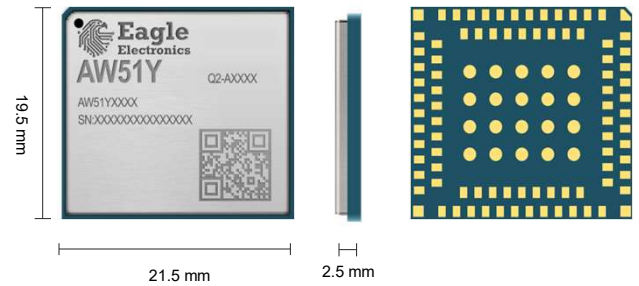


## Eagle AW51Y

### Automotive Grade Wi-Fi & Bluetooth Module Compact LGA Package



AW51Y is an automotive grade Wi-Fi and BLE (Bluetooth 5.2) module with high performance. It is designed to be used together with Eagle automotive A4525R and A5555Q modules to establish WLAN and Bluetooth connections, which supports  $2 \times 2 + 1 \times 1$  dual MAC.

With a compact size of  $19.5 \text{ mm} \times 21.5 \text{ mm} \times 2.5 \text{ mm}$ , AW51Y is an ideal Wi-Fi/Bluetooth solution for size-sensitive applications, and helps customers reduce product size and optimize application design cost. The surface-mount technology enhances its durability and robustness. The LGA package ensures the easy embedding of the module into size constrained applications, and provides reliable connectivity with these applications. The advanced package allows for largescale automated manufacturing which has strict requirements on cost and efficiency.

Designed with a reliable PCIe 2.0 interface to provide WLAN capability, AW51Y achieves low-power and high-speed data transmission. Coupled with its compact size and extended temperature range, the module meets LTE-A/5G + Wi-Fi/Bluetooth application design requirements in automotive T-Box and infotainment industry.



### Key Features

- ✓ Support BLE (Bluetooth 5.2) and Bluetooth classic dual mode
- ✓ Support dual-band Wi-Fi (2.4 GHz/5 GHz) and  $2 \times 2 + 1 \times 1$  dual MAC
- ✓ Support IEEE 802.11a/b/g/n/ac standards
- ✓ Easier soldering and testing process with LGA package
- ✓ Support PCIe 2.0 and UART interface which provides higher data transmission rate and lower power consumption
- ✓ Fast time-to-market: simple design minimizes design-in time and development efforts



Ultra-compact Size



LGA Package



IEEE 802.11  
a/b/g/n/ac



BLE (Bluetooth 5.2)



Extended Temperature  
Range:  $-40 \text{ }^\circ\text{C}$  to  $+85 \text{ }^\circ\text{C}$

Wi-Fi & Bluetooth		AF51Y
Region	Global	
Function	2.4/5 GHz Wi-Fi, BLE (Bluetooth 5.2)	
WLAN	IEEE 802.11a/b/g/n/ac	
Bluetooth	BLE (Bluetooth 5.2) & Bluetooth classic	
Modulation Mode	CCK/BPSK/QPSK/16 QAM/64 QAM/256 QAM	
Temperature Range		
Operating Temperature Range	-40 °C to +85 °C	
Storage Temperature Range	-40 °C to +95 °C	
Data		
802.11a	Max. 54 Mbps	
802.11b	Max. 11 Mbps	
802.11g	Max. 54 Mbps	
802.11n	Max. 300 Mbps	
802.11ac	Max. 866 Mbps	
Bluetooth 5.2	Max. 2 Mbps	
Interfaces		
PCIe 2.0	× 1	
UART	× 1	
PCM*	× 1	
WLAN_EN	× 1	
BT_EN	× 1	
Antenna Interfaces	× 3, Wi-Fi/Bluetooth Antennas	
Supply Voltage Range		
PA Power Supply	2.2 V	
I/O Power Supply	1.8 V	
Voltage for Core	1.8 V	
General Features		
Encryption Mode	WPA3	
AP (Access Point)	Max. 32	
Operator Mode	AP/STA	
Dimension	19.5 mm × 21.5 mm × 2.5 mm	
Weight	2.32 g	

Note:  
\*: under development

**RF Performance**

		Receiving Sensitivity	Transmitting Power
2.4 GHz	802.11b/1 Mbps	93 dBm	17.5 dBm
	802.11b/11 Mbps	84 dBm	17.5 dBm
	802.11g/6 Mbps	87 dBm	17 dBm
	802.11g/54 Mbps	70 dBm	15 dBm
	802.11n/HT20 MCS0	87 dBm	17 dBm
	802.11n/HT20 MCS7	69 dBm	14.5 dBm
	802.11n/HT40 MCS0	84 dBm	16.5 dBm
	802.11n/HT40 MCS7	67 dBm	14 dBm
5 GHz	802.11a/6 Mbps	90 dBm	15.5 dBm
	802.11a/54 Mbps	73 dBm	13 dBm
	802.11n/HT20 MCS0	90 dBm	15.5 dBm
	802.11n/HT20 MCS7	72 dBm	12.5 dBm
	802.11n/HT40 MCS0	87 dBm	15 dBm
	802.11n/HT40 MCS7	70 dBm	12 dBm
	802.11ac/VHT20 MCS0	90 dBm	15.5 dBm
	802.11ac/VHT20 MCS8	68 dBm	11.5 dBm
	802.11ac/VHT40 MCS0	87 dBm	15 dBm
	802.11ac/VHT40 MCS9	64 dBm	10 dBm
802.11ac/VHT80 MCS0	84 dBm	14.5 dBm	
802.11ac/VHT80 MCS9	60 dBm	9.5 dBm	