产品/流程更改通知书
Product/Process Change Notification

			PCN编号：	
变更主题 Change subject	备选框架材料（铜框架）	生效日期 Effective date	预计第一个批次出货日期在8月19	
变更描述： Description of change:	深圳辰达半导体有限公司认证铜合金引线框架作为一种替代使用的框架材料 ，旨在确保生产供应和交付。这将提升产品的可装配性和产品的可持续性 。 Shenzhen Microdiode Semiconductor Co., Ltd. qualified copper alloy Lead Frame as an alternative Lead Frame material, aiming to ensure production supply and delivery. This would also enhance the assemblability and sustainability of the product.			
变更种类 Change type	□产品规格	□产品工艺	☑物料	□其他
受影响产品： Affected products	此次变更涉及深圳辰达半导体有限公司生产的 SOD123和SOD323封装的产品。MDD可以根据产品批次来进行追溯。 The change involves the products of SOD123 and SOD323 packages produced by Shenzhen Microdiode Semiconductor Co., LTD. MDD Company can make tracbility by product date code.			

具体变动如下：
The specific changes are as follows:

变更前 Before change

项目/Item	当前
框架材质/Lead Frame Material	铁镍合金/Fe-Ni alloy

变更后 After change

项目/Item	材料1/Alternative 1	材料2/Alternative 2
框架材质/ Lead Frame Material	铁镍合金/ Fe-Ni alloy	铜合金/ Cu alloy

认证测试结果（常规电性/可靠性）：Qualification Result（Static electrical parameters/Reliability）

PN: 1N4148W （Switching）	测试项目	VF1(V)	VF2(V)	VF3(V)	VF4(V)	VR1(V)	VR2(V)	VR3(V)	IR1(nA)	IR2(nA)
	测试条件	IF= 1mA	IF= 10mA	IF= 50mA	IF= 150mA	IR= 1uA	IR= 20uA	IR= 1mA	VR= 20V	VR= 100V
Current	Spe.	<0.715	<0.855	<1	<1.25	>75	>75	>75	<25	<1000
	MIN	0.577	0.689	0.816	0.970	104.44	116.52	118.07	4.203	13.517
	MAX	0.624	0.789	0.899	1.150	162.52	164.66	166.89	24.576	59.496
	AVE	0.597	0.720	0.845	0.996	150.79	152.67	154.92	11.645	21.730
	S	0.0012	0.002	0.004	0.011	4.951	4.947	5.057	1.030	1.488
	CPK	32.77	28.17	12.21	7.42	5.10	5.23	5.27	4.32	219.08
Additional	Spe.	<0.715	<0.855	<1	<1.25	>75	>75	>75	<25	<1000
	MIN	0.593	0.716	0.835	0.97	138.33	140.01	142.06	8.562	18.556
	MAX	0.598	0.721	0.847	1.004	154.06	156	158.44	15.634	26.028
	AVE	0.596	0.718	0.84	0.985	148.23	150.05	152.36	10.746	21.284
	S	0.001	0.001	0.002	0.004	3.5	3.57	3.64	0.367	0.585
	CPK	66.16	49.13	30.61	20.75	6.97	7.01	7.09	12.94	557.29

PN: 1N4148WS （Switching ）	测试项目	VF1(V)	VF2(V)	VF3(V)	VF4(V)	VR1(V)	VR2(V)	VR3(V)	IR1(nA)	IR2(nA)
	测试条件	IF= 1mA	IF= 10mA	IF= 50mA	IF= 150mA	IR= 1uA	IR= 20uA	IR= 1mA	VR= 20V	VR= 100V
Current	Spe.	<0.715	<0.855	<1	<1.25	>75	>75	>75	<25	<1000
	MIN	0.586	0.711	0.837	0.981	128.51	130.14	132.29	8.185	17.477
	MAX	0.600	0.727	0.870	1.065	168.41	170.88	173.86	19.880	34.992
	AVE	0.591	0.717	0.852	1.028	147.455	149.476	151.998	15.356	27.298
	S	0.002	0.002	0.004	0.010	4.246	4.334	4.406	1.378	1.898
	CPK	23.61	26.27	13.63	7.16	5.68	5.72	5.82	2.33	170.87
Additional	Spe.	<0.715	<0.855	<1	<1.25	>75	>75	>75	<25	<1000
	MIN	0.594	0.715	0.832	0.961	144.02	145.67	147.82	8.979	15.56
	MAX	0.602	0.723	0.846	0.999	155.21	157.17	159.66	13.42	21.63
	AVE	0.596	0.718	0.838	0.977	149.52	151.335	153.657	11.892	19.129
	S	0.001	0.001	0.003	0.007	2.371	2.426	2.478	0.557	0.749
	CPK	38.91	41.76	21.42	12.66	10.48	10.49	10.58	7.84	436.59

NO.	Test	Test Conditions	No.of Lots	Sample Size	Result
1	Pre-conditioning	J-STD-020 MSL-1(3x reflow at 260℃)	3	3*308	Passed
2	Temperature Cycling	JESD22-A104 -55(-10/+0)℃/15min to 150(+15/-0)℃/15min, ,1000cycles	3	3*77	Passed
3	H3TRB	AECQ-102,80%VR,150±5℃,1000H	3	3*77	Passed
4	Intermittent Operating Life	MIL-STD-750 Ta=25℃; △Tj=100℃;2.0 min on/off,7500cycles	3	3*77	Passed
5	PCT	JESD22-A102-D 121±2℃/100%RH,2atm,96H	3	3*77	Passed
6	Resistance to solder heat	JESD22-A111 SMD(Pb free): 260℃;10 sec	3	3*10	Passed
7	Destructive Physical Analysis	AEC-Q101-004 Post-TC,Post-HAST	3	3*4	Passed
8	Solderability	J-STD-002 245℃±5℃(Pb-free),5sec	1	1*10	Passed
9	Die Shear	MIL-STD-750 per assembly spec	1	1*5	Passed
10	Wire Bond Pull	MIL-STD-750 per assembly spec CPK≥1.33	3	3*30	Passed
11	Wire Bond Shear	AEC Q101-003 per assembly spec	3	3*30	Passed

结论：Conclusion: 备选Cu框架材料不影响产品的电气性能，也可以满足相关可靠性要求；
The additional Cu Lead-Frame did not affect the electrical peformance of the components and can Satisfy the relevant Reliabilty request.

变更料号
Change item No

1N4148W
B5819W
BZT52C15
BZT52C5V1
BZT52C6V8
BAV21W
B5819W
BZT52C18
BZT52C12
SD103AW
BZT52C5V6
BZT52C4V7
BZT52C10
BZT52C3V3
BZT52C24
BZT52C9V1
BZT52C27

1N4148WS
BZT52C15S
BAV21WS
B5819WS
BZT52C15S
SD05
SD103AWS
BZT52C5V1S
BAV21WS
BZT52C9V1S
BZT52C16S
SD03
BZT52C3V3S
BZT52C6V8S
BZT52C6V2S
BZT52C18S
BZT52C5V6S
BZT52C7V5S

对该变更有任何联系，可以联系：If you have any questions concerning this change, please contact:

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客户签署：Approver