To:
Our Valued Customers and Business Partners

June, 2025

CITIZEN FINEDEVICE CO., LTD.
Micro Devices Division
Sales Department

Parts Change Notice of Solder

Dear Valued Customers,

Thank you very much for your continued support and we wish you all the best in your company's continued success.

In response to the recent global movement to regulate PFAS, we have decided to change the solder used in our cylinder products to a solder that does not contain PFAS.

We apologize for the sudden notice and ask for your understanding and approval.

Sincerely,

— Note —

1） **Applicable Products**

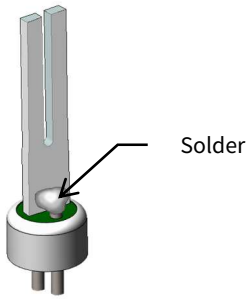
Model： CFS-206、CFV-206、CMR200T

2） **Changed Part and Content**

Changed Part： The flux used in the solder for fixing the crystal tip.

Content： (Before) Contains PFAS substance

(After) Does not contain PFAS substance



3） **Product Quality and Characteristics of Before and After changing**

No change in the main components (Sn, Ag, Cu) of the solder.

_Ref) Appx. 1

No effect on crystal product's quality and characteristics.

_Ref) Appx. 2

4） **Schedule**

Starting delivery from October 2025.

*Depending on the situation, the plan might be changed.

5） **Inquiry Contact**

If you have any inquiry or doubt, please freely to contact with our Sales staff anytime.

We would highly appreciate for your great support always and understanding about this situation to switchover for approval.

- E.O.D.-

Appx. 1

■ Material Composition Table

[CFS-206]

Before Changing

Component	Material		Weight(mg)	Substance	CAS No.	Weight(mg)	Weight(ppm)
Solder	Solder		1.9230	Sn	7440-31-5	1.8455	35169
				Ag	7440-22-4	0.0685	1305
				Cu	7440-50-8	0.0086	164
				PFAS other than PFOS, PFOA, PFHxS, PFHxA, and PFCAs (C9-C21) *Substance details not disclosed by supplier	—	0.0004	8

After Changing

Component	Material		Weight(mg)	Substance	CAS No.	Weight(mg)	Weight(ppm)
Solder	Solder		1.9230	Sn	7440-31-5	1.8365	33731
				Ag	7440-22-4	0.0769	1412
				Cu	7440-50-8	0.0096	177

[CFV-206]

Before Changing

Solder	Solder		1.9230	Sn	7440-31-5	1.8455	35169
				Ag	7440-22-4	0.0685	1305
				Cu	7440-50-8	0.0086	164
				PFAS other than PFOS, PFOA, PFHxS, PFHxA, and PFCAs (C9-C21) *Substance details not disclosed by supplier	—	0.0004	8

After Changing

Solder	Solder		1.9230	Sn	7440-31-5	1.8365	34998
				Ag	7440-22-4	0.0769	1465
				Cu	7440-50-8	0.0096	183

[CMR200T]

Before Changing

Solder	Solder		2.8600	Sn	7440-31-5	2.7447	48672
				Ag	7440-22-4	0.1018	1805
				Cu	7440-50-8	0.0129	229
				PFAS other than PFOS, PFOA, PFHxS, PFHxA, and PFCAs (C9-C21) *Substance details not disclosed by supplier	—	0.0006	11

After Changing

Solder	Solder		2.8600	Sn	7440-31-5	2.7313	48434
				Ag	7440-22-4	0.1144	2029
				Cu	7440-50-8	0.0143	254

Appx. 2

■ Electrical Characteristics

等価回路定数 / The physical constants of the electrical equivalent circuit

	CFS-206 PFAS-free flux n=30						CFS-206 PFAS-containing flux n=30					
	Q(×10$^{4)}$	Co(pF)	Rr(kΩ)	C 1(fF)	L 1(kH)	Co/C1	Q(×10$^{4)}$	Co(pF)	Rr(kΩ)	C 1(fF)	L 1(kH)	Co/C1
Xbar	7.851	1.17	21.46	2.89	8175.2	404	7.559	1.16	22.44	2.88	8211.8	404
S	0.352	0.01	0.67	0.05	143.0	6	0.467	0.02	1.51	0.07	191.8	7
MAX	8.379	1.18	22.46	2.97	8390.9	410	8.401	1.20	25.11	2.97	8521.5	414
MIN	7.281	1.13	20.61	2.81	7943.4	394	6.986	1.13	20.17	2.77	7946.7	391

Remark:

Q Value In a resonance circuit composed of an L, C and R, a quantity that represents the sharpness of a resonance curve-a curve that shows the relationship between the circuit current and power frequency.
Co(pF) Shunt capacitance
Rr(kΩ) Resistance value
C1(fF) Motional capacitance
L1(H) Motional inductance
Co/C1 Capacitance ratio
Xbar Average
S Variations

※This test results are based on representative samples of the following three products. <Test Model：CFS-206>
CFS-206/CFV-206/CMR200T

■ Environmental and Mechanical Characteristics

試験項目 Test Item	試験方法 Test Condition	判定基準 Specifications	n		CFS-206 PFAS-free flux		判定/ Judgment	CFS-206 PFAS-containing flux	
					ΔF(ppm)	CI(KΩ)		ΔF(ppm)	CI(KΩ)
耐熱性 Dry Heat	85℃×240h	Δf:within +/-10ppm CI:specified tolerance range	30	Xbar	0.19	23.17	**Pass**	0.15	22.88
				s	0.22	1.11		0.41	1.06
				MAX	0.69	24.71		1.42	24.96
				MIN	-0.32	19.46		-0.47	20.77
耐衝撃性 Shock(Drop test)	75cm*3times Drop 3 times from the height of 75 cm onto hard wooden board with thickness of 3 cm.	Δf:within +/-5ppm CI:specified tolerance range	↑	Xbar	-0.06	21.38	**Pass**	-0.07	21.33
				s	0.24	1.20		0.21	1.02
				MAX	0.70	23.57		0.60	22.81
				MIN	-0.60	18.88		-0.46	19.11

※This test results are based on representative samples of the following three products. <Test Model：CFS-206>
CFS-206/CFV-206/CMR200T