

CES series EMI/EMS Test resultApproved : *Kazuyoshi Shimano*Prepared : *74. Nakayama*

No.	Test item	Conditions	Conditions of Acceptability	Result
1	Line conduction	(1) Rated input(DC48V) (2) Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$ (4) Testing circuitry Fig.1	(1)Meets the undermentioned standard. FCC Part15 classA , VCCI classA CISPR22 classA , EN55022-A	OK
2	Radiated emission	(1) Rated input(DC48V) (2) Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$ (4) Testing circuitry Fig.1	(1)Meets the undermentioned standard. FCC Part15 classA , VCCI classA CISPR22 classA , EN55022-A	OK
3	Static electricity immunity test (EN61000-4-2)	(1) Rated input(DC48V) (2) Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$ (4) Contact discharge voltage 8[kV] (EN61000-4-2 Level 4) (5) Testing circuitry Fig.1	(1)No protection circuit failure. (2)No output voltage drop with control circuit failure. (3)No any other function failure	OK
4	Radiated, radio-frequency, electromagnetic field immunity test (EN61000-4-3)	(1) Rated input(DC48V) (2) Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$ (4)Testing field strength 10[V/m] (EN61000-4-3 Level 3) (5) Testing circuitry Fig.1	(1)No protection circuit failure. (2)No output voltage drop with control circuit failure. (3)No any other function failure	OK
5	Electrical fast transient/ burst immunity test (EN61000-4-4)	(1) Rated input(DC48V) (2) Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$ (4) Test peak voltage 4[kV] (IEC61000-4-4 Level 4) (5) Testing circuitry Fig.1	(1)No protection circuit failure. (2)No output voltage drop with control circuit failure. (3)No any other function failure	OK
6	Surge immunity test (EN61000-4-5)	(1) Rated input(DC48V) (2) Rated load (3) Ambient temp. $25 \pm 10^{\circ}\text{C}$ (4) Test voltage Line to line 2[kV] (Level 3) Line to earth 4[kV] (Level 4) (5) Testing circuitry Fig.2	(1)The power supply is not stop (2)Circuit does not malfunction. (3)No abnormality of the insulation destruction etc. (4)Parts are no damaged.	OK

○ Testing circuitry

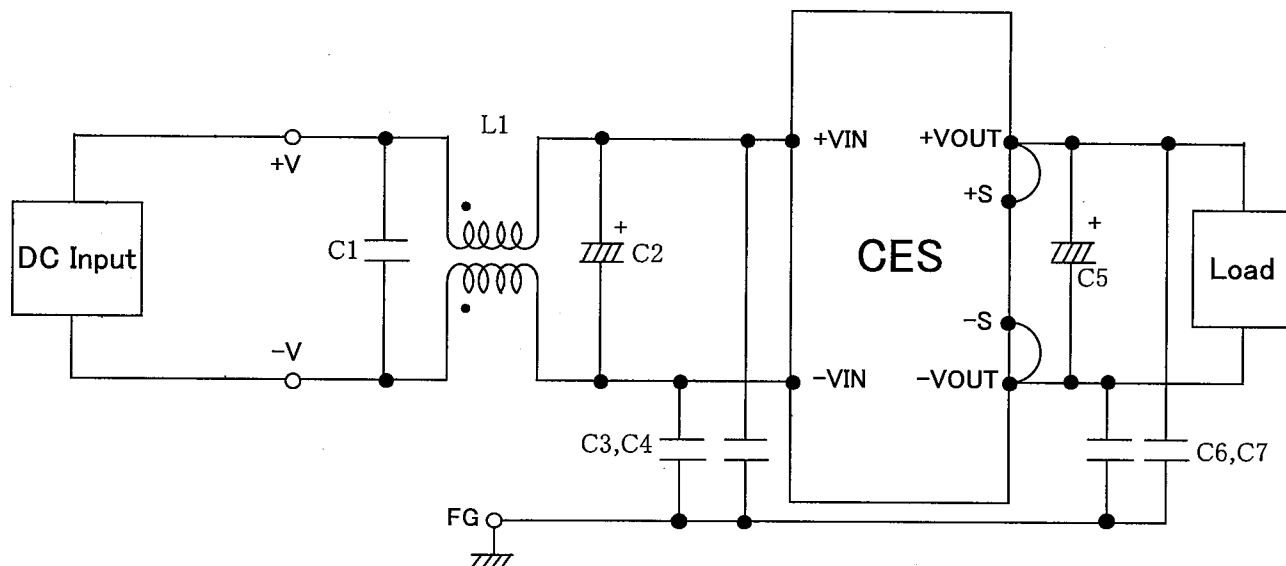


Fig.1 Testing circuitry

- L1 : 1mH SC-05-10J (TOKIN)
 C1 : 2.2 μ F MDS22A225K (NITSUKO)
 C2 : 100V 47 μ F PWseries (nichicon) CES48033-30, CES48050-20, CES48033-30P, CES48050-20P, CES48120-7P
 100V 33 μ F PWseries (nichicon) Otheras
 C3,4 : 630V 0.068 μ F MDS22J683K (NITSUKO)
 C5 : 25V 10 μ F PMseries (nichicon) CES48120-6, CES48150-4, CES48120-7P
 10V 10 μ F PMseries (nichicon) Others
 C6,7 : 630V 0.033 μ F MDS22J333K (NITSUKO)

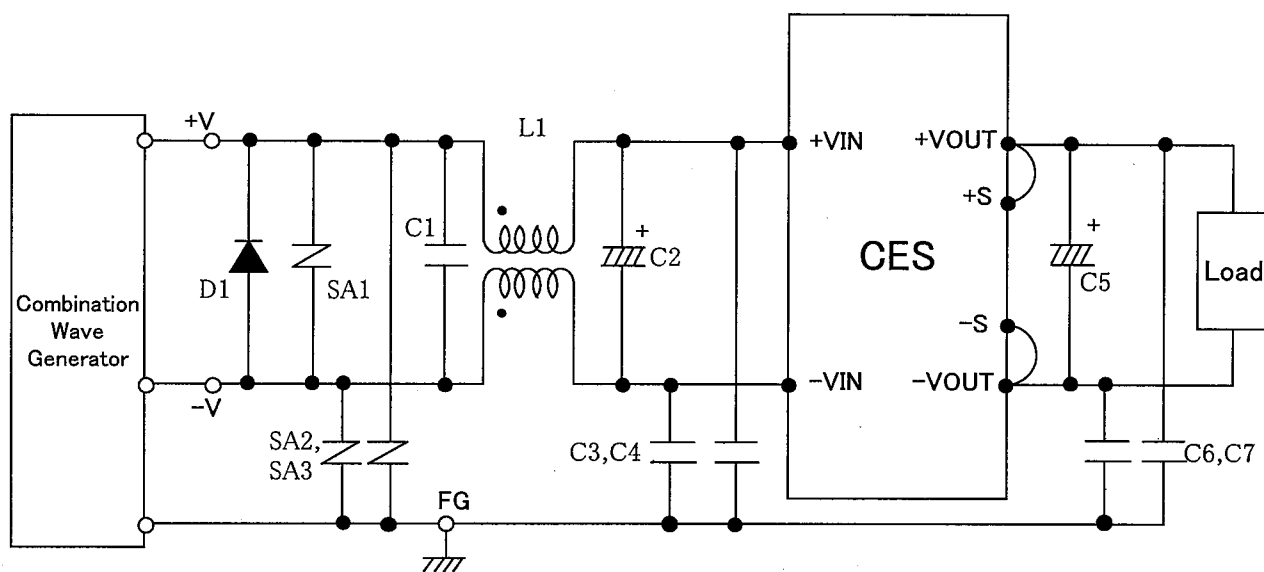


Fig.2 Surge immunity Testing circuitry

- L1 : 1mH SC-05-10J (TOKIN)
 C1 : 2.2 μ F MDS22A225K (NITSUKO)
 C2 : 100V 47 μ F PWseries (nichicon) CES48033-30, CES48050-20, CES48033-30P, CES48050-20P, CES48120-7P
 100V 33 μ F PWseries (nichicon) Otheras
 C3,4 : 630V 0.068 μ F MDS22J683K (NITSUKO)
 C5 : 25V 10 μ F PMseries (nichicon) CES48120-6, CES48150-4, CES48120-7P
 10V 10 μ F PMseries (nichicon) Others
 C6,7 : 630V 0.033 μ F MDS22J333K (NITSUKO)
 SA1~3 : ERZV10D101 (100V)
 D1 : BRD32-02 (FUJI ELECTRIC)