



## MGFW6 series Reliability test results

 Jan 31, 2017  
 OS DESIGN DEPT.

 Approved : Takayuki Fukuda  
 Takayuki Fukuda  
 Prepared : Takaaki Sekiguchi  
 Takaaki Sekiguchi

| No. | Test Item                                       | Testing conditions   | Conditions of acceptability   | Number of samples | Number of failures |
|-----|---|--|---|-------------------|--------------------|
| 1   | Heat cycle test                                 | (1) -40° C ~ 125° C 30minutes each<br>(2) 800cycles  | (1)No degradation of electric characteristics after test.<br>(2)No crack at solder joint.   | 5                 | 0                  |
| 2   | High temperature/<br>High humidity<br>bias test | (1) Ta=85°C, RH=85%<br>(2) Input Max.Voltege<br>(3) Load 0%<br>(4) 1000hours   | (1)No degradation of electric characteristics after test.   | 5                 | 0                  |
| 3   | Vibration test                                  | (1) f=10~55Hz, 98.0m/s <sup>2</sup> (10G)<br>(2) 3minutes period<br>(3) 60minutes each X, Y and Z axis                           | (1)No degradation of electric characteristics after test.<br>(2)No crack at solder joint.<br>(3)No mechanical damage of appearance. | 6                 | 0                  |
| 4   | Impact test                                     | (1) 490.3m/s <sup>2</sup> (50G), 11ms<br>(2) Once each X, Y and Z axis   | (1)No degradation of electric characteristics after test.<br>(2)No crack at solder joint.<br>(3)No thermal damage of appearance.    | 3                 | 0                  |
| 5   | Soldering heat test                             | (1) Soldering iron 340~360°C,<br>7.5 seconds<br>(2) Mounting board : t=1.6mm / FR4   | (1)No crack at solder joint.<br>(2)No marked damage of appearance.  | 1                 | 0                  |
| 6   | Pin solder ability test                         | (1) Pre-process<br>Step1 Humidifying processing<br>(100°C, 100%, 1H)<br>Step2 Dip into flux<br>(2) Dip soldering 230~240°C, 2sec | (1)Over 95% of dipped part is covered with solder.  | 3                 | 0                  |
| 7   | Pin strength test                               | (1) Weight : 1kg<br>(2) Bending angle : 90 deg., total 180 deg.<br>(3) 1 cycle   | (1)No crack at solder joint.<br>(2)No mechanical damage of appearance.  | 1                 | 0                  |
| 8   | Static electricity<br>immunity test             | (1) Applied voltage ±4kV<br>(2) At rated input and load<br>(3) Testing circuitry Fig.1   | (1)No protection circuit fail.<br>(2)No output voltage drop due to control<br>(3)No any other function fail.                        | 1                 | 0                  |

○Testing circuitry

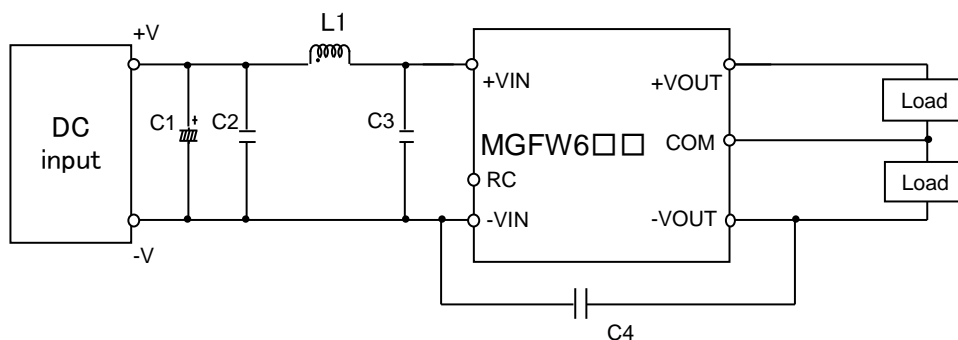


Fig.1 Testing circuitry

|      |           |  |
|------|-----------|--|
| C1 : | MGFW624□□ | 50V 100 $\mu$ F Electric capacitor (LXZseries NIPPON CHEMI-CON)          |
|      | MGFW648□□ | -  |
| C2 : | MGFW624□□ | 50V 4.7 $\mu$ F Ceramic capacitor (GRM31CR71H475K MURATA MANUFACTURING)  |
|      | MGFW648□□ | 100V 2.2 $\mu$ F Ceramic capacitor (GRM31CC72A225K MURATA MANUFACTURING) |
| C3 : | MGFW624□□ | 50V 4.7 $\mu$ F Ceramic capacitor (GRM31CR71H475K MURATA MANUFACTURING)  |
|      | MGFW648□□ | 100V 2.2 $\mu$ F Ceramic capacitor (GRM31CC72A225K MURATA MANUFACTURING) |
| C4 : | MGFW624□□ | 2kV 470pF Ceramic capacitor (GR442QR73D471K MURATA MANUFACTURING)        |
|      | MGFW648□□ | 2kV 1000pF Ceramic capacitor (GR442QR73D102K MURATA MANUFACTURING)       |
| L1 : | MGFW624□□ | 1600mA 10 $\mu$ H Inductor (LQH5BPN100MT0 MURATA MANUFACTURING)          |
|      | MGFW648□□ | 1050mA 22 $\mu$ H Inductor (LQH5BPN220MT0 MURATA MANUFACTURING)          |