



Sep 20, 2019
Cosel Co., Ltd.
OS Design Dept.

EMI/EMS Test Result

Model Name : CHS300 series

The EUT is operated with following condition during EMI/EMS test.

Input Voltage : Rated Voltage
Output Current : Rated Current
Ambient Temperature : 25°C ± 10°C

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#	Subject	Reference standard	Test Condition	Criteria *1	Result
1	EMI	Conducted Emission	EN55011, EN55032 Class A CISPR 32 Class A FCC Part15 Class A VCCI Class A Testing circuitry Fig. 1	-	Pass
2		Radiated Emission	EN55011, EN55032 Class A CISPR 32 Class A FCC Part15 Class A VCCI Class A Testing circuitry Fig. 1	-	Pass
3	EMS	Electrostatic discharge immunity test	IEC61000-4-2 Contact Discharge : Level 4 (8kV) Air Discharge : Level 4 (15kV) Testing circuitry Fig. 2	A	Pass
4		Radiated, radio-frequency, electromagnetic field immunity test	IEC61000-4-3 12V/m : (80MHz~1.0GHz) 3.6V/m : (1.4 ~ 2.0GHz) 1.2V/m : (2.0 ~ 2.7GHz) 80% Amplitude modulated Testing circuitry Fig. 2	A	Pass
5		Electrical fast transient / Burst immunity test	IEC61000-4-4 Level 4 (4kV) Repetition Rate : 5kHz and 100kHz Testing circuitry Fig. 2	A	Pass
6		Surge immunity test	IEC61000-4-5 Line to Line : Level 4 (2kV) Line to Earth : Level 4 (4kV) Testing circuitry Fig. 2	A	Pass

***1 Definition of Criteria**

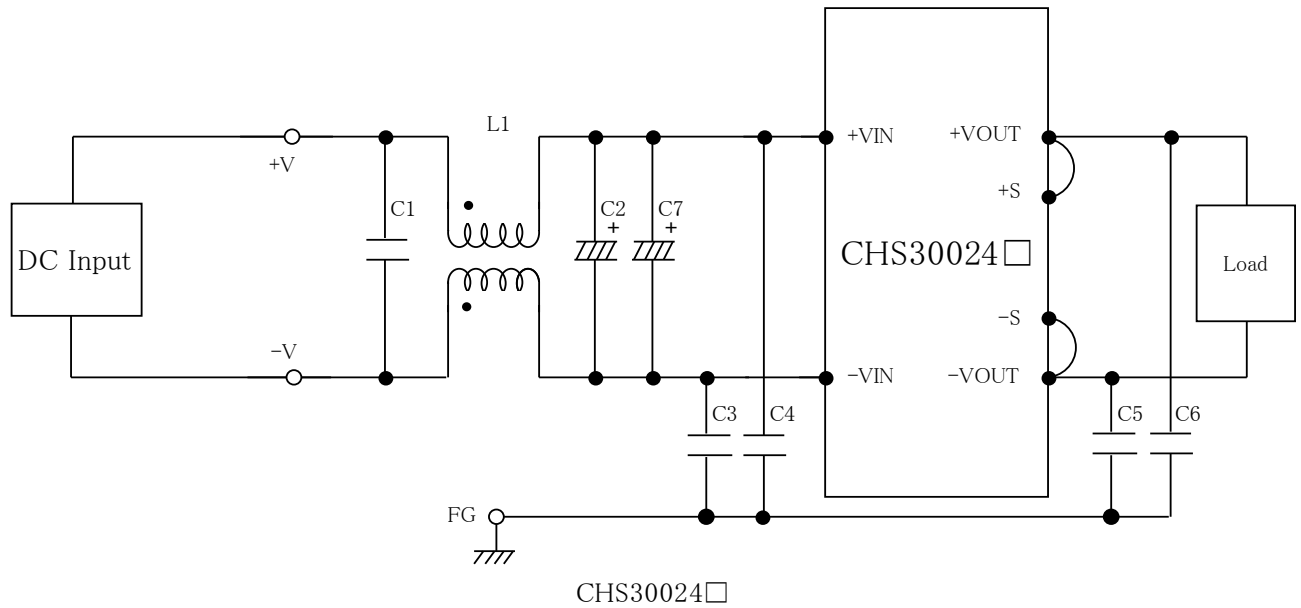
Criteria A : (1) No output voltage drop with control circuit failure.
(2) No protection circuit and other circuit malfunction.

Criteria B : (1) The output voltage is temporary degradation of performance.
It recovers its normal performance without operator intervention.
(2) No protection circuit and other circuit failure.

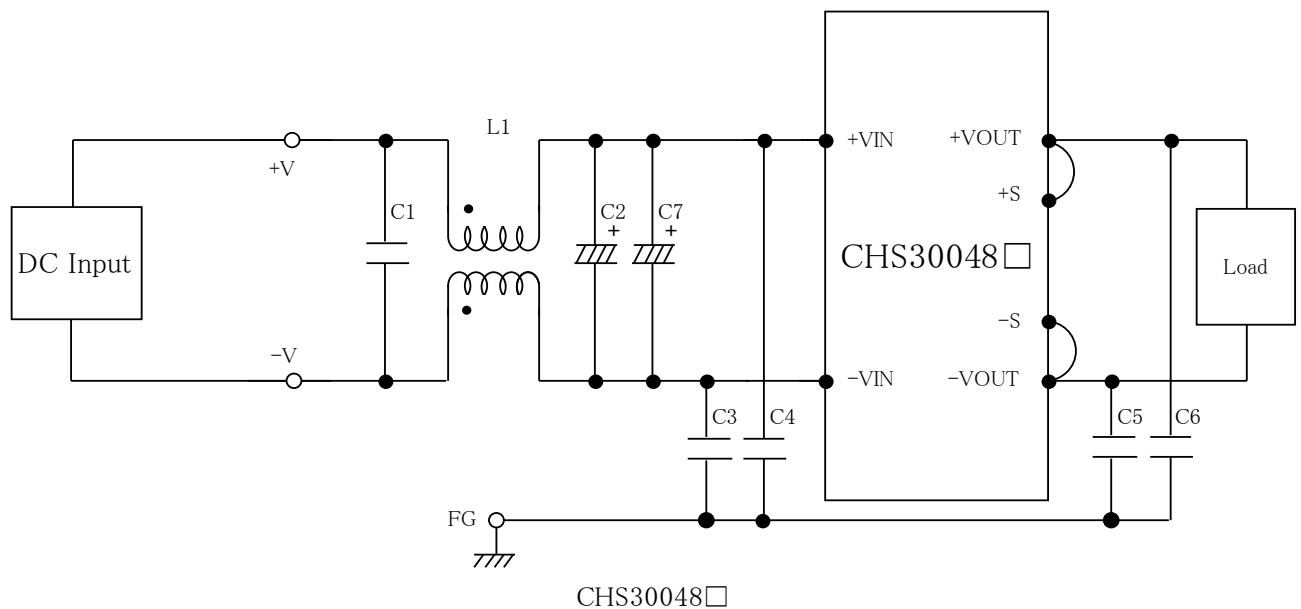
<Notes>

Power supply can't determine the final equipment performance against EMS test. Therefore we confirmed the output voltage performance only. EMS test should be performed as a final product.

○ Testing circuitry



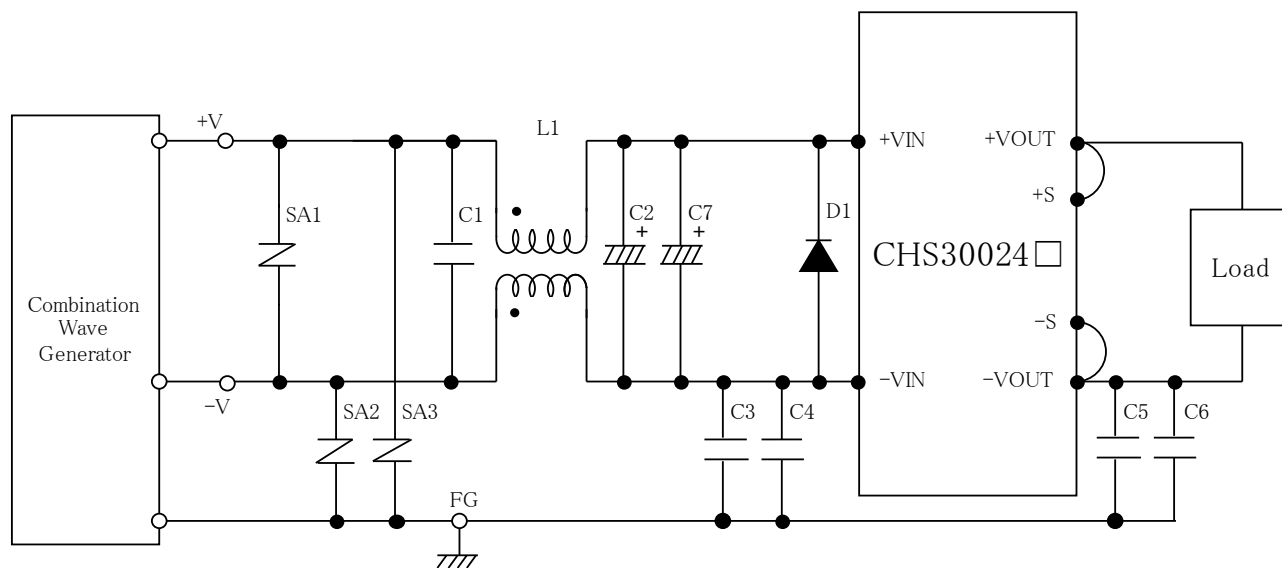
- L1 : 1mH SC-20-10JH (TOKIN)
 C1 : 250V 2.2 μ F FPD22E225J4 (NITSUKO)
 C2,C7 : 50V 330 μ F PWseries (nichicon)
 C3,C4 : 630V 0.068 μ F FPD22J683J4 (NITSUKO)
 C5,C6 : 630V 0.033 μ F FPD22J333J4 (NITSUKO)



- L1 : 1mH SC-15-10J (TOKIN) for CHS3004810/12/12H
 SC-20-10JH (TOKIN) for CHS3004815/24/28/32/48
 C1 : 250V 2.2 μ F FPD22E225J4 (NITSUKO)
 C2,C7 : 100V 100 μ F PWseries (nichicon)
 C3,C4 : 630V 0.068 μ F FPD22J683J4 (NITSUKO)
 C5,C6 : 630V 0.033 μ F FPD22J333J4 (NITSUKO)

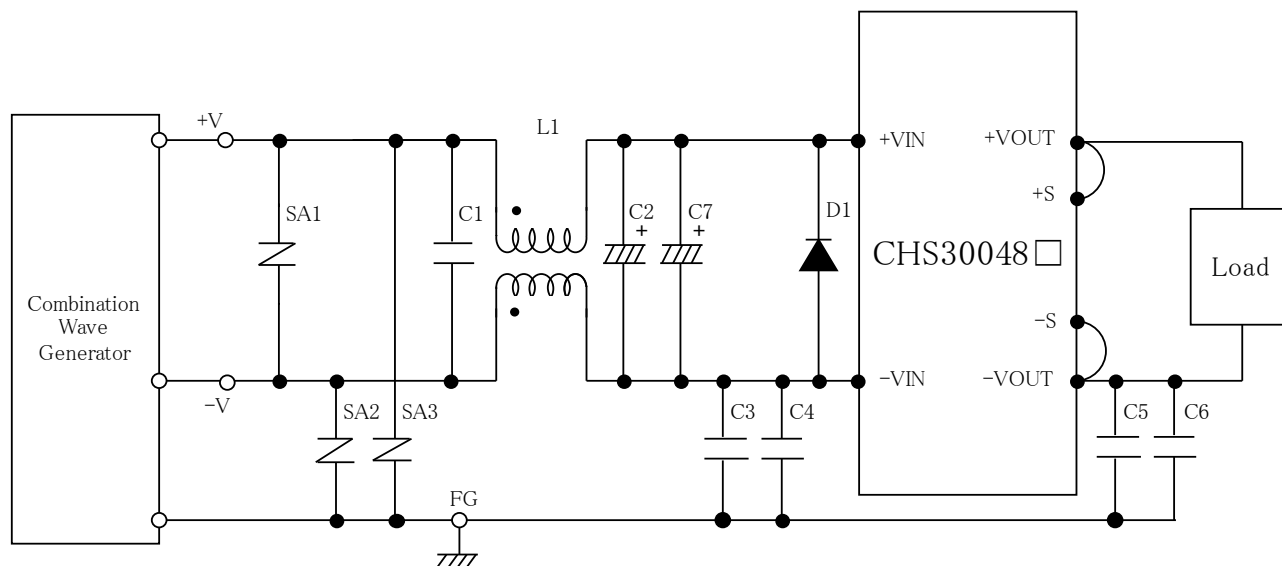
Fig.1 Testing circuitry

○ Testing circuitry



CHS30024□

- L1 : 1mH SC-20-10JH (TOKIN)
- C1 : 250V 2.2 μ F FPD22E225J4 (NITSUKO)
- C2,C7 : 50V 330 μ F PWseries (nichicon)
- C3,C4 : 630V 0.068 μ F FPD22J683J4(NITSUKO)
- C5,C6 : 630V 0.033 μ F FPD22J333J4(NITSUKO)
- D1 : ERD32-02(FUJIELECTRIC)
- SA1.SA2.SA3 : ERZV10D470 (Panasonic)



CHS30048□

- L1 : 1mH SC-15-10J (TOKIN) for CHS3004810/12/12H
SC-20-10JH (TOKIN) for CHS3004815/24/28/32/48
- C1 : 250V 2.2 μ F FPD22E225J4 (NITSUKO)
- C2,C7 : 100V 100 μ F PWseries (nichicon)
- C3,C4 : 630V 0.068 μ F FPD22J683J4(NITSUKO)
- C5,C6 : 630V 0.033 μ F FPD22J333J4(NITSUKO)
- D1 : ERD32-02(FUJIELECTRIC)
- SA1,SA2,SA3 : ERZV10D101 (Panasonic)

Fig.2 Surge immunity Testing circuitry