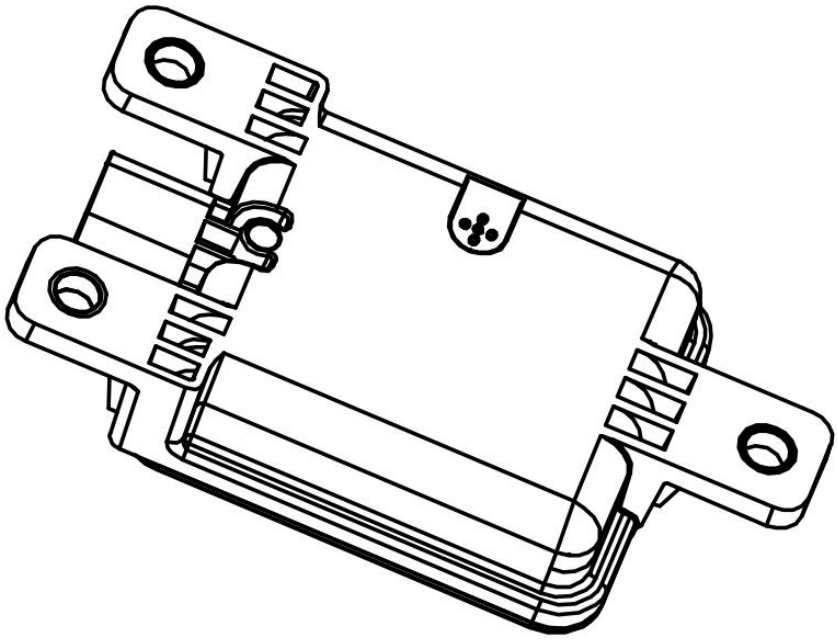
汽车毫米波雷达

Automotive millimeter wave radar

FR552 77GHz 技术规格书

FR552 77GHz technical data sheet



等级：外部公开

1. 产品简介 Product introduction

FR552 是由深圳安智杰科技有限公司开发的一款 77 GHz 中距离探测毫米波雷达，可探测目标的距离、速度和方位角，并具有多目标识别和跟踪能力。

FR552 is a 77GHz medium range detection millimeter wave radar developed by ANNGIC, can detect the distance, speed and azimuth of the target, and has multi-target identification and tracking capabilities.

2. 典型应用场景 Typical application scenario

- 前向碰撞预警（FCW，Forward Collision Warning）
- 车距检测预警（HMW，Headway Monitoring Warning）
- 自动紧急制动（AEB，Automatic Emergency Braking）

3. 产品优势 Product superiority

- 设计灵活，可提供定制化解决方案。
  Flexible design to provide customized solutions.
- 结构紧凑，尺寸小，易安装在包围内。
  Compact structure, small size, easy to install in the enclosure.
- 探测精度高，误报少。
  High detection accuracy, less false positives.
- 自动校准，装配方便。
  Automatic calibration, easy assembly.
- 支持与其他传感器进行数据融合，例如图像传感器等。
  Supports data fusion with other sensors, such as image sensors.
- 76 GHz ~ 77 GHz 适用于全球市场。
  76 GHz ~ 77 GHz for the global market.

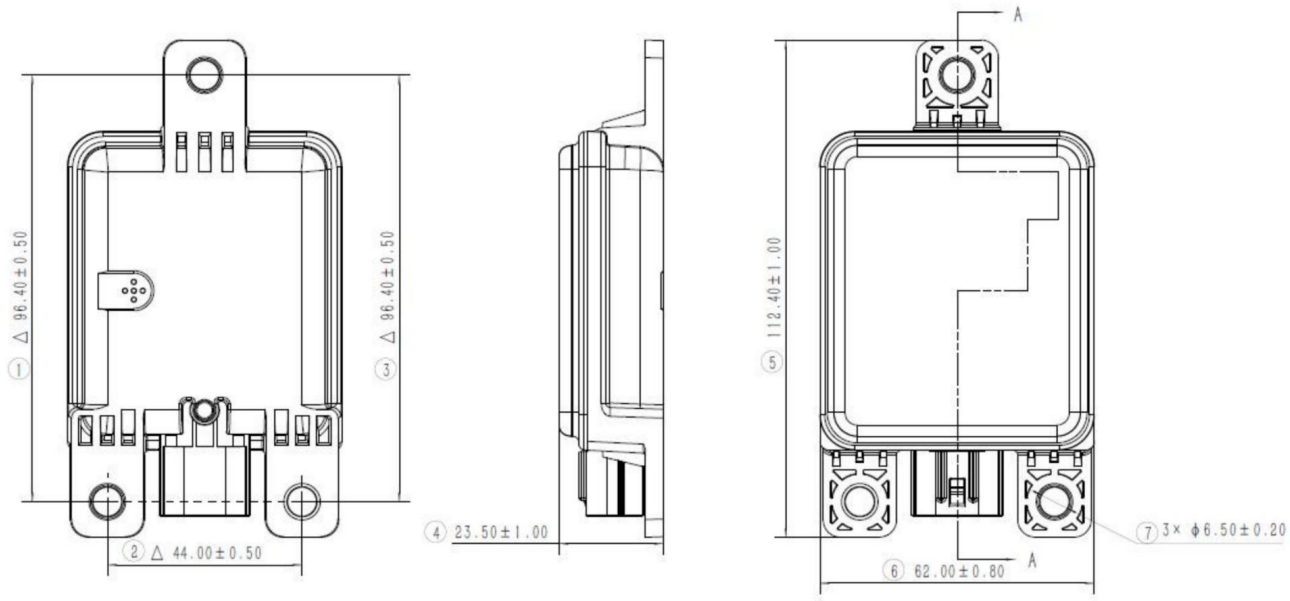
4. 技术参数 Technical data sheet

指标 index	参数 parameter
距离范围 Range Measurement	0.5 m~170 m（RCS=10 dBsm）
距离分辨率 Range Resolution	短距 0.2 m (short distance 0.2 m) 长距 0.75 m (long distance 0.75m)
距离精度 Range Accuracy	短距± 0.1 m(short distance ±0.1 m) 长距± 0.4 m (long distance ±0.4m)
速度范围 Velocity Measurement (-代表靠近，+代表远离)	- 60 m/s ~ + 60 m/s
速度分辨率 Velocity Resolution	0.2 m/s
速度精度 Velocity Accuracy	± 0.1 m/s
方位向视角 Azimuth FOV	±45°
方位向角度分辨率 Azimuth Angle Resolution	短距 5° (short distance 5°) 长距 2° (long distance 2°)
方位向角度精度 Azimuth Angle Accuracy	± 0.4°@0°
俯仰向视角 Elevation FOV	± 9°
俯仰向角度分辨率 Elevation Angle Resolution	NA
俯仰向角度精度 Elevation Angle Accuracy	± 1°
最大目标跟踪数量 Maximum no. of Tracked Object	128
帧率 Cycle	50 ± 5 ms
数据接口 Interface	CAN / CAN FD
标定 Calibration	支持人工或自动标定 (Manual or automatic)
工作电压 Supply Voltage	+ 9 V ~ + 16 V DC + 18 V ~ + 32 V DC
功耗 Power Consumption	≤ 250 mA @12V ≤ 125 mA @24V
工作频率范围 Frequency Range	76 GHz ~ 77 GHz

指标 index	参数 parameter
工作温度范围 Operating Temperature Range	- 40 ℃ ~ + 85 ℃
贮存温度范围 Storage Temperature Range	- 40 ℃ ~ + 95 ℃
防护等级 Protection Rating	IP 6K7
尺寸（长×宽×高） Dimension L×W×H	112.4 mm×62.0 mm×23.5 mm

5. 三维尺寸 Size

雷达传感器三维尺寸为 112.4mm×62mm×23.5mm， 如下图所示：



6. 接口定义 Interface definition

引脚 PIN	定义 definition	属性 property	功能描述 functional description
1	GND	电源地 power	与整车电源负极连接 Connect with the negative terminal of the vehicle power supply

2	NC	/	/
3	PCAN_H	私有 CAN 数据 Private data	雷达对外数据和调试总线 Radar external data and debugging bus
4	VCAN_H	车 CAN 数据 Vehicle data	雷达与整车通讯总线 Radar and vehicle communication bus
5	B+	电源+ power	与整车电源正极连接 Connect with the positive power terminal of the vehicle
6	NC	/	/
7	PCAN_L	私有 CAN 数据 Private data	雷达对外数据和调试总线 Radar external data and debugging bus
8	VCAN_L	车 CAN 数据 Vehicle data	雷达与整车通讯总线 Radar and vehicle communication bus

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

RF Exposure

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

No necessary to perform SAR testing

The antennas used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.”