

MESSRS :

RELIABILITY DATA

CUSTOMER'S PRODUCT NAME:

TDK PRODUCT NAME: DC-DC CONVERTER
CC3 SERIES

TDK-Lambda

TDK Corporation
Power Systems Business Group

DWG.No.	TRSR-0107-5
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Revised 2006/12/01

	Test Condition	Test Result				
		Item	Before test X	After test X	Criteria	Judgment
Thermal shock CC3-2412SF-E	-40~85degC 30min.Each 1500cycles N=5 Measuring Condition Ta=25degC Vin=24V Iout=0.25A	Efficiency	82.8%	82.8%	79%~83%	OK
		Output Current	12.062V	12.048V	11.64V~12.36V	OK
		Ripple	35.2mVp-p	34.6mVp-p	<100mVp-p	OK
		Insulated Resistance	>50MΩ	>50MΩ	>50MΩ	OK
		Withstanding voltage	>AC500V	>AC500V	>AC500V	OK
Continuous operation under high temperature CC3-0505SF-E	85degC 2000hours Nominal input and output N=5 Measuring Condition Ta=25degC Vin=5V Iout=0.6A	Efficiency	76.9%	76.3%	75%~79%	OK
		Output Current	5.032V	5.028V	4.85V~5.15V	OK
		Ripple	77.6mVp-p	72.2mVp-p	<100mVp-p	OK
		Insulated Resistance	>50MΩ	>50MΩ	>50MΩ	OK
		Withstanding voltage	>AC500V	>AC500V	>AC500V	OK
Intermittent operation in low temperature CC3-0505SF-E	-40degC 1h ON / 3h OFF 1000hours Nominal input and output N=5 Measuring Condition Ta=25degC Vin=5V Iout=0.6A	Efficiency	76.6%	76.2%	75%~79%	OK
		Output Current	5.035V	5.033V	4.85V~5.15V	OK
		Ripple	67.5mVp-p	68.5mVp-p	<100mVp-p	OK
		Insulated Resistance	>50MΩ	>50MΩ	>50MΩ	OK
		Withstanding voltage	>AC500V	>AC500V	>AC500V	OK
Intermittent operation under humidity CC3-0505SF-E	60degC·90%R.H. 1h ON / 3h OFF 1000hours Nominal input and output N=5 Measuring Condition Ta=25degC Vin=5V Iout=0.6A	Efficiency	76.9%	76.6%	75%~79%	OK
		Output Current	5.020V	5.010V	4.85V~5.15V	OK
		Ripple	69.9mVp-p	66.2mVp-p	<100mVp-p	OK
		Insulated Resistance	>50MΩ	>50MΩ	>50MΩ	OK
		Withstanding voltage	>AC500V	>AC500V	>AC500V	OK

No.	MATERIALS NAME	QU	MATERIAL	REMARK
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DC-DC CONVERTER CC3 SERIES				
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	Test Condition	Test Result				
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Vibration Shock (Group test) CC3-2412SF-E	10~500Hz, amplitude acceleration 10G, 1 octave /min. sweep, XYZ each 2.5h 100G(pulse) Duration 6ms 1/2 sine pulse 3times each axis, total 18times N=5 Measuring Condition Ta=25degC Vin=24V Iout=0.25A	Efficiency	82.7%	82.8%	79%~83%	OK
		Output Current	12.070V	12.066V	11.64V~12.36V	OK
		Ripple	35.4mVp-p	26.8mVp-p	<100mVp-p	OK
		Insulated Resistance	>50MΩ	>50MΩ	>50MΩ	OK
		Withstanding voltage	>AC500V	>AC500V	>AC500V	OK
Resistance to solder heat 1 CC3-2412SF-E	380±10degC 3.5sec N=5 Measuring Condition Ta=25degC Vin=24V Iout=0.25A	Efficiency	82.7%	82.7%	79%~83%	OK
		Output Current	12.054V	12.050V	11.64V~12.36V	OK
		Ripple	28.6mVp-p	28.2mVp-p	<100mVp-p	OK
		Insulated Resistance	>50MΩ	>50MΩ	>50MΩ	OK
		Withstanding voltage	>AC500V	>AC500V	>AC500V	OK
Resistance to solder heat 2 CC3-2412SF-E	265±5degC 10sec N=5 Measuring Condition Ta=25degC Vin=24V Iout=0.25A	Efficiency	82.3%	82.2%	79%~83%	OK
		Output Current	12.074V	12.076V	11.64V~12.36V	OK
		Ripple	28.6mVp-p	28.8mVp-p	<100mVp-p	OK
		Insulated Resistance	>50MΩ	>50MΩ	>50MΩ	OK
		Withstanding voltage	>AC500V	>AC500V	>AC500V	OK
Mechanical strength of terminal CC1R5-2412SF-E ※1	JIS C 0052 pul, press, bend N=5	Appearance				OK
Solderability CC3-2405SF-E	Burn-in under steaming condition 8h 245±3degC N=5	Appearance				OK

※1 CC1R5-2412SF-E represents all CC3-Series.

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	Test Condition	Test Result	
		Criteria	Judgment
Static electricity CC3-2412DF-E	1. Human body model Electric discharge resistance : 1.5KΩ capacitance : 100pF Test voltage : 3KV 2. Machine model Electric discharge resistance : 0Ω capacitance : 200pF Test voltage : 1KV Test: 1time Polarity: +, - Measuring Condition Ta=25degC Vin=24V Iout=125mA N=2	No change after the test	OK
Whisker test	Storage under humidity 60degC·90%R.H. 2000hours N=8 Thermal shock -40degC ~ 85degC Each30min 1500cycle N=8	No whisker shall be allowed	OK

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CC3 series MTTF

Single output model

Total failure rates : 470 fit
MTTF : 2.13 million hour
(243 years)

Dual output model

Total failure rates : 500 fit
MTTF : 2.00 million hour
(228 years)

Calculation Condition

Ta : 50°C
πe : Gb

Vin : Rated voltage
Vout : Rated voltage
Iout : Rated voltage

MIL HDBK 217F

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