IC & Module RoHS Certificate of Compliance

May 12, 2022

IC Semiconductors and Module Packaged Products

All Microchip IC product packages are designed to be in conformance with EU-RoHS Directive RoHS 2 Amendment - Directive 2015/863/EU / "RoHS 3". Microchip certifies, to the best of its knowledge, its IC semiconductor and module products are RoHS compliant and do not contain greater than: Lead (0,1%), Mercury (0,1%), Cadmium (0,01%), Hexavalent chromium (0,1%), Polybrominated biphenyls (PBB) (0,1%), Polybrominated diphenyl ethers (PBDE) including Deca-BDE or pentaBDE or octaBDE (0,1%), Bis(2-ethylhexyl) phthalate (DEHP) (0,1%), Butyl benzyl phthalate (BBP)(0,1%), Dibutyl phthalate (DBP) (0,1%), Diisobutyl phthalate (DIBP) (0,1%) and Hexabromocyclododecane (HBCDD) (0,1%).

EU Exempted Packages

Attachment “A” identifies IC package types that use EU RoHS Exemptions, including the following:

- RoHS exemptions for PbO commonly used in glass and some ceramics, as well as the thin Pb braze alloy, required to bond chips to their headers. These are included via RoHS 7(a) and RoHS 7(c)-I exemptions.
- RoHS exemption for lead in solders to complete a viable electrical connection between the semiconductor die and carrier within integrated circuit flip chip packages. These are included via RoHS exemption 15(a).

Microchip began working with an electronic industry consortium in June 2013 for extending the listed exemptions beyond the current expiration date. This working group submitted a renewal application to the European RoHS Technical Commission and continues to monitor the status of crucial RoHS exemptions. Additional information concerning the status of exemption requests can be found at: https://ec.europa.eu/environment/topics/waste-and-recycling/rohs-directive/implementation-rohs-directive_en

Substances of Concern:

Effective 1 July 2009, all of Microchip Semiconductor products became qualified as Halogen-Free as defined per IEC 61249-2-21:2003: Bromine (Br) ≤ 900 and Chlorine (Cl) ≤ 900 ppm by homogeneous material weight, with total Bromine (Br) plus Chlorine (Cl) content ≤ 1,500 ppm by homogeneous material weight. Additionally, Antimony Trioxide (Sb_2O_3) is also restricted to less than 1,000 ppm.

The mold compounds used by Microchip and its sub-contract assembly houses to assemble Microchip’s semiconductor devices do not contain inorganic particulate red phosphorous.

Microchip Development Systems kits/boards, and RF, Bluetooth, and Touch Screen modules may not meet the requirements of IEC 61249-2-21:2003 listed above.

Please consult the specific Material Content Declaration (MCD) for the estimated substance content.

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Packing Materials

To the best of current knowledge and belief, all product shipment materials are compliant with Directive 2013/2/EU (Amending to EU 94/62/EC: Packaging and Packaging Waste and EU Directive). Dimethyl Fumarate (CAS # 624-49-7 and Einecs No 210-849-0) is not used in Microchip products and is not used in the moisture absorbent pillows accompanying Microchip products. This information is provided based on reasonable inquiry of Microchip suppliers and represents current knowledge based on the information provided by those suppliers.

EU Waste of Electrical and Electronic Equipment (WEEE) and Basel Convention

Microchip IC and Module products are classified as piece parts which are not classified as EEE under EU WEEE or the Basel Convention.

Disposal

Products at the end of their life, as well as any scrap, must be disposed following all local and national legal regulating provisions.

Microchip Technology Incorporated's General Statement of Warranty

Microchip Technology Incorporated has taken commercially reasonable steps to provide representative and accurate material content information. Microchip relies on information provided by third parties and may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. Supplier information is often protected from disclosure as trade secrets and some information may not have been provided by subcontractor assemblers and raw material suppliers. Microchip may periodically update this Certificate of Compliance by posting the updated version on its website. Microchip does not provide any warranty, express or implied, with respect to the information provided in this Certificate of Compliance. This Certificate of Compliance does not modify Microchip's terms and conditions of sale of its products or the terms of any agreement under which customers purchased Microchip's products. Microchip's terms and conditions of sale or the relevant agreement, as applicable, shall continue to apply.

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Attachment “A”

Table identifies IC package types that use EU-RoHS Exemptions:

Microchip Package Code	Package Description	Package Type	Pin Count	Package Width or Size	External Solder Composition (Terminal Finish)	EU RoHS Exemption[3]
9KA	Transistor Outline	TO-263	3	-	Matte Tin	7.a
9HA	Transistor Outline	TO-263	7	-	Matte Tin	7.a
F9X	Ceramic Dual-In-Line-Pkg glass seal	CERDIP	8	.300in	SAC	7.c-I
5NB	Ceramic Dual Inline Package	CERDIP	8	.600In	NiAu	7.c-I
ZEX	System In Package	SiP	8	22x27x12mm	SAC	7.a, 7.c-I
ZFX	System In Package	SiP	8	22x39.5x12.5mm	SAC	7.a, 7.c-I
ZGX	System In Package	SiP	8	22x39x12.5mm	SAC	7.a, 7.c-I
ESX	High-Power Dual Flatpack No-Lead	PDFN	8	3.3x3.3x0.9mm	Matte Tin	7.a
ASX	High-Power Dual Flatpack No-Lead	PDFN	8	5x6x0.9mm	Matte Tin	7.a
VDX	PBC Module With Shield	MODULE	12	17.78x27.94mm	Au Flash	7.c-I
5PB	Ceramic Dual Inline Package	CERDIP	18	.300In	NiAu	7.c-I
8ZB	Ceramic Dual Inline Package	CERDIP	18	22.19x26.08x2.75mm	NiAu	7.c-I
8QB	Ceramic Dual Inline Package	CERDIP	24	.600In	NiAu	7.c-I
4YX	PCB Module	MODULE	25	12.7x11mm	Au	7.c-I
5QB	Ceramic Dual Inline Package	CERDIP	28	.300In	NiAu	7.c-I
5RB	Ceramic Dual Inline Package	CERDIP	28	.600In	NiAu	7.c-I

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[3] all the package codes using exemption 15 are no longer produced and are listed for historical reference only.

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Microchip Package Code	Package Description	Package Type	Pin Count	Package Width or Size	External Solder Composition (Terminal Finish)	EU RoHS Exemption[3]
5SB	Ceramic Dual Inline Package	CERDIP	32	.400In	NiAu	7.c-I
DEB	Ceramic Quad Flatpack	CQFP	32	20.8x10.4x3mm	NiAu	7.a, 7.c-I
9SB	Ceramic Dual Inline Package	CERDIP	32	40.64x10.03x2.84mm	NiAu	7.c-I
5JB	Ceramic Dual Flat Pack	CDFP	36	12.19x23.37x2.97mm	NiAu	7.c-I
5TB	Ceramic Dual Inline Package	CERDIP	40	.600In	NiAu	7.c-I
W5X	J-Leaded Ceramic Chip Carrier	JLCC	68	.950x.950in	Au Flash	7.c-I
W4X	J-Leaded CERQUAD 'Cerpac' glass seal	CERQUAD	68	.950x.950in	NiPdAu	7.c-I
WPX	J-Lead CERQUAD WINDOWED	CERQUAD	68	.950x.950in	NiPdAu	7.c-I
4EC	FlipChip Ceramic Ball Grid Array	FCCBGA	69	10x10mm	SAC405	15.a
4GC	FlipChip Ceramic Ball Grid Array	FCCBGA	69	8x8mm	SAC405	15.a
X5X	J-Leaded CERQUAD 'Cerpac' glass seal	CERQUAD	84	1.15x1.15in	NiPdAu	7.c-I
XHX	J-Lead CERQUAD	CERQUAD	84	1.15x1.15in	NiPdAu	7.c-I
2GC	FlipChip Chip Scale Package	FCCSP	121	12x12mm	SAC305	15.a
LXB	PCB Module	MODULE	188	40.8x40.8x3.3mm	NiAu	7.a, 7.c-I
2SC	FlipChip Chip Scale Package	FCCSP	196	15x15mm	SAC305	15.a
4YC	FlipChip Ball Grid Array	FCBGA	196	15x15mm	SAC305	15.a
DFB	CERAMIC QUAD FLAT PACK	CQFP	256	36x36x4.03mm	NiAu	7.a, 7.c-I
3JC	Heat Spreader FlipChip BGA	HFCBGA	324	19x19mm	SAC305	15.a

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Microchip Package Code	Package Description	Package Type	Pin Count	Package Width or Size	External Solder Composition (Terminal Finish)	EU RoHS Exemption[3]
9QB	Ceramic Land Grid Array	CLGA	349	25x25x2.96mm	NiAu	7.a, 7.c-I
WMB	Ceramic Land Grid Array	CLGA	349	25x25x2.96mm	NiAu	7.a, 7.c-I
8WB	Ceramic Land Grid Array	CLGA	472	22x22x2.96mm	NiAu	7.a, 7.c-I
8UB	Ceramic Land Grid Array	CLGA	472	29x29x1.27mm	NiAu	7.a, 7.c-I
X3B	Ceramic Land Grid Array	CLGA	472	29X29X2.73mm	NiAu	7.a, 7.c-I
X4B	Ceramic Land Grid Array	CLGA	472	29X29X2.77mm	NiAu	7.a, 7.c-I
4DB	Ceramic Land Grid Array	CLGA	472	29x29x3.09mm	NiAu	7.a, 7.c-I
5ZB	Ceramic Land Grid Array	CLGA	472	29x29x3.09mm	NiAu	7.a, 7.c-I
8XB	Ceramic Land Grid Array	CLGA	472	29x29x3.09mm	NiAu	7.a, 7.c-I
9RB	Ceramic Land Grid Array	CLGA	472	29x29x3.09mm	NiAu	7.a, 7.c-I
X7B	Ceramic Land Grid Array	CLGA	472	29x29x4.03	NiAu	7.a, 7.c-I
3RC	Heat Spreader FlipChip BGA	HFCBGA	484	23x23mm	SAC305	15.a
3WC	Heat Spreader FlipChip BGA	HFCBGA	613	33x33mm	SAC305	15.a
3XC	Heat Spreader FlipChip BGA	HFCBGA	613	33x33mm	SAC305	15.a
9LB	Ceramic Land Grid Array	CLGA	625	29x29x2.52mm	NiAu	7.a, 7.c-I
5WB	Ceramic Land Grid Array	CLGA	625	29x29x2.96mm	NiAu	7.a, 7.c-I
5XB	Ceramic Land Grid Array	CLGA	625	29x29x2.96mm	NiAu	7.a, 7.c-I
5YB	Ceramic Land Grid Array	CLGA	625	29x29x2.96mm	NiAu	7.a, 7.c-I
DDB	Ceramic Land Grid Array	CLGA	625	29x29x2.96mm	NiAu	7.a, 7.c-I
4ZB	Ceramic Land Grid Array	CLGA	625	29x29x3.8mm	NiAu	7.a, 7.c-I
8VB	Ceramic Land Grid Array	CLGA	625	29x29x3.8mm	NiAu	7.a, 7.c-I

Microchip Package Code	Package Description	Package Type	Pin Count	Package Width or Size	External Solder Composition (Terminal Finish)	EU RoHS Exemption[3]
6AB	Ceramic Land Grid Array	CLGA	625	35x35x7.64mm	NiAu	7.a, 7.c-I
ATC	FlipChip Ball Grid Array	FCBGA	773	23x23mm	SAC305	15.a
BTC	FlipChip Ball Grid Array	FCBGA	773	23x23mm	SAC305	15.a
BVC	FlipChip Ball Grid Array	FCBGA	773	23x23mm	SAC305	15.a
9WC	Heat Spreader Ball Grid Array	HBGA	896	31x31mm	SAC305	15.a
AAC	FlipChip Ball Grid Array	FCBGA	896	31x31mm	SAC305	15.a
ASC	FlipChip Ball Grid Array	FCBGA	896	31x31mm	SAC305	15.a
BCC	FlipChip Ball Grid Array	FCBGA	896	31x31mm	SAC305	15.a
CDC	FlipChip Ball Grid Array	FCBGA	896	31x31mm	SAC305	15.a
D8B	Ceramic Land Grid Array	CLGA	896	31x31x3.8mm	NiAu	7.a, 7.c-I
6DC	FlipChip Ball Grid Array	FCBGA	1022	27x27mm	SAC305	15.a
6FC	Thick Fine Pitch Ball Grid Array	BFBGA	1022	27x27mm	SAC305	7.c-I
BHC	FlipChip Ball Grid Array	FCBGA	1071	27x27mm	SAC305	15.a
BGC	Fine Pitch Ball Grid Array	FBGA	1071	27x27x2.17mm	SAC305	15.a
2DC	Heat Spreader FlipChip BGA	HFCBGA	1072	45x45mm	SAC305	15.a
BKC	FlipChip Ball Grid Array	FCBGA	1073	27x27mm	SAC305	15.a
BLC	Heat Spreader Thick Fine Pitch Ball Grid Array	HBFBGA	1408	31x31mm	SAC305	15.a
BPC	Thick Ball Grid Array	BBGA	1517	40x40x3.22mm	SAC305	15.a
6BB	Ceramic Land Grid Array	CLGA	1752	45x45x6mm	NiAu	7.a, 7.c-I
6CB	Ceramic Land Grid Array	CLGA	1752	45x45x6mm	NiAu	7.a, 7.c-I
9BB	Ceramic Land Grid Array	CLGA	1752	45x45x6mm	NiAu	7.a, 7.c-I

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Microchip Package Code	Package Description	Package Type	Pin Count	Package Width or Size	External Solder Composition (Terminal Finish)	EU RoHS Exemption[3]
2NC	Heat Spreader FlipChip BGA	HFCBGA	1760	42.5x42.5mm	SAC305	7.c-I
7KC	Thick Ball Grid Array	BBGA	1932	45x45mm	SAC305	7.c-I

MSCC FPGA-SoC Packages with Pb ... Not yet integrated

Package Description NOTE: ITEMS IN **BLUE** ARE DISCONTINUED	Package Type	Pin Count	External Solder Composition: (Terminal Finish)
Plastic Ball Grid Array	BG	272 / 329 / 456	Sn63/Pb37
Fine Pitch Ball Grid Array	FG	144 / 256 / 324 / 484 / 676 / 896 / 1152	Sn63/Pb37
Very Fine Pitch Ball Grid Array	VF	256 / 400	Sn63/Pb37
Chip Scale Package	CS	49 / 81 / 121 / 128 / 180 / 196 / 201 / 281 / 288 / 289 / 325	Sn63/Pb37
Fine Pitch Chip Scale Package	FCS	158 / 325 / 536	Sn63/Pb37
Ultra-Thin Chip Scale Package	UC/UCS	36 / 81	Sn63/Pb37
Flip Chip Ball Grid Array	FC	484 / 784 / 1152 / 1657	Sn63/Pb37
Fine Pitch Flip Chip Ball Grid Array	FCV	484	Sn63/Pb37
Ceramic Quad Flat Pack	CQFP	84 / 172	Sn63/Pb37
Ceramic Pin Grid Array	CPGA	84 / 132 / 176 / 207 / 257	Sn63/Pb37
Ceramic Column Grid Array	CCGA	484 / 624 / 896 / 1152 / 1272 / 1657	Sn63/Pb37
Quad Flat Pack	QN	48 / 68 **/ 100 / 132 / 180**	85%Sn/15%Pb
Plastic Quad Flat Pack	PQ	100 / 144 / 160 / 208 / **240**	85%Sn/15%Pb
Thin Quad Flat Pack	TQ	64 / 100 / 144 / 176	85%Sn/15%Pb
Very Thin Quad Flat Pack	VQ	80 / 100 / 128 / 176	85%Sn/15%Pb
Plastic Leaded Chip Carrier	PL	44 / 68 / 84	85%Sn/15%Pb
Plastic Quad Flat Pack-Exposed Heatsink	RQ	**208** / **240**	85%Sn/15%Pb
Ceramic Quad Flat Pack	CQFP	84 / 132 / 172 / 196 / 208 / 256 / 352	NiAu
Ceramic Pin Grid Array	CPGA	84 / 132 / 176 / 207 / 257	NiAu
Ceramic Land Grid Array	CLGA	484 / 624 / 896 / 1152 / 1272 / 1657	NiAu
Ceramic Chip Carrier Land Grid Array	CCLG	256	NiAu