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Issue No. A00NAD3303

Date of issue 15-Oct-02

Classification New Change Renewal

PRODUCT SPECIFICATION FOR INFORMATION

Product Description	DC/DC Converter
Product Part Number	EHD RD3303
Classification of Spec	Individual Product Spec
Applications	
Term of Validity	5 years from the date of issue.

CUSTOMER USE ONLY	Receipt Record #			
This was certainly received by us. 2(Two) copy is being returned to you.	Date of receipt			
	Acknowledgement			
	Section			
				Signed

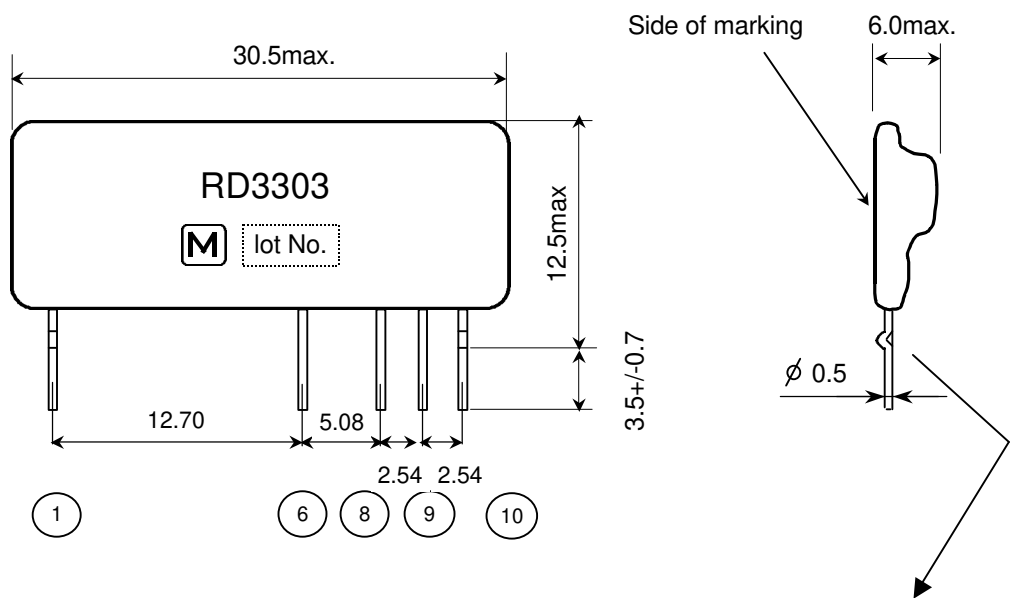
Matsushita Electronic Components Co.,Ltd.
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Hybrid Microcircuit Motomiya Factory

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Prepared by Engineering Section 1			
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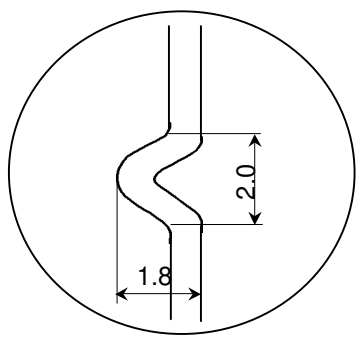
DC/DC Converter EHD RD3303

[Dimensions] Unit ; mm



[Pin Assignment]

No.	function
1	IN
2	—
3	—
4	—
5	—
6	GND
7	—
8	L1-1
9	OUT
10	L1-2



Item	Description
Material of leadpins	∅ 0.5 Fe lead with Cu,solder plating
Color	Black
Material of resin	Phenol denatured epoxy resin (UL94V-0)
Appearance	Without noticeable flaw and stain
Marking	Silver White
Remarks	M mark side is Pin No.1
	Pin No.2,3,4,5,7 is removed
	Pin No.1,10 are leads bending formed.

DC/DC Converter EHD RD3303

[Absolute Maximum Ratings]

No.	Item	Symbol	Rating	Unit	Remarks
1	Input Voltage	V _{in}	170	V _{DC}	
2	Operating Temperature	T _{opr}	-25 to +85	degC	cf.Delaying Curve
3	Storage Temperature	T _{stg}	-25 to +105	degC	

[Electrical Characteristics]

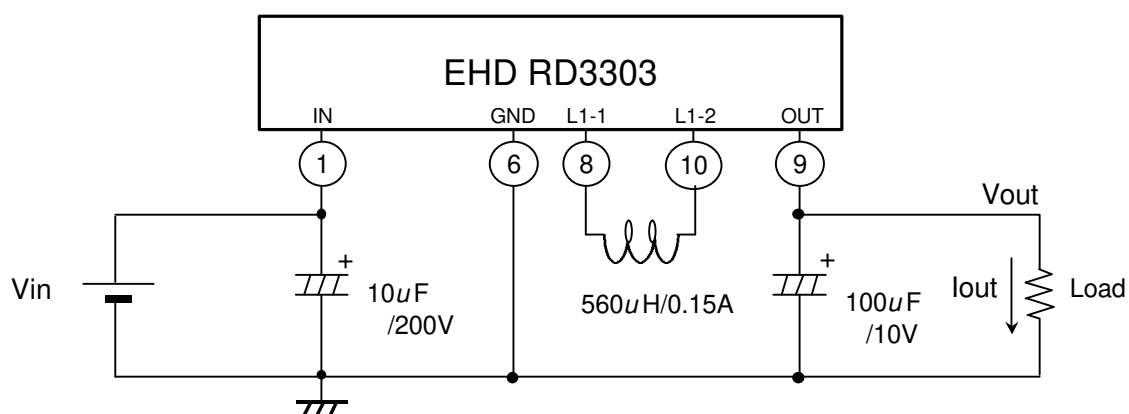
Ta=25degC

No.	Item	Symbol	Characteristics			Unit	Conditions
			Min.	Typ.	Max.		
1	Input Voltage	V _{in}	113	141	170	V _{DC}	
2	Output Voltage	V _{out}	4.75	5.10	5.35	V _{DC}	V _{in} =141V I _{out} =50mA
3	Output Current	I _{out}	—	—	100	mA	V _{in} =113V to 170V *1
4	Line Regulation	V _r	—	0.01	0.10	V _{DC}	V _{in} =113V to 170V I _{out} =50mA
5	Load Regulation	V _l	—	0.01	0.15	V _{DC}	V _{in} =141V I _{out} =0mA to 50mA
6	Ripple Voltage	V _p	—	0.06	0.15	V _{p-p}	V _{in} =141V I _{out} =50mA *2
7	Efficiency	<i>n</i>	30	49	—	%	V _{in} =141V I _{out} =100mA

*1 ; Refer to Delaying Curve Ta-Io

*2 ; Spike voltage does not include Ripple Voltage.

[Recommendable Test Circuit]



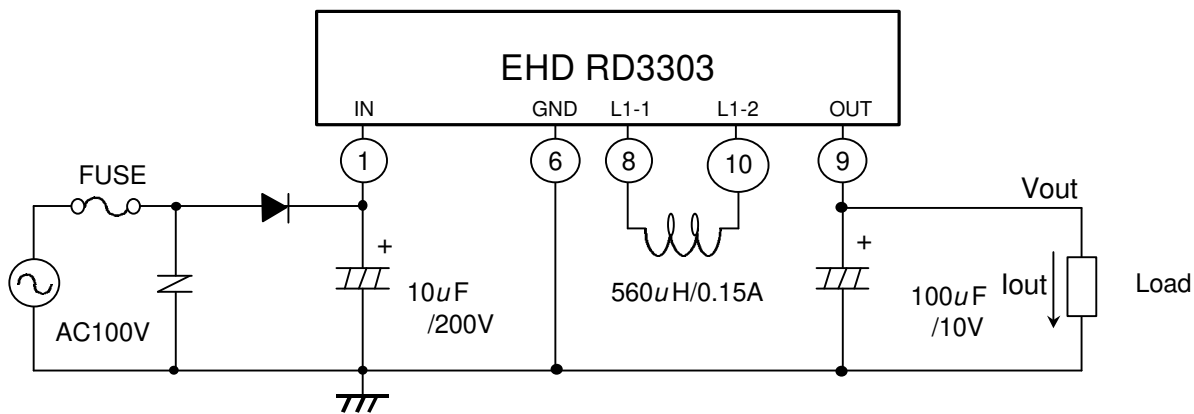
We should recommend Low Impedance capacitor for output capacitor.

(For example : FC series electrolytic Capacitor ,

Matsushita Electric Components Co.Ltd.)

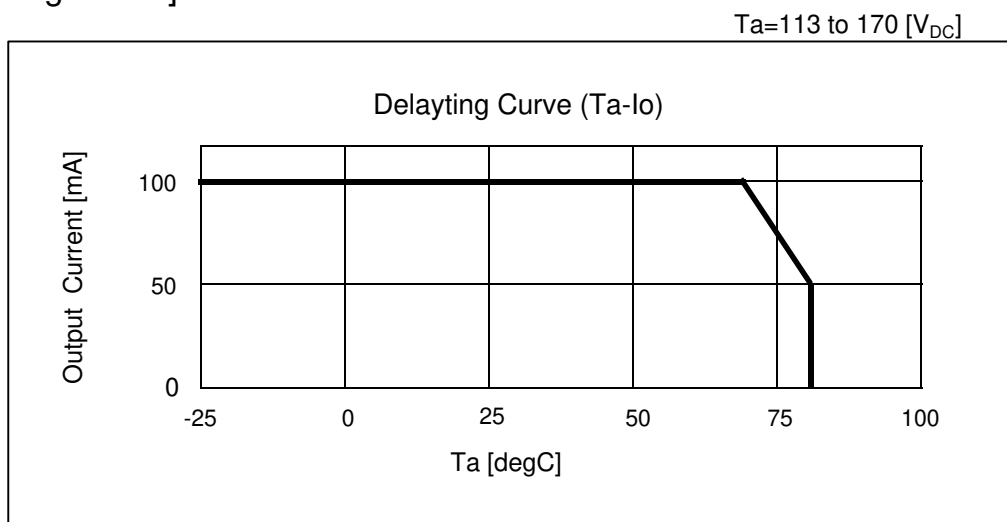
DC/DC Converter EHD RD3303

[Application]



We should recommend Low Impedance capacitor for output capacitor.
 (For example : FC series electrolytic Capacitor ,
 Matsusita Electric Components Co.Ltd.)

[Delaying Curve]



【品質特性】

[Quality Characteristics]

項目 Item		試験方法 Test Condition		判定基準 Specifications
端子強度 Lead Pull Strength	引張り Tension	方向 Direction	リード線方向 Axial Direction	端子部の脱着及び断線 のないこと No any removal or disconnection.
		荷重 Load	4.9N (500g)	
		時間 Time	5秒 5s	
[MIL-STD-202D-211A相当] [Equal to MIL-STD-202D-211A]	曲げ Bending Stress	方向 Direction	 <p>a→b→a 同一方向で 1回とする a→b→a 1time 2.54N (250g)</p>	端子部の断線がないこと No any disconnection at terminal.
		時間 Operation Time	3秒 / 1回 3s/1time	
		荷重 Load	2.54N (250g)	
		回数 Times	2回 2times	
半田付性 Solderability	[MIL-STD-202D-208B相当] [Equal to MIL-STD-202D-208B]	方法 Condition	試料を60分間煮沸蒸留水38mmの位置に吊り上げた後、イソプロピルアルコール中ですすぎ洗いして次に半田浸漬を行う Rinse sample by IPA after hanging it up for 60min. at 38mm from bottom of boiling distilled water and immersed in solder.	95%以上、一様に半田の被覆で覆われていること More than 95% must be covered with solder uniformly.
		半田浸漬位置 Solder Immersion	 <p>1.5mm 半田 solder</p>	
		半田温度 Solder Temperature	230±5°C	
		浸漬時間 Immersion Time	5±0.5秒 5±0.5s	
		半田 フラックス Solder Flux	63Sn共晶半田, ロジン樹脂25wt%, ロジンイソプロピルアルコール75wt% 63%Sn Eutectic Solder with Rosin 25wt% Rosin with IPA 75wt%	
半田耐熱性 Resistance to Soldering Heat	[MIL-STD-202D-210] [Equal to MIL-STD-202D-210]	半田浸漬位置 Solder Immersion	 <p>1.5mm 半田 solder</p>	外観, 構造に異常のないこと No abnormal point in appearance and structure.
		半田温度 Solder Temperature	260±5°C	
		浸漬時間 Immersion Time	10±1.0秒 10±1.0s	
		半田 フラックス Solder Flux	63Sn共晶半田, ロジン樹脂25wt%, ロジンイソプロピルアルコール75wt% 63%Sn Eutectic Solder with Rosin 25wt% Rosin with IPA 75wt%	

項目 Item	試験条件 Test Condition	判定基準 Specifications
温度サイクル Temperature Cycle	-25°C (30分) → 常温 (5分) → +85°C (30分) → 常温 (5分) を1サイクルとして100サイクル。 -25°C (30min) → 25°C (5min) → +85°C (30min) → 25°C (5min) max.;100cycles	外観, 構造に異常のないこと。電気特性は実質的変化のないこと。 No abnormal point in appearance and structure. No substantial change in electrical parameters.
高温保存 High-Temperature Storage	周囲温度105±2°Cの雰囲気中に試料を保存する。時間: 1000時間 exposed to 105°C±2°C atmosphere;1000h max.	電気特性は実質的変化のないこと。 No substantial change in electrical parameters.
低温保存 Low-Temperature Storage	周囲温度-25±2°Cの雰囲気中に試料を保存する。時間: 1000時間 exposed to -25°C±2°C atmosphere;1000h max.	同上 No substantial change in electrical parameters.
湿中保存 High-Humidity Storage	周囲温度40±3°C, 相対湿度90~95%の雰囲気中に試料を保存する。時間: 1000時間 exposed to 40°C, 90...95%Rh atmosphere ;1000h	同上 No substantial change in electrical parameters.
高温高湿バイアス T . H . B	周囲温度85°C、相対湿度85%の雰囲気中で入力印加 Vin. typ. Ta=85°C、85%RH、Vin ;typ.、1000h max.	同上 No substantial change in electrical parameters.
振動試験 Vibration test	10~55Hz、振幅1.5mm、掃引1min、XYZ各2h 10~55Hz ,amplitude1.5mm,sweep1min ,in each direction of XYZ, 2h	同上 No substantial change in electrical parameters.

【使用上の注意事項】 [Cautions for use]

- (1) 瞬時の過電流または負荷短絡について、垂下型保護回路を内蔵していますが長時間に渡って定格電流を超える過電流が流れる場合は、本製品が破壊されることがあります。このようなことは絶対に行わないでください。
Be careful not to load over current exceed the maximum rating.
Otherwise this product might be broken.
 - (2) 瞬時でも最大定格を越える使用は、製品が故障、破壊することになり、安全性上問題が生じる場合がございますので絶対に行わないで下さい。
Operating a product over the maximum rating for even a moment may result in a product failure or breakage. Never use a product in such a condition that it may cause a safety problem.
 - (3) 電源の入った状態で製品の端子を解放、短絡あるいは逆挿入すると製品が破壊することがありますので、このようなことは絶対に行わないで下さい。
Operating or short-circuiting the product terminals or inserting a product in the reverse orientation while power is being supplied may cause a breakage. Always avoid such circumstances.
 - (4) 腐食性ガスの雰囲気中、高温湿、水漏れ、結露等での不適当な環境中で使用しますと、製品の特性劣化、破壊、外観変化等を生ずる原因となり安全性上問題が生じる場合もございますので絶対に避けて下さい。
Operating in a corrosive gas atmosphere or improper environments such as high-temperature, high-humidity or dewy conditions may lead to product performance deterioration, a breakage, a change in appearance etc. Please avoid such conditions as they are unsafe.
 - (5) 組立の際使用するはんだごて、はんだ槽は必ずアースを取り、製品に異常電圧が印加することの無いように十分ご注意願います。
Always ground the soldering iron or soldering bath used for assembly operation to avoid any excessive voltage applied to a product.
 - (6) はんだ付け後、はんだブリッジ、はんだ付け不十分あるいは逆挿入のまま電源を投入すると、製品が破壊される事がありますので、電源投入前に必ずはんだ付け状態の確認を行って下さい。
After soldering with solder bridge, incomplete soldering or in the reverse orientation, supplying power may result in a product breakage. Please confirm the soldered condition before supplying power to the product.
 - (7) リード端子に無理な応力かける事は、接触不良、特性劣化の原因になる事がありますのでご注意下さい。
Excessive stress on the terminals may cause a contact failure or performance deterioration.
Please use caution.
 - (8) 当社製品の不具合が発生した場合を考慮して御社ご使用機器にてフェールセーフのご配慮をお願い申し上げます。
Due to avoid the failure in the market, please consider in case our product occurs failure and check total performance of your product using our product.
- ※ 尚、本製品の安全性について疑義が生じた時は、速やかに当社へご通知をいただき、必ず技術検討をして下さるよう、お願い致します。
※ If any question arises about the safety of this product, please contact us immediately with a request for an engineering examination.

【備考】 [Remarks]

- *1 この製品の使用材料は、「化学物質の審査及び製造等の規制に関する法律」に基づき、すべて既存化学物質として記載されている材料です。
All of the materials used in this product are those listed as the existing chemical substances based on the "Law for examination and regulation of manufacture of chemical substances"
- *2 「本製品は、モントリオール議定書で規制されているオゾン層破壊物質を製造工程で一切使用していません。」
The production process of this product does not use any ozone-depleting chemicals regulated by the Montreal Protocol.

【製品の仕様変更について】 [The specification change of the product]

製品の改善、使用部品の生産中止等に伴い、仕様変更をさせて頂く場合があります。
その差異には、事前協議の上、変更させて頂くものとします。

It may let me do a specification change caused by the improvement of the product ,the cancellation of production of parts.

It is decided that it lets me change it at the time of that after prior consultation.

[包装仕様]

Packing

- ・ 使用包装材料
Packing Material

静電気対策の包装トレー 図 1 参照
Tray (conductive) Refer to fig.1

- ・ 1トレー当りの最大包装数 Maximum quanti

80 個 / トレー
80 pcs/tray

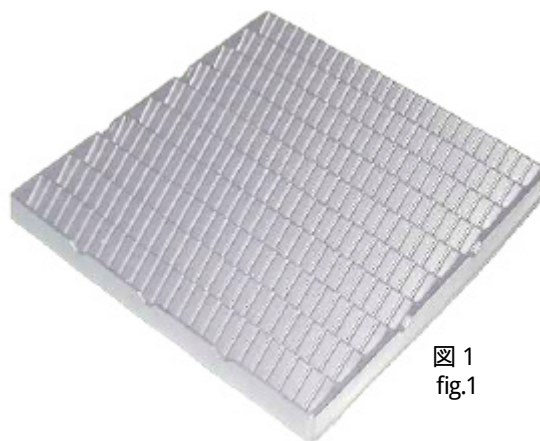


図 1
fig.1

- ・ 規定数量の包装トレーを重ね合わせ、最上部・最下部に厚紙を重ね、テープ（又は相当品）にて固定する。 図 2 参照 Refer to fig.2
Multiple trays with devices are stacked, packed into Packaging case and is tightly closed with adhesive tape.

- ・ 包装箱に隙間が生じる場合は、クッション材を詰め、包装箱内で包装トレーが移動しないように固定する。
Insert cushion material in the empty space to secure trays.

(最大梱包数)
Maximum quantity
1200個 (80 個/トレー ×15段)
1200 pcs

段ボールパッド
Corrugated cardboard pad

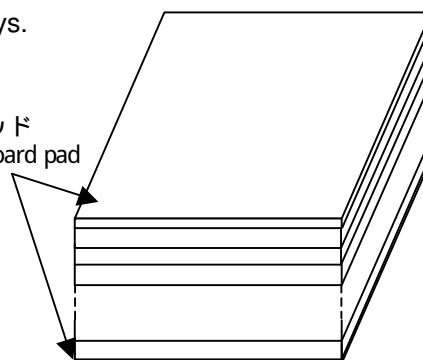
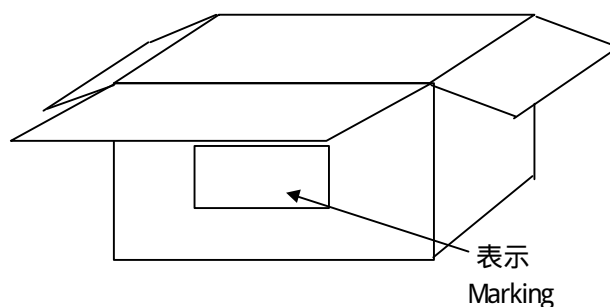


図 2
fig.2

包装箱には、下記内容が表示されます。
Packing case has below remarks.

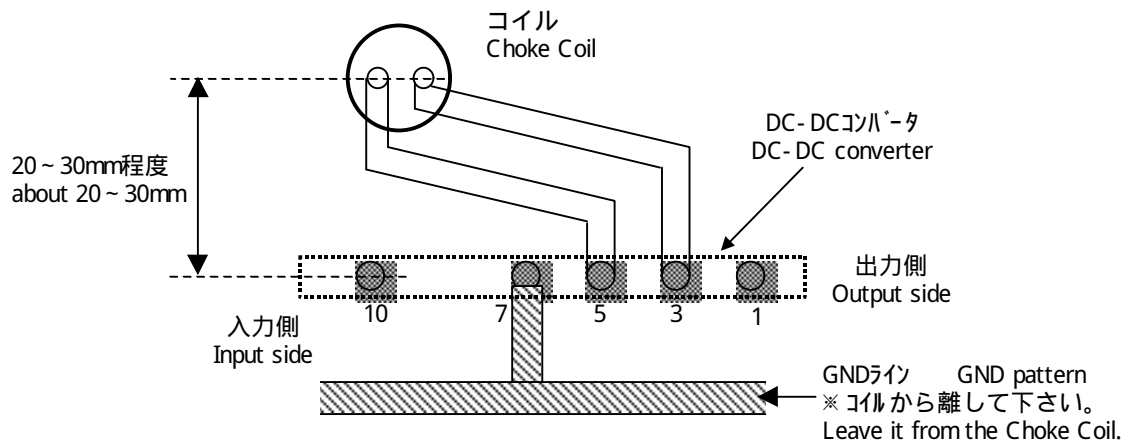
1. 弊社品番
Part No.
2. 梱包数量
Quantity



表示
Marking

【設計上の注意点】

Notes of design



GNDラインとコイルは重ならないようにしてください。
Please pay attentions to avoid overlapping GND pattern and coil.