

"High Frequency Ceramic Solutions"

433 MHz Impedance Matched Balun + LPF Integrated Front-End SMD Passive Component for SiLabs Si4455, Si4460, Si4461, Si4463, and Si4464 Chipsets

P/N 0433BM41A0019

Detail Specification: 5/30/2017

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General Specifications

Part Number	0433BM41A0019			
Frequency Range(MHz)	424-444			
Balanced Impedance	Si4455, Si4460, Si4461, Si4463, Si4464			
Unbalanced impedance	50Ω (single ended)			
Average Insertion Loss when connected to Si44XX chipset (Active OP Tx/Rx)	0.9dB Typ@25C 1.5dB max. (-45 to +85C)		Phase Diff. (deg.)	180° ± 10
Insertion Loss when component measured by itself(passive insertion loss)	1.6dB Typ in Rx, 1.4dB Typ in Tx @25C 2.2dB max. in Rx, 1.9dB max. in Tx (-45 to +85C)	VSWR @ BW		2.0 max.
		Amplitude Difference (dB)		2.0 max.
		Reel Quantity		4,000
		Operating Temperature		-40 to +85°C
Attenuation dB (min.)	35 min. @ 2xfo MHz	Recommended Storage Conditions for Unused product on T&R	+5 ~ +35 °C, Humidity 45~75%RH, 18 months.	
	35 min. @ 3xfo MHz			
	35 min. @ 4xfo MHz			
	35 min. @ 5xfo MHz			
		Input Power	500mW max. (CW)	

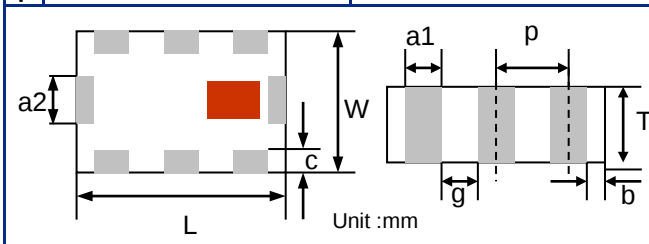
Download the gerber files at: <https://www.johansontechnology.com/silabs>

Part Number Explanation

P/N Suffix	Packing Style	Bulk	Suffix = S	eg. 0433BM41A0019S
		T & R	Suffix = E	eg. 0433BM41A0019E
	Termination style	Ni/Sn	Suffix = None	eg. 0433BM41A0019(E or S)

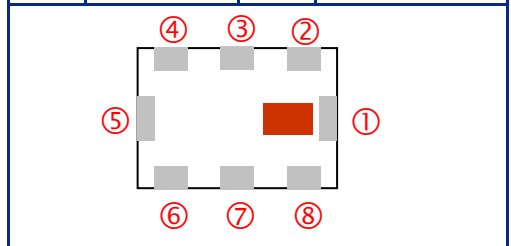
Mechanical Dimensions

	In	mm
L	0.126 ± 0.008	3.20 ± 0.20
W	0.098 ± 0.008	2.50 ± 0.20
T	0.059 ± 0.006	1.50 ± 0.15
a1	0.022 ± 0.006	0.55 ± 0.15
a2	0.028 ± 0.008	0.70 ± 0.20
b	0.004 min.	0.1 min.
c	0.012 + 0.008	0.30 + 0.20
g	0.018 + 0.006	0.45 + 0.15
p	0.039 + 0.008	1.00 + 0.20



Terminal Configuration

No.	Function	No.	Function
1	GND	5	GND
2	Ant	6	TX
3	GND	7	RXN
4	GND	8	RXP



DC Connection for Pins

- (1) Pin1 – Pin3 – Pin4 – Pin5
- (2) Pin2 – Pin7 – Pin8

Do you need to download the reference design/layout files? Go to: <https://www.johansontechnology.com/silabs>



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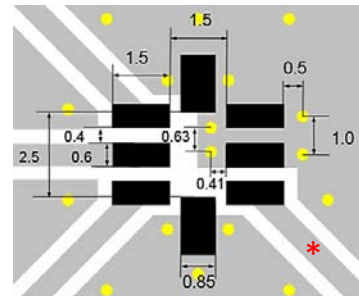
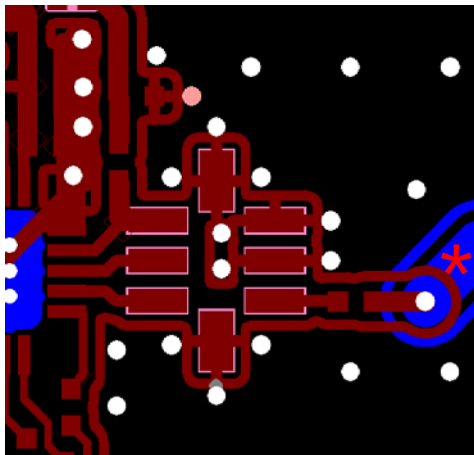
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Mounting Considerations

* Line/Via width should be designed to match 50Ohm characteristic impedance, depending on PCB material and thickness.

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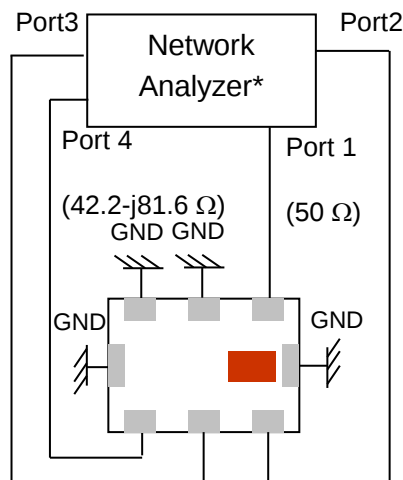


-  Solder Resist
-  Land
-  Through-hole ($\phi 0.3$)

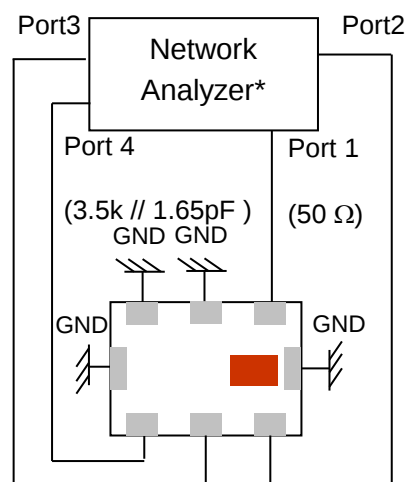
Do you need the layout/gerber files of the above? Go to: <https://www.johansontechnology.com/silabs> or send us a message at: <https://www.johansontechnology.com/ask-a-question>

Measuring Diagram

Tx Mode



Rx Mode



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Measuring Diagram (cont.)

Tx Mode:

Port1: Antenna Port
Port1 Terminate impedance: 50ohm
Ports 2 and 3: Rx Balanced Port
Port 2 and 3 Terminate impedance:
 $1/2 \times$ (the loading impedance ZIC,RX
off of Si4455)
Port4: Tx Port
Port4 Terminate impedance:
Complex conjugate to ZIC,TX on of
Si4455

IL = S41

RL = S11 / S44

RXMode:

Port 1: Antenna Port
Port1 Terminate impedance: 50ohm
Ports 2 and 3: Rx Balanced Port
Port 2 and 3 Terminate impedance:
Complex conjugate to $1/2 \times$ (Balance
impedance of ZIC,RX on of Si4455)
Port4: Tx Port
Port4 Terminate impedance: The loading
impedance ZIC,TX off of Si4455

IL=Sds21

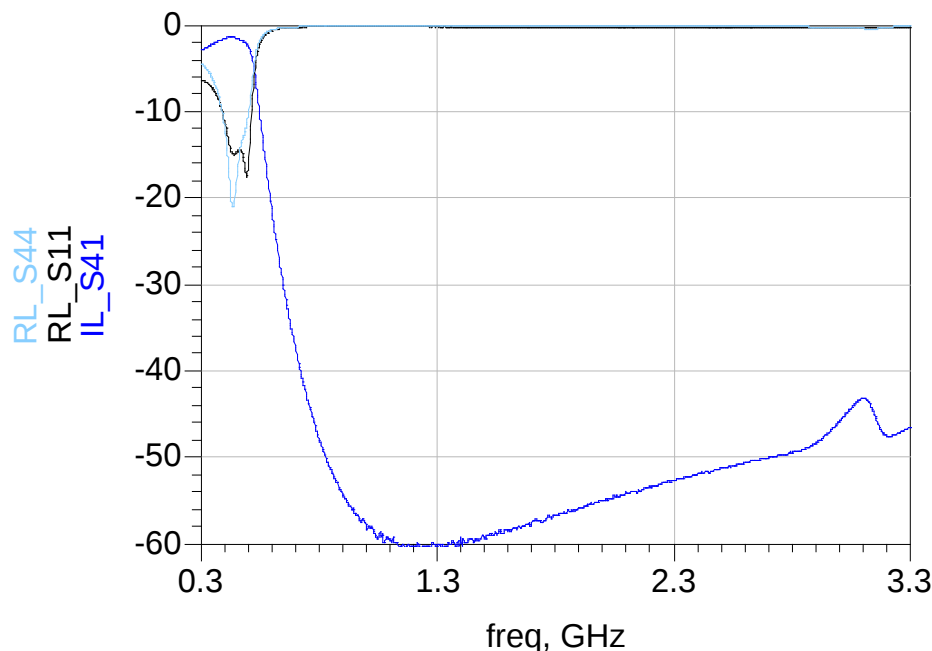
RL=Sss11 / Sdd22

Amp_balance = dB(S(3,1)/S(2,1))

Typical Electrical Characteristics (T=25oC)

TX mode:

Insertion and Return Loss



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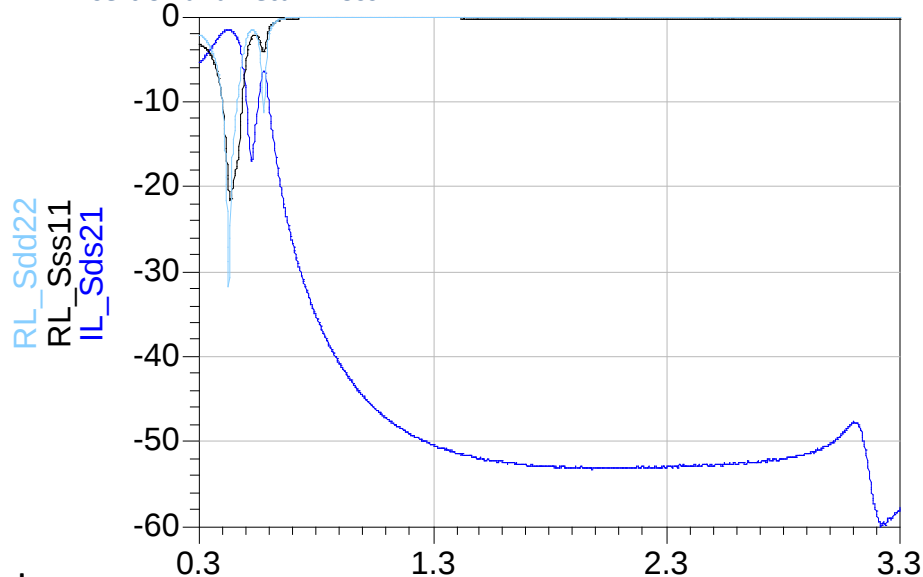
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Typical Electrical Characteristics (T=25oC)

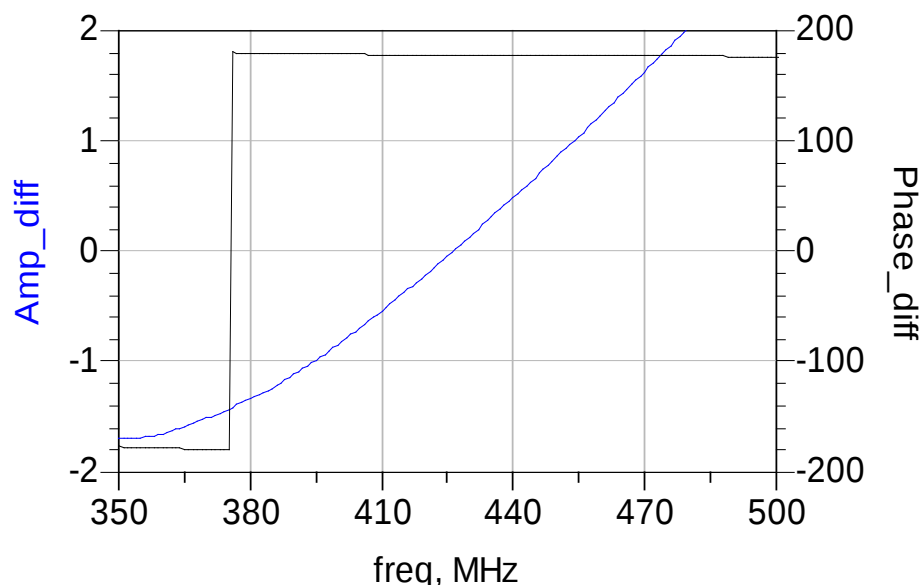
RX mode:

Insertion and Return Loss



RX mode:

Amplitude and Phase Balance



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Application Notes, Layout Files, and more

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RoHS Compliance

www.johansontechnology.com/technical-notes/rohs-compliance.html

Soldering Information

www.johansontechnology.com/ipcsoldering-profile

Antenna layout and tuning techniques

www.johansontechnology.com/tuning

Antenna layout review, tuning, and characterization services

www.johansontechnology.com/ipcantennaservices

MSL Info

www.johansontechnology.com/technical-notes/msl-rating

Recommended Storage Condition and Max Shelf Life

www.johansontechnology.com/recommended-storage-conditions

Packaging information

www.johansontechnology.com/tape-reel-packaging

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