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INNOVATOR IN ELECTRONICS

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Attention:

ANGLIA COMPONENTS LTD

4M Change Notice

DCDC Converter

Dear. Valued Customer

Thank you very much for your great and continued support for business with Murata. This is the official notification that some of our products' 4M Change will be proceeded as detailed below. Please review this, and confirm that you will expect to receive products after this 4M Change. Your understanding and support are highly appreciated.

1. Product Type, Changes, and Customer/Murata/Alternative Part Numbers:

Please refer to the attached documents for detailed Part Numbers' information.

Changes: Man Machine Material Method

Change the production factory of object DCDC converter as follows:

Before Change	After Change
Wakura Murata Manufacturing Co., Ltd.	Murata Electronics(Thailand).Ltd. Kanazu Murata Manufacturing Co., Ltd.

2. Reasons/Background:

In order to maintain sound business operations of the DCDC converter, we will reorganize the function of the mother factory which Wakura Murata is related to products and production lines to Murata group's power supply manufacturing factory.

3. Products Before and After the Change:

Even after factory change, we will produce with the same design, equipment, and process control methods. There is no difference in facility structure, quality and specification. Please refer to the attached product reliability test result at new factory.

4. Change Schedule:

Production Start in New Factory: Oct., 1, 2019
 Last Production Date in Current Factory: Mar., 31, 2020
 Products' delivery from the New Factory will be started sequentially as soon as inventory runs out at Current factory.

5. Contact Window:

Should you have any questions or concerns, please contact Murata Sales, Representative, or Distributor in your area.

Truly Yours. Thank you.

Murata Manufacturing, Co., Ltd.
 Power Modules Division
 Tatsuo Bizen

DC/DC Converter Murata Electronics(Thailand). Ltd. Transfer items

Evaluation Results

**Murata Manufacturing Co.,Ltd
Low Power Products Department**

Feb 5, 2019

Evaluation Sample and Results

1. Evaluation Samples

Considering the product structure, to evaluate each one of represented products which isolated and non-isolated DCDC converters.

Isolated product MPD6D117S Non-Isolated product MPDRX301S



2. Evaluation Contents

- 1) Reliability Test
- 2) Primary Electrical Characteristic Comparison

Regarding above 1,2 result, we judged there is no effect of products quality to transfer Thailand Factory.

1) Reliability Test Results

Isolated Product : MPD6D117S

No.	信頼性試験項目 Test Name	試験条件 Condition	判定基準 Criteria	故障数						判定 Judge
				Total failed / Total sample size						
				タイ生産品 Made in Thailand			日本生産品 Made in Japan			
1	熱衝撃 Temperature Cycling	@-40°C, 30min ↔ @125°C, 30min	電気的特性 外観 *Electrical characteristics *Appearance	100cycle	200cycle	-	100cycle	200cycle	-	OK
				0/5	0/5	-	0/5	0/5	-	
2	高温動作 Temperature, Bias, and Operating Life	@85°C	電気的特性 外観 *Electrical characteristics *Appearance	100hours	200hours	500hours	100hours	200hours	500hours	OK
				0/5	0/5	0/5	0/5	0/5	0/5	
3	高温高湿動作 Temperature, Humidity, Bias Life	@85°C/85%RH	電気的特性 外観 *Electrical characteristics *Appearance	100hours	200hours	500hours	100hours	200hours	500hours	OK
				0/5	0/5	0/5	0/5	0/5	0/5	

* Each tests condition done with moisture absorption treatment in 168 hours with 85 degrees,85% RH. After that 3 times Re-flow passage with 260 degrees peak.

1) Reliability Test Results

Non-Isolated Product : MPDRX301S

No.	信頼性試験項目 Test Name	試験条件 Condition	判定基準 Criteria	故障数						判定 Judge
				Total failed / Total sample size						
				タイ生産品 Made in Thailand			日本生産品 Made in Japan			
1	熱衝撃 Temperature Cycling	@-40°C, 30min ⇔ @85°C, 30min	電気的特性 外観 *Electrical characteristics *Appearance	100cycle	200cycle	500cycle	100cycle	200cycle	500cycle	OK
				0/5	0/5	0/5	0/5	0/5	0/5	
2	高温動作 Temperature, Bias, and Operating Life	@85°C	電気的特性 外観 *Electrical characteristics *Appearance	100hours	200hours	500hours	100hours	200hours	500hours	OK
				0/5	0/5	0/5	0/5	0/5	0/5	
3	高温高湿動作 Temperature, Humidity, Bias Life	@85°C/85%RH	電気的特性 外観 *Electrical characteristics *Appearance	100hours	200hours	500hours	100hours	200hours	500hours	OK
				0/5	0/5	0/5	0/5	0/5	0/5	

* Each tests condition done with moisture absorption treatment in 168 hours with 85 degrees,85% RH. After that 3 times Re-flow passage with 260 degrees peak.

2) Primary Electrical Characteristic Comparison *muRata*

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Isolated Product : MPD6D117S

名称 Name [Unit]	記号 Parameter	測定条件 Condition	特性規格 Electrical Characteristics			タイ生産品 Made in Thailand			日本生産品 Made in Japan			判定 Judge
			最小 Min	標準 Typ	最大 Max	No1	No2	No3	No1	No2	No3	
出力電圧 Output Voltage [V]	V _o	V _{in} =48V I _o =4.5A	3.201	3.3	3.465	3.331	3.339	3.327	3.331	3.336	3.335	OK
変換効率 Efficiency [%]	η	V _{in} =48V I _o =4.5A	-	90	-	89.7	89.6	89.3	89.4	89.6	89.6	OK
出力リップル電圧 Ripple Voltage [mVp-p]	V _r	V _{in} =75V I _o =4.5A	-	-	25	7.2	6.5	6.9	6.8	7.4	7.4	OK
動作開始電圧 Turn-on Input Voltage [V]	-	I _o =4.5A	32	-	36	35.7	35.7	35.7	35.7	35.7	35.7	OK

2) Primary Electrical Characteristic Comparison *muRata*

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Non-Isolated Product : MPDRX301S

名称 Name [Unit]	記号 Parameter	測定条件 Condition	特性規格 Electrical Characteristics			タイ生産品 Made in Thailand			日本生産品 Made in Japan			判定 Judge
			最小 Min	標準 Typ	最大 Max	No1	No2	No3	No1	No2	No3	
出力電圧 Output Voltage [V]	VO33-1	Vin=5.6V Io=13A	3.234	3.3	3.366	3.297	3.297	3.298	3.297	3.297	3.297	OK
	VO25-1		2.45	2.5	2.55	2.510	2.510	2.510	2.506	2.506	2.506	OK
	VO18-1		1.764	1.8	1.836	1.807	1.808	1.808	1.806	1.806	1.807	OK
	VO33-2	Vin=14V Io=0A	3.234	3.3	3.366	3.296	3.296	3.297	3.296	3.296	3.295	OK
	VO25-2		2.45	2.5	2.55	2.509	2.509	2.509	2.505	2.505	2.504	OK
	VO18-2		1.764	1.8	1.836	1.806	1.806	1.806	1.805	1.805	1.804	OK
変換効率 Efficiency [%]	EFF	Vin=9.6V Io=13A Vo=3.3V	-	91	-	89.5	89.5	89.6	89.6	89.6	89.5	OK
出力 リップル電圧 Ripple Voltage [mVp-p]	Vrip33	Vin=9.6V Io=13A Vo=3.3V	-	-	50	13	13.9	12.9	13.5	13	13.7	OK
動作開始電圧 Rising UVLO Threshold [V]	UVLO	Io=0.5A Vo=3.3V	4.8	5.25	5.8	5.25	5.25	5.25	5.25	5.25	5.25	OK
動作停止電圧 Falling UVLO Threshold [V]	UVLOf	Io=0.5A Vo=3.3V	4.7	5	5.3	4.75	4.75	4.75	4.75	4.75	4.75	OK
短絡保護機能 Short Circuit Protection	SCP	Vin=9.6V Short Circuit	動作停止 Stop operating			停止 Stop	停止 Stop	停止 Stop	停止 Stop	停止 Stop	停止 Stop	OK
出力電圧 検出機能 (プルアップ電圧 2.5V時) Power Good function at pulled-up by 2.5Vdc	PG1-1	Vin=9.6V Vo=3.3V Io=0A	2.375	2.5	2.625	2.491	2.491	2.490	2.491	2.491	2.491	OK
	PG2-1		2.375	2.5	2.625	2.490	2.490	2.491	2.491	2.491	2.492	OK
	PG1-2	Vin=9.6V Vo=3.3V Within Short Circuit	-	0	-	0.506	0.504	0.506	0.501	0.502	0.502	OK
	PG2-2		-	0	-	0.506	0.503	0.506	0.500	0.502	0.502	OK