

MESSRS :

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RELIABILITY DATA

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CUSTOMER'S PRODUCT NAME:

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TDK PRODUCT NAME: DC-DC CONVERTER  
CC6 SERIES

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***TDK-Lambda***

**TDK Corporation**  
**Power Systems Business Group**

DWG.No.	TRSR-0100-6
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Revised 2006/12/01

	Test Condition	Test Result				
		Item	Before test X	After test X	Criteria	Judgment
<b>Thermal shock</b>  <b>CC6-2412SF-E</b>	-40~85degC 30min.Each 1500cycles N=5  Measuring Condition Ta=25degC Vin=24V Iout=0.5A	Efficiency	87.1%	87.7%	85%~89%	OK
		Output Current	12.096V	12.074V	11.64V~12.36V	OK
		Ripple	48mVp-p	39mVp-p	<100mVp-p	OK
		Insulated Resistance	>50MΩ	>50MΩ	>50MΩ	OK
		Withstanding voltage	>AC500V	>AC500V	>AC500V	OK
<b>Continuous operation under high temperature</b>  <b>CC6-0505SF-E</b>	85degC 2000hours Nominal input and output N=5  Measuring Condition Ta=25degC Vin=5V Iout=1A	Efficiency	77.5%	77.1%	76%~80%	OK
		Output Current	5.035V	5.027V	4.85V~5.15V	OK
		Ripple	63mVp-p	62mVp-p	<100mVp-p	OK
		Insulated Resistance	>50MΩ	>50MΩ	>50MΩ	OK
		Withstanding voltage	>AC500V	>AC500V	>AC500V	OK
<b>Intermittent operation in low temperature</b>  <b>CC6-0505SF-E</b>	-40degC 1h ON / 3h OFF 1000hours Nominal input and output N=5  Measuring Condition Ta=25degC Vin=5V Iout=1A	Efficiency	77.5%	77.8%	76%~80%	OK
		Output Current	5.036V	5.041V	4.85V~5.15V	OK
		Ripple	63mVp-p	58mVp-p	<100mVp-p	OK
		Insulated Resistance	>50MΩ	>50MΩ	>50MΩ	OK
		Withstanding voltage	>AC500V	>AC500V	>AC500V	OK
<b>Intermittent operation under humidity</b>  <b>CC6-0505SF-E</b>	60degC·90%R.H. 1h ON / 3h OFF 1000hours Nominal input and output N=5  Measuring Condition Ta=25degC Vin=5V Iout=1A	Efficiency	77.7%	78.0%	76%~80%	OK
		Output Current	5.023V	5.023V	4.85V~5.15V	OK
		Ripple	62mVp-p	55mVp-p	<100mVp-p	OK
		Insulated Resistance	>50MΩ	>50MΩ	>50MΩ	OK
		Withstanding voltage	>AC500V	>AC500V	>AC500V	OK
<b>Vibration-Shock (Group test)</b>  <b>CC6-2405SF-E</b>	10~500Hz,amplitude acceleration10G,1octave /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=0.5A	Efficiency	87.1%	87.0%	85%~89%	OK
		Output Current	12.114V	12.102V	11.64V~12.36V	OK
		Ripple	48.6mVp-p	41.2mVp-p	<100mVp-p	OK
		Insulated Resistance	>50MΩ	>50MΩ	>50MΩ	OK
		Withstanding voltage	>AC500V	>AC500V	>AC500V	OK

No.	MATERIALS NAME	QU	MATERIAL	REMARK
PRODUCT NAME or MODEL, TITLE				
DC-DC CONVERTER CC6 SERIES				
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	Test Condition	Test Result				
		Item	Before test X	After test X	Criteria	Judgment
Resistance to solder heat 1 CC6-2412SF-E	380±10degC 3.5sec N=5  Measuring Condition Ta=25degC Vin=24V Iout=0.5A	Efficiency	87.1%	87.1%	85%~89%	OK
		Output Current	12.070V	12.074V	11.64V~12.36V	OK
		Ripple	45.6mVp-p	43.0mVp-p	<100mVp-p	OK
		Insulated Resistance	>50MΩ	>50MΩ	>50MΩ	OK
		Withstanding voltage	>AC500V	>AC500V	>AC500V	OK
Resistance to solder heat 2 CC6-2412SF-E	265±5degC 10sec N=5  Measuring Condition Ta=25degC Vin=24V Iout=0.5A	Efficiency	87.1%	87.3%	85%~89%	OK
		Output Current	12.052V	12.058V	11.64V~12.36V	OK
		Ripple	41.6mVp-p	39.8mVp-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  ※2	Burn-in under steaming condition 8h 245±3degC N=5	Appearance				OK

	Test Condition	Test Result	
		Criteria	Judgment
Static electricity CC6-2412SF-E	1. Human body model Electric discharge resistance: 1.5KΩ capacitance: 100pF Test voltage: 3KV	No change after the test	OK
	2. Machine model Electric discharge resistance: 0Ω capacitance: 200pF Test voltage: 1KV Test: 1time Polarity: +,-  Measuring Condition Ta=25degC Vin=24V Iout=1.2mA N=2		
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

※1 CC1R5-2412SF-E represents all CC6-Series.

※2 CC3-2405SF-E represents all CC6-Series.

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CC6 series MTTF

Single output model

Total failure rates : 630 fit  
MTTF : 1.59 million hour  
(181 years)

Dual output model

Total failure rates : 650 fit  
MTTF : 1.54 million hour  
(176 years)

Calculation Condition

Ta : 50°C  
πe : Gb

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

MIL HDBK 217F

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