

To: Dear customer

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Subject : Notification the supplier change of Gold Bonding Wire for MITSUBISHI Silicon RF Power devices. (PCN)

We change the supplier of Gold(Au)Bonding Wire for MITSUBISHI Silicon RF RA series modules and RD series discrete devices.

The reason of change is due to withdraw of a business at supplier.

We evaluated that there is no problem for RF characteristics^{*1)}, reliability^{*2)}.

As a result, we secure good a reliability level same as current module by comparison result of the RF characteristics, Reliability test(High temperature storage, Temperature cycling).

There is not the influence by this change. We guarantee level as is conventionally done.

*1) Page3 Attached are the report, comparison result to distribution for the RF characteristics.

*2) Page4 Attached are the report of reliability test result.

Products subject, Reason of change, Change schedule

Subject	Product name		Type number					
	Silicon MOS FET RF Power device.		RA series modules, RD series Discrete devices. Page2 shows type number list.					
Reason of change	Reason of change	Due to withdraw of a business at supplier.						
	Changed contents	Change the material supplier of Gold(Au)Bonding Wire.						
	Current	New						
		Material : Gold Bonding Wire Supplier : Sumitomo Metal Mining Co., Ltd.	Material : Gold Bonding Wire, same as current material. Supplier : Tanaka Electronics Co., Ltd.					
Change schedule			2013 Jan	Feb	Mar	Apr	May	Jun
	Period of adjustment in customer.		→					
	A mass production start. We switch in around Apr 2013 run out of stock material.		→					

Type number list

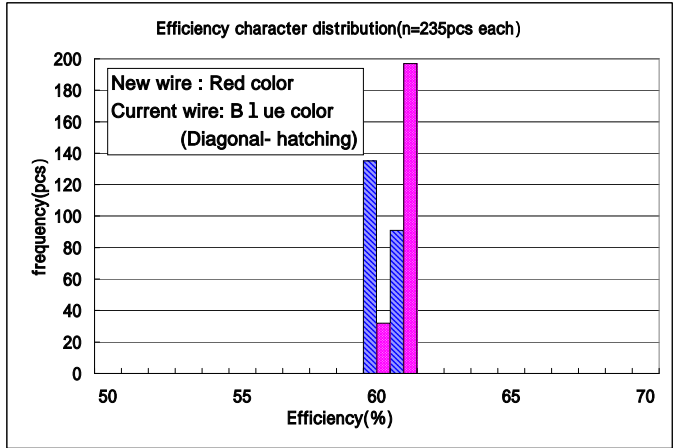
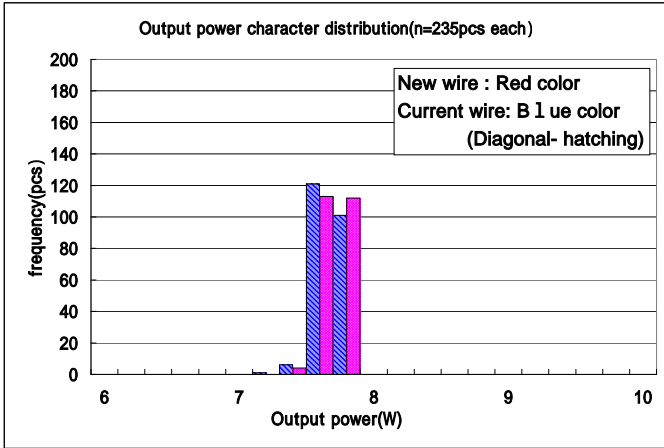
	Package	Type number
RD series Discrete devices	PMM	RD05MMP1
	PMM	RD09MUP2
	PMM	RD12MVP1
	SLP	RD02MUS1
	SLP	RD02MUS1B
	SLP	RD04HMS2
	SLP	RD07MUS2B
	SLP	RD07MVS1
	SLP	RD07MVS1A
	SLP	RD07MVS1B
	SLP	RD07MVS2
	SLP	RD12MVS1
	TO220	RD06HHF1
	TO220	RD06HVF1
	TO220	RD15HVF1
	TO220	RD16HHF1
RA series modules	H58	RA01L8693MA (Proposed End of Life)
	H58	RA01L9595M (Proposed End of Life)

Character distribution of Current wire vs. New wire

We show the RF characteristics distribution comparison of RF characteristics both current and new wire as follows.
 Result of the distribution comparison was no difference in both current and new wire.

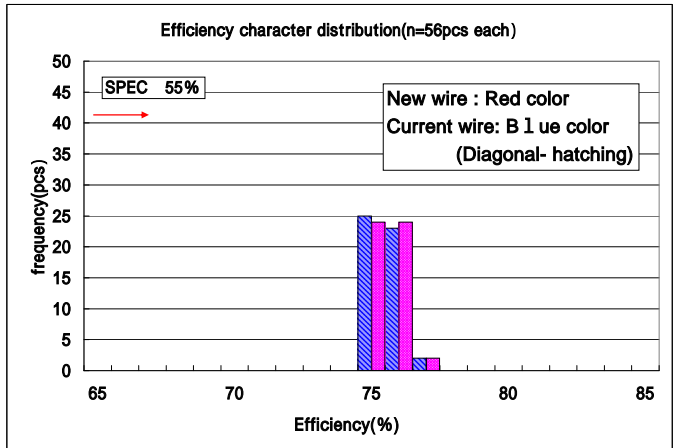
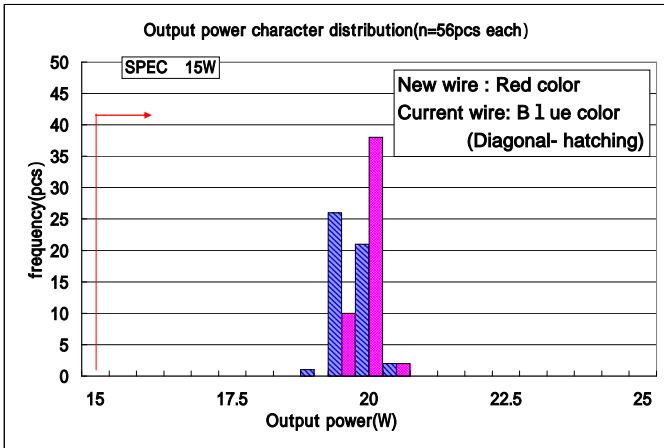
RD07MUS2B

条件 : f=870MHz,Pin=0.5W,Vdd=7.2V,Idq=0.25A(Vgg:control)



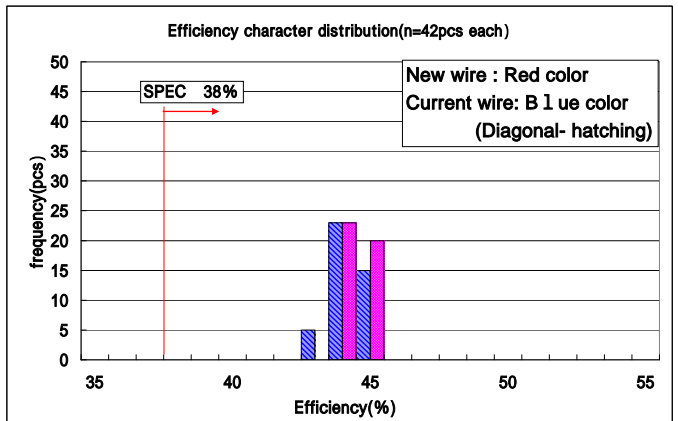
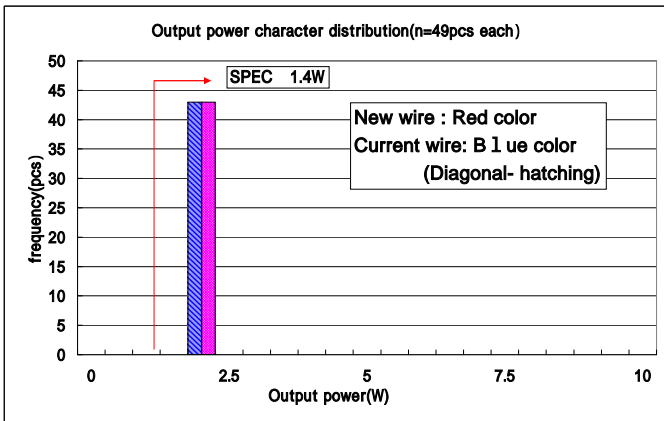
RD15HVF1

条件 : f=175MHz,Pin=0.6W,Vdd=12.5V,Idq=0.5A(Vgg:control)



RA01L8693MA

条件 : f=928MHz,Pin=0.03W,Vdd=3.3V,Vgg=2.0V



Reliability test result

We shows the reliability test result of High temperature storage test/Temperature cycling test as follows.

Reliability test result are within judgment criteria,same level with current devices.

Table 1 . Reliability test result

グループ Group	サンプル Sample	試験項目 Test item	試験条件 Test condition	試験数量 QTY of sample	故障数QTY of failure
1	RD15HVF1G	高温保存 High temperature storage	150 1000hours	11	0
	RD07MUS2BG		125 1000hours	11	0
	RA01L8693MAG			11	0
2	RD15HVF1G	温度サイクル Temperature cycling	-40 / 125 500cycles	11	0
	RD07MUS2BG			11	0
	RA01L8693MAG			11	0

Table 2.Failure criteria

グループ Group	試験項目 Test	故障判定基準 Failure criteria
1	高温保存 High temperature storage	Failure criteria : $P_o = \pm 20\%$ 、 $T = \pm 20\%$ ・RD07MUS2B @ freq=135MHz@Pin=0.3W、763/870/941MHz@Pin=0.5W、 Vdd=7.2V、Idq=250mA(Vgg control) ・RD15HVF1 :freq=175MHz、Pin=0.6W、 Vdd=12.5、Idq=500mA(Vgg control) ・RA01L8693MA :freq=865/928MHz、Pin=0.03W、Vdd=3.3、Vgg=2.0V
2	温度サイクル Temperature cycling	