

Moisture Sensitivity Level (MSL)

Date : 2023/12/28

1. If devices are not handled correctly, in accordance with their MSL conditions, then they will start to naturally absorb moisture. When heated rapidly during reflow soldering, the moisture turns to steam. If it cannot escape quickly enough the pressure built up may damage the component by cracking the package moulding, an effect known as “Popcorning”.

2. IPC/JEDEC J-STD-020C also defines device MSLs as part of the specification. MSL Level 1 is used for products supplied without moisture proof packaging. The products of have an MSL Level of 1.

The Table below details the MSL Levels and conditions defined by J-STD-020C

Level Select	Floor Life		Soak Requirement			
			Standard		Accelerate	Equivalent
	Time	Condition	Time (hour)	Conditions	Time (hour)	Conditions
● 1	Unlimited	$\leq 30^{\circ}\text{C}/85\%\text{RH}$	168 +5/-0	$85^{\circ}\text{C}/85\%\text{RH}$	-	-
2	1 year	$\leq 30^{\circ}\text{C}/60\%\text{RH}$	168 +5/-0	$85^{\circ}\text{C}/60\%\text{RH}$	-	-
2a	4 weeks	$\leq 30^{\circ}\text{C}/60\%\text{RH}$	696 +5/-0	$30^{\circ}\text{C}/60\%\text{RH}$	120 +1/-0	$60^{\circ}\text{C}/60\%\text{RH}$
3	168 hours	$\leq 30^{\circ}\text{C}/60\%\text{RH}$	192 +5/-0	$30^{\circ}\text{C}/60\%\text{RH}$	40 +1/-0	$60^{\circ}\text{C}/60\%\text{RH}$
4	72 hours	$\leq 30^{\circ}\text{C}/60\%\text{RH}$	96 +2/-0	$30^{\circ}\text{C}/60\%\text{RH}$	20 +0.5/-0	$60^{\circ}\text{C}/60\%\text{RH}$
5	48 hours	$\leq 30^{\circ}\text{C}/60\%\text{RH}$	72 +2/-0	$30^{\circ}\text{C}/60\%\text{RH}$	15 +0.5/-0	$60^{\circ}\text{C}/60\%\text{RH}$
5a	24 hours	$\leq 30^{\circ}\text{C}/60\%\text{RH}$	48 +2/-0	$30^{\circ}\text{C}/60\%\text{RH}$	10 +0.5/-0	$60^{\circ}\text{C}/60\%\text{RH}$
6	Time on Label	$\leq 30^{\circ}\text{C}/60\%\text{RH}$	TOL	$30^{\circ}\text{C}/60\%\text{RH}$	-	-
Note	Accelerated equivalent method is used for soak requirement.					