

**Dear customer**

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 MIYOSHI ELECTRONICS CORPORATION

**Subject: Additional production site for MITSUBISHI Silicon RF Power devices(Notification)**

We hereby notify you of our decision to have an additoinal production site for our devices.  
 This addition is to increase our production capacity, and the site is original production factory of our SLP products.

Current production site: Microchip Technology(Thailand) Co.,Ltd (MMT)

Additional production site: Shimane Masuda Electronics Co.,LTD (SME) (Original production factory of our SLP products)

1. No change in the materials for the products
2. No change in Products type number
3. No change in Specification and outline drawing
4. No change in electrical characteristics and reliability test results
5. The production site can be identified by Lot-No.

Contents

- RF characteristics (RD07MUS2B)
- Reliability report (RD07MUS2B)

●Products subject、Reason of change、Change schedule

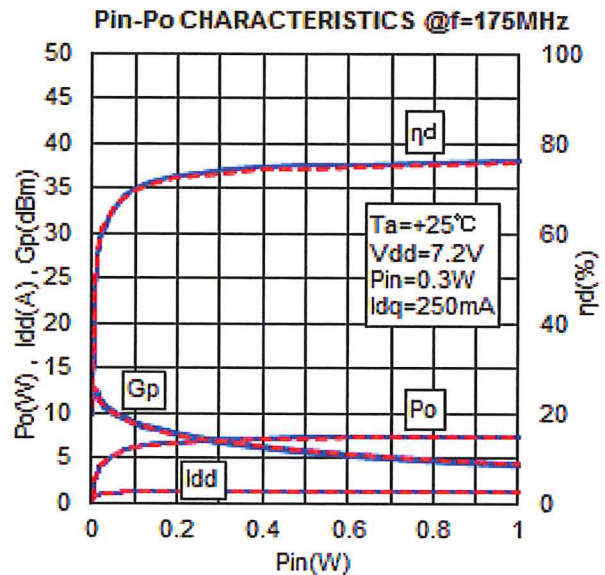
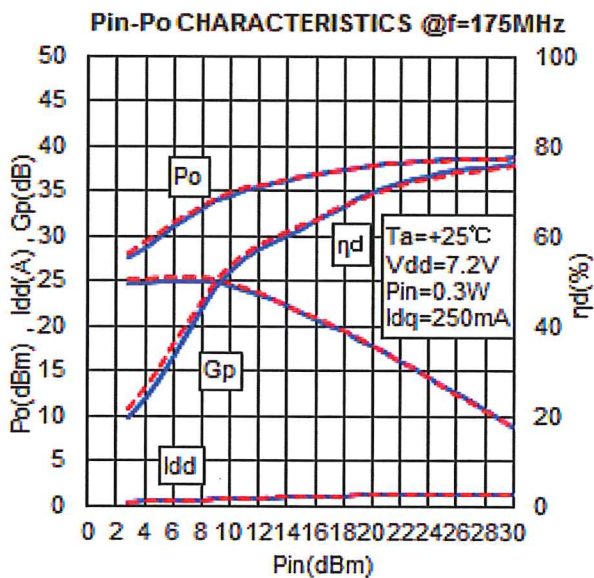
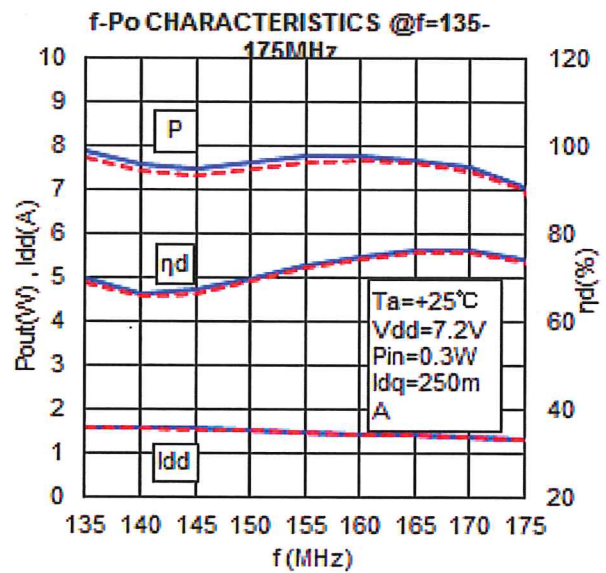
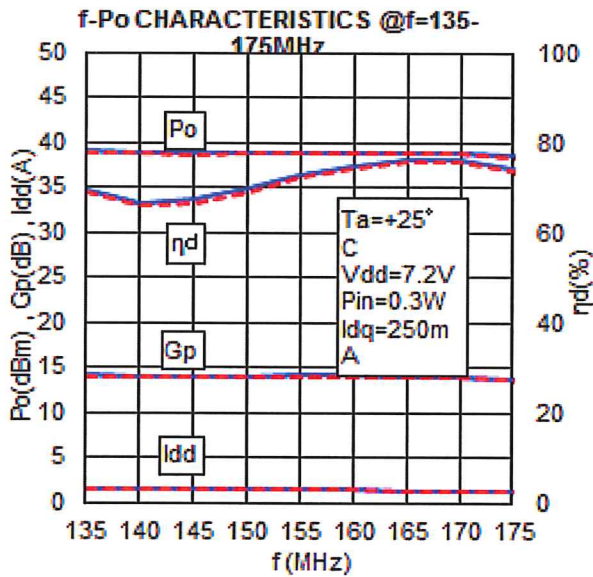
Subject	Product name	Type number					
	MOS FET RF Power device.	RD series discrete devices of SLP package					
Reason of change	Reason of change	Increase of production capacity					
	Changed contents	Addition of production site					
		New(addition)					
	<ul style="list-style-type: none"> <li>•Production site: THAILAND(MMT)</li> <li>•Country of origin: THAILAND</li> <li>•Identification: Lot No.***AA-ZG~***RZ-ZG</li> </ul>	<ul style="list-style-type: none"> <li>•Production site: Japan(SME)</li> <li>•Country of origin: JAPAN</li> <li>•Identification: Lot No.***SA-ZG~***ZZ-ZG</li> <li>•Printed "J" on Outer LABEL</li> </ul>					
Change in schedule			2016				
			Jan.	Feb.	Mar.	Apr.	May.
	Notification			▽Notification			
	Production at MMT	Continuation of the production					
Production at SME	▽start of the Production						

● VHF-band RF characteristics

frequency response , Pin—Po characteristics

SME-product: Blue line, MMT-products: Broken red line

■ Result: It is observed that the characteristics of SME products are identical to those of MMT-products

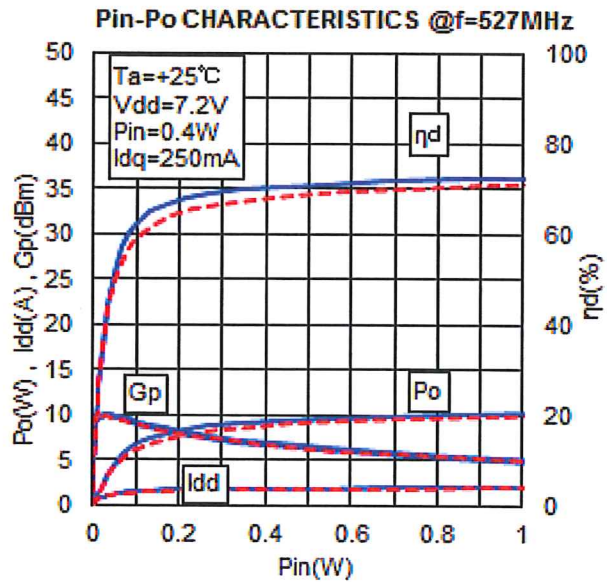
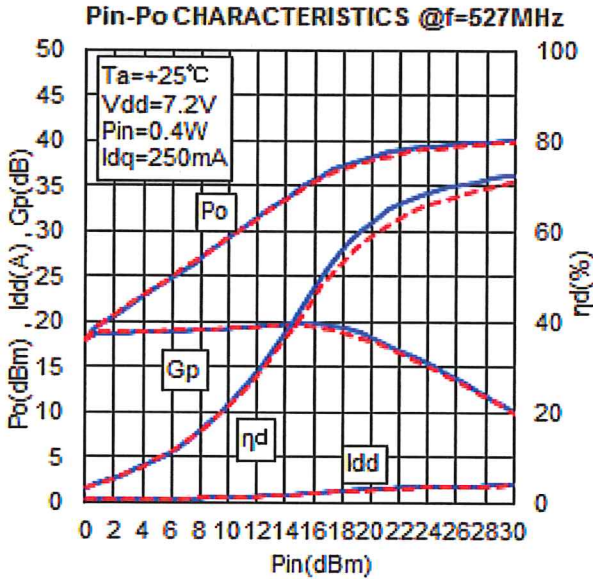
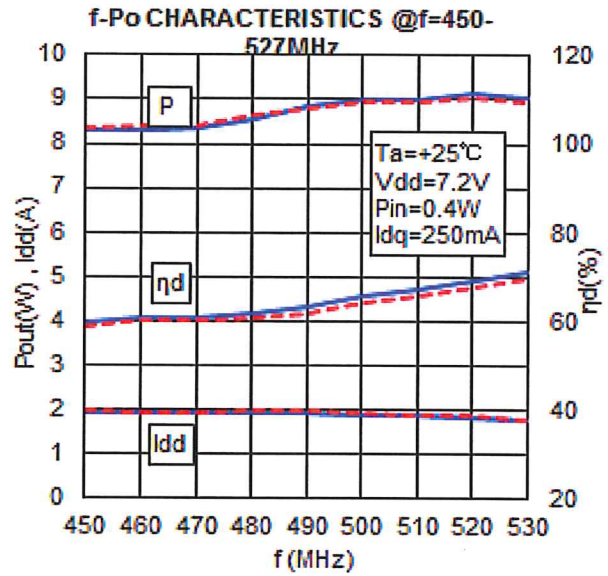
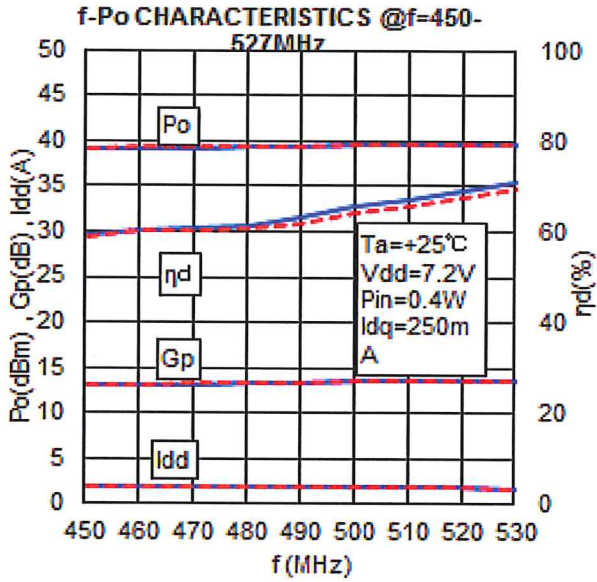


● **UHF-band RF characteristics**

frequency response , Pin-Po characteristics

SME-product: **Blue line**, MMT-products: **Broken red line**

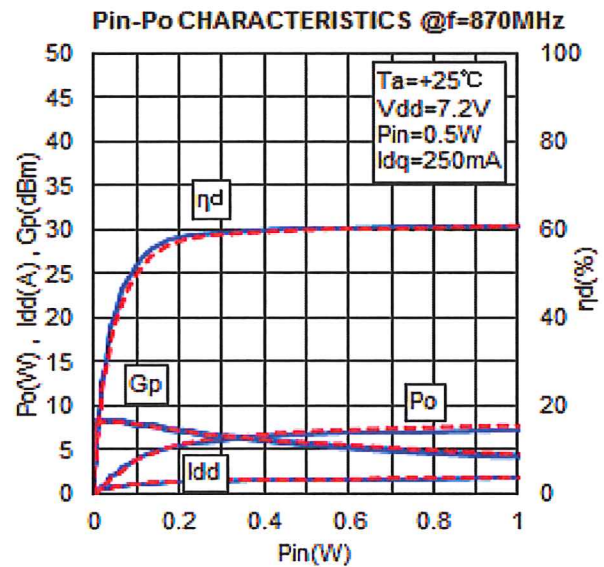
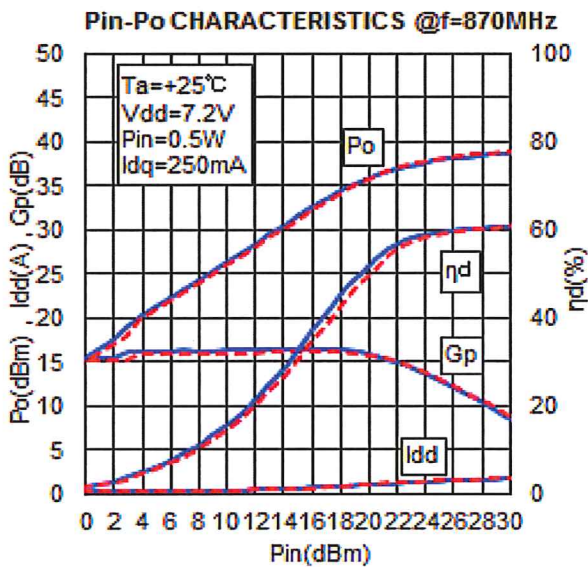
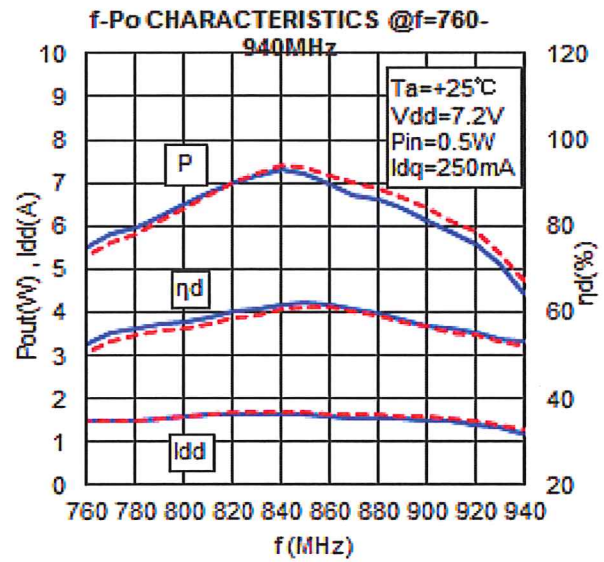
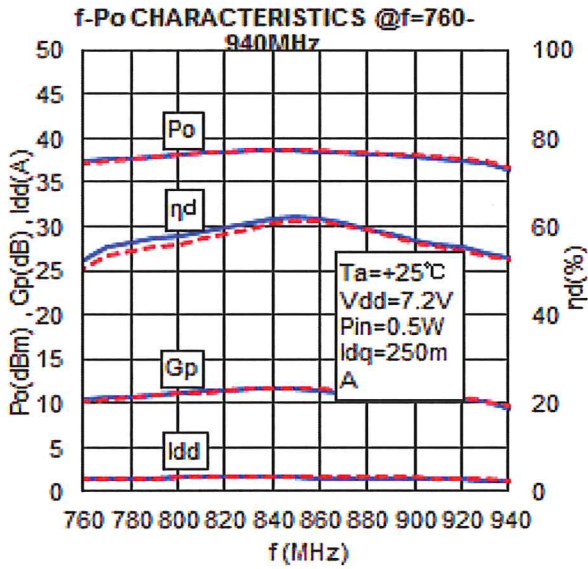
■ Result: It is observed that the characteristics of SME products are identical to those of MMT-products



● **800/900MHz-band RF characteristics**  
frequency response , Pin – Po characteristics

SME-product: **Blue line**, MMT-products: **Broken red line**

■ Result: It is observed that the characteristics of SME products are identical to those of MMT-products



●Reliability test result

RD07MUS2B (RoHS Compliance device of SLP outline) reliability results  
 以下表にRD07MUS2Bにて実施した信頼性試験結果を示します。  
 The following summarizes reliability test results on RD07MUS2B.

■Result : Reliability test result that within failure criteria,same level with current specification.

表1 結果 Table 1 Result

グループ Group	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 *	高温保存 High temperature storage	125°C 1000hours	11	0
2 *	低温保存 Low temperature storage	-40°C 1000hr	11	0
3 *	耐湿性保存 Humidity storage	85°C/85%RH 1000hr	11	0
4 *	温度サイクル Temperature cycling	-40°C/125°C 510cycles 30min/30min	22	0
5 *	熱衝撃 Thermal shock	-40°C/125°C 100cycles 5min/5min	5	0
6 *	耐基板曲げ Deflection	Distance between fulcrums:90mm Flexure:2mm ,5times	5	0

\* Pre-treatment was done before the tests.

Pre-treatment condition:

Baking:125°C24hr→ Moisture soak:30°C,70%RH,192hr→ Reflow:255°C+5°C,30sec,3time

表2.故障判定基準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	For Po and Id , More than the following amount $\Delta P_o = \pm 20\%$ $\Delta I_d = \pm 20\%$ @ freq=137MHz Pin=300mW $I_{dq} = 250mA (V_{gg} \text{ adj.})$ Vdd=7.2V Investigation by means of a microscope. $R_{thj-c} = \pm 20\%$
2	低温保存 Low temperature storage	
3	耐湿性保存 Humidity storage	
4	温度サイクル Temperature cycling	
5	熱衝撃 Thermal shock	For DC check , and internal visual check. $I_{gss}@V_{gs}=5V, V_{ds}=0V \leq 1\mu A$ , $I_{dss}@V_{ds}=17V, V_{gs}=0V \leq 10\mu A$
6	耐基板曲げ Deflection	Internal visual check: nothing chip crack, open wire, etc.

● Objective products

Products	specification
RD02MUS1	RD02MUS1-2**
	RD02MUS1-T2**
RD02MUS1B	RD02MUS1B-2**
	RD02MUS1B-T2**
RD04LUS2	RD04LUS2-2**
	RD04LUS2-T2**
RD04HMS2	RD04HMS2-2**
	RD04HMS2-T2**
RD07MVS1	RD07MVS1-2**
	RD07MVS1-T2**
RD07MVS1A	RD07MVS1A-2**
	RD07MVS1A-T2**
RD07MVS1B	RD07MVS1B-2**
	RD07MVS1B-T2**
RD07MVS2	RD07MVS2-2**
	RD07MVS2-T2**
RD07MUS2B	RD07MUS2B-2**
	RD07MUS2B-T2**
RD10MMS2	RD10MMS2-2**
	RD10MMS2-T2**
RD12MVS1	RD12MVS1-2**
	RD12MVS1-T2**