Contents [hide]

1 ALLEGRO A89211-A89212 Evaluation Board
2 DESCRIPTION
3 FEATURES
4 USING THE EVALUATION BOARD
5 Documents / Resources
5.1 References

ALLEGRO A89211-A89212 Evaluation Board

DESCRIPTION

The A89211 or A89212 (A89211/2) evaluation board is a high-performance processor with integrated three-phase gate driver and precision current-sense capability. The evaluation board facilitates advanced control of three-phase brushless direct current (BLDC) and permanent-magnet synchronous-motor (PMSM) motors through graphical

user interface (GUI).

Figure 1: A89211/2 Evaluation Board

FEATURES

- Three phase BLDC motor connection
- USB-C and FTDI chip for universal asynchronous receiver/transmitter (UART) communication with GUI for motor control
- Potentiometer to test analog-to-digital converter (ADC)
- General-purpose input/output (GPIO) connection socket

EVALUATION BOARD CONTENTS

- APEK89211 or APEK89212 evaluation board
- Universal debugger daughterboard

Table 1: A89211/2 Evaluation Board Configurations

Configuration Name	Part Number	Minimum Voltage (V)	Maximum Voltage (V)	Phase Current (A)
A89211 Evaluation Board	APEK89211GEV-T	8	48	30
A89212 Evaluation Board	APEK89212GEV-T	8	72	30

Table 2: Product Family Board Configuration

The board supports the A89211/12 product family and comes preconfigured for the 5 V variant For the other variants, purchase component U1 separately and configure the board according to this table.

5 V Variant (Default Board Configuration)	The board is delivered with this default configuration. 1. Ensure jumper J1 is short to FT_VCC 2. Ensure jumper J2 is connected
3.3 V Variant	1. Swap component U1 with the desired A89211 product family 2. Ensure jumper J1 is short to FTDI_3V3 3. Ensure jumper J2 is removed

USING THE EVALUATION BOARD

The default board jumper positions are configured for motor control operation with the GUI through USB-C connection. The correct jumper positions for both the A89211/2 evaluation board and the debugger daughterboard are provided in the Motor Control Quick Starter Guide. To download the guide and other items required for the desired application—such as motor control, example code for peripherals, hardware manuals, etc.—see the Related Links section. The features of the A89211/2 evaluation board are shown in Figure 2.

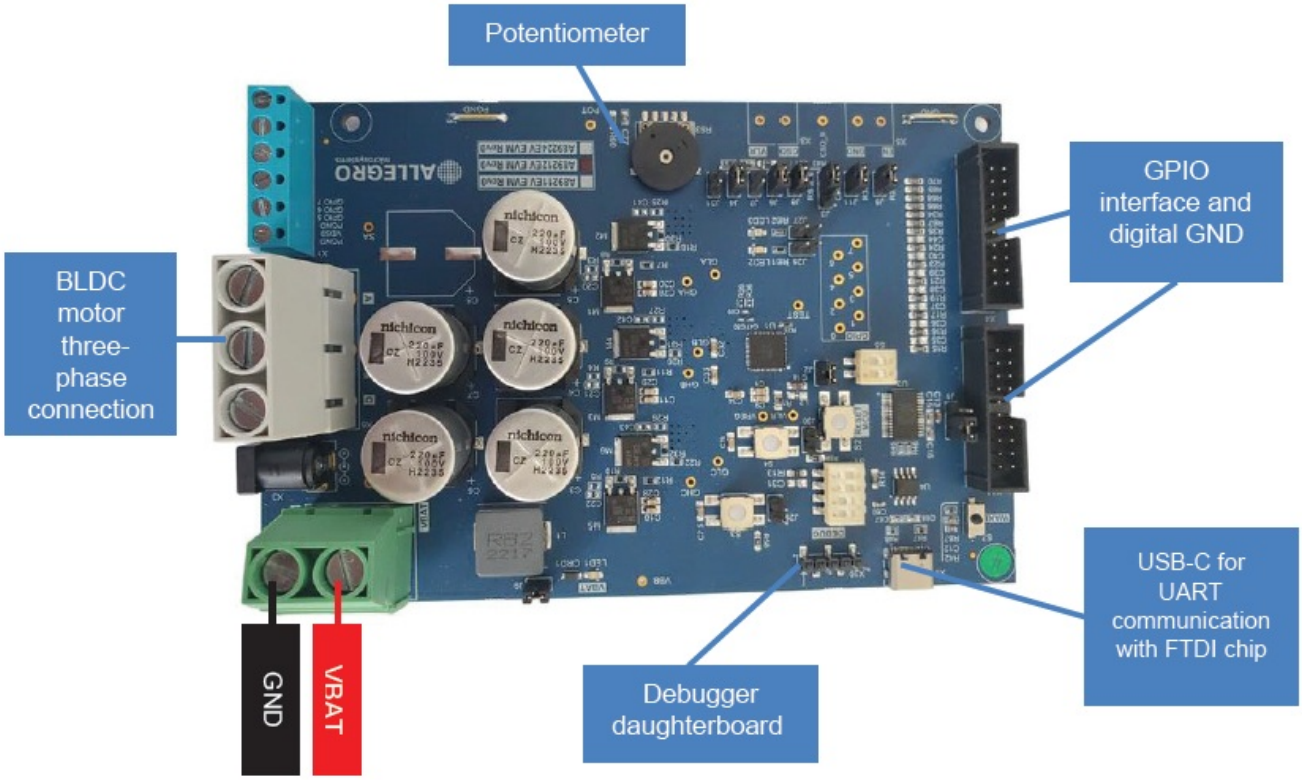


Figure 2: A89211/2 Evaluation Board Features

The debugger daughterboard is shown in Figure 3. When con-necting the debugger daughterboard to the A89211/2 evaluation board, ensure the arrows are aligned. This indicates the correct orientation for the debugger daughterboard.

1. Ensure the debugger daughterboard dip switch, S1, switches 1 and 2, are set to the off position.
2. A debugger that supports SWD connection, such as ULINK2 or ULINKplus, must be connected to the debugger daughter-board.

Figure 3: A892xx Universal Debugger

Figure 4: Debugger Daughterboard, Proper Orientation

SCHEMATIC

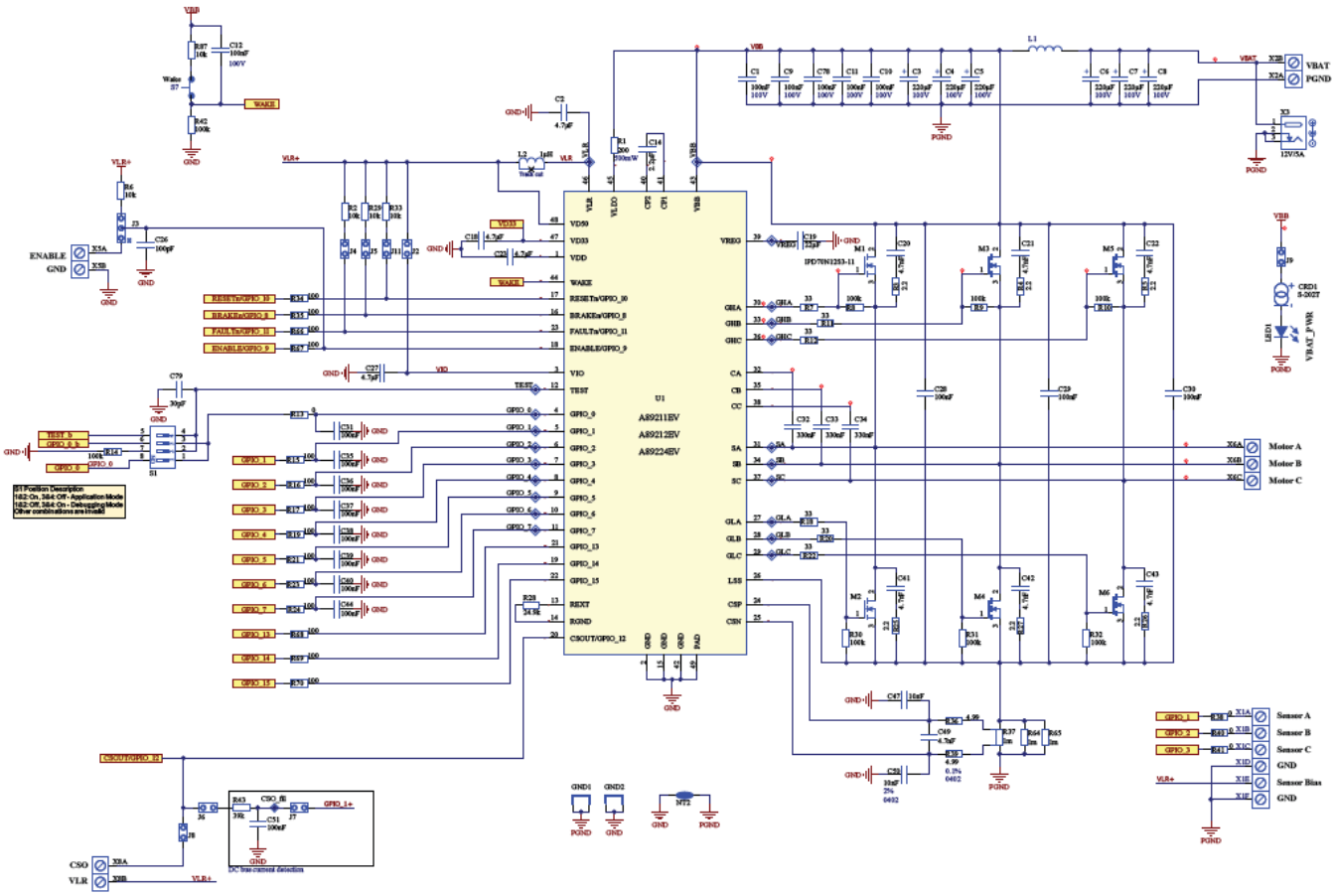
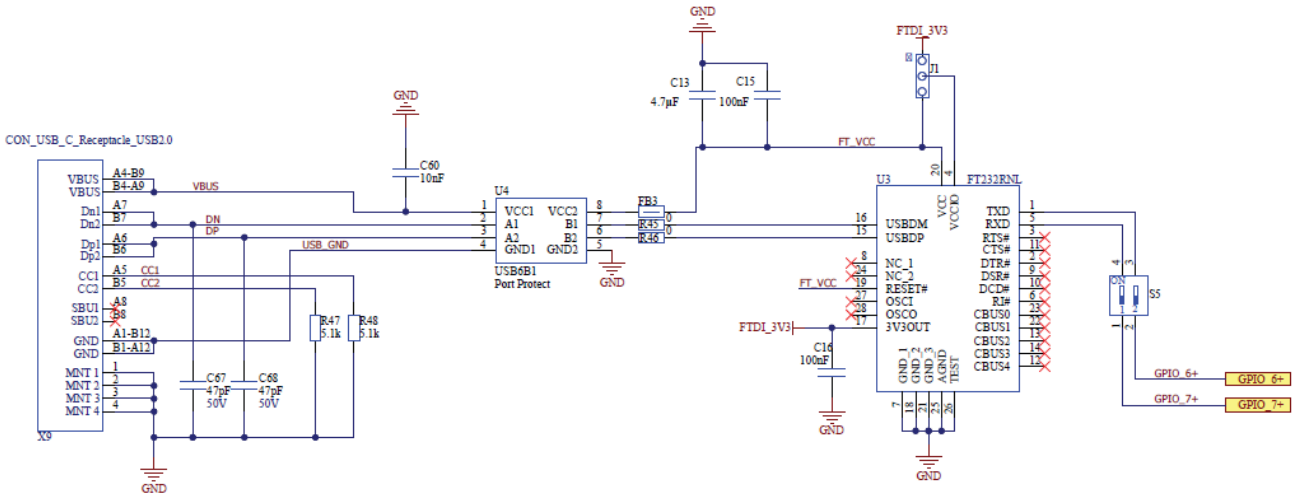
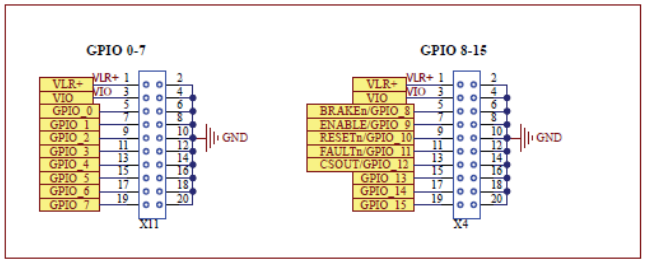


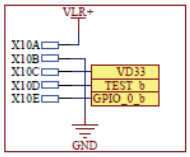
Figure 5: A89211/2 Evaluation Board Schematic *Continued on next page...*



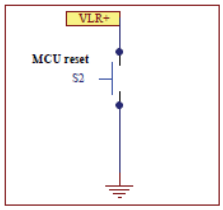
GPIO IDE Connectors



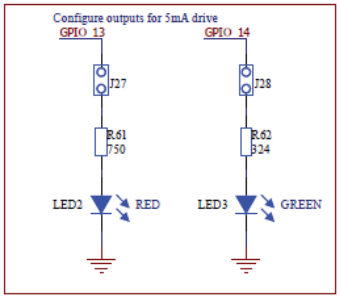
Debugger Board Connector



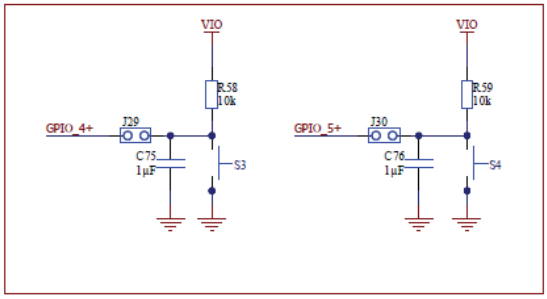
MCU reset



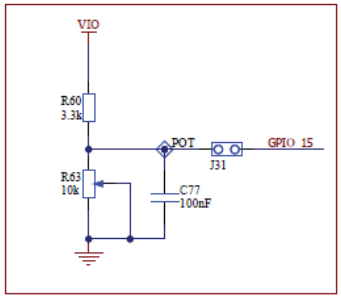
User configurable LEDs



User configurable switches



User configurable potentiometer



LAYOUT

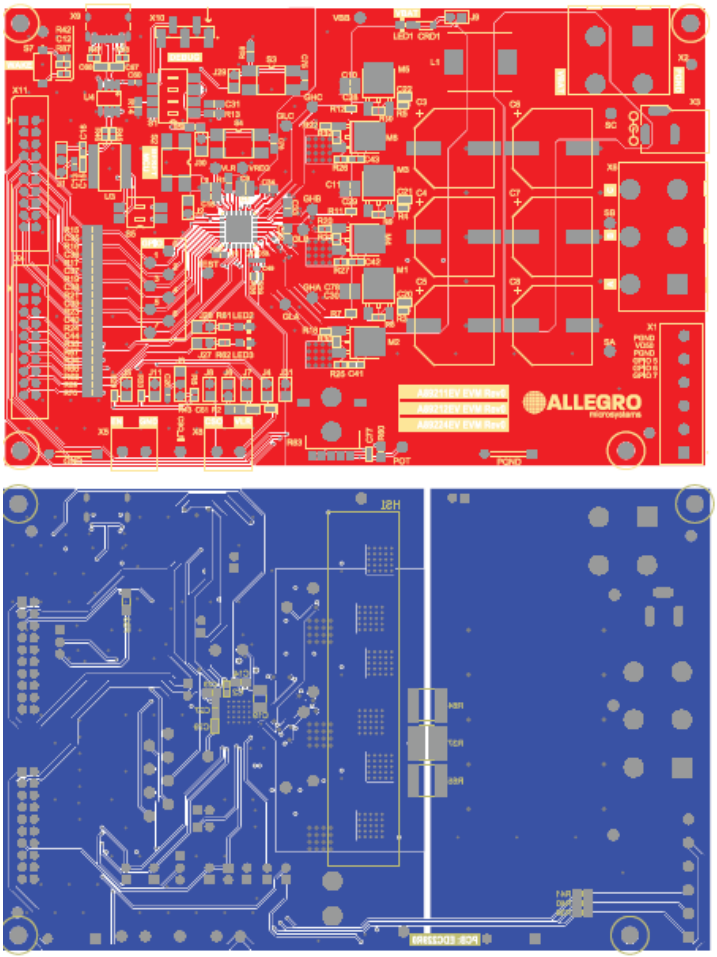


Figure 6: A89211/2 Evaluation Board, Top and Bottom Layouts

BILL OF MATERIALS

Table 3: A89211/2 Evaluation Board Bill of Materials

Designator	Quantity	Value	Fitted	Manufacturer Part Number
C1, C9, C10, C11, C28, C29, C30, C78	8	100 nF	Fitted	08051C104KAT2A
C2	1	4.7 µF	Fitted	GCJ188C70J475KE02D
C3, C4, C5, C6, C7	5	220 µF	Fitted	UCZ2A221MNQ1MS
C8	0	220 µF	Not Fitted	UCZ2A221MNQ1MS

C12, C15, C16	3	100 nF	Fitted	GCJ188R72A104KA01D
C13	1	4.7 µF	Fitted	GRT188R61C475KE13D
C14	1	2.2 µF	Fitted	GCM21BR71E225KA73L
C18, C23, C27	3	4.7 µF	Fitted	C0805C475K9RACTU
C19	1	22 µF	Fitted	GRM32ER71E226ME15L
C20, C21, C22, C41, C42, C43	0	4.7 nF	Not Fitted	C0603C472K2RACAUTO
C26	0	100 pF	Not Fitted	MC0603N101J201CT
C31, C35, C36, C37, C38, C39, C40, C44	0	100 nF	Not Fitted	C0805C104K5RACTU
C32, C33, C34	3	330 nF	Fitted	C0805C334K5RACAUTO
C47, C50	2	10 nF	Fitted	GRM1555CYA103GE01D
C49	1	4.7 nF	Fitted	GRM1555C1H472GE01D
C51, C77	2	100 nF	Fitted	C0603R104K5RACT500
C60	1	10 nF	Fitted	C0603C103K2RACTU
C67, C68	2	47 pF	Fitted	06035C470J4T2A
C75, C76	2	1 µF	Fitted	C0805C105K4RACTU
C79	1	30 pF	Fitted	VJ0603D300JXPAJ
CRD1	1		Fitted	S-202T
FB3	1		Fitted	HZ1206E601R-10
GND1, GND2	2		Fitted	D3082-05

HS1	0		Not Fitted	SK69375SA
J1, J3	2		Fitted	M20-9993645
J2, J4, J5, J6, J8, J9, J11, J29, J30, J31	10		Fitted	M20-9993645
J7, J27, J28	3		Fitted	M20-9990246
JMP1, JMP2, JMP3	3		Fitted	M7566-05
L1	1		Fitted	SRP1265A-R82M
L2	0	1 µH	Not Fitted	LQM21NN1R0K10D
LED1, LED2	2		Fitted	SML-211UTT86
LED3	1		Fitted	KPTD-2012LVZGCK
M1, M2, M3, M4, M5, M6	6		Fitted	IPD70N12S311ATMA1
R1	1	200 Ω	Fitted	ERJ-P06F2000V
R2, R6, R29, R33, R87	5	10 kΩ	Fitted	ERJ-3EKF1002V
R3, R4, R5, R25, R26, R27	0	2.2 Ω	Not Fitted	ESR03EZPF2R20
R7, R11, R12, R18, R20, R22	6	100 Ω	Fitted	ERJ-UP3F1000V
Designator	Quantity	Value	Fitted	Manufacturer Part Number
R8, R9, R10, R30, R31, R32	6	100 kΩ	Fitted	ERJ-PA3F1003V
R13	1	0 Ω	Fitted	MC0805S8F0000T5E

R14	1	100 k Ω	Fitted	ASC0805-100KFT5
R15, R16, R17, R19, R21, R23, R24, R34, R35, R66, R67, R68, R69, R70	14	100 Ω	Fitted	CRG0805F100R
R28	1	24.9 k Ω	Fitted	ERA-3ARB2492V
R36, R39	2	4.99 Ω	Fitted	CPF0402B4R99E1
R37	1	1 mΩ	Fitted	WSLP25121L000FEA
R38, R40, R41	0	0 Ω	Not Fitted	MC0805S8F0000T5E
R42	1	100 k Ω	Fitted	RMCF0603FT100K
R43	1	39 kΩ	Fitted	MCMR08X3902FTL
R45, R46	2	0 Ω	Fitted	MCWR06X000 PTL
R47, R48	2	5.1 kΩ	Fitted	ERJ-3EKF5101V
R58, R59	2	10 kΩ	Fitted	MCMR08X1002FTL
R60	1	3.3 kΩ	Fitted	MCSR08X3301FTL
R61	1	750 Ω	Fitted	ERJ-H3EF7500V
R62	1	324 Ω	Fitted	CR0603-FX-3240ELF
R63	1	10 kΩ	Fitted	RK10J12R0A0B
R64, R65	0	1 mΩ	Not Fitted	CSS2725FT1L00
S1	1		Fitted	90HBW04PT
S2, S3, S4	3		Fitted	KSC201GLFS

S5	1		Fitted	90HBW02PT
S7	1		Fitted	ATS2D3GNCLFG
TP2, TP3, TP7, TP8, TP10, TP12, TP15, TP16, TP17, TP18, TP19, TP20, TP21, TP22, TP23, TP24, TP25, TP26, TP27, TP28, TP29, TP33	0		Not Fitted	5001
TP32	0		Not Fitted	5000
U1	1		Fitted	A89211GEVSR (APEK89211GEV-T) A89212GEVSR(APEK89212GEV-T)
U3	1		Fitted	FT232RNL-TUBE
U4	1		Fitted	USB6B1RL
X1	1		Fitted	TB001-500-06BE
X2	1		Fitted	VP0265540000G
X3	1		Fitted	FC68148
X4, X11	2		Fitted	30320-6002HB
X5, X8	0		Not Fitted	TB001-500-02BE
X6	1		Fitted	VP036584000AG
X9	1		Fitted	USB4105-GF-A
X10	1		Fitted	TSM-105-01-T-SV

RELATED LINKS

- The motor control software, peripheral software drivers, GUI, datasheet, etc., are available in the Allegro software portal. Registration for part number A89211/2 is required.
- To register for, or to login to, the Allegro software portal, visit: https://registration.allegromicro.com/login

For motor control documentation and interface through GUI:
Download the A89211_12_24 MC Library and refer to the A89211_12_24 Motor Control Quick Starter Guide in the Docs section.

For the GUI interface:
Download A892xx Demo GUI

For peripheral driver software:

- Download A89211_12_24 Cdrivers

To learn more about each peripheral:
Download the hardware manuals

APPLICATION SUPPORT

For application support contact, visit https://www.allegromicro.com/en/about-allegro/contact-us/technical-assistance and navigate to the appropriate region

REVISION HISTORY

Number	Date	Description
–	November 19, 2024	Initial release
1	March 19, 2025	Added product family board configuration table (page 1)

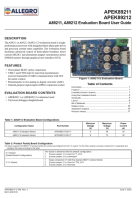
2	June 5, 2025	Corrected part number (page 1) and removed Limited Distribution markings (all pages)

Copyright 2025, Allegro MicroSystems.
Allegro MicroSystems reserves the right to make, from time to time, such departures from the detail specifications as may be required to permit improvements in the performance, reliability, or manufacturability of its products. Before placing an order, the user is cautioned to verify that the information being relied upon is current.
Allegro's products are not to be used in any devices or systems, including but not limited to life support devices or systems, in which a failure of Allegro's product can reasonably be expected to cause bodily harm.
The information included herein is believed to be accurate and reliable. However, Allegro MicroSystems assumes no responsibility for its use; nor for any infringement of patents or other rights of third parties which may result from its use.
Copies of this document are considered uncontrolled documents.

For the latest version of this document, visit our website: www.allegromicro.com

Manchester, NH 03103-3353 U.S.A. www.allegromicro.com

Documents / Resources

	ALLEGRO A89211-A89212 Evaluation Board [pdf] User Guide APEK89211GEV-T, APEK89212GEV-T, A89211-A89212 Evaluation Board, A89211-A89212, Evaluation Board

References

- User Manual

ALLEGRO

A89211-A89212, A89211-A89212 Evaluation Board, ALLEGRO, APEK89211GEV-T, APEK89212GEV-T, Evaluation Board

Leave a comment

Your email address will not be published. Required fields are marked *

Comment *

Name

Email

Website

Save my name, email, and website in this browser for the next time I comment.

Post Comment

Search:

e.g. whirlpool wrf535swhz

Search

This website is an independent publication and is neither affiliated with nor endorsed by any of the trademark owners. The "Bluetooth®" word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. The "Wi-Fi®" word mark and logos are registered trademarks owned by the Wi-Fi Alliance. Any use of these marks on this website does not imply any affiliation with or endorsement.