

Product	Diode	Package	All of Diode package
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1. Product : Diodes with leadfree plating

2. Compliance standards : JEDEC STANDARD

3. Method : JEDEC, JESD201A, JESD22A121 standard.

(1) Sample size

A minimum of 96 terminations from a minimum quantity of 3 plating lots, 2 samples from each lot per each described precondition treatments per stress test.

* In case of big terminal component, it can be reduced a number of socket,

(2) Class level

Class 3: Mission/Life critical applications such as military and aerospace

Pure tin and high tin content alloys are not typically acceptable

Class 2: Business critical applications such as Telecom Infrastructure equipment, High-end Servers, Automotive, etc.

Class 1: Industrial / consumer products

Class 1A: Consumer products

(3) Test procedures

Stress Type		Precondition Treatment	Total Duration	
			Class 1 and 2 Products	Class 1 and 2 Products
Temperature Cycling	-55 +/-10 °C 85 +/-10/-0 °C	Depend on Components	1500cyc	1000cyc
Temperature / Humidity Storage	30 ±2°C 60 ±3% RH		4000hr	1000hr
High Temperature Humidity Storage	55 ±3°C 85 ±3% RH		4000hr	1000hr

(4) Criteria

Component Type	Class 2	Class 1	Class 1A
2Lead SMD Components	40 μ m for Temperature/Humidity Storage and High Temperature/Humidity Storage 45 μ m for Temperature Cycling	67μm	50 μ m for Temperature Cycling and High Temperature/Humidity Storage 20 μ m for Temperature/Humidity
Multi-Leaded Components		67μm	
High Frequency Components		50μm	
Components with a minimum lead-to-lead gap >320 μ m		100μm	75μm

4. Whisker Test result

(1) Samples

: Leadfree plating products were selected as samples.

The samples are selected for each kind of plating material, terminal material and plating method (electrical, dip)

(2) Criteria

: It could be verified anti whisker or not, which is satisfied with criteria of JESD201A Class 2, 1, 1A.

(3) Result :

: It can be confirmed anti whisker which is satisfied by Class 2, 1, 1A as in the following next page.

Test result (Diode)

JEDEC code	Package	Frame material		External lead treatment		NG Judge (pcs)					
		Base material	Internal lead plating	Method	Composition Ratio						
SOD-992	SMD0402	None	-	Electricity plating	Ni Pd Au	0					
SOD-962	SMD0603										
SOD-923	VMN2	FeNi alloy	Cu plating	Electricity plating	Sn-2Cu	0					
SOD-723	VMD2										
SOT-723	VMD3										
SOT-543	EMD4										
SOT-553	EMD5										
SOT-563	EMD6										
SOT-343	UMD4										
SOT-353	UMD5										
SOT-363	UMD6										
SOD-523	EMD2M						FeNi alloy	Cu plating	Electricity plating	Sn	0
SOD-323FL	UMD2M										
SOT-416FL	EMD3FM										
SOT-323FL	UMD3FM										
SOT-416	EMD3	FeNi alloy	-	Dip	Sn-3Ag-0.5Cu	0					
SOT-323	UMD3										
SOT-346	SMD3										
SOT-25	SMD5										
SOT-457	SMD6										
SOT-23	SSD3										
DO-214AC	PMDS(SMA)	Cu	-	Dip	Sn-3Ag-0.5Cu	0					
TO-220	TO-220FM										
TO-220	TO-220FN										
SOT-25T	TSMD5	Cu	Ag	Dip	Sn-3Ag-0.5Cu	0					
SOT-457T	TSMD6										
-	TSMD8	Cu	-	Electricity plating	Sn-2Cu	0					
DFN0603-2	GMD2										
DFN1608-2	KMD2										
TO-263	TO-263S	Cu	Ag	Electricity plating	Sn-2Cu	0					
DFN2408-12	HMD8										
DFN2408-12	HMD12										
SOT-353T	TUMD5										
DFN1006-2	VML2	Cu	-	Electricity plating	Sn	0					
SOD-923	VMN2M										
-	PMDE										
SOD-123FL	PMDU										
SOD-128	PMDTM										
TO-220	TO-220NFM										
TO-220	TO-220NFM										
TO-220	TO-220AC										
TO-220	TO-220ACFP										
TO-263	TO-263S										
-	TUMD2M						Cu	Ag	Electricity plating	Sn	0
-	TUMD2SM										
TO-252	TO-252						Cu	Ni	Electricity plating	Sn	0
TO-247	TO-247										

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