Jauch Lead Free and RoHS Matrix

RoHS 2011/65/EC

type	Product series	pin / pad plating	RoHS compliant	RoHS exemption	China RoHS compliant	reflow soldering peak temp.	wave soldering peak temp.	MSL Level [2]	Storage Conditions
Quartz Crystal	S (HC49/U) / SSx	Sn, Cu	yes	-	yes	-	260°C	1	+10°C ~ +45°C / <60% RH
	MQ1 (UM-1)	Sn, Cu or Au	yes	-	yes	-	260°C	1	+10°C ~ +45°C / <60% RH
	MQ5 (UM-5)	Sn, Cu or Au	yes	-	yes	-	260°C	1	+10°C ~ +45°C / <60% RH
	MTF32 / MMTF32	Sn	yes	-	yes	-	260°C	1	+10°C ~ +45°C / <60% RH
	MTF38 (EOL 10/2013)	Pb / Sn	yes	7 (a)	EFUP 50 [1]	-	240°C	1	+10°C ~ +45°C / <60% RH
	SM26F	Pb / Sn	yes	7 (a)	EFUP 50 [1]	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	SMQ32xx	Sn, Cu	yes	7 (a)	EFUP 50 [1]	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	JTXxxx	Ni, Au	yes	-	yes	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	JXExx	Ni, Au	yes	-	yes	260°C / 10 sec	-	2	+10°C ~ +45°C / <60% RH
	JXSxx, JXSxx-WA	Ni, Au	yes	-	yes	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	JXGxx	Ni, Au	yes	7 (c)-I	EFUP 50 [1]	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	SMUx	Sn, Cu	yes	-	yes	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	MG3A (EOL 09/2013)	Sn	yes	7 (a)	EFUP 50 [1]	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
MEMS and Crystal Oscillator	MEMS JSO LC, AC	Ni, Au	yes	-	yes	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	MEMS JSO TR	SnAg Solder Balls	yes	-	yes	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	VX3xx	Ni, Au	yes	7 (c)-I	EFUP 50 [1]	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	JOxx, JOxxH	Ni, Au	yes	-	yes	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	JPOxx	NI, Au	yes	-	yes	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	JV75 / JV53	Ni, Au	yes	-	yes	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	JT75 / JT53L / JT33 / JT22 / JT21	Ni, Au	yes	-	yes	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	JT21P / JT22P / JT22S	Ni, Au	yes	-	yes	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	JTxxC	Ni, Au	yes	-	yes	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	JVE75, JOE75, JOD75	Ni, Au	yes	-	yes	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	JVD75A / B	Ni, Au	yes	-	yes	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	JRO32	Ni, Au	yes	-	yes	260°C / 10 sec	-	1	+10°C ~ +45°C / <60% RH
	JCO14 / JCO8	Sn, Cu	yes	-	yes	-	260°C	1	+10°C ~ +45°C / <60% RH
	JCO923-926	Sn, Cu	yes	-	yes	-	260°C	1	+10°C ~ +45°C / <60% RH

Exemptions from RoHS according to the Directive 2011/65/EU of the European Parliament of 8 June 2011

No 7c-I Electrical and electronic components containing lead in glass or ceramic (e.g. piezoelectronic devices)

No 7a Lead in high melting temperature type solders (i.e. lead-based alloys containing 85% by weight or more lead)

[1] EFUP (Environmental Friendly Use Period) = 50 years

[2] MSL (Moisture Sensitivity Level) see next pages

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Moisture sensitivity level (MSL) and storage conditions for Jauch frequency control products

JEDEC J-STD-020:

According to the introduction of J-STD-020, the purpose of the standard J-STD-020 is to identify the classification level of non-hermetic solid state surface mount devices (SMDs) that are sensitive to moisture-induced stress, so that they can be properly packaged, stored, and handled to avoid damage during assembly solder reflow attachment and/or repair operations.

Does J-STD-020 apply to quartz crystal devices ?

As a crystal device must be hermetically sealed to operate properly, no humidity is allowed to get inside the cavity of the crystal package. Any humidity inside the crystal package would deteriorate the electrical properties of the crystal plate (blank) inside the crystal device.
Therefore, the handling conditions and the pre-production conditioning being defined by J-STD-020 basically does not apply to Jauch frequency control products which are hermetically sealed.

JEDEC J-STD-033:

The purpose of the J-STD-033 is to provide SMD manufacturers and users with standardized methods for handling, packing, shipping, and use of moisture/reflow sensitive SMD packages that have been classified to the levels defined in J-STD-020.

Table 3-1 Dry Packing Requirements

Level	Dry Before Bag	MBB With HIC	Desiccant	MSID* Label	Caution Label
1	Optional	Optional	Optional	Not Required	Not Required if classified at 220°C - 225°C Required** if classified at other than 220°C - 225°C
2	Optional	Required	Required	Required	Required
2a-5a	Required	Required	Required	Required	Required
6	Optional	Optional	Optional	Required	Required

*MSID = Moisture-Sensitive Identification Label
**A "Caution" label is not required if level and reflow temperature are given, in human readable form, on the barcode label attached to the lowest level shipping container.

The MSL levels listed in J-STD-033 are determined according to J-STD-020.

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Does J-STD-033 apply to quartz crystal devices ?
As the MSL classification basically does not apply to hermetically sealed devices like quartz crystal components, it is under question if J-STD-033 can be applied.

Though hermetically sealed devices may not lie within the scope of the standards J-STD-020 and J-STD-033, we can confirm a moisture sensitivity corresponding to MSL 1 for most of our products, as due to their package properties, crystal packages do not absorb any moisture. Please refer to the table for more details.

Please note that we do not use any dry pack or desiccants, and we do not classify the MSL level on our labels.

Storage recommendations
Long term storage of quartz crystals at hot and humid conditions should be avoided. Preferably, please keep the storage temperature between +10° ~ +45°C (50°F ~ 115°F) and below 60% RH as long as the component is packed and reeled. This will also ensure tape & reel integrity and maintain the peel-strength of the cover tape for safe pick & place handling.

Moreover, during the storage of the component itself, the storage conditions should never exceed the temperature limits being specified in our catalog or datasheets.

Therefore, we recommend storing our quartz crystals with tinned wires corresponding to the floor life climate conditions corresponding to MSL level 2, to avoid slight oxidation of the component's contact pins.
SMD crystals with gold-plated contact pads are less susceptible to pad oxidation, and storage temperature and humidity conditions corresponding to MSL level 1 may be applied.

Precaution
If the components were stored over a long period or the storage conditions were not appropriate, before using please make sure that the Jauch frequency control products still comply to their specifications by performing visual and electrical inspections.