Click here to ask about the production status of specific part numbers.

MAX32655 Evaluation Kit

Evaluates: MAX32655

General Description

The MAX32655 evaluation kit (EV kit) provides a platform for evaluation capabilities of the MAX32655 microcontroller, which is an advanced system-on-chip (SoC). It features an Arm® Cortex®-M4F CPU for efficient computation of complex functions and algorithms, integrated power management (SIMO), and the newest generation Bluetooth® 5.0 Low Energy (Bluetooth LE), long-range radio for wearable and hearable device applications.

MAX32655 EV Kit Contents

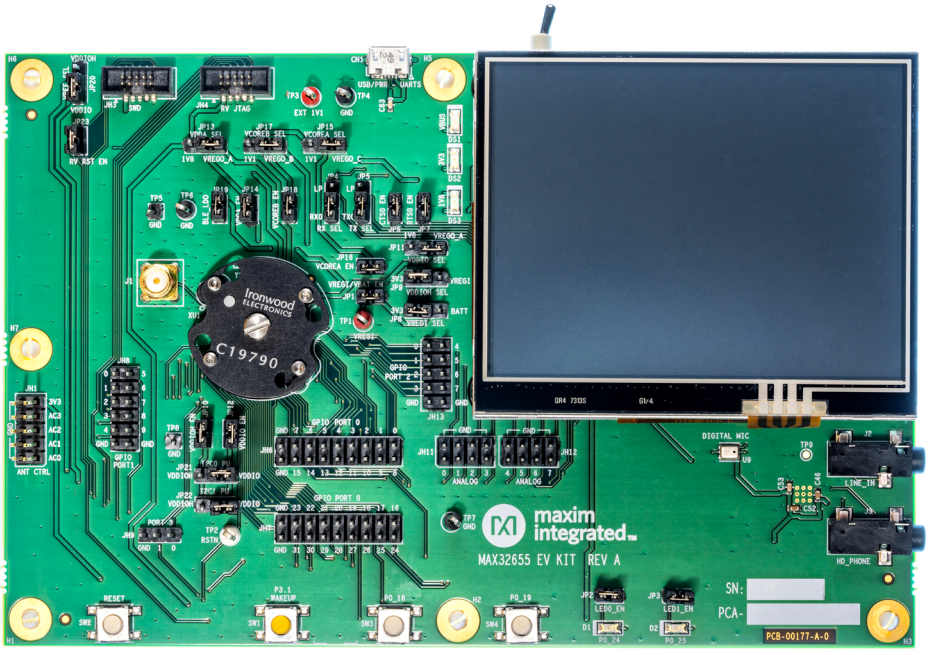
- MAX32655 EV Kit Containing a MAX32655 with a Preprogrammed Demo
- One External Bluetooth Antenna
- MAX32625PICO Debugger with Cables
- JTAG Debugger with Ribbon Cable
- One USB Standard-A to Micro-B Cable
- One USB Standard-A to Standard-B Cable

***Ordering Information* appears at end of data sheet.**

Benefits and Features

- External Bluetooth Antenna with SMA Interface
- Stereo Audio Codec with Line-In and Line-Out 3.5mm Jacks
- Digital Microphone
- 320 x 240 Color TFT Resistive Touch Display with an SPI Interface
- 128Mb Quad SPI Flash
- USB 2.0 Micro-B to Serial UARTs
- UART0 and LPUART Interface Selectable through On-Board Jumpers
- All GPIOs Signals Accessed through 0.1in Headers
- Access to the Eight Analog Inputs through 0.1in Headers
- 10-Pin SWD and RV JTAG Connectors
- Board Power Provided by USB Port
- On-Board 1.8V and 3.3V LDO Regulators
- MAX32655 Can be Solely Sourced by the Coin Cell Battery
- Individual Power Measurement on All IC Rails through Jumpers
- Two General-Purpose LEDs and Two General-Purpose Pushbutton Switches

MAX32655 EV Kit Board



319-100585; Rev 0; 8/20

maxim integrated™

Quick Start

Required Equipment

- MAX32655 EV Kit Containing a MAX32655 with a Preprogrammed Demo
- One USB Standard-A to Micro-B Cable

Procedure

The EV kit is fully assembled and tested. Follow the steps below to verify board operation:

1) While observing safe ESD practices, carefully remove the MAX32655 EV kit board out of its packaging. Inspect the board to ensure that no damage occurred during shipment. Jumpers/shunts are preinstalled prior to testing and packaging.
2) Power up the board by plugging in the provided USB cable to connector CN1. Verify that the 5V (DS1) blue LED (DS1) and the 3.3V (DS2) and 1.8V (DS2) green LEDs are illuminated.
3) The MAX32655 is preprogrammed with a demo program. The demo will now initiate and display the Maxim logo upon successful completion.

Detailed Description of Hardware

Power Supply

The EV kit is powered by +5V, which is made available through VBUS on the USB Micro-B connector CN1. A blue LED (DS1) illuminates when the board is powered. Green LEDs (DS2) and (DS3) illuminate when the 3V3 and 1V8 LDOs are powered, respectively. The MAX32655 itself can be solely sourced by a coin cell battery or on-board 3.3V through the JP8 header.

Current Monitoring

Two pin headers provide convenient current monitoring points for VDDIOH (JP10), VDDIO (JP12), VDDA (JP14), VCOREA (JP16), VCOREB (JP18), and BLE_LDO (JP19).

Clocking

The MAX32655 clocking is provided by an external 32MHz crystal (Y1) and an external 32.768kHz crystal (Y2) for RTC operation.

Bluetooth 5.0 Interface

An SMA connector is provided to attach an external Bluetooth 2.4GHz antenna.

Color TFT Display

The display provided is a 3.5in, 320 x 240 color TFT with an integrated TFT controller from Crystalfontz®. The resistive touch controller is a separate IC that is connected to the SPI bus of the MAX32655.

Audio Stereo Codec Interface

The MAX32655 interfaces to the MAX9867 external audio codec IC through its I2C and I2S ports. Line-in and line-out 3.5mm jacks are provided for audio access.

Digital Microphone

The MAX9867 codec interfaces to a miniature digital microphone embedded on an IC.

Memory

A 128Mb QSPI flash is provided as optional external memory.

JTAG Serial Wire Debug (SWD) Support

SWD debug can be accessed through the Cortex 10-pin connector, JH3. Logic levels are fixed to VDDIO (1.8V).

RISC-V JTAG Test Port

RISC-V debug can be accessed through a Cortex 10-pin connector, JH4. Logic levels are fixed to VDDIO (1.8V).

UART Interface

The EV kit provides a USB-to-UART bridge chip, FTDI FT230X. This bridge eliminates the requirement for a physical RS-232 COM port. Instead, the IC's UART access is through the USB Micro-B connector, CN1. The USB-to-UART bridge can be connected to the IC's UART 0 or LPUART with jumpers JP4 (Rx) and JP5 (Tx). Virtual COM port drivers and guides for installing Windows® drivers are available at the FTDI chip website.

GPIO and Alternate Function Headers

The GPIO and alternate function signals from the MAX32655 can be accessed through the 0.1in spaced headers JH6, JH7, JH8, JH9, and JH13.

Crystalfontz is a registered trademark of Crystalfontz America, Inc.
Windows is a registered trademark of Microsoft Corporation.

Analog Headers

The eight analog outputs can be accessed through the 0.1in spaced headers JH11 and JH12.

I²C Pullups

I²C0 and I²C1 ports can independently pulled up to 1V8 or 3V3 through JP21 (I²C0) and JP22 (I²C1).

Reset Pushbutton

The IC can be reset by pushbutton SW2.

Indicator LEDs

General-purpose indicator LED D1 (red) is connected to GPIO P0.24, and LED D2 (green) is connected to GPIO P0.25.

GPIO Pushbutton Switches

The two general-purpose pushbuttons (SW3 and SW4) are connected to GPIO P0.18 and P1.19, respectively. If the pushbutton is pressed, the attached port pin is pulled low.

Table 1. MAX32655 EV Kit Jumper Settings

JUMPER	SIGNAL	SETTINGS	DESCRIPTION
JP1	VREGI	Open	Disconnects power from VREGI
		Close*	Connects power to VREGI
JP2	P0_24	Open	Disconnects red LED D1 from P0_24
		Close*	Connects red LED D1 to P0_24
JP3	P0_25	Open	Disconnects green LED D2 from P0_25
		Close*	Connects green LED D2 to P0_25
JP4	P2_6	2-1	Connects the USB to serial UART to GPIO P2_6 (LPUART_RX)
	P0_0	2-3*	Connects the USB to serial UART to GPIO P0_0 (UART0_RX)
JP5	P2_7	2-1	Connects the USB to serial UART to GPIO P2_7 (LPUART_TX)
	P0_1	2-3*	Connects the USB to serial UART to GPIO P0_1 (UART0_TX)
JP6	P0_2	Open	Disconnects the USB to serial UART to GPIO P0_2 (UART0_CTS)
		Close*	Connects the USB to serial UART to GPIO P0_2 (UART0_CTS)
JP7	P0_3	Open	Disconnects the USB to serial UART to GPIO P0_3 (UART0_RTS)
		Close*	Connects the USB to serial UART to GPIO P0_3 (UART0_RTS)
JP8	VREGI	2-1	Connects the coin cell battery to VREGI
		2-3*	Connects the 3V3 to VREGI
JP9	VDDIOH_EN	2-1*	Connects VREGI to VDDIOH_EN jumper JP10
		2-3	Connects 3V3 to VDDIOH_EN jumper JP10
JP10	VDDIOH	Open	Disconnects power from VDDIOH
		Close*	Connects power to VDDIOH
JP11	VDDIO_EN	2-1*	Connects VREGO_A to VDDIO_EN jumper JP12
		2-3	Connects 1V8 to VDDIO_EN jumper JP12
JP12	VDDIO	Open	Disconnects power from VDDIO
		Close*	Connects power to VDDIO
JP13	VDDA_EN	2-1*	Connects VREGO_A to VDDA_EN jumper JP14
		2-3	Connects 1V8 to VDDA_EN jumper JP14

**Default setting*

Table 1. MAX32655 EV Kit Jumper Settings (continued)

JUMPER	SIGNAL	SETTINGS	DESCRIPTION
JP14	VDDA	Open	Disconnects power from VDDA
		Close*	Connects power to VDDA
JP15	VCOREA_EN	2-1*	Connects VREGO_C to VCOREA_EN jumper JP16
		2-3	Connects 1V1 to VCOREA_EN jumper JP16
JP16	VCOREA	Open	Disconnects power from VCOREA
		Close*	Connects power to VCOREA
JP17	VCOREB_EN	2-1*	Connects VREGO_B to VCOREB_EN jumper JP18
		2-3	Connects 1V1 to VCOREB_EN jumper JP18
JP18	VCOREB	Open	Disconnects power from VCOREB
		Close*	Connects power to VCOREB
JP19	BLE_LDO	Open	Disconnects power from BLE_LDO
		Close*	Connects power to BLE_LDO
JP20	VREF	2-1*	Connects VDDIO to VREF
		2-3	Connects VDDIOH to VREF
JP21	I2C0_PU	2-1*	Connects VDDIO to I2C0_PU
		2-3	Connects VDDIOH to I2C0_PU
JP22	I2C1_PU	2-1*	Connects VDDIO to I2C1_PU
		2-3	Connects VDDIOH to I2C1_PU
JP23	BOARD RESET	Open	Disconnects RV JTAG NRESET from the BOARD RESET circuitry
		Close*	Connects RV JTAG NRESET from the BOARD RESET circuitry

**Default setting*

Ordering Information

PART	TYPE
MAX32655EVKIT#	EV Kit

#Denotes RoHS compliant.

MAX32655 EV Kit Bill of Materials

QTY	PART REFERENCE	VALUE	BOM_DESCRIPTION	MANUFACTURER_PN	MANUFACTURER
1	BATT1	S8421-45R	BATTERY HOLDER COIN 20MM SMD	S8421-45R	S8421-45R
1	BATT2	CR2032	BATTERY LITHIUM COIN 3V 20MM	CR2032	Panasonic - BSG
9	C1 C9 C10 C11 C12 C13 C14 C17 C19	1µF	CAP CER 1UF 16V 10% X5R 0402	GRT155R61C105KE01D	Murata Electronics
1	C2	47µF	CAP CER 47µF 6.3V 20% X5R 0805	C2012X5R0J476M125AC	TDK Corporation
11	C3 C18 C20 C23 C24 C25 C34 C35 C36 C41 C72	100nF	CAP CER 0.1µF 16V 10% X7R 0402	GRM155R71C104KA88D	Murata Electronics
1	C4	3.3nF	CAP CER 3300PF 16V 10% X7R 0402	GRM15XR71C332KA86D	Murata Electronics
4	C5 C6 C7 C8	22µF	CAP CER 22µF 6.3V 20% X5R 0603	C1608X5R0J226M080AC	TDK Corporation
2	C15 C16	16pF	CAP CER 16PF 50V 5% C0G/NP0 0402	GRM1555C1H160JA01D	Murata Electronics
15	C21 C22 C26 C27 C28 C29 C30 C31 C32 C33 C37 C38 C39 C40 C45	DNI	DNI		
3	C42 C43 C71	1µF	CAP CER 1µF 6.3V 10% X5R 0402	JMK105BJ105KV-F	Taiyo Yuden
7	C44 C46 C48 C49 C50 C52 C53	1µF	CAP CER 1µF 16V 10% X7R 0603	GCM188R71C105KA64D	Murata
1	C47	2.2µF	CAP CER 2.2µF 10V 10% X5R 0603	C0603C225K8PACTU	Kemet
7	C51 C54 C57 C58 C61 C68 C70	100nF	CAP CER 0.1µF 10V 10% X5R 0402	GRM155R61A104KA01D	Murata
2	C55 C56	18pF	CAP CER 18PF 50V 5% NP0 0402	GRM1555C1H180JA01D	Murata
2	C59 C60	47pF	CAP CER 47PF 50V 1% NP0 0402	C1005C0G1H470F050BA	TDK Corporation
1	C62	4.7µF	CAP CER 4.7µF 10V 10% X5R 0603	C0603C475K8PACTU	Kemet
1	C63	10nF	CAP CER 10000PF 25V 10% X7R 0603	CL10B103KA8NNNC	Samsung
1	C64	100nF	CAP CER 0.1µF 16V 10% X7R 0603	C0603C104K4RACTU	Kemet
1	C65	10nF	CAP CER 10000PF 16V 10% X7R 0402	GRM155R71C103KA01D	Murata Electronics
2	C66 C69	10µF	CAP CER 10µF 6.3V 20% X5R 0402	GRJ155R60J106ME11D	Murata Electronics
1	C67	1µF	CAP CER 1µF 35V 10% X5R 0603	GMK107BJ105KA-T	Taiyo Yuden
1	CN1	MICRO USB B R/A	CONN RCPT 5POS MICRO USB B R/A	47346-0001	Molex
1	D1	RED	LED 660NM RED WTR CLR 1206 SMD	SML-LX1206SRC-TR	Lumex Opto
3	D2 DS2 DS3	GRN	LED 565NM WTR CLR GREEN 1206 SMD	SML-LX1206GC-TR	Lumex Opto
1	DS1	BLUE	LED 469NM BLUE DIFF 1206 SMD	HSMR-C150	Avago Technologies
1	DSP1	42P (2x21)	CONN RCPT 42P 0.100" SMD	HLE-121-02-f-dv	Samtec Inc.
1	DSP2	CFAF320240F-035T-TS-CB	320x240 Color TFT with Carrier Board	CFAF320240F-035T-TS-CB	Crystalfontz
8	H1 H2 H3 H4 H5 H6 H7 H8	DNI	DNI MTG 125DRL 300PAD		
1	J1	SMA	CONN SMA JACK STR 50 Ω PCB	5-1814832-1	TE Connectivity
2	J2 J3	SJ-3523-SMT-TR	CONN JACK STEREO 3.5MM SMD R/A	SJ-3523-SMT-TR	CUI Inc
1	JH1	10P 2x5 Tall	CONN HEADER VERT 10POS 2.54MM	TSW-105-15-G-D	Samtec Inc.
2	JH3 JH4	10P CORTEX DEBUG	IDC BOX HEADER 0.050 10 POS SMD	3220-10-0300-00	CNC Tech
2	JH6 JH7	18P 2x9	CONN HEADER .100 DUAL STR 18POS	PEC09DAAN	Sullins
1	JH8	12P 2x6	CONN HEADER .100 DUAL STR 12POS	PEC06DAAN	Sullins

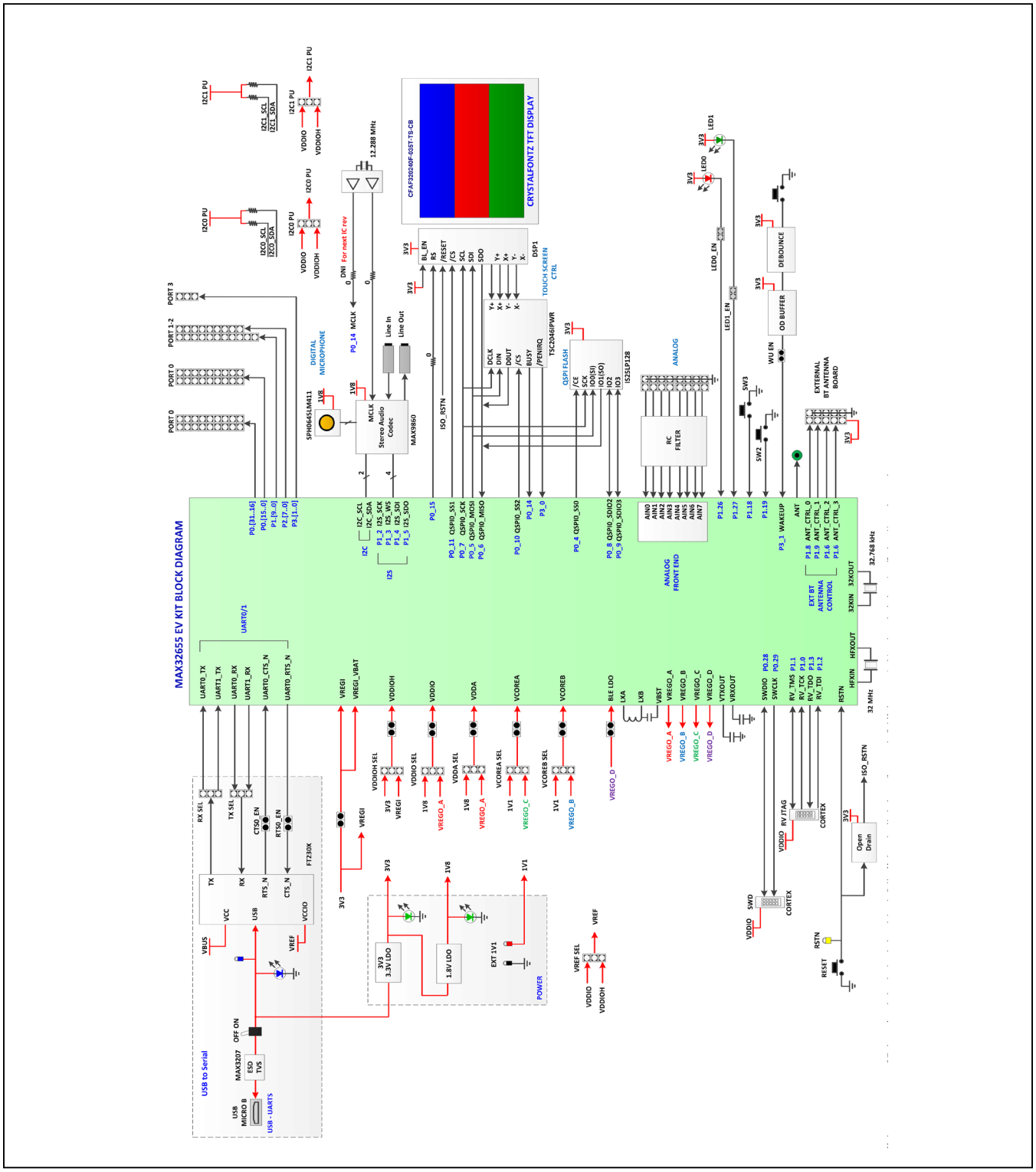
MAX32655 EV Kit Bill of Materials (continued)

QTY	PART REFERENCE	VALUE	BOM_DESCRIPTION	MANUFACTURER_PN	MANUFACTURER
12	JH9 JP4 JP5 JP8 JP9 JP11 JP13 JP15 JP17 JP20 JP21 JP22	3P 3x1	CONN HEADER .100 SINGL STR 3POS	PEC03SAAN	Sullins
2	JH11 JH12	8P 2x4	CONN HEADER .100 DUAL STR 8POS	PEC04DAAN	Sullins
1	JH13	10P 2x5	CONN HEADER .100 DUAL STR 10POS	PEC05DAAN	Sullins
12	JP1 JP2 JP3 JP6 JP7 JP10 JP12 JP14 JP16 JP18 JP19 JP23	JUMPER	CONN HEADER .100 SINGL STR 2POS	PEC02SAAN	Sullins
1	L1	2.2µH	FIXED IND 2.2µH 1A 150 MΩ SMD 0805	MLP2012H2R2MT0S1	TDK Corporation
1	L2	HZ1206C202R-10	FERRITE CHIP SIGNAL 2000Ω SMD	HZ1206C202R-10	Laird-Signal Integrity
1	L3	BLM21PG221SN1D	FERRITE CHIP 220Ω 0805	BLM21PG221SN1D	Murata Electronics
1	PCB1	PCB			
1	Q1	BSS806N	MOSFET N-CH 20V 2.3A SOT23	BSS806N H6327	Infineon Technologies
4	R1 R2 R3 R4	2K	RES 2KΩ 1/10W 1% 0603 SMD	ERJ-3EKF2001V	Panasonic
8	R5 R6 R9 R11 R13 R15 R17 R19	0	RES 0.0Ω 1/10W JUMP 0402 SMD	ERJ-2GE0R00X	Panasonic
4	R7 R8 R35 R36	33.2	RES SMD 33.2Ω 1% 1/10W 0402	ERJ-2RKF33R2X	Panasonic
1	R14	27K	RES 27KΩ 1/10W 1% 0402 SMD	ERJ-2RKF2702X	Panasonic
2	R21 R22	100	RES SMD 100Ω 1% 1/10W 0603	RC0603FR-07100RL	Yageo
1	R23	470	RES 470Ω 1/10W 1% 0603 SMD	ERJ-3EKF4700V	Panasonic
3	R24 R47 R48	332	RES 332Ω 1/10W 1% 0603 SMD	ERJ-3EKF3320V	Panasonic
4	R25 R29 R31 R32	10K	RES SMD 10KΩ 1% 1/16W 0402	RC0402FR-0710KL	Yageo
1	R26	10K	RES SMD 10KΩ 1% 1/16W 0402	RC0402FR-0710KL	Yageo
3	R27 R30 R38	0	RES SMD 0Ω JUMPER 1/10W 0603	RC0603JR-070RL	Yageo
1	R28	0	RES SMD 0Ω JUMPER 1/10W 0603	RC0603JR-070RL	Yageo
1	R33	150	RES SMD 150Ω 1% 1/10W 0402	ERJ-2RKF1500X	Panasonic
1	R34	1M	RES SMD 1MΩ 1% 1/10W 0402	ERJ-2RKF1004X	Panasonic
1	R37	33.2	RES SMD 33.2Ω 1% 1/10W 0402	ERJ-2RKF33R2X	Panasonic
4	R39 R43 R44 R46	10K	RES 10KΩ 1/10W 1% 0603 SMD	ERJ-3EKF1002V	Panasonic
2	R40 R41	27	RES 27 Ω 1/10W 1% 0603 SMD	ERJ-3EKF27R0V	Panasonic
1	R42	2.7K	RES 2.7KΩ 1/10W 1% 0603 SMD	ERJ-3EKF2701V	Panasonic
1	R45	1M	RES SMD 1MΩ 5% 1/8W 0805	ERJ-6GEYJ105V	Panasonic
1	R49	150K	RES 150KΩ 1/10W 1% 0603 SMD	ERJ-3EKF1503V	Panasonic
1	SW1	B3S-1002 BY OMZ	SWITCH TACTILE SPST-NO 0.05A 24V	B3S-1002 BY OMZ	Omron Electronics
3	SW2 SW3 SW4	B3S-1000P	SWITCH TACTILE SPST-NO 0.05A 24V	B3S-1000P	Omron Electronics
1	SW5	SPDT 3A	SWITCH TOGGLE SPDT 3A 120V	ET01MD1AGE	C&K Components
2	TP1 TP3	RED	TEST POINT PC MULTI PURPOSE RED	5010	Keystone Electronics
1	TP2	WHT	TEST POINT PC MULTI PURPOSE WHT	5012	Keystone Electronics

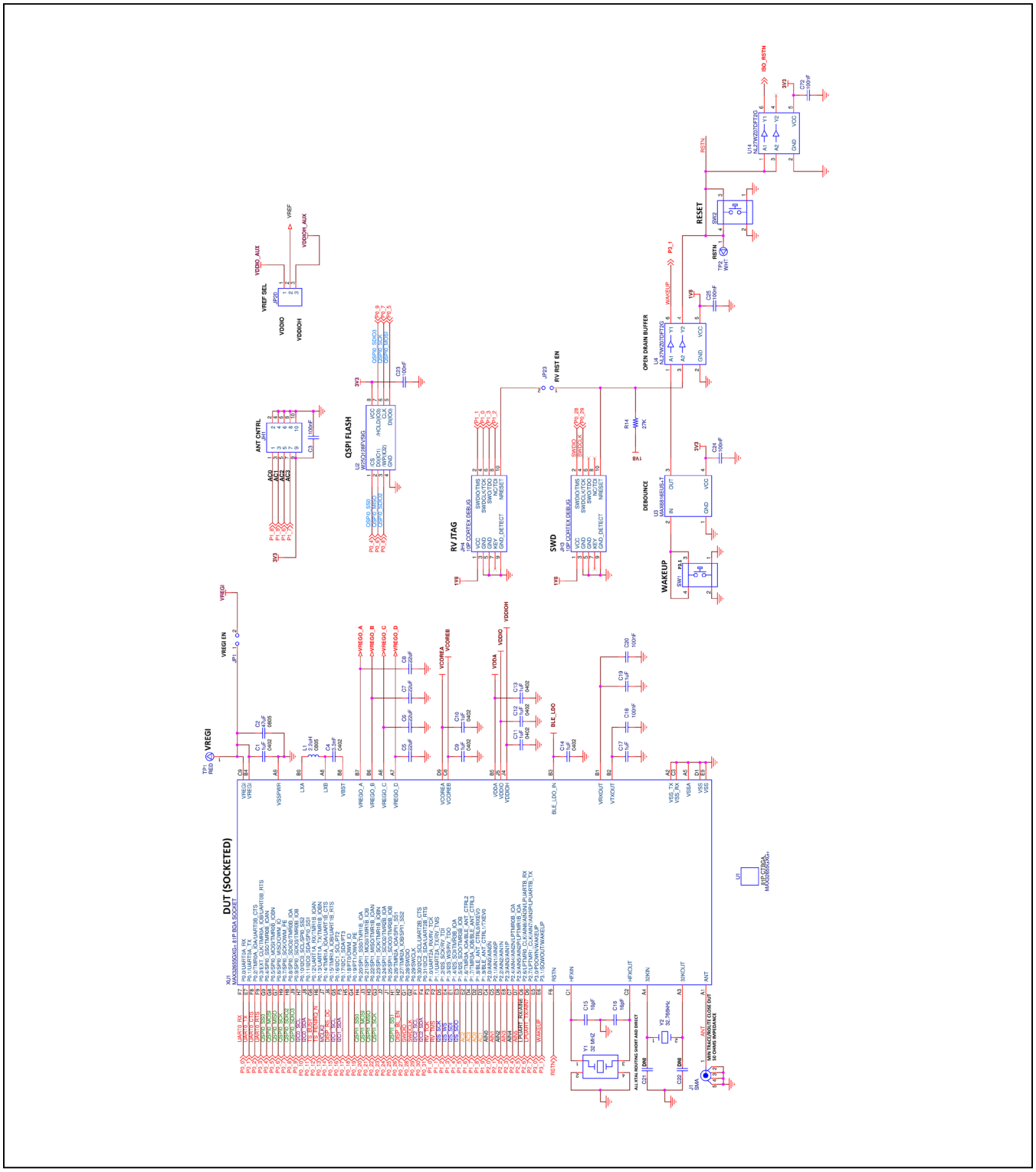
MAX32655 EV Kit Bill of Materials (continued)

QTY	PART REFERENCE	VALUE	BOM_DESCRIPTION	MANUFACTURER_PN	MANUFACTURER
3	TP4 TP6 TP7	BLK	TEST POINT PC MULTI PURPOSE BLK	5011	Keystone Electronics
2	TP5 TP8	1P	CONN HEADER .100 SINGL STR 1POS	PEC01SAAN	Sullins
1	TP9	DNI	DNI 28 DRILL 50 PAD		
1	U1	MAX32655GXG+	MAX32655GXG+ 81P BGA	MAX32655GXG+	Maxim Integrated
1	U2	W25Q128FVSIG	IC FLASH 128MBIT 104MHZ 8SOIC	W25Q128FVSIG	Winbond Electronics
1	U3	MAX6816EUS+T	IC INTFACE SPECIALIZED SOT143-4	MAX6816EUS+TCT-ND	Maxim Integrated
2	U4 U14	NL27WZ07DFT2G	IC BUFFER NON-INVERT 5.5V SC88	NL27WZ07DFT2G	ON Semiconductor
1	U5	TSC2046IPWR	IC TOUCH SCREEN CTRLR LV 16TSSOP	TSC2046IPWR	TI
1	U6	MAX9867ETJ+T	IC STEREO AUD CODEC LP 32TQFN	MAX9867ETJ+T	Maxim Integrated
1	U7	SN74LVC1GU04DCKT	IC SINGLE INVERTER GATE SC70-5	SN74LVC1GU04DCKT	Texas Instruments
1	U8	NC7WZ17P6X	IC BUFF DL SCHMT TRIG UHS SC706	NC7WZ17P6X	Fairchild Semiconductor
1	U9	SPH0644HM4H-1	SILICON DIGITAL MICROPHONE	SPH0644HM4H-1	Knowles
1	U10	FT230XS-R	IC USB SERIAL BASIC UART 16SSOP	FT230XS-R	FTDI
1	U11	MAX3207EAUT+T	ESD PROT DIFF SOT23-6	MAX3207EAUT+T	Maxim Integrated
1	U12	MAX1806EUA33+	IC REG LDO 3.3V/ADJ 0.5A 8UMAX	MAX1806EUA33+	Maxim Integrated
1	U13	MAX1806EUA18+	Low Dropout Linear Regulator	MAX1806EUA18+	Maxim Integrated
1	XU1	MAX32655GXG+ 81P BGA SCKT	MAX32655GXG+ 81P BGA SOCKET	C19790	Ironwood Electronics, Inc.
1	Y1	32 MHZ	CRYSTAL 32.00 MHZ 12PF SMD	FA-20H 32.0000MF12Y-W3	EPSON
1	Y2	32.768kHz	CRYSTAL 32.768KHZ 6.0PF SMD	ABS07-32.768KHZ-6-T	Abracon Corp
1	Y3	12.288Mhz	CRYSTAL 12.2880MHZ 18PF SMD	ABM3-12.288MHZ-B4Y-T	Abracon Corporation

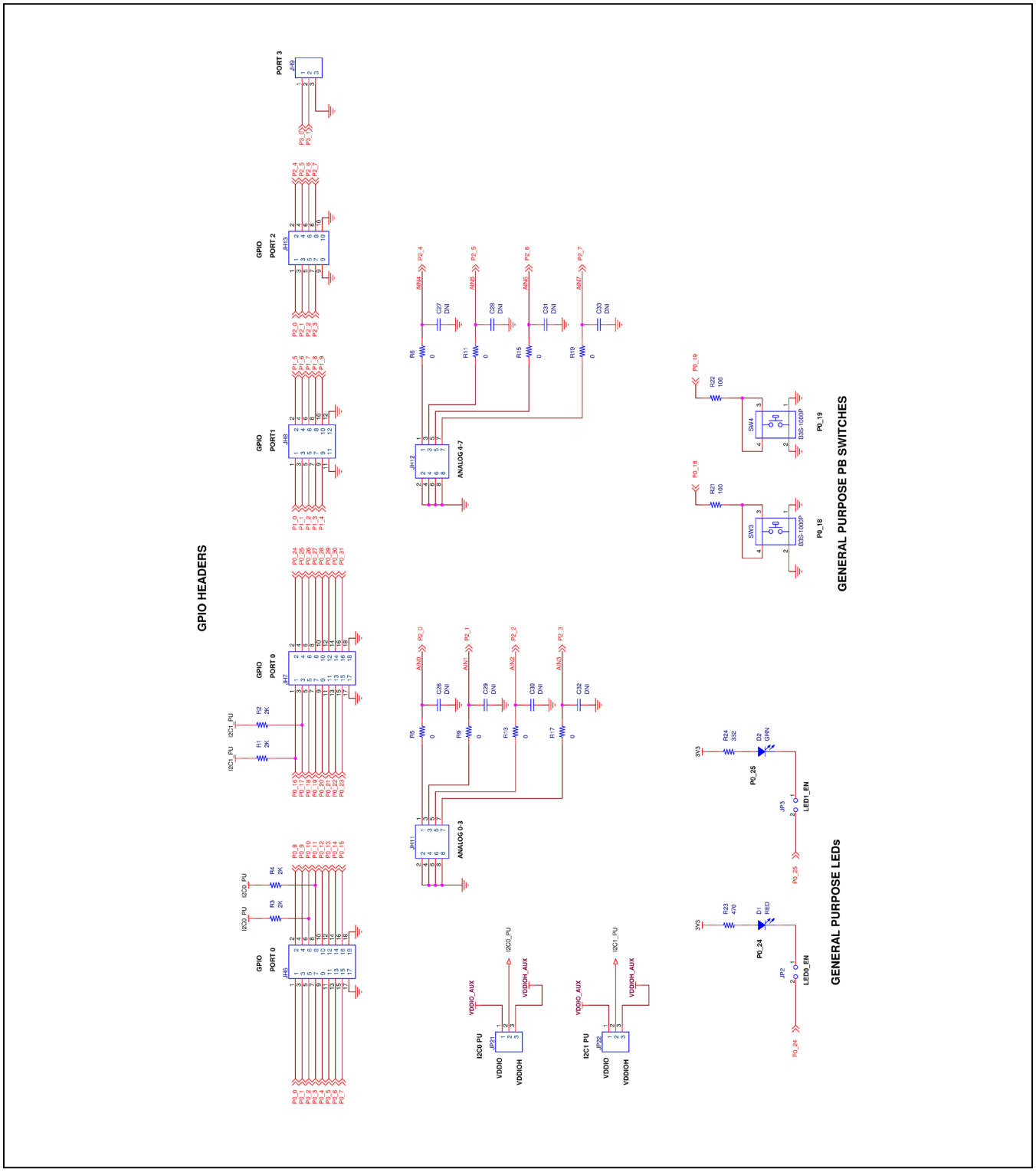
MAX32655 EV Kit Schematic Diagrams



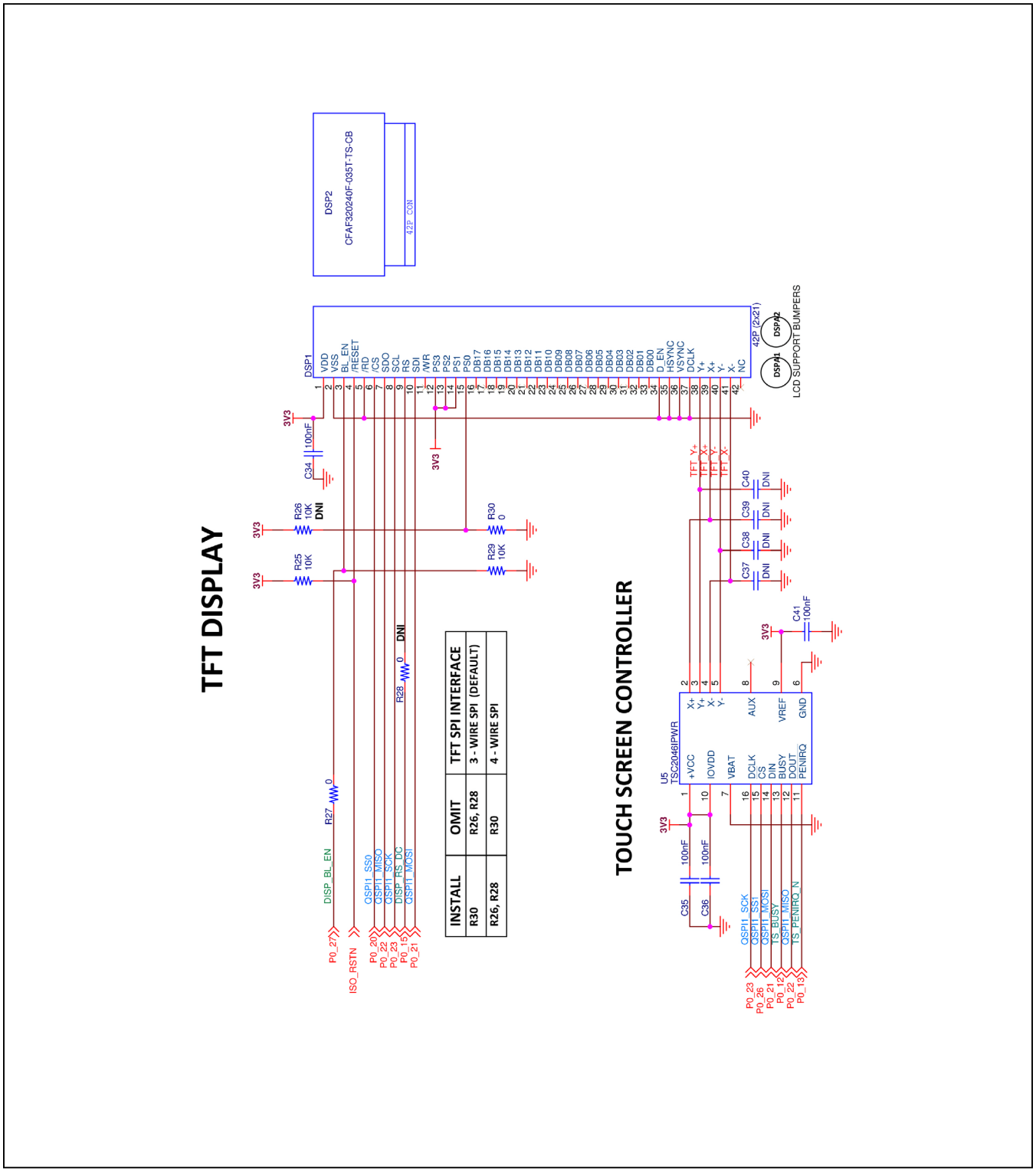
MAX32655 EV Kit Schematic Diagrams (continued)



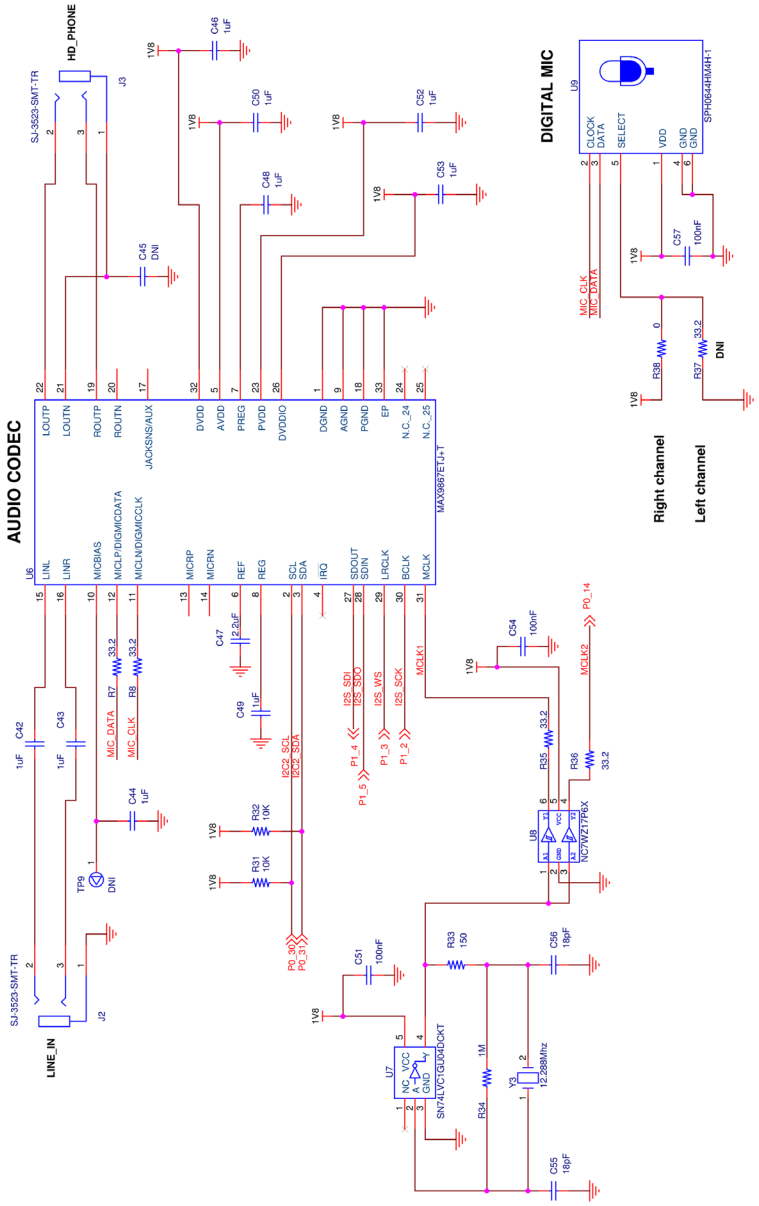
MAX32655 EV Kit Schematic Diagrams (continued)



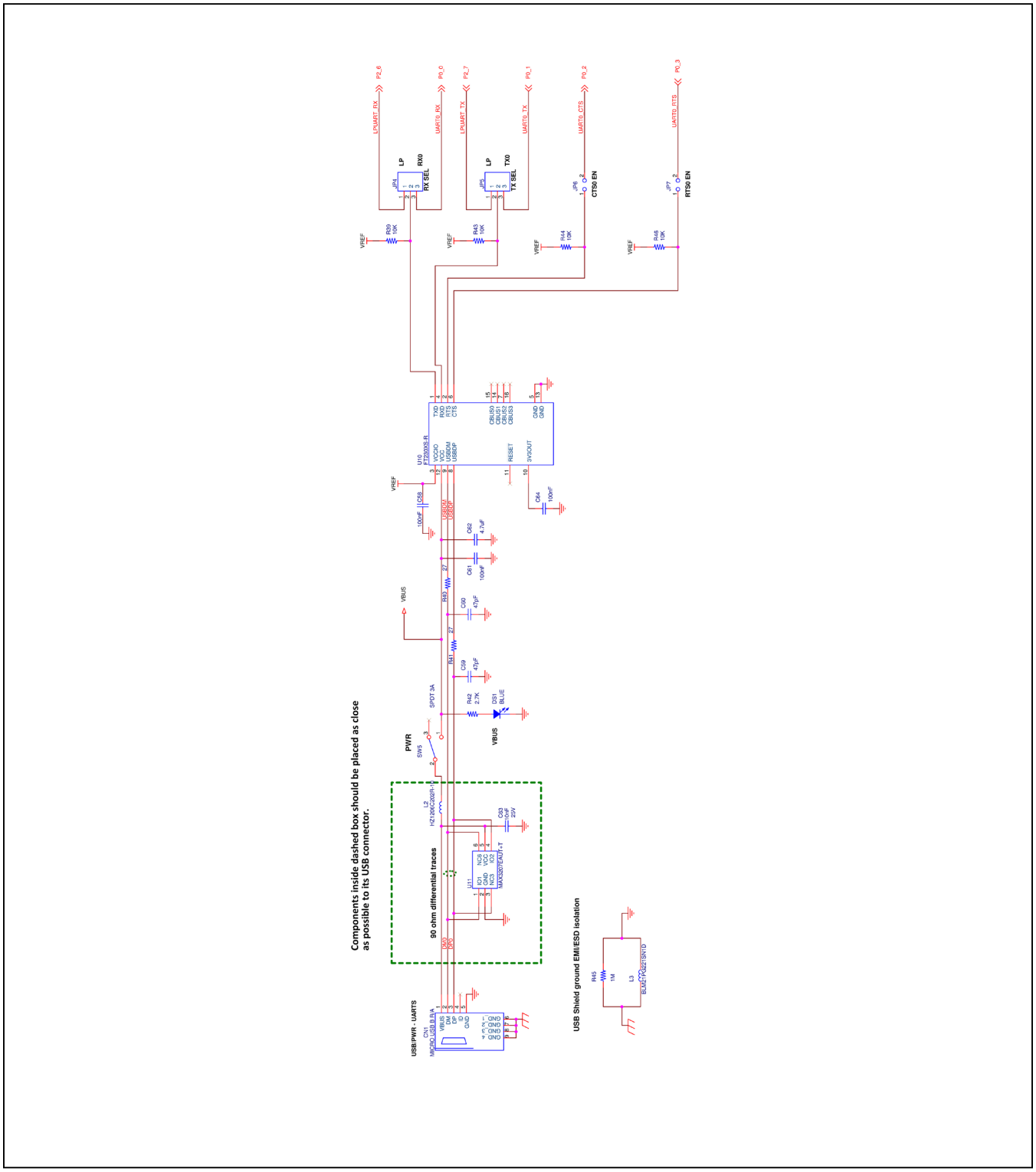
MAX32655 EV Kit Schematic Diagrams (continued)



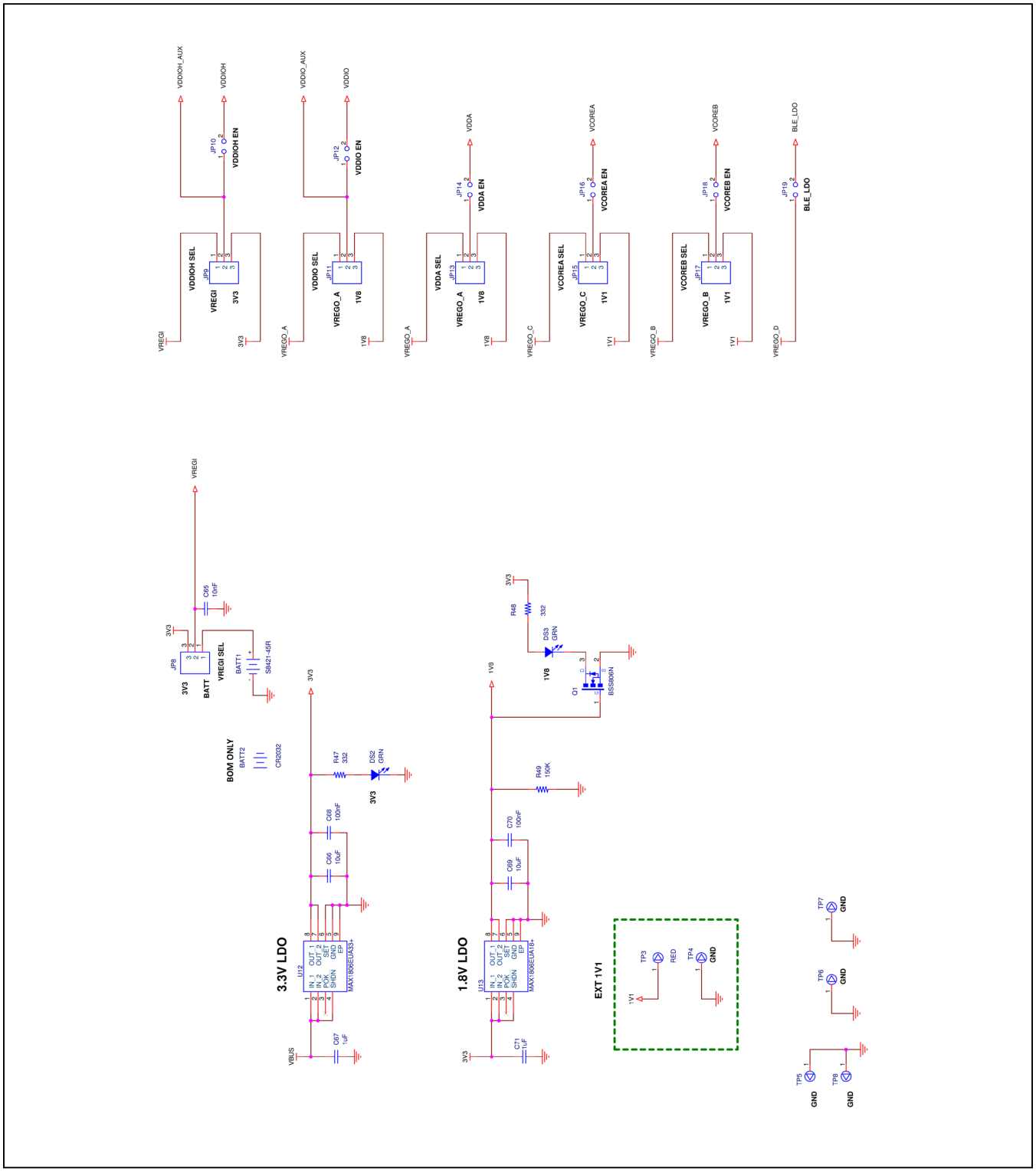
MAX32655 EV Kit Schematic Diagrams (continued)



MAX32655 EV Kit Schematic Diagrams (continued)



MAX32655 EV Kit Schematic Diagrams (continued)



Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	8/20	Initial release	—

For pricing, delivery, and ordering information, please visit Maxim Integrated's online storefront at https://www.maximintegrated.com/en/storefront/storefront.html.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

MAX32655EVKIT#