



EMI/EMS Test Result

Model Name : MUS1R5 series

Approved : Kenichi Tsukada

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

Prepared : Soichiro Kawaguchi

#	Subject	Reference standard	Test Condition	Criteria *1	Result
1	EMI	Conducted Emission	EN55011, EN55032 Class A CISPR11, CISPR32 Class A FCC Part15, FCC Part18 Class A VCCI Class A Testing circuitry Fig. 1-1, 1-2	-	Pass
2		Radiated Emission	EN55011, EN55032 Class A CISPR11, CISPR32 Class A FCC Part15, FCC Part18 Class A VCCI Class A Testing circuitry Fig. 1-1, 1-2	-	Pass
3	EMS	Electrostatic discharge immunity test	IEC61000-4-2 Contact Discharge : Level 4 (8kV) Air Discharge : Level 4 (15kV) Testing circuitry	A	Pass
4		Radiated, radio-frequency, electromagnetic field immunity test	IEC61000-4-3 10V/m : (80MHz~1GHz) 3V/m : (1.4GHz~2.0GHz) 1V/m : (2.0GHz~2.7GHz) 80% Amplitude modulated Testing circuitry Fig. 1-1, 1-2	A	Pass
5		Electrical fast transient / Burst immunity test	IEC61000-4-4 Level 4 (4kV) Repetition Rate : 5kHz and 100kHz Testing circuitry Fig. 1-1, 1-2	A	Pass
6		Surge immunity test	IEC61000-4-5 Line to Line : Level 4 (2kV) 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 shall not 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.

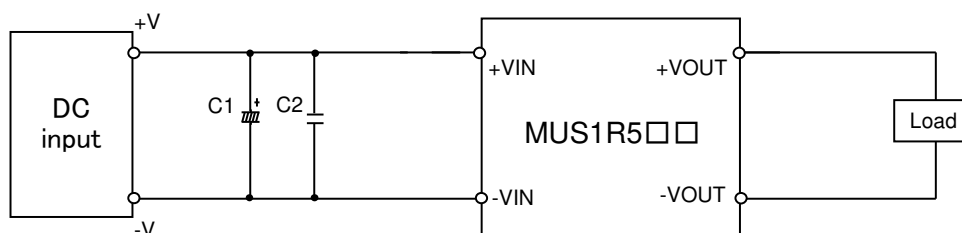


Conditions

Test : Line conduction , Radiated emission
 Electrostatic discharge immunity test
 Radiated, radio-frequency, electromagnetic field immunity test
 Electrical fast transient / burst immunity test

Model Name : MUS1R5□□

○ Testing circuitry



Electrostatic discharge immunity test

Fig.1-1 MUS1R505□, MUS1R512□, MUS1R524□ Testing circuitry

- | | | | |
|------|-----------|-----------------|---|
| C1 : | MUS1R505□ | 16V 220 μ F | Electric capacitor (UPWseries NICHICON) |
| | MUS1R512□ | 50V 100 μ F | Electric capacitor (UPWseries NICHICON) |
| | MUS1R524□ | — | |
| C2 : | MUS1R505□ | 16V 22 μ F | Ceramic capacitor (GRM31CC71C226M MURATA MANUFACTURING) |
| | MUS1R512□ | 25V 22 μ F | Ceramic capacitor (C3216JB1E226MT TDK) |
| | MUS1R524□ | 50V 10 μ F | Ceramic capacitor (C3216X7R1H106KT TDK) |

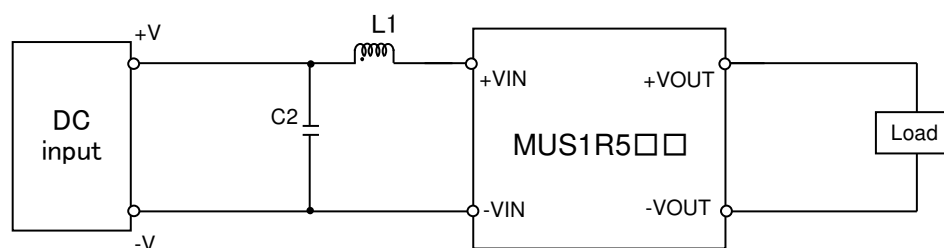


Fig.1-2 MUS1R548□ Testing circuitry

- | | | | |
|------|-----------|------------------|--|
| C2 : | MUS1R548□ | 100V 2.2 μ F | Ceramic capacitor (C3216X7S2A225KT TDK) |
| L1 : | MUS1R548□ | 520mA 15 μ H | Inductor (LQH32PN150MN0L MURATA MANUFACTURING) |



Conditions

Test : Surge immunity test

Model Name : MUS1R5□□

○ Testing circuitry

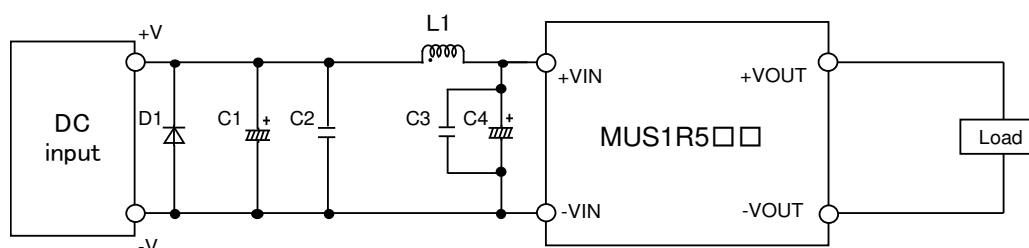


Fig.2 Testing circuitry

Electrostatic discharge immunity test

C1 :	MUS1R505□□	25V 1500 μ F	Electric capacitor (LXZseries NIPPON CHEMI-CON)
	MUS1R512□□	25V 1000 μ F	Electric capacitor (LXZseries NIPPON CHEMI-CON)
	MUS1R524□□	100V 470 μ F	Electric capacitor (UPWseries NICHICON)
	MUS1R548□□	100V 470 μ F	Electric capacitor (UPWseries NICHICON)
C2 :	MUS1R505□□	16V 22 μ F	Ceramic capacitor (GRM31CC71C226M MURATA MANUFACTURING)
	MUS1R512□□	25V 22 μ F	Ceramic capacitor (C3216JB1E226MT TDK)
	MUS1R524□□	50V 10 μ F	Ceramic capacitor (C3216X7R1H106KT TDK)
	MUS1R548□□	100V 2.2 μ F	Ceramic capacitor (C3216X7S2A225KT TDK)
C3 :	MUS1R505□□	16V 22 μ F	Ceramic capacitor (GRM31CC71C226M MURATA MANUFACTURING)
	MUS1R512□□	25V 22 μ F	Ceramic capacitor (C3216JB1E226MT TDK)
	MUS1R524□□	50V 10 μ F	Ceramic capacitor (C3216X7R1H106KT TDK)
	MUS1R548□□	100V 2.2 μ F	Ceramic capacitor (C3216X7S2A225KT TDK)
C4 :	MUS1R505□□	25V 1500 μ F	Electric capacitor (LXZseries NIPPON CHEMI-CON)
	MUS1R512□□	25V 1000 μ F	Electric capacitor (LXZseries NIPPON CHEMI-CON)
	MUS1R524□□	50V 330 μ F	Electric capacitor (LXZseries NIPPON CHEMI-CON)
	MUS1R548□□	100V 100 μ F	Electric capacitor (UPWseries NICHICON)
L1	MUS1R505□□	1800mA 4.7 μ H	Inductor (DFE201612P-4R7M MURATA MANUFACTURING)
	MUS1R512□□	1800mA 4.7 μ H	Inductor (DFE201612P-4R7M MURATA MANUFACTURING)
	MUS1R524□□	1000mA 10 μ H	Inductor (DFE201610E-100M MURATA MANUFACTURING)
	MUS1R548□□	520mA 15 μ H	Inductor (LQH32PN150MN0L MURATA MANUFACTURING)
D1 :	MUS1R505□□	400V 3A Diode(S3L40U SHINDENGEN)	
	MUS1R512□□	400V 3A Diode(S3L40U SHINDENGEN)	
	MUS1R524□□	400V 3A Diode(S3L40U SHINDENGEN)	
	MUS1R548□□	400V 3A Diode(S3L40U SHINDENGEN)	