFTC-19-2+	KSX2-722-4+	MCA1-12GLH+	MCA1-85L+
BDCA-15-25-1+	HFTC-19L	LFTC-1350+	MCA1-24+	MCA-1900FH-1+
BDCA-15-25-2	HFTC-26+	LFTC-1350-1	MCA1-24-3+	MCA-1900FH-11+
BDCA-15-25-3+	HFTC-26-1+	LFTC-1350-2	MCA1-24LH+	MCA1-928-1+
BDCA1-6-11+	HFTC-26-2+	LFTC-1350L-1+	MCA1-24LH-2	MCA-19FH+
BDCA1-6-11-1	HFTC-26L	LFTC-1700+	MCA1-24LH-3+	MCA-19FLH+
BDCA1-6-11-1+	HFTC-39+	LFTC-1700-1+	MCA1-24LH-4+	MCA-19FMH+
BDCA1-6-22+	HFTC-39L	LFTC-1700L	MCA1-24LH-5+	MCA1T-113H+
BDCA1-6-22-1	HFTC-9R5+	LFTC-2000+	MCA1-24MH+	MCA1T-12G+
BDCA1-6-22-1+	HFTC-9R5-1+	LFTC-2000-1	MCA1-24MH-2+	MCA1T-12GL+
BDCA-16-30+	HFTC-9R5L	LFTC-2000-2+	MCA1-3.25G-1+	MCA1T-24+
BDCA-16-30-1+	KC2-11+	LFTC-2000-3+	MCA1-42+	MCA1T-24LH+
BDCA-16-30-2+	KC2-11-1+	LFTC-2000-5+	MCA1-42-1	MCA1T-24MH+
BDCA1-7-33+	KC2-11-2+	LFTC-3300+	MCA1-42-2+	MCA1T-42+
BDCA1-7-33-1+	KC2-11-3+	LFTC-3300-2	MCA1-42-3+	MCA1T-42LH+
BDCA1-7-33-2+	KC2-11-4	LFTC-3300-3	MCA1-42-4+	MCA1T-42MH+
BDCA1-9-13	KC2-19+	LFTC-3300-4+	MCA1-42-5	MCA1T-60+
BDCA1-9-18	KC2-19-1+	LFTC-3300L	MCA1-42LH+	MCA1T-60LH+
BDCA1T-20-13-1	KC2-19-2+	LFTC-4000+	MCA1-42LH-2+	MCA1T-60MH+
BDCA-22-16	KC2-19-4	LFTC-4000-1	MCA1-42LH-3+	MCA1T-80H+
BDCA-22-16+	KC2-19-5	LFTC-4000-2	MCA1-42MH+	MCA1T-80LH+
BDCA-22-16-1	KC2-36+	LFTC-4000-3+	MCA1-6.2G-1+	MCA1T-80MH+
BDCA-33-27-1+	KC2-36-1+	LFTC-5400+	MCA1-6.4G-1D+	MCA1T-85+
BDCA-6-16+	KC2-50+	LFTC-5400-1+	MCA1-60+	MCA1T-85L+
BDCA-6-16-1	KC2-50-1+	LFTC-850+	MCA1-60-2	MCA1T-ED13392
BDCA-6-16-3+	KSX2-14+	LFTC-850-1	MCA1-60-3	MCA-272FH+



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MCA-30FH+	QBA-07+	SCA-4-20-7	SIM-43MH+	TCBT-2R5G-1+
MCA-30FLH+	QBA-12+	SCA-4-20-8	SIM-43MH-1+	TCBT-2R5G-3+
MCA-30FMH+	QBA-12N	SIM-133-1+	SIM-63LH+	TCBT-2R5G-6+
MCA-352+	QBA-12N+	SIM-14+	SIM-63LH-2+	TCBT-2R5GL+
MCA-35H+	QBA-24	SIM-14-2+	SIM-63LH-3+	TCBT-2R5GL-3+
MCA-35H-2+	QBA-24+	SIM-14H+	SIM-63MH-2+	TCBT-6G+
MCA-35H-3+	QBA-24W	SIM-14H-4+	SIM-722MH+	TCCH-80+
MCA-35LH+	MCA-50LH+	SIM-14H-7+	SIM-722MH-1+	TCCH-80-10+
MCA-35LH-1+	MCA-50LH-1+	SIM-14LH+	SIM-72H-1+	TCCH-80-4+
MCA-35LH-2+	MCA-50LH-2	SIM-14LH-1+	SIM-73L+	TCCH-80-6+
MCA-35MH+	QBA-24W+	SIM-153+	SIM-762H+	TCCH-80-7+
MCA-35MH-2+	QCC-20+	SIM-153LH+	SIM-762H-7D+	TCCH-80-8+
MCA-36FH+	QCC-20-1	SIM-153MH+	SIM-762H-7U+	UTS-6261
MCA-36FLH+	QCC-22+	SIM-193H+	SIM-792LH+	VACC-09+
MCA-36FMH+	QCTC-19-1	SIM-193H-2+	SIM-83+	VACC-09-1+
MCA-3851FH+	QCTC-22-1+	SIM-24MH+	SIM-83LH+	VACC-19-1
MCA-50H+	QCTC-9-1+	SIM-24MH-5+	SIM-852MH+	VACC-22+
MCA-50H-EL	SCA-4-20+	SIM-43+	SIM-852MH-1+	VACC-22-1
MCA-50MH+	SCA-4-20-1	SIM-43-1+	SIM-U432H+	VACC-22-2
MCA-50MH-1+	SCA-4-201	SIM-43-2+	SIM-U63+	VACC-22-27+
MCA-850FH-1+	SCA-4-20-2+	SIM-43H+	SIM-U712H+	VACC-9-2+
MCAT-35H+	SCA-4-20-5+	SIM-43IP-1	SIM-U742MH+	
QBA-07	SCA-4-20-6+	SIM-43LH+	TCBT-2R5G+	