参考資料

COSEL

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OS DESIGN DEPT.

MGS1R5 Series EMI／EMS Test results

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No.	Test item	Conditions	Conditions of Acceptability	Result
1	Line conduction	(1) Rated input (2) Rated load (3) Ambient temp. 25±10℃ (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 (2) Rated load (3) Ambient temp. 25±10℃ (4) Testing circuitry Fig.1	(1)Meets the under mentioned standard. FCC Part15 classA , VCCI classA CISPR22 classA , EN55022-A	OK
3	Static electricity immunity test (EN61000-4-2)	(1) Rated input (2) Rated load (3) Ambient temp. 25±10℃ (4) Contact discharge voltage 4[kV] (EN61000-4-2 Level 2) (5) Testing circuitry Fig.2	(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 (2) Rated load (3) Ambient temp. 25±10℃ (4)Testing field strength (Level 3) ① 10 [V/m] (80MHz to 1.0GHz) ② 3 [V/m] (1.4GHz to 2.0GHz) ③ 1 [V/m] (2.0GHz to 2.7GHz) (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 (2) Rated load (3) Ambient temp. 25±10℃ (4) Test peak voltage 4[kV] (IEC61000-4-4 Level 4) (5) Testing circuitry Fig.2	(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 (2) Rated load (3) Ambient temp. 25±10℃ (4) Test voltage Line to line 2[kV] (Level 3) (5) Testing circuitry Fig.3	(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

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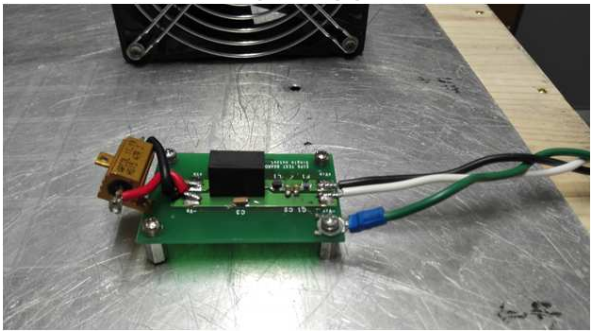
Conditions

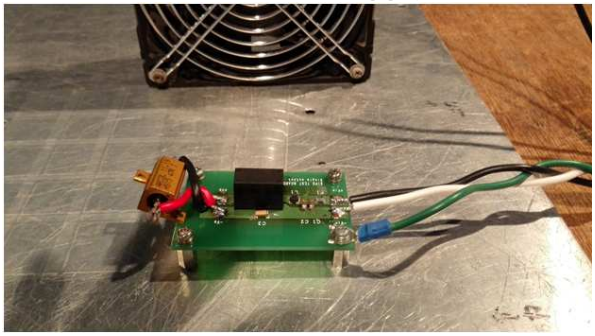
Test : Line conduction , Radiated emission
Radiated, radio-frequency, electromagnetic field immunity test
Model Name : MGS1R5□□

○Photographs of Test Set-Up

LINE CONDUCTION



RADIATED EMISSION



○Testing circuitry

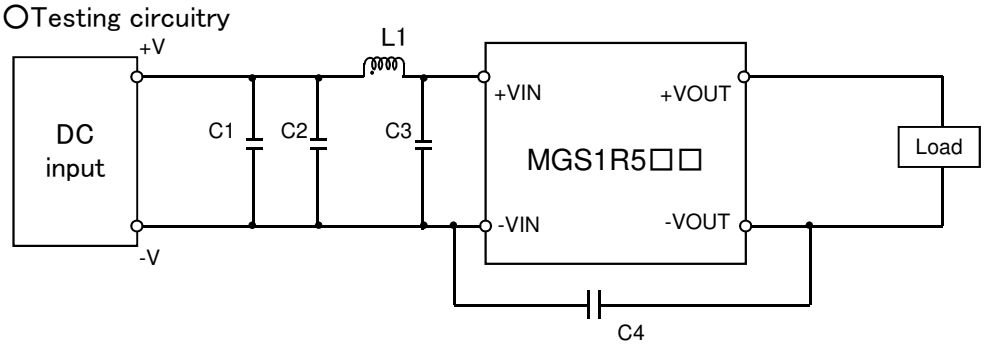


Fig.1 Testing circuitry 1

C1,C2,C3 : MGS1R505□□ 16V 22μF Ceramic capacitor
(GRM31CC71C226K MURATA MANUFACTURING)
MGS1R512□□ 25V 10μF Ceramic capacitor
(GRM31CR71E106K MURATA MANUFACTURING)
MGS1R524□□ 50V 4.7μF Ceramic capacitor
(GRM31CR71H475K MURATA MANUFACTURING)
MGS1R548□□ 100V 2.2μF Ceramic capacitor
(GRM31CR72A225K MURATA MANUFACTURING)

C4 : MGS1R505□□ 2kV 470pF Ceramic capacitor (GR442QR73D471K MURATA MANUFACTURING)
MGS1R512□□ 2kV 470pF Ceramic capacitor (GR442QR73D471K MURATA MANUFACTURING)
MGS1R524□□ 2kV 470pF Ceramic capacitor (GR442QR73D471K MURATA MANUFACTURING)
MGS1R548□□ 2kV 470pF Ceramic capacitor (GR442QR73D471K MURATA MANUFACTURING)

L1 : MGS1R505□□ 1550mA 3.3μH Inductor(LQH32PN3R3NNCL MURATA MANUFACTURING)
MGS1R512□□ 1200mA 4.7μH Inductor(LQH32PN4R7NNCL MURATA MANUFACTURING)
MGS1R524□□ 900mA 10μH Inductor(LQH32PN100MNCL MURATA MANUFACTURING)
MGS1R548□□ 550mA 22μH Inductor(LQH32PN220MNCL MURATA MANUFACTURING)

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Conditions

Test : Static electricity immunity test
Electrical fast transient / burst immunity test
Model Name : MGS1R5□□ / MGS3□□

○Testing circuitry

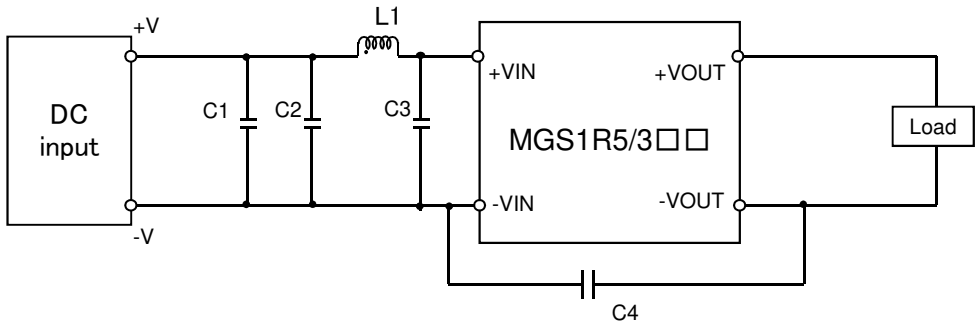

Fig.2 Testing circuitry 2

C1 : MGS1R5/305□□ 16V 22μF Ceramic capacitor (GRM31CC71C226K MURATA MANUFACTURING)
MGS1R5/312□□ 25V 10μF Ceramic capacitor (GRM31CR71E106K MURATA MANUFACTURING)
MGS1R5/324□□ 50V 4.7μF Ceramic capacitor (GRM31CR71H475K MURATA MANUFACTURING)
MGS1R5/348□□ 100V 2.2μF Ceramic capacitor (GRM31CR72A225K MURATA MANUFACTURING)

C2 : MGS1R5/305□□ 16V 22μF Ceramic capacitor (GRM31CC71C226K MURATA MANUFACTURING)
MGS1R5/312□□ 25V 10μF Ceramic capacitor (GRM31CR71E106K MURATA MANUFACTURING)
MGS1R5/324□□ 50V 4.7μF Ceramic capacitor (GRM31CR71H475K MURATA MANUFACTURING)
MGS1R5/348□□ 100V 2.2μF Ceramic capacitor (GRM31CR72A225K MURATA MANUFACTURING)

C3 : MGS1R5/305□□ 16V 22μF Ceramic capacitor (GRM31CC71C226K MURATA MANUFACTURING)
MGS1R5/312□□ 25V 10μF Ceramic capacitor (GRM31CR71E106K MURATA MANUFACTURING)
MGS1R5/324□□ 50V 4.7μF Ceramic capacitor (GRM31CR71H475K MURATA MANUFACTURING)
MGS1R5/348□□ 100V 2.2μF Ceramic capacitor (GRM31CR72A225K MURATA MANUFACTURING)

C4 : MGS1R5/305□□ 2kV 470pF Ceramic capacitor (GR442QR73D471K MURATA MANUFACTURING)
MGS1R5/312□□ 2kV 470pF Ceramic capacitor (GR442QR73D471K MURATA MANUFACTURING)
MGS1R5/324□□ 2kV 470pF Ceramic capacitor (GR442QR73D471K MURATA MANUFACTURING)
MGS1R5/348□□ 2kV 470pF Ceramic capacitor (GR442QR73D471K MURATA MANUFACTURING)

L1 : MGS1R5/305□□ 1550mA 3.3μH Inductor(LQH32PN3R3NNCL MURATA MANUFACTURING)
MGS1R5/312□□ 1200mA 4.7μH Inductor(LQH32PN4R7NNCL MURATA MANUFACTURING)
MGS1R5/324□□ 900mA 10μH Inductor(LQH32PN100MNCL MURATA MANUFACTURING)
MGS1R5/348□□ 550mA 22μH Inductor(LQH32PN220MNCL MURATA MANUFACTURING)

Conditions

Test : Surge immunity test

Model Name : MGS1R5□□ / MGS3□□

○Testing circuitry

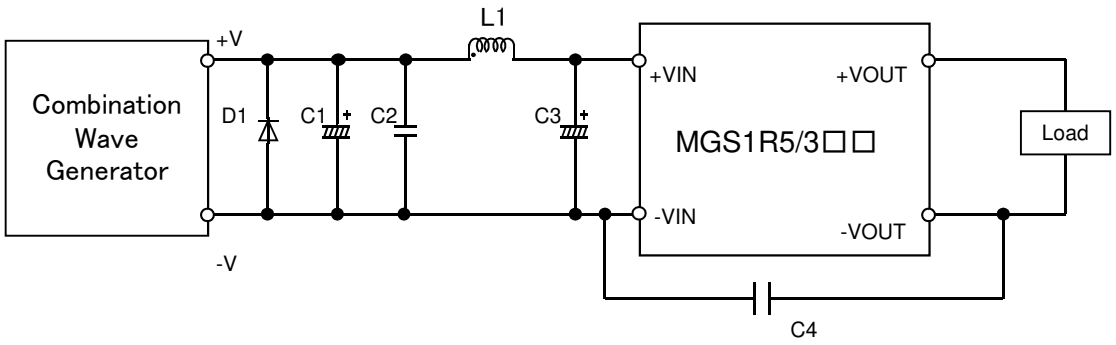

Fig.3 Testing circuitry 3

C1 : MGS1R5/305□□ 25V 1000μF Electrolytic capacitor (LXZseries NIPPON CHEMI-CON)
MGS1R5/312□□ 50V 470μF Electrolytic capacitor (LXZseries NIPPON CHEMI-CON)
MGS1R5/324□□ 63V 220μF Electrolytic capacitor (LXZseries NIPPON CHEMI-CON)
MGS1R5/348□□ 100V 100μF Electrolytic capacitor (LXVseries NIPPON CHEMI-CON)

C2 : MGS1R5/305□□ 16V 22μF Ceramic capacitor (GRM31CC71C226K MURATA MANUFACTURING)
MGS1R5/312□□ 25V 10μF Ceramic capacitor (GRM31CR71E106K MURATA MANUFACTURING)
MGS1R5/324□□ 50V 4.7μF Ceramic capacitor (GRM31CR71H475K MURATA MANUFACTURING)
MGS1R5/348□□ 100V 2.2μF Ceramic capacitor (GRM31CR72A225K MURATA MANUFACTURING)

C3 : MGS1R5/305□□ 25V 1000μF Electrolytic capacitor (LXZseries NIPPON CHEMI-CON)
MGS1R5/312□□ 50V 470μF Electrolytic capacitor (LXZseries NIPPON CHEMI-CON)
MGS1R5/324□□ 63V 220μF Electrolytic capacitor (LXZseries NIPPON CHEMI-CON)
MGS1R5/348□□ 100V 100μF Electrolytic capacitor (LXVseries NIPPON CHEMI-CON)

C4 : MGS1R5/305□□ 2kV 470pF Ceramic capacitor (GR442QR73D471K MURATA MANUFACTURING)
MGS1R5/312□□ 2kV 470pF Ceramic capacitor (GR442QR73D471K MURATA MANUFACTURING)
MGS1R5/324□□ 2kV 470pF Ceramic capacitor (GR442QR73D471K MURATA MANUFACTURING)
MGS1R5/348□□ 2kV 470pF Ceramic capacitor (GR442QR73D471K MURATA MANUFACTURING)

L1 MGS1R5/305□□ 1550mA 3.3μH Inductor(LQH32PN3R3NNCL MURATA MANUFACTURING)
MGS1R5/312□□ 1200mA 4.7μH Inductor(LQH32PN4R7NNCL MURATA MANUFACTURING)
MGS1R5/324□□ 900mA 10μH Inductor(LQH32PN100MNCL MURATA MANUFACTURING)
MGS1R5/348□□ 550mA 22μH Inductor(LQH32PN220MNCL MURATA MANUFACTURING)

D1 : MGS1R5/305□□ 400V 3A Diode(S3L40U SHINDENGEN)
MGS1R5/312□□ 400V 3A Diode(S3L40U SHINDENGEN)
MGS1R5/324□□ 400V 3A Diode(S3L40U SHINDENGEN)
MGS1R5/348□□ 400V 3A Diode(S3L40U SHINDENGEN)