

## GPS L1 / L5 (IRNSS) & Glonass & BeiDou Internal Active Antennas



**Product Number : ATIGGBL52580-100**

### 1. Electrical Characteristics

Antenna		
1	Antenna model	2580A ( 25mm*25mm*4mm & 15mm*15mm*4mm )
2	Frequency Range	GPS/Galileo : 1575.42MHz ± 1.023MHz
		Glonass : 1602MHz ± 8MHz
		BeiDou: 1561±2.046 MHz
		L5 : 1176MHz ± 10MHz
3	V.S.W.R	2.0 MAX
4	Antenna Gain at Zenith (Ceramic Patch Only)	GPS/Galileo: 0 dBi typ. @zenith
		Glonass: 2 dBi typ. @zenith
		BeiDou: -2 dBi typ. @zenith
		L5: -2 dBi typ. @zenith
5	Impedence	50Ω
6	Polarization	RHCP

LNA		
1	Frequency Range	GPS/Galileo : 1575.42MHz $\pm$ 1.023MHz
		Glonass : 1602MHz $\pm$ 8MHz
		BeiDou: 1561 $\pm$ 2.046 MHz
		L5 : 1176MHz $\pm$ 10MHz
2	DC Voltage	2.7~5V
3	DC current	15mA max @ 3.3V
4	Gain	GPS / Galileo : 28 $\pm$ 3dBi(without cable @25 $^{\circ}$ C $\pm$ 10 $^{\circ}$ C)
		Glonass : 27 $\pm$ 3dBi(without cable @25 $^{\circ}$ C $\pm$ 10 $^{\circ}$ C)
		BeiDou : 28 $\pm$ 3dBi (without cable @25 $^{\circ}$ C $\pm$ 10 $^{\circ}$ C)
		L5 : 27 $\pm$ 3dBi(without cable @25 $^{\circ}$ C $\pm$ 10 $^{\circ}$ C)
5	Output VSWR	2.0 MAX
6	Noise Figure	1.5 MAX

## 2. Material

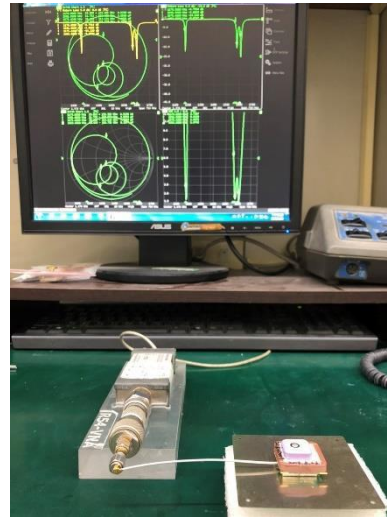
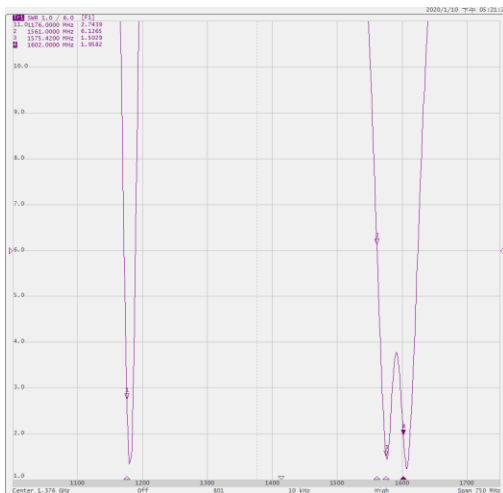
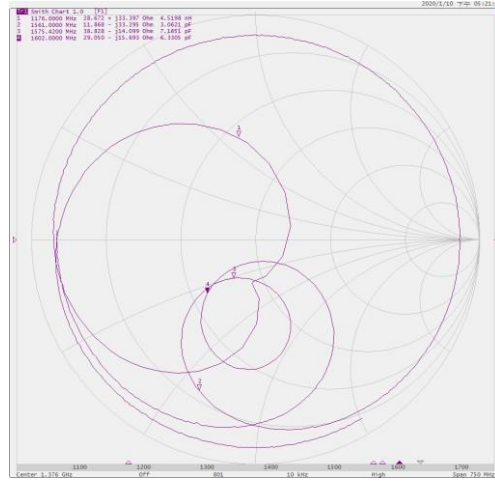
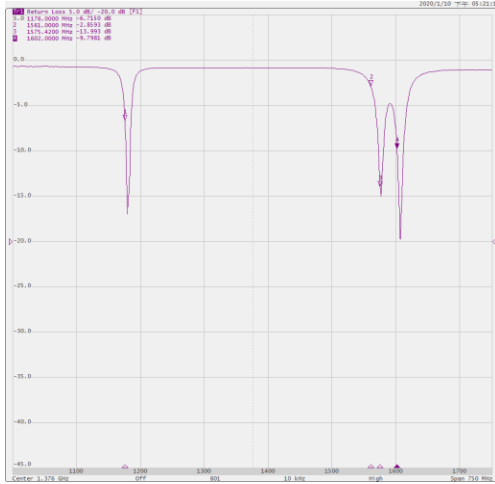
No	Part Name	SPEC
1	Patch Antenna	Dielectric Ceramics
2	Shielding	Tinplate
3	PCB	FR4
4	RF Cable	RF1.13
		L=100mm (Optional)
5	RF Connector	IPEX (Optional)

## 3. Environment Condition

1	Working Temp	-40 $^{\circ}$ C ~ +85 $^{\circ}$ C, 40%~95% RH
2	Storage Temp	-40 $^{\circ}$ C ~ +85 $^{\circ}$ C, 40%~95% RH
3	Vibration	Sine sweep @1.5mmAM 10~55Hz each Axis

## 4. Testing Curve

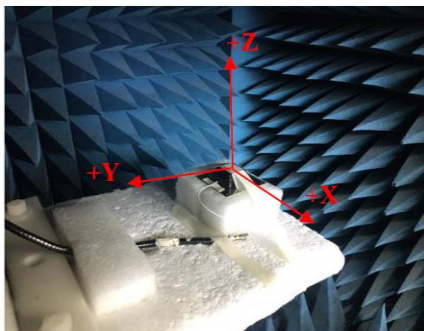
### 4.1 S11 Return Loss & Smith Chart Measure



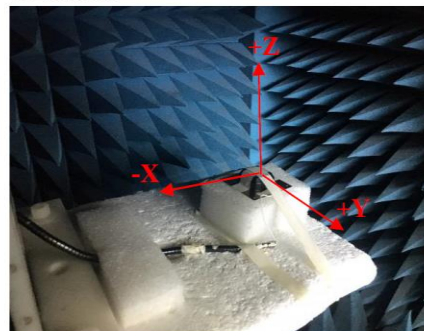
15x15 (25x25)	Return Loss(dB)	Impedance(Ohm)	VSWR(MHz)
1176MHz	-6.71	28.67+j33.39	2.74
1561MHz	-2.85	11.86-j33.29	6.12
1575.42MHz	-13.99	38.82-j14.09	1.50
1602MHz	-9.79	29.05-j15.69	1.95

Unit: dBi

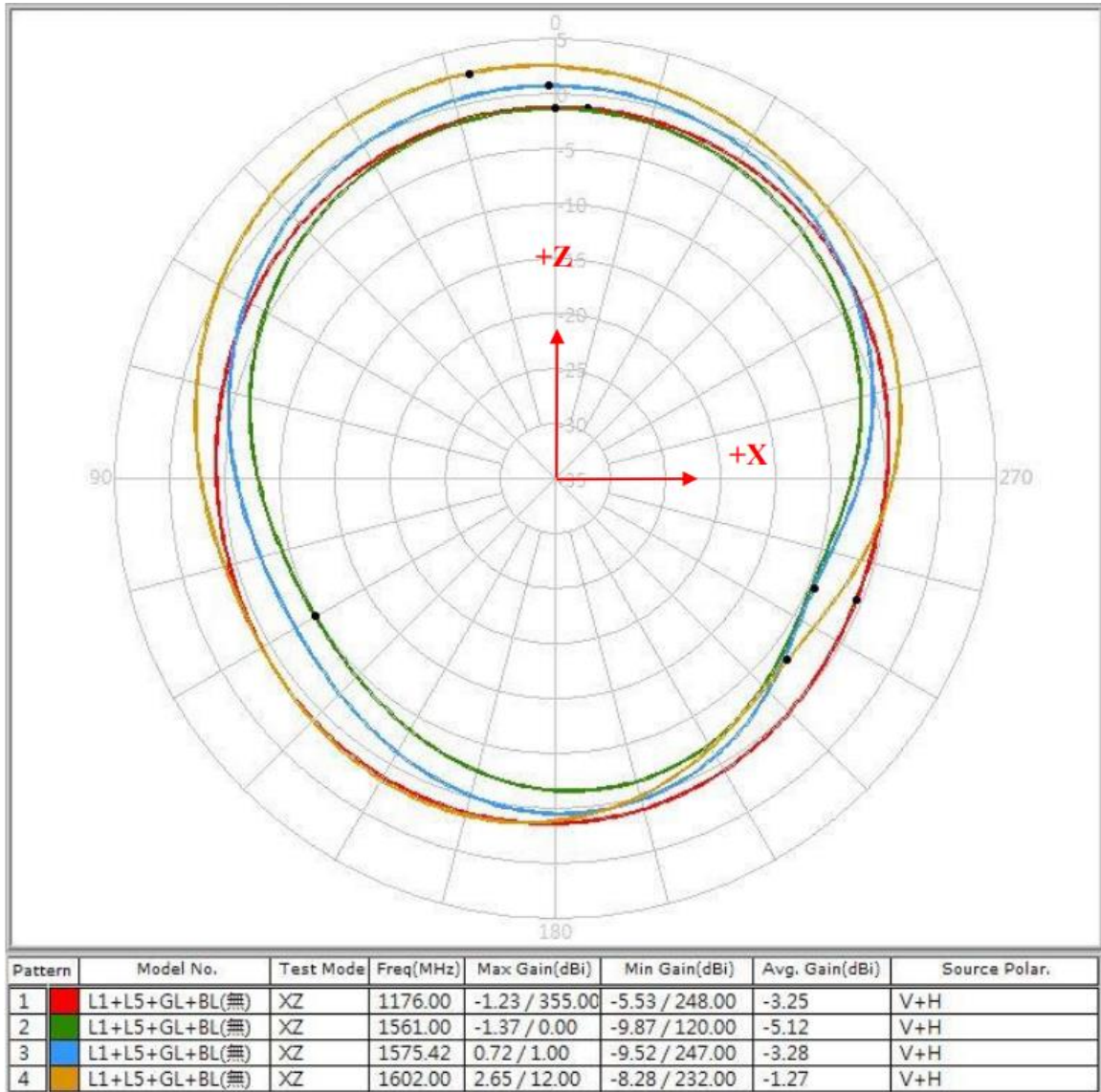
XZ-Plane



YZ-Plane



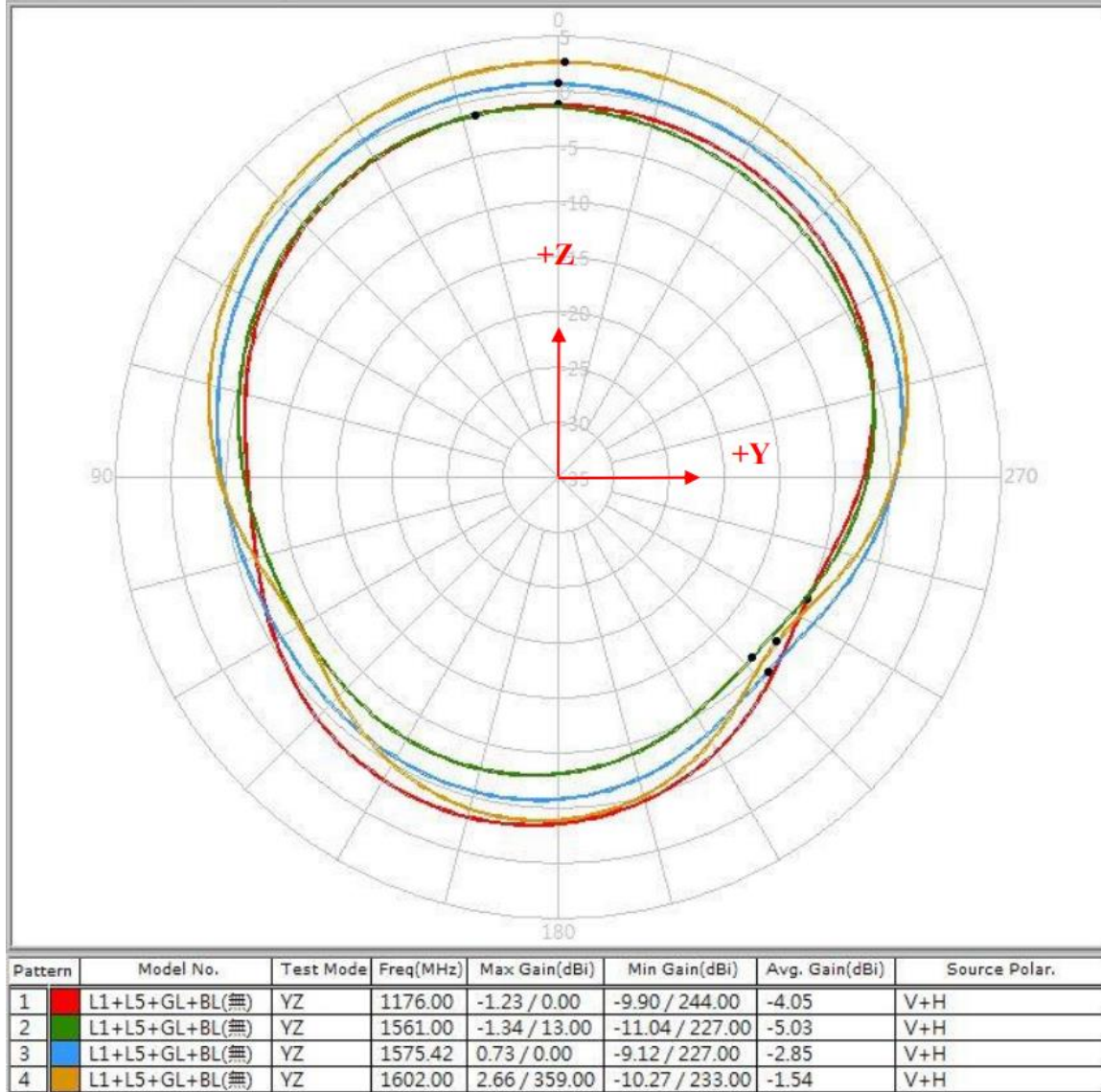
## 4.2 Gain Pattern Value (XZ-Plane)



Frequency	Peak Gain	Zenith Gain
1176MHz	-1.23	-1.26
1561MHz	-1.37	-1.37
1575.42MHz	0.72	0.72
1602MHz	2.65	2.60

Unit:dBi

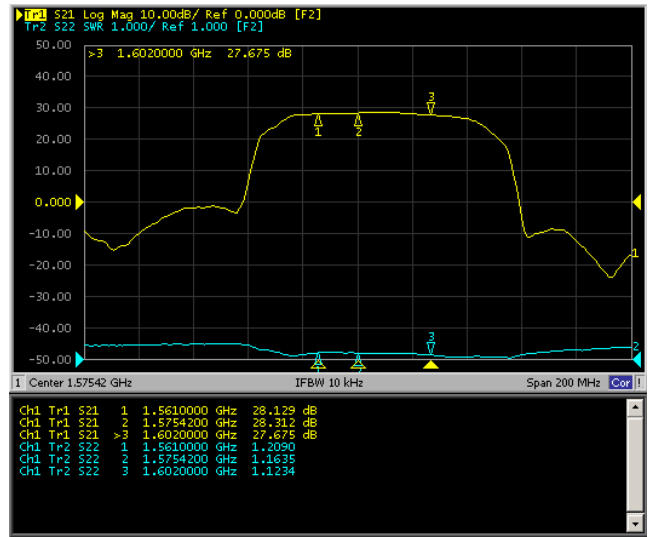
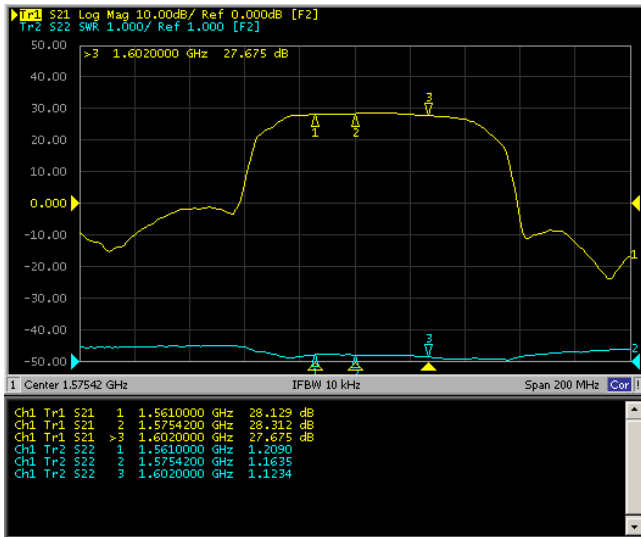
## 4.3 Gain Pattern Value (YZ-Plane)



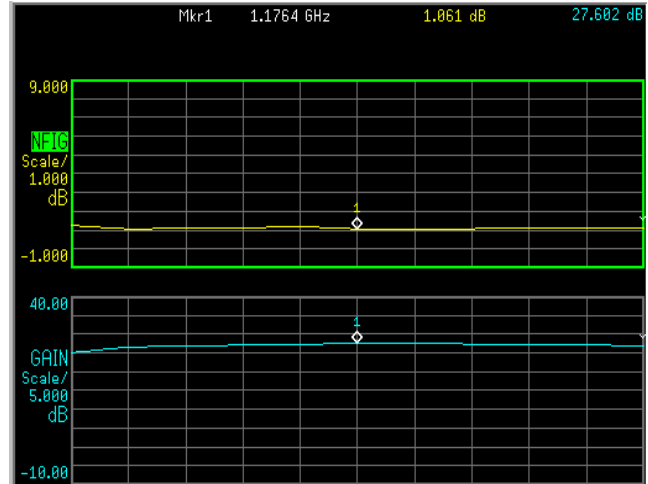
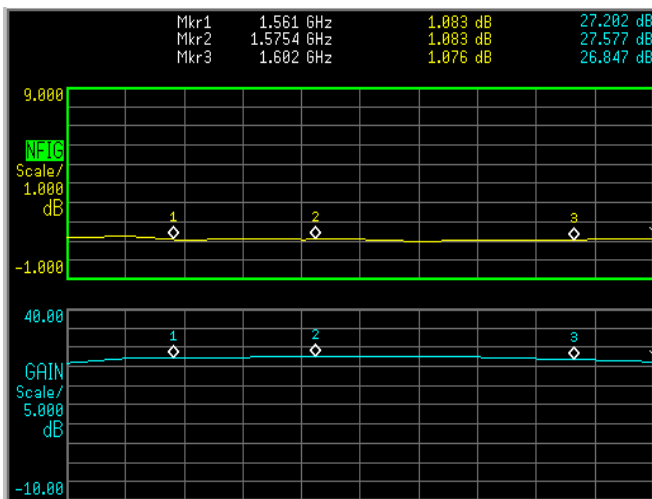
Frequency	Peak Gain	Zenith Gain
1176MHz	-1.23	-1.23
1561MHz	-1.34	-1.39
1575.42MHz	0.73	0.73
1602MHz	2.66	2.60

Unit:dBi

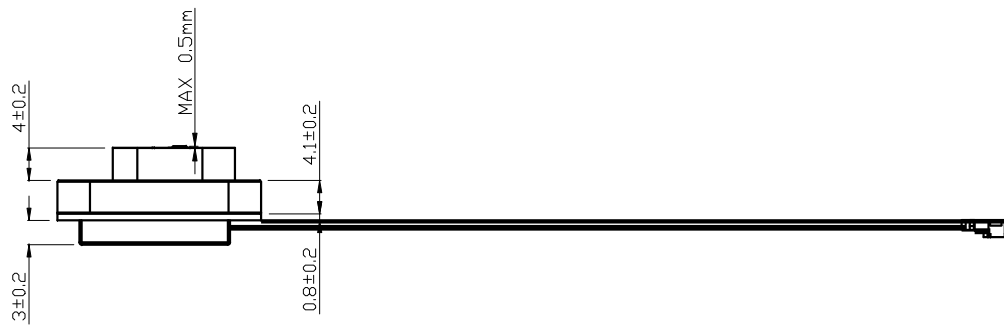
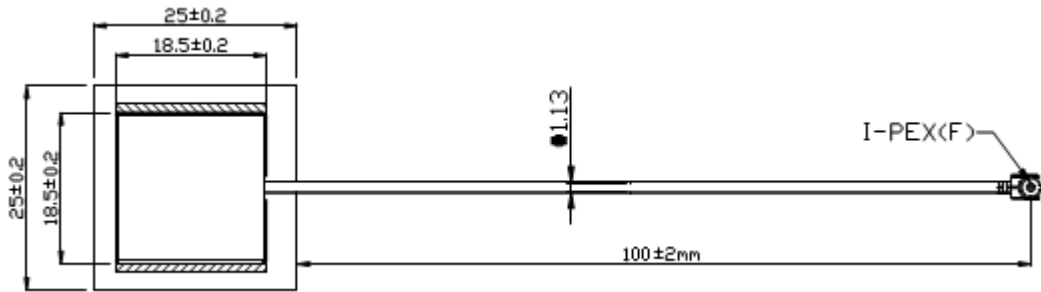
## 4.4 LNA Gain @3.3V



## 4.5 LNA Noise Figure @3.3V



## 5. Drawing



Unit:mm



## 6. Characteristics and Reliability Test

Test Items		Test Condition and Procedure	Requirements
C1	S.W.R.	Set DUT on Network Analyzer; make individual calibration to test	Directive DUT specification
C2	Antenna Gain	Set DUT on Antenna Chamber; make individual calibration to test	Directive DUT specification
M1	Vibration	MIL-STD-202G, 201A Amplitude: 0.03 inch (0.76mm); Freq: 10 to 55 Hz 3 directions; 2 hours for each direction	1. No Visual Damage 2. Frequency Tol.<= 5%
M2	Random Drop	Height: 1.5 Meter; 3 directions; 1 time for each direction	1. No parts separated 2. Frequency Tol.<= 5%
M3	Solderability	MIL-STD-202G, 210F, cond. A Solder iron: 350±10°C; Duration: 5 seconds	1. Mounted on PCB 2. No Visual Damage
M4	Terminal-Pull Test	MIL-STD-202G, 211A, cond. A Holding with individual specification; force applied to axis of terminal	1. Directive DUT specification 2. Frequency Tol.<= 5%
M5	Terminal-Torque Test	MIL-STD-202G, 211A, cond. E Holding with individual specification; applied clockwise and counterclockwise to the axis of terminal	1. Directive DUT specification 2. Frequency Tol.<= 5%
M6	Dimension	Inspection of dimension, color, material, package, surface process	Directive DUT specification
E1	Salt Spray	MIL-STD-202G, 101E, cond. B Temp: 35°C; RH: >= 95%; NaCl solution: >= 5%; Time: 48 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E2	Humidity	MIL-STD-202G, 103B, cond. B Temp: 40°C; RH: >= 95%; Time: 48 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E3	Thermal Shock	1 Cycle: - 40°C (30 minutes) to + 80°C (30 minutes) Cycles: 24	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E4	Life (High Temp.)	MIL-STD-202G, 108A, cond. A Temp: 85°C; Time: 96 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
R1	RoHS	With Reference to IEC 62321:2008 with flow chart	Directive RoHS 2002/95/EC
R2	PFOS	With Reference to USA EPA 3540C:1996 by LC/MS	Directive RoHS 2006/122/EC
R3	PFOA	With Reference to USA EPA 3540C:1996 by LC/MS	Directive RoHS 2006/122/EC



## 7. Note

**7.1 This product specification guarantees the quality of our product as a single unit. Please make sure that your product is evaluated and confirmed against your specifications when our product is mounted to your product.**

**7.2 The product will get free warranty for one year since the date of purchase users operate in the correct way; users will have to pay cost of the materials and maintaining fee out of the condition.**

**7.3 Electrostatic sensitive device.Observe precautions for handling.**