

Bluetooth Module for Audio

IK-8ARS

Operating Instructions

This specification covers Bluetooth module(class-2) which complies with Bluetooth specification version 3.0 + EDR and integrates RF & Baseband controller in small package. This module has deployed *CSR's CSR8645* chipset.

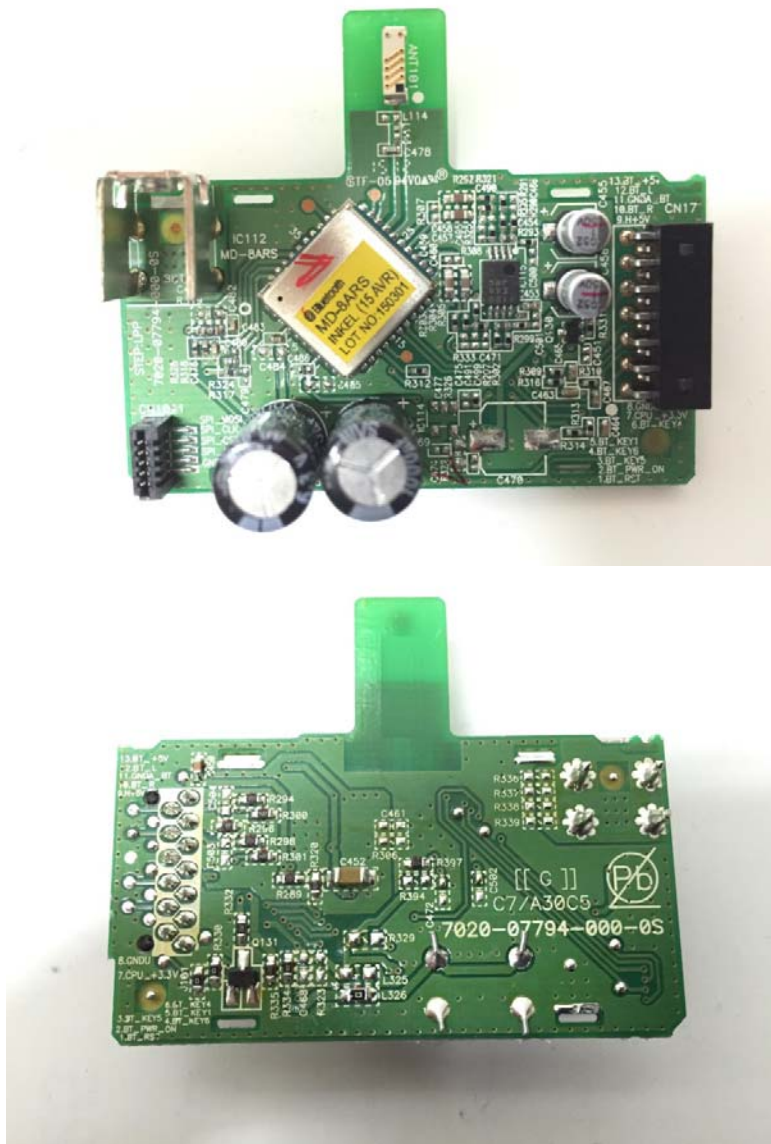
Features

- Bluetooth 3.0 + EDR
- Stereo codec with 2 microphone inputs
- Fast Charging support up to 200mA with no external components
- Multipoint support for A2DP connection to 2 A2DP source for music playback
- aptX, SBC, MP3, AAC and Fast stream decoder
- Built-in Reference Clock: 26MHz
- RoHS Compliant

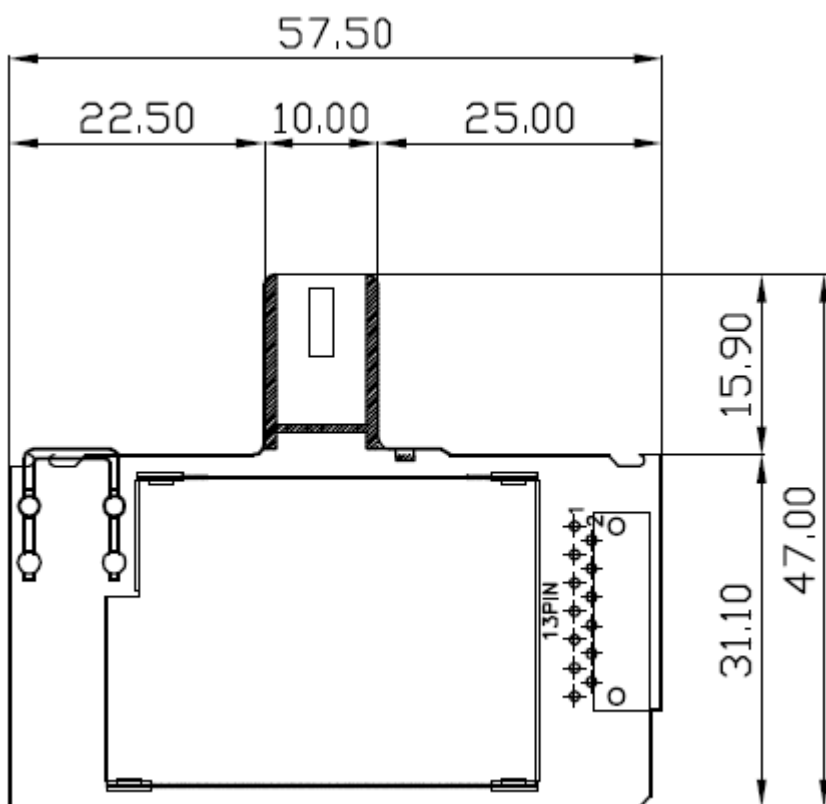
Applications

- Stereo headsets
- Wired stereo headset and headphones
- Portable stereo speakers
- Audio Products

Device Overview



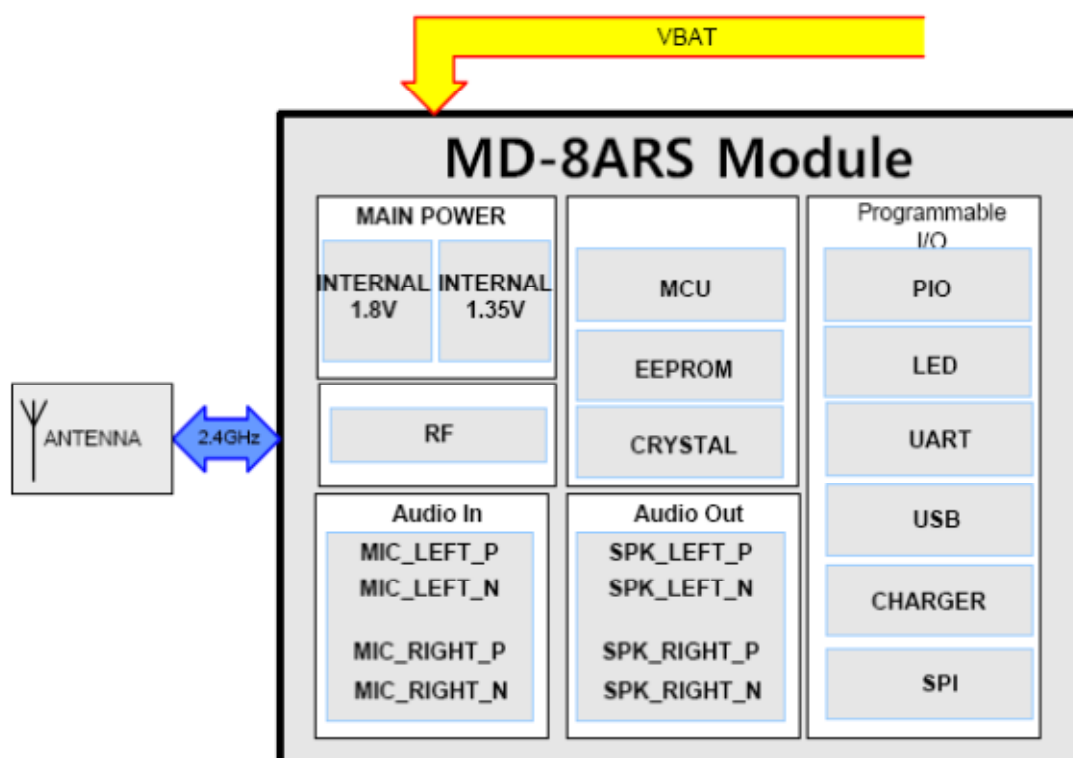
Dimensions



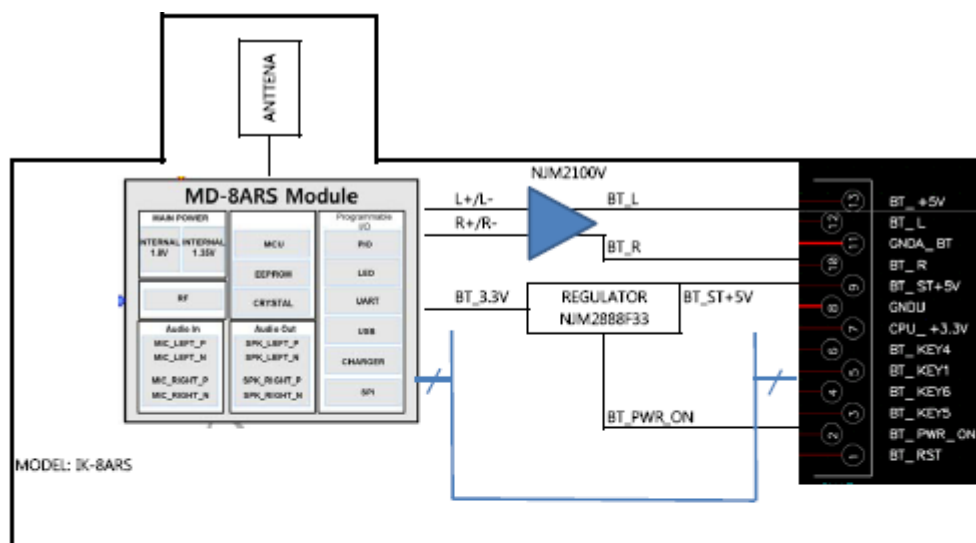
RF specification

Parameter (BDR transmitter)		Min	Typ	Max	Bluetooth Spec.	Unit
Maximum Transmit Power		5	9	-	-6 ~ +4	dBm
Power Density		-	-	20	-	dBm
Power Control				-	-	
Frequency Range		2402	-	2480		MHz
20dB Bandwidth for modulation carrier		-	925	1000	≤ 1000	KHz
Adjacent channel power	$F = F_0 \pm 2\text{MHz}$	-	-36	-20	≤ -20	dBm
	$F = F_0 \pm 3\text{MHz}$	-	-42	-40	≤ -40	dBm
	$F = F_0 \pm \geq 3\text{MHz}$	-	< -60	-40	≤ -40	dBm
Modulation Characteristics	$\Delta F_{1\text{avg}}$	140	165	175	$140 < F_{1\text{avg}} < 175$	KHz
	$\Delta F_{2\text{max}}$	115	135	-	≥ 115	KHz
	$\Delta F_{2\text{avg}}/\Delta F_{1\text{avg}}$	0.8	0.9	-	≥ 0.80	-
Initial Carrier Frequency Tolerance		-75	-	75	± 75	KHz
Carrier Frequency Drift	-	-	5	20	≤ 20	KHz
	Single slot packet	-	6	25	≤ 25	KHz
	Five slot packet	-	7	40	≤ 40	KHz
Parameter (BDR receiver)		Min	Typ	Max		Unit
Sensitivity level(at 0.1% BER)		-	-82	-88	≤ -70	dBm
Maximum received signal(at 0.1% BER)		-	-20	> -10	≥ -20	dBm
C/I co-channel		-	5	11	≤ 11	dB
Maximum level of intermodulation interface		-39	-30	-	≥ -39	dBm
Parameter (EDR transmitter)		Min	Typ	Max		Unit
Relative transmit power		-4	-1	-	-4 to 1	dB
$\pi/4$ DQPSK max carrier frequency stability	$ \omega_o $	-	1	10	≤ 10 for all blocks	kHz
	$ \omega_i $	-	1	75	≤ 75 for all packets	
	$ \omega_o + \omega_i $	-	2	75	≤ 75 for all blocks	
8 DPSK max carrier	$ \omega_o $	-	1	10	≤ 10 for all blocks	kHz
frequency stability	$ \omega_i $	-	1	75	≤ 75 for all packets	
	$ \omega_o + \omega_i $	-	1.5	75	≤ 75 for all blocks	
$\pi/4$ DQPSK modulation	RMS DEVM	-	6	20	≤ 20	%
	99% DEVM	-	12	30	≤ 30	
	Peak DEVM	-	16	35	≤ 35	
8DPSK modulation accuracy	RMS DEVM	-	6	13	≤ 13	
	99% DEVM	-	12	20	≤ 20	
	Peak DEVM	-	15	25	≤ 25	
In-band spurious emissions	$F > F_0 + 3\text{MHz}$	-	< -60	-40	≤ -40	dBm
	$F < F_0 - 3\text{MHz}$	-	< -60	-40	≤ -40	
	$F = F_0 - 3\text{MHz}$	-	< -38	-35	≤ -40	
	$F = F_0 - 2\text{MHz}$	-	-28	-20	≤ -20	dB
	$F = F_0 - 1\text{MHz}$	-	-32	-26	≤ -26	
	$F = F_0 + 1\text{MHz}$	-	-32	-26	≤ -26	dB
	$F = F_0 + 2\text{MHz}$	-	-31	-20	≤ -20	dBm
	$F = F_0 + 3\text{MHz}$	-	-45	-40	≤ -40	

Block Diagram



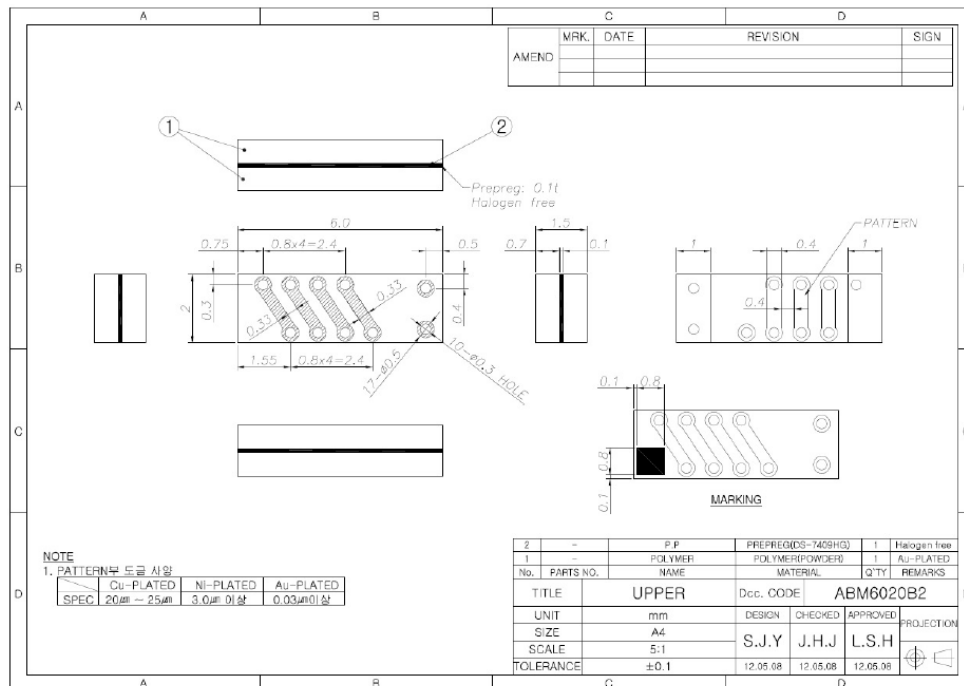
PIN Description



(MOVON_MD-8ARS_MODULE KEY CONTROL)

	KEY1 (PIO_20)	KEY4 (LED2)	KEY5 (LED1)	KEY6(MUTE) (PIO_8)
PAIRING MODE	L			
BT STATE	READY	L	L	
	PAIRING	H	L	
	CONNECTED	L	H	
	PLAYING	H	H	
DEC OPEN/CLOSE				OPEN-->H CLOSE-->L
NFC TAGGING				
	MAIN --> BT	BT --> MAIN		

Antenna / Chip Antenna



Frequency Range : 2400 ~ 2483.5 MHz Peak Gain : 3.40 dBi

Regulatory

USA

The IK-8ARS module has been labeled with its own FCC ID number, and if the FCC ID is not visible when the module is installed inside host audio device. Then the outside of the finished product into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording as follows:

Contains FCC ID : **VNH-IK8ARS**

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

A user's manual for the product should include the following 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.

The following statement must be included as a CAUTION statement in manuals to alert users of FCC RF exposure compliance:

To satisfy FCC RF Exposure requirements for mobile and base station transmission devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during operation. To ensure compliance, operation at closer than this distance is not recommended.

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

CANADA

The IK-8ARS module has been labeled with its own IC number, and if the IC is not visible when the module is installed inside host audio device.

Then the outside of the finished product into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording as follows:

Contains IC: **10581A-IK8ARS**

A user's manual for the product should include the following statement

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

KOREA

해당 무선설비는 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수 없습니다
B 급 기기 (가정용 방송통신기자재)

이 기기는 가정용 (B 급) 전자파적합기기로서 주로
가정에서 사용하는 것을 목적으로 하며 , 모든
지역에서 사용할 수 있습니다

해당 무선설비는 운용 중 전파혼신 가능성이 있으므로 인명안전과 관련된 서비스는 할 수
없습니다 .

TAIWAN**第十二條**

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條

低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。

前項合法通信，指依電信法規定作業之無線電通信。

低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

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