



MGS1R5 Series EMI/EMS Test results

Approved : Takayuki Fukuda
Takayuki Fukuda

Prepared : Satoshi Kinoshita
Satoshi Kinoshita

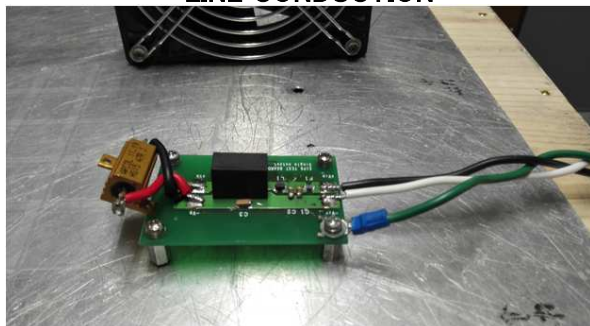
No.	Test item	Conditions	Conditions of Acceptability	Result
1	Line conduction	(1) Rated input (2) Rated load (3) Ambient temp. 25±10°C (4) Testing circuitry Fig.1	(1)Meets the undermentioned standard. FCC Part15 classA , VCCI classA CISPR22 classA , EN55022-A	OK
2	Radiated emission	(1) Rated input (2) Rated load (3) Ambient temp. 25±10°C (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°C (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°C (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°C (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°C (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



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

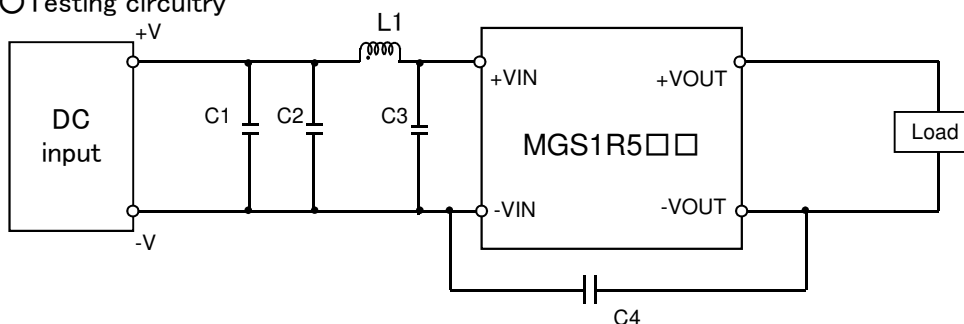


Fig.1 Testing circuitry 1

- C1,C2,C3 : MGS1R505□□ 16V 22 μ F Ceramic capacitor (GRM31CC71C226K MURATA MANUFACTURING)
 MGS1R512□□ 25V 10 μ F Ceramic capacitor (GRM31CR71E106K MURATA MANUFACTURING)
 MGS1R524□□ 50V 4.7 μ F Ceramic capacitor (GRM31CR71H475K MURATA MANUFACTURING)
 MGS1R548□□ 100V 2.2 μ F 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 3.3 μ H Inductor (LQH32PN3R3NNCL MURATA MANUFACTURING)
 MGS1R512□□ 1200mA 4.7 μ H Inductor (LQH32PN4R7NNCL MURATA MANUFACTURING)
 MGS1R524□□ 900mA 10 μ H Inductor (LQH32PN100MNCL MURATA MANUFACTURING)
 MGS1R548□□ 550mA 22 μ H Inductor (LQH32PN220MNCL MURATA MANUFACTURING)



Conditions

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

○Testing circuitry

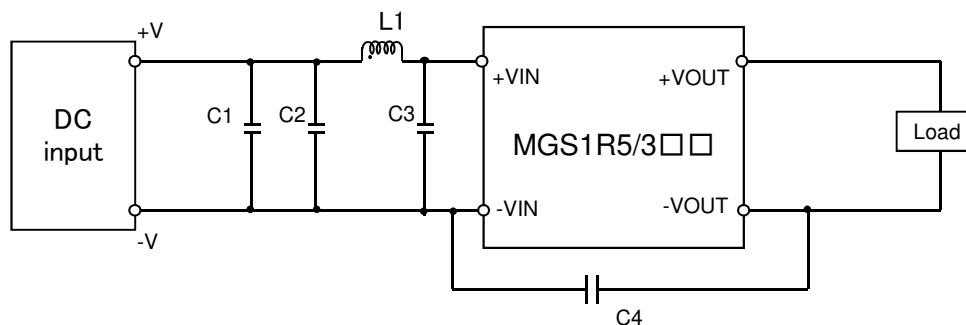


Fig.2 Testing circuitry 2

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|------|--------------|--------------------|-----------------------------------|-----------------------|
| C1 : | MGS1R5/305□□ | 16V 22 μ F | Ceramic capacitor (GRM31CC71C226K | MURATA MANUFACTURING) |
| | MGS1R5/312□□ | 25V 10 μ F | Ceramic capacitor (GRM31CR71E106K | MURATA MANUFACTURING) |
| | MGS1R5/324□□ | 50V 4.7 μ F | Ceramic capacitor (GRM31CR71H475K | MURATA MANUFACTURING) |
| | MGS1R5/348□□ | 100V 2.2 μ F | Ceramic capacitor (GRM31CR72A225K | MURATA MANUFACTURING) |
| C2 : | MGS1R5/305□□ | 16V 22 μ F | Ceramic capacitor (GRM31CC71C226K | MURATA MANUFACTURING) |
| | MGS1R5/312□□ | 25V 10 μ F | Ceramic capacitor (GRM31CR71E106K | MURATA MANUFACTURING) |
| | MGS1R5/324□□ | 50V 4.7 μ F | Ceramic capacitor (GRM31CR71H475K | MURATA MANUFACTURING) |
| | MGS1R5/348□□ | 100V 2.2 μ F | Ceramic capacitor (GRM31CR72A225K | MURATA MANUFACTURING) |
| C3 : | MGS1R5/305□□ | 16V 22 μ F | Ceramic capacitor (GRM31CC71C226K | MURATA MANUFACTURING) |
| | MGS1R5/312□□ | 25V 10 μ F | Ceramic capacitor (GRM31CR71E106K | MURATA MANUFACTURING) |
| | MGS1R5/324□□ | 50V 4.7 μ F | Ceramic capacitor (GRM31CR71H475K | MURATA MANUFACTURING) |
| | MGS1R5/348□□ | 100V 2.2 μ F | 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 3.3 μ H | Inductor(LQH32PN3R3NNCL | MURATA MANUFACTURING) |
| | MGS1R5/312□□ | 1200mA 4.7 μ H | Inductor(LQH32PN4R7NNCL | MURATA MANUFACTURING) |
| | MGS1R5/324□□ | 900mA 10 μ H | Inductor(LQH32PN100MNCL | MURATA MANUFACTURING) |
| | MGS1R5/348□□ | 550mA 22 μ H | Inductor(LQH32PN220MNCL | MURATA MANUFACTURING) |



Conditions

Test : Surge immunity test

Model Name : MGS1R5□□ / MGS3□□

○Testing circuitry

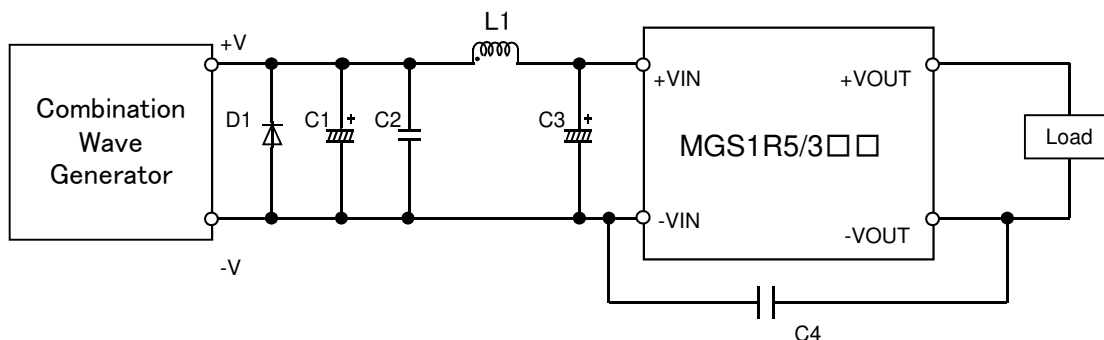


Fig.3 Testing circuitry 3

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|------|--------------|--|
| C1 : | MGS1R5/305□□ | 25V 1000 μ F Electrolytic capacitor (LXZseries NIPPON CHEMI-CON) |
| | MGS1R5/312□□ | 50V 470 μ F Electrolytic capacitor (LXZseries NIPPON CHEMI-CON) |
| | MGS1R5/324□□ | 63V 220 μ F Electrolytic capacitor (LXZseries NIPPON CHEMI-CON) |
| | MGS1R5/348□□ | 100V 100 μ F Electrolytic capacitor (LXVseries NIPPON CHEMI-CON) |
| C2 : | MGS1R5/305□□ | 16V 22 μ F Ceramic capacitor (GRM31CC71C226K MURATA MANUFACTURING) |
| | MGS1R5/312□□ | 25V 10 μ F Ceramic capacitor (GRM31CR71E106K MURATA MANUFACTURING) |
| | MGS1R5/324□□ | 50V 4.7 μ F Ceramic capacitor (GRM31CR71H475K MURATA MANUFACTURING) |
| | MGS1R5/348□□ | 100V 2.2 μ F Ceramic capacitor (GRM31CR72A225K MURATA MANUFACTURING) |
| C3 : | MGS1R5/305□□ | 25V 1000 μ F Electrolytic capacitor (LXZseries NIPPON CHEMI-CON) |
| | MGS1R5/312□□ | 50V 470 μ F Electrolytic capacitor (LXZseries NIPPON CHEMI-CON) |
| | MGS1R5/324□□ | 63V 220 μ F Electrolytic capacitor (LXZseries NIPPON CHEMI-CON) |
| | MGS1R5/348□□ | 100V 100 μ F 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 3.3 μ H Inductor(LQH32PN3R3NNCL MURATA MANUFACTURING) |
| | MGS1R5/312□□ | 1200mA 4.7 μ H Inductor(LQH32PN4R7NNCL MURATA MANUFACTURING) |
| | MGS1R5/324□□ | 900mA 10 μ H Inductor(LQH32PN100MNCL MURATA MANUFACTURING) |
| | MGS1R5/348□□ | 550mA 22 μ H 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) |