



## Features

- Proprietary audio compression/decompression(LDAP) for wireless transmission
- Low audio latency(~3.8ms in total)
- Highly Robust Forward Error Correction (FEC)
- 8 frequency channels
- RF channel data rate:1.152 Mbps
- 16-Bit ID codes to provide TX / RX pairing
- Auto channel scanning mechanism provided
- Optimized auto muting mechanism for received corrupted data by the receiver
- High Sensitivity of typically -85dBm
- High Output Power of typically +8.5dBm
- RoHs Compliant
- Stereo  $\Delta \Sigma$  ADC
- 48kHz Audio Sampling rate
- High S/N ratio of typically 82 dB
- S/PIDF Data Input Format

- Low Cost/High Performance Wireless Audio
  - Wireless Surround Rear Speakers
  - High Performance Digital Audio Link
  - Wireless Headphone/Earphone
  - Wireless USB Transmitter
  - Wireless Skype phone
- FCC CFR47,Part 15,ETSI EN 300 328,EN 300 440 and ARIB STD-T-66 Compliant Radio

## General Description

The RF module transmitter employed GFSK modulation to deliver high-speed data rate up to 1.152Mbps.

The RF module receiver with -85dBm or better sensitivity allows system to achieve at least 300 feet transmission for line-of-sight application in open site.

## Applications

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## AWD607TP, AWD605RP

### 2.4GHz GFSK RF Module

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#### Tx Module Absolute Maximum Ratings

Parameter	Condition	Min.	Typ	Max	Units
Supply voltage	Vs			3.6	V
Storage temperature	Tstg	-40	25	+125	
Operating temperature	To	0	25	+55	

#### Rx Module Absolute Maximum Ratings

Parameter	Condition	Min.	Typ	Max	Units
Supply voltage	Vs			3.6	V
Storage temperature	Tstg	-40	25	+125	
Operating temperature	To	0	25	+55	
Input RF level	Prf			-2	dBm

#### General

Test condition: Vs=3.3V, Input=1kHz @ 1Vp-p & room temperature, unless otherwise specified.

Parameter	Condition	Min.	Typ	Max	Units
THD+N	Input=1kHz @ 1Vp-p with 20kHz LPF		0.5	0.7	%
Audio latency	Time delay @ analog output w.r.t. analog input of external ADC		3.8		ms
Tx,Rx pairing	ID Code		16		bit
S/N ratio	Input=1kHz @2Vp-p with 20kHz LPF		80		dB

#### Tx Module

Test condition: Vs=3.3V, Input=1kHz @ 1Vp-p & room temperature, unless otherwise specified.

Parameter	Condition	Min.	Typ	Max	Units
Supply voltage	Vs	3.0	3.3	3.6	V
Supply current	Vs=3.3V		90		mA
Operating Frequency		2400		2483.5	MHz
Transmission Power	Conductive measurement	8	8.5	9.5	dBm
Modulation Type	GFSK				

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Channel Frequency	Peak power position under no Data in.	-0.1	2401.920 2412.288 2422.656 2433.024 2448.576 2458.944 2469.312 2479.680	+0.1	MHz
Channel Spacing			9		MHz
Frequency Deviation	Modulation analyzer		+/-0.1		MHz
Data Rate	Software defined		1.152		Mbps
Audio Sampling Rate	Software defined		48		KHz
Pairing LED voltage	Pull High Resistor				
Tx/Rx Pairing setting	tact switch		3.3		V
Reset pin	tact switch				

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### **2.4GHz GFSK RF Module**

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#### **Rx Module**

Test condition: Vs=3.3V, Input=1kHz @ 1Vp-p & room temperature, unless otherwise specified.

Parameter	Condition	Min.	Typ	Max	Units
Supply voltage	Vs	3.0	3.3	3.6	V
Supply current	Vs=3.3V		89		mA
Operating Frequency		2400		2483.5	MHz
Rx Sensitivity	BER=1e-3 when 1.152Mbps input		-85		dBm
Image Rejection	Relative to 2.4- 2.4835GHz power	47			dBc
Max. Audio Output Level	Vs=3.3V, peak to peak value		2.6		Vp-p
Audio Output Impedance	48kHz audio sampling rate		16		Ohm
Audio frequency response	3dB bandwidth	20		20k	Hz
Data Rate	Software defined		1.152		Mbps
Adjacent channel rejection	+/- 5MHz offset the central frequency		>45		dB
Tx/Rx Pairing setting	tact switch				

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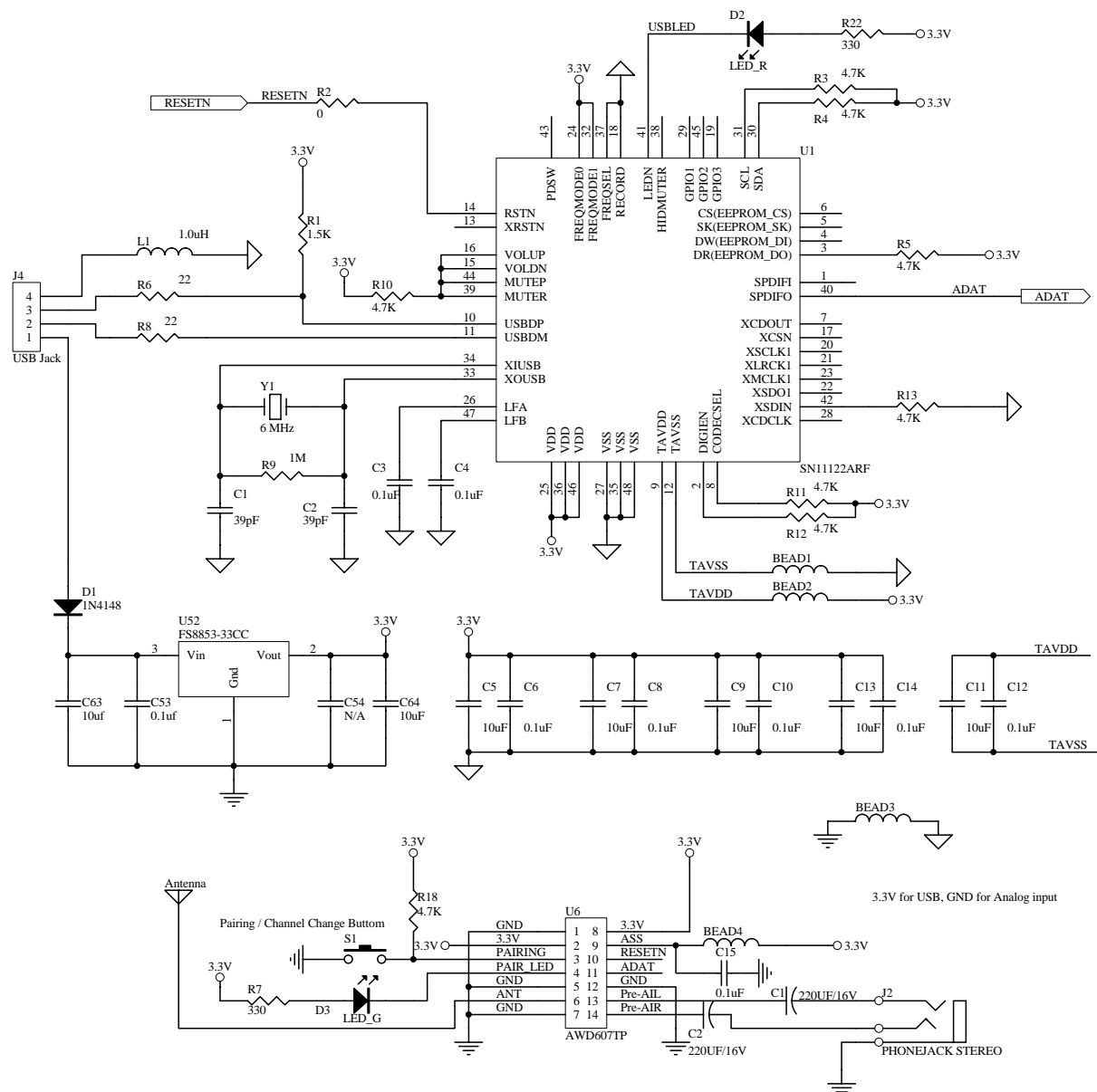


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## 2.4GHz GFSK RF Module

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### AWD607TP Module Reference Design for USB application



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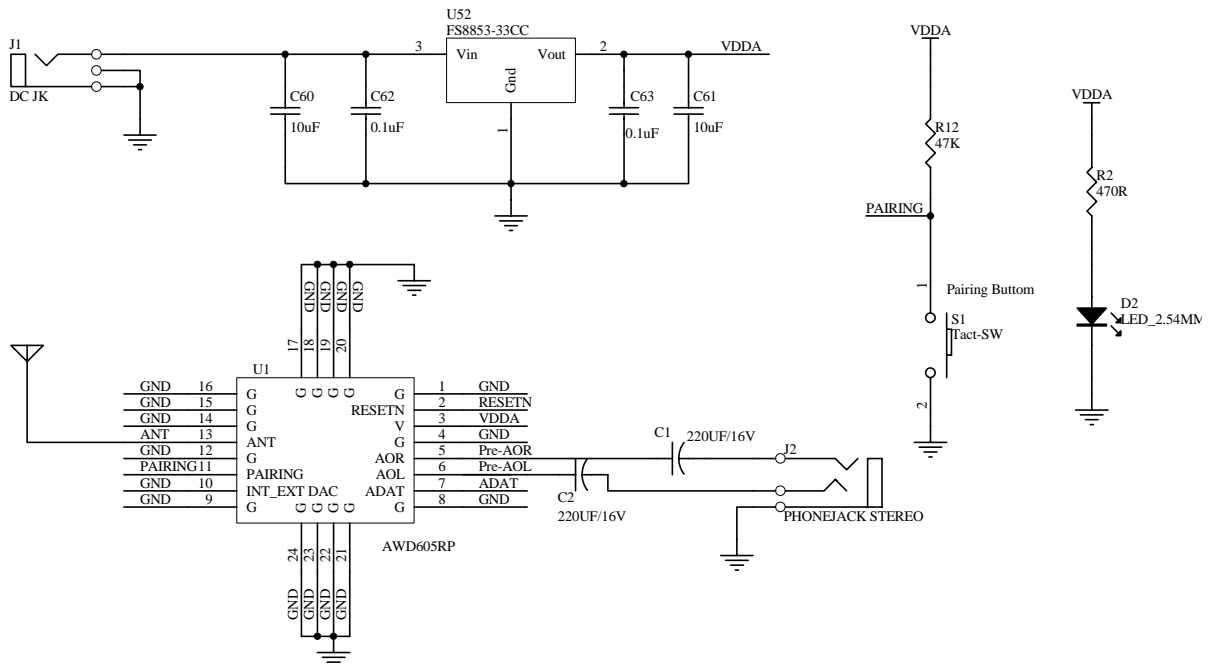


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### 2.4GHz GFSK RF Module

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## AWD605RP Module Reference Design



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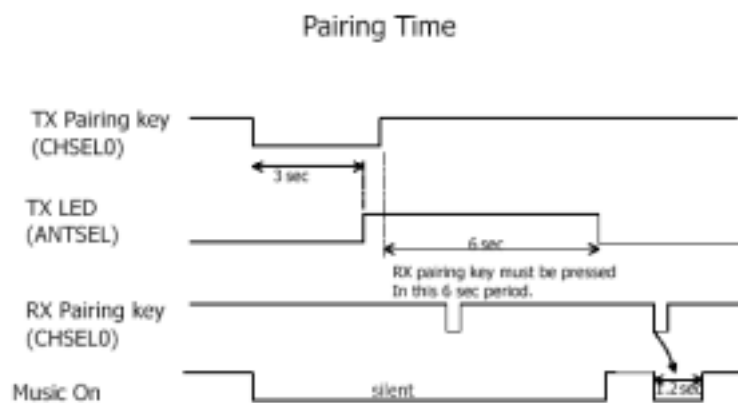


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### TX / RX Pairing



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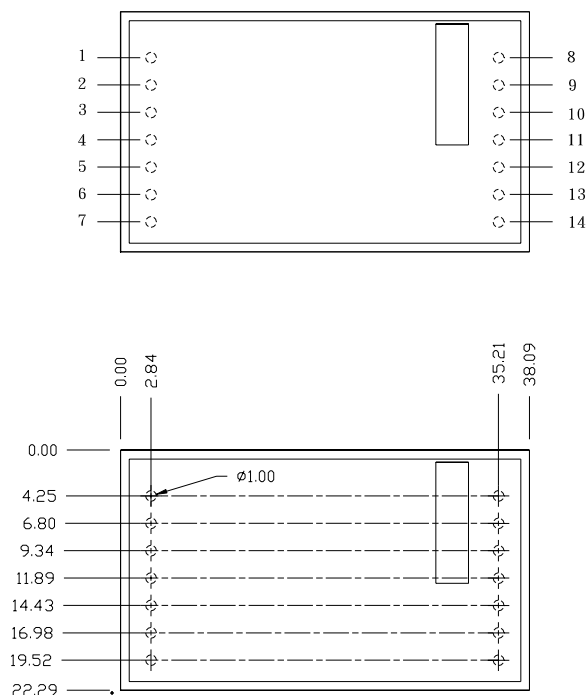


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## 2.4GHz GFSK RF Module

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### TX Module Pin Assignment



Unit : mm

Tolerance : +/- 0.2 mm

Pin No	Name	Functional Grouping	IO Type	Description
1	GND	Ground	NA	Ground
2	3.3V	Power	Input	3.3V Power Supply
3	Pairing / CH. SEL	Control	Input	pull-low continuously for over 3 seconds to enter into PAIRING mode and AWD605RP can perform the PAIRING process within 6 seconds. Normal high; every pulling-low for less than 2 seconds changes the channel to the next one in the pre-defined channel sequence.
4		Signal	Output	Normal low;PAIRING state indicate
5	GND	Ground	NA	Ground
6	ANT	RF	Output	2.4GHz antenna
7	GND	Ground	NA	Ground
8	3.3V	Power	Input	3.3V Power Supply
9	3.3V	Power	Input	3.3V Power Supply

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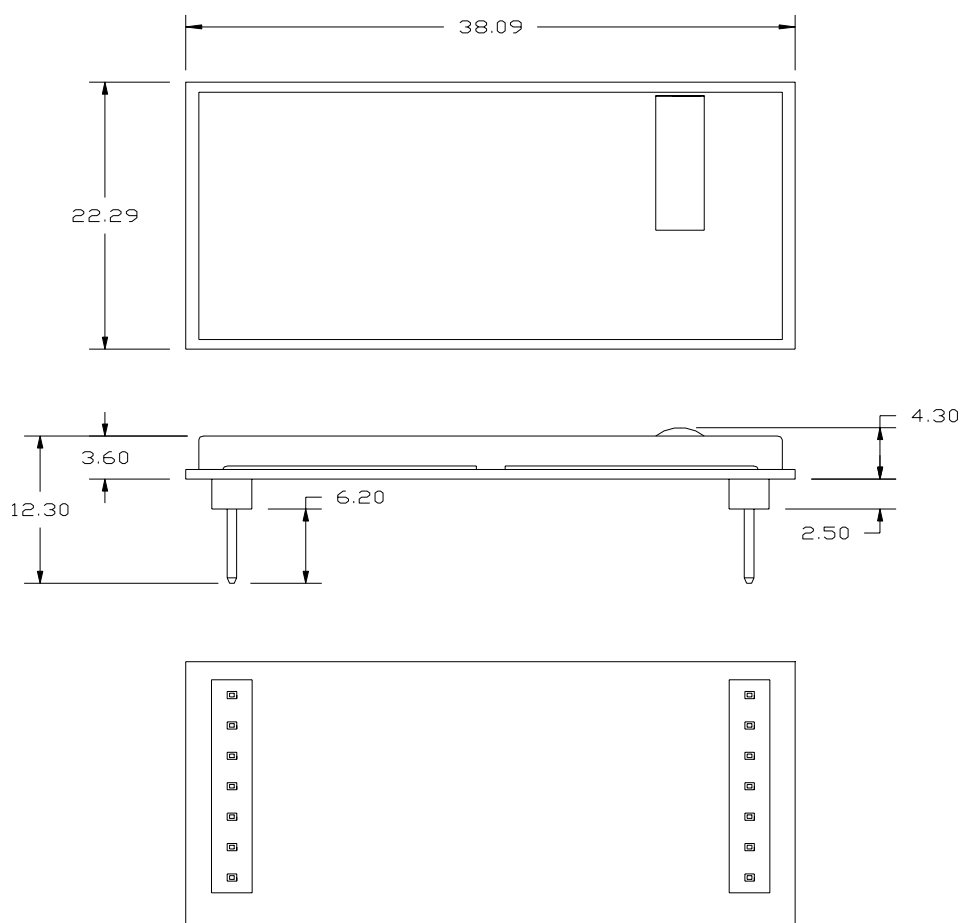


# AWD607TP,AWD605RP

## 2.4GHz GFSK RF Module

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10	RESET	Control	Input	Reset
11	ADAT	Signal	Input	SPDIF audio data input
12	GND	Ground	NA	Ground
13	NC		NA	NA
14	NC		NA	NA



Unit : mm

Tolerance : +/- 0.2 mm

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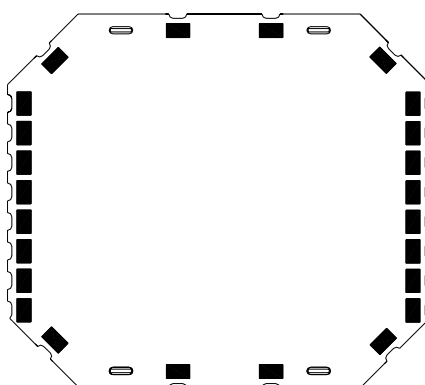
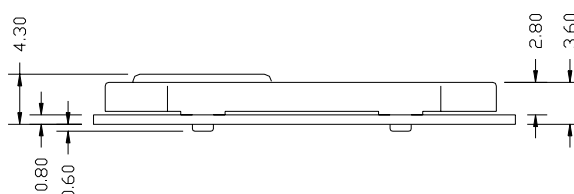
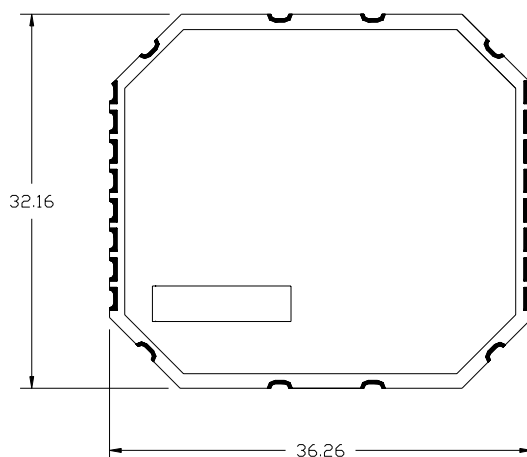


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### RX Module Pin Assignment



Unit:mm Tolerance:± 0.2

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Pin No	Name	Functional Grouping	IO Type	Description
1	GND	Ground	NA	Ground
2	RESETN	Control	Input	Reset
3	3.3V	Power	Input	3.3V Power Supply
4	GND	Ground	NA	Ground
5	AOR	Signal	Output	Rch Analog Output Pin
6	AOL	Signal	Output	Lch Analog Output Pin
7	NC	ADAT	NA	NA
8	GND	Ground	NA	Ground
9	GND	Ground	NA	Ground
10	GND	Ground	NA	Ground
11	Pairing	Control	Input	After continuously pulling-low for over 3 seconds on the transmitter, AWD605~8TP, AWD605RP enters into PAIRING mode and pin-11 needs to be pulled low at least once within the next 6 seconds for the confirmation of new ID code.
12		Ground	NA	Ground
13	ANT	RF	Input	2.4GHz antenna
14	GND	Ground	NA	Ground
15	RSSI	Signal	Output	Received signal strength indicator output
16	GND	Ground	NA	Ground

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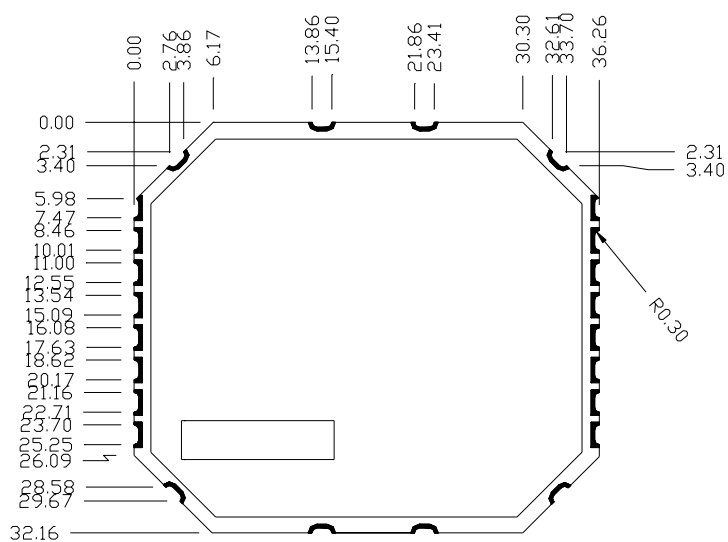
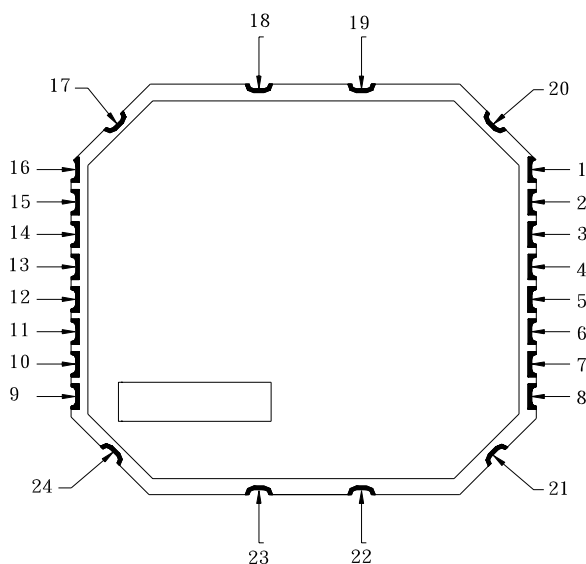
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U Unit : mm To | Tolerance : +/- 0.2 mm

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