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MAX17644A/MAX17644B/MAX17644C Evaluation Kits

Evaluate: MAX17644 in 3.3V and 5V Output-Voltage Applications

General Description

The MAX17644 evaluation kit (comprising the MAX17644AEVKIT#, MAX17644BEVKIT#, and MAX17644C5EVKIT# EV kits) provides proven designs to evaluate the MAX17644A, MAX17644B, and MAX17644C high-efficiency, high-voltage Himalaya synchronous DC-DC converters.

The MAX17644AEVKIT# EV kit delivers up to 2.7A, with a fixed 3.3V output (V_{OUT1}). The EV kit is configured to operate at 500kHz (f_{SW1}) switching frequency over a 4.5V to 36V input voltage range.

The MAX17644BEVKIT# EV kit delivers up to 2.7A, with a fixed 5V output (V_{OUT2}). The EV kit is configured to operate at 500kHz (f_{SW2}) switching frequency over a 6.5V to 36V input voltage range.

The MAX17644C5EVKIT# EV kit delivers up to 2.7A, with a configured 5V output (V_{OUT3}). The EV kit is also configured to operate at 500kHz (f_{SW3}) switching frequency over a 6.5V to 36V input voltage range.

The EV kits are configured to demonstrate the optimum performance and component size. The EV kits provide provisions for enable/disable settings and selecting the modes of operation (pulse-width modulation/pulse-frequency modulation/discontinuous-conduction mode [PWM/PFM/DCM]). The EV kits feature programmable input undervoltage-lockout (UVLO), adjustable soft-start, open-drain $\overline{RESET}$ signal, and external clock synchronization. The EV kits also provide a good layout example, which is optimized for conducted, radiated EMI, and thermal performance. For more details, refer to the *Benefits and Features* section in the MAX17644 IC data sheet.

Features

- Wide 4.5V to 36V Input Voltage Range
- MAX17644AEVKIT# Offers High 87.28% Efficiency (V_{IN1} = 24V, V_{OUT1} = 3.3V, I_{OUT1} = 2.7A)
- MAX17644BEVKIT# Offers High 90.77% Efficiency (V_{IN2} = 24V, V_{OUT2} = 5V, I_{OUT2} = 2.7A)
- MAX17644C5EVKIT# Offers High 90.77% Efficiency (V_{IN3} = 24V, V_{OUT3} = 5V, I_{OUT3} = 2.7A)
- Enable/UVLO Input, Resistor-Programmable UVLO Threshold
- Selectable PWM, PFM, and DCM Modes of Operation
- Adjustable Soft-Start Time
- $\overline{RESET}$ Outputs, with Pullup Resistor to Respective V_{CC}
- Provision to Synchronize the Converters to an External Clock Source
- Overcurrent and Overtemperature Protection
- Proven PCB Layout
- Fully Assembled and Tested
- Complies with CISPR32 (EN55032) Class B Conducted and Radiated Emissions

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

319-100722; Rev 0; 3/21

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Quick Start

Recommended Equipment

- MAX17644AEVKIT#, MAX17644BEVKIT#, MAX-17644C5EVKIT#
- 36V, 3A power supply
- Load capable of sinking 2.7A at 3.3V and 5V
- Two digital multimeters (DMM)

Equipment Setup and Test Procedure

The EV kits are fully assembled and tested. Follow the steps below to verify the individual board operation:

Caution: Do not turn on power supply until all connections are completed.

1) Set the input power supply voltage at 3.9V for MAX17644AEVKIT# and at 5.9V for MAX17644BEVKIT# and MAX17644C5EVKIT#. Disable the power supply.
2) Connect the positive terminal of the power supply to the VIN PCB pad and the negative terminal to the nearest PGND PCB pad.
3) Connect the positive terminal of the corresponding load to the respective VOUT PCB pad and the negative terminal to the nearest PGND PCB pad.
4) Connect one DMM across respective VOUT PCB pad and the nearest PGND PCB pad, and another DMM across the respective $\overline{\text{RESET}}$ PCB pad and the SGND PCB pad.
5) Verify that no shunts are installed on jumpers (JU101, JU201, JU301). See Table 1 for details.
6) Select the shunt position on respective jumpers (JU102, JU202, JU302) according to the intended mode of operation. See Table 2 for details.
7) Turn on the input power supply.
8) Enable the load.
9) Observe that both the DMMs display 0V.
10) Increase the input voltage to 4.5V or higher for MAX17644AEVKIT# and to 6.5V or higher for MAX17644BEVKIT# and MAX17644C5EVKIT# which are above the EN/UVLO rising thresholds.
11) Verify that the DMM across the output terminals displays 3.3V for MAX17644AEVKIT#, 5V for MAX17644BEVKIT# and MAX17644C5EVKIT#.
12) Verify that the DMM across the $\overline{\text{RESET}}$ PCB pad and SGND PCB displays 5V.
13) Reduce the input voltage to 3.6V for MAX17644AE-VKIT# and to 5.3V for MAX17644AEVKIT# and MAX17644C5EVKIT# which are below the EN/UVLO falling thresholds.
14) Verify that both the DMMs display 0V.
15) Disable the input power supply.

Detailed Description of Hardware

The MAX17644AEVKIT#, MAX17644BEVKIT#, and MAX17644C5EVKIT# EV kits are designed to demonstrate the salient features of the MAX17644A, MAX17644B, and MAX17644C converter ICs, respectively. All the three circuits are electrically isolated from each other and hosted on the same PCB. Each of the converter ICs can be evaluated by powering them from their respective input pins. Individual device settings can be adjusted to evaluate their performance under different operating conditions.

Soft-Start Input (SS)

The EV kits offer an adjustable soft-start function to limit inrush current during the startup. The soft-start time is adjusted by the value of external soft-start capacitors C_{SS} connected between SS and SGND. The selected output capacitance (C_{SEL}) and the output voltage (V_{OUT}) determine the minimum value of C_{SS} (C106, C206, C306) as shown in the following equation:

$$C_{SS} \geq 28 \times 10^{-6} \times C_{SEL} \times V_{OUT}$$

The soft-start time (t_{SS}) is related to soft-start capacitor C_{SS} by the following equation:

$$t_{SS} = \frac{C_{SS}}{5.55 \times 10^{-6}}$$

For example, to program a 1ms soft-start time, C_{SS} should be 5600pF.

Enable/Undervoltage Lockout Programming

The MAX17644A, MAX17644B, and MAX17644C offer an enable and adjustable input undervoltage lockout (EN/UVLO) feature. In the EV kits, for normal operation, leave the jumpers (JU101, JU201, JU301) open. When jumpers are left open, MAX17644A is enabled when the input voltage rises above 4.4V and MAX17644B, MAX17644C are enabled when the input voltage rises above 6.4V. To disable the converters, install shunts across pin 2-3 on jumpers (JU101, JU201, JU301). See Table 1 for jumper (JU101, JU201, JU301) settings. The EN/UVLO PCB pads on the EV kits support external Enable/Disable control of the device. Leave jumpers (JU101, JU201, JU301) open when external Enable/Disable control is desired. A potential divider formed by resistors R_{UVL_TOP} (R101, R201, R301) and R_{UVL_BOT} (R102, R202, R302) sets the input voltage (V_{INU}) above which the converter is enabled when jumpers (JU101, JU201, JU301) are left open.

Choose R_{UVL_TOP} to be 3.32MΩ and then calculate R_{UVL_BOT} as follows:

$$R_{UVL\_BOT} = \frac{R_{UVL\_TOP} \times 1.215}{(V_{INU} - 1.215)}$$

where R_{UVL_BOT} is in MΩ. For more details about setting the undervoltage lockout level, refer to the MAX17644 IC data sheet.

Mode Selection (MODE/SYNC)

The EV kits provide jumpers (JU102, JU202, JU302) that allow the converters to operate in PWM, PFM, and DCM modes. For more details on the modes of operation, refer to the MAX17644 data sheet. Table 2 shows the mode selection jumper (JU102, JU202, JU302) settings that can be used to configure the desired mode of operation for each converter.

Table 1. Converter EN/UVLO Jumper (JU101, JU201, and JU301) Settings

SHUNT POSITION	EN/UVLO PIN	OUTPUT
1-2	Connected to V_{IN}	Enabled
Not installed*	Connected to center node of respective resistive dividers (R101 and R102, R201 and R202, R301 and R302)	Enabled, UVLO level is set by the resistor-divider between V_{IN} and SGND
2-3	Connected to SGND	Disabled

**Default position.*

Table 2. Mode Selection Jumper (JU102, JU202, and JU302) Settings

SHUNT POSITION	MODE/SYNC PIN	MODE
1-2	Connected to V_{CC}	DCM mode of operation
2-3	Connected to SGND	PWM mode of operation
Not installed*	Unconnected	PFM mode of operation

**Default position.*

External Clock Synchronization (MODE/SYNC)

The EV kits provide MODE/SYNC PCB pads to synchronize the MAX17644A, MAX17644B, and MAX17644C to an optional external clock. Leave jumpers (JU102, JU202, JU302) open when external clock signals are applied. In the presence of a valid external clock for synchronization, the MAX17644A, MAX17644B, and MAX17644C operate in PWM mode only. For more details about external clock synchronization, refer to the MAX17644 IC data sheet.

Active-Low, Open-Drain Reset Output ($\overline{RESET}$)

The EV kits provide $\overline{RESET}$ PCB pads to monitor the status of the converters. $\overline{RESET}$ goes high when VOUT rises above 95% (typ) of its nominal regulated output voltage. $\overline{RESET}$ goes low when VOUT falls below 92% (typ) of its nominal regulated voltage.

Hot Plug-In and Long Input Cables

The MAX17644AEVKIT#, MAX17644BEVKIT#, and MAX17644C5EVKIT# EV kit PCB layouts provide an optional electrolytic capacitor (C101, C201, C301 = 47µF/50V). These capacitors limit the peak voltage at the input of the converters when the DC input source is Hot Plugged to the EV kit input terminals with long input cables. The equivalent series resistance (ESR) of the electrolytic capacitor dampens the oscillations caused by interaction of the inductance of the long input cables and the ceramic capacitors at the converters' input.

Electromagnetic Interference

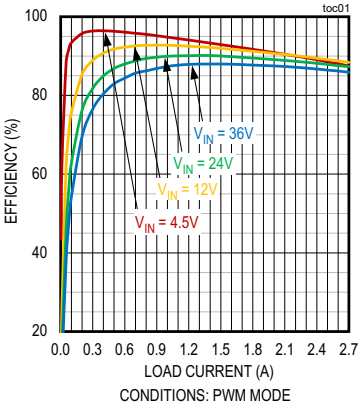
Compliance to conducted emission (CE) standards requires an electromagnetic interference (EMI) filter at the input of a switching power converter. The EMI filter attenuates high-frequency currents drawn by the switching power converter and limits the noise injected back into the input power source.

The MAX17644AEVKIT#, MAX17644BEVKIT#, and MAX17644C5EVKIT# PCBs have designated footprints for the placement of conducted EMI filter components as per the optional bill of material (BOM). Use of these filter components results in lower conducted EMI below CISPR32 Class B limits. Cut open the trace at L102, L202, and L302 before installing conducted EMI filter components. The PCB layouts are also designed to limit radiated emissions from switching nodes of the power converter resulting in radiated emissions below CISPR32 Class B limits.

EV Kits Performance Report

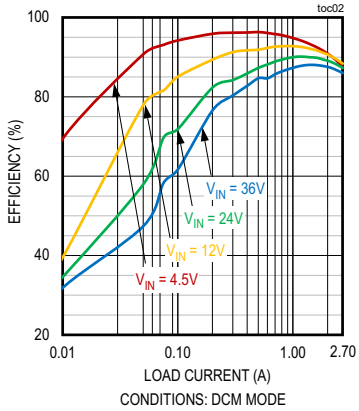
(V_{IN1} = V_{IN2} = V_{IN3} = 24V, f_{SW1} = f_{SW2} = f_{SW3} = 500kHz, T_A = +25°C, unless otherwise noted)

MAX17644A, V_{OUT1} = 3.3V
EFFICIENCY vs. LOAD CURRENT



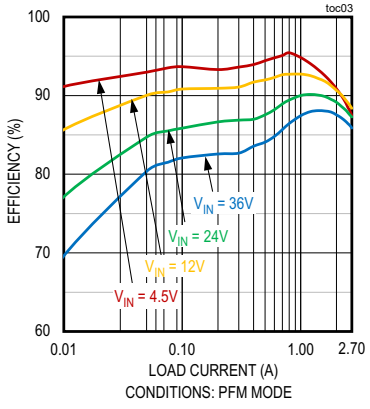
CONDITIONS: PWM MODE

MAX17644A, V_{OUT1} = 3.3V
EFFICIENCY vs. LOAD CURRENT



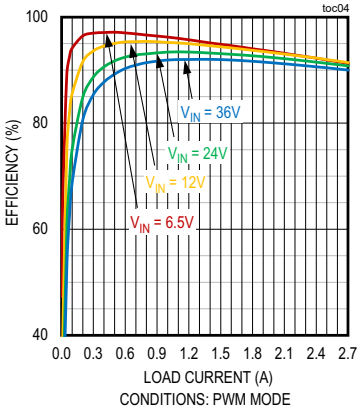
CONDITIONS: DCM MODE

MAX17644A, V_{OUT1} = 3.3V
EFFICIENCY vs. LOAD CURRENT



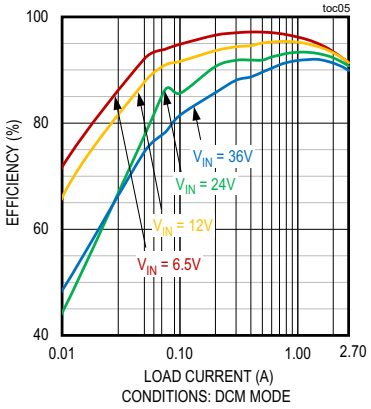
CONDITIONS: PFM MODE

MAX17644B, V_{OUT2} = 5V
EFFICIENCY vs. LOAD CURRENT



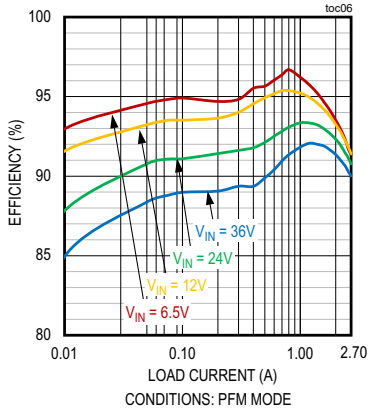
CONDITIONS: PWM MODE

MAX17644B, V_{OUT2} = 5V
EFFICIENCY vs. LOAD CURRENT



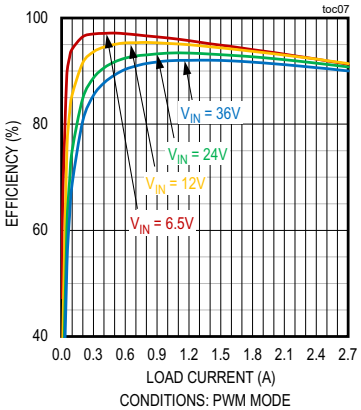
CONDITIONS: DCM MODE

MAX17644B, V_{OUT2} = 5V
EFFICIENCY vs. LOAD CURRENT



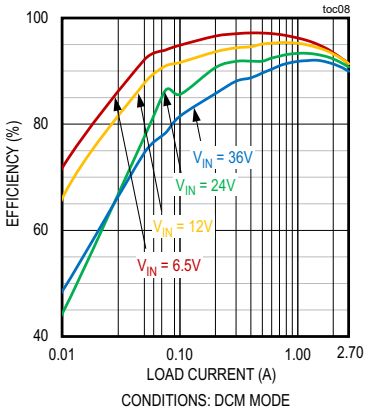
CONDITIONS: PFM MODE

MAX17644C, V_{OUT3} = 5V
EFFICIENCY vs. LOAD CURRENT



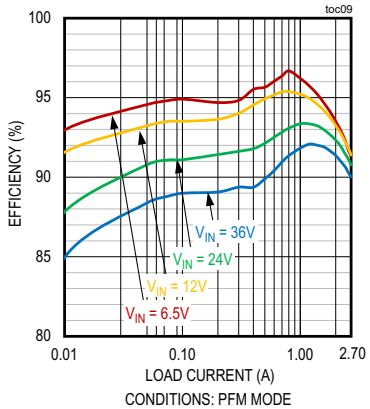
CONDITIONS: PWM MODE

MAX17644C, V_{OUT3} = 5V
EFFICIENCY vs. LOAD CURRENT



CONDITIONS: DCM MODE

MAX17644C, V_{OUT3} = 5V
EFFICIENCY vs. LOAD CURRENT

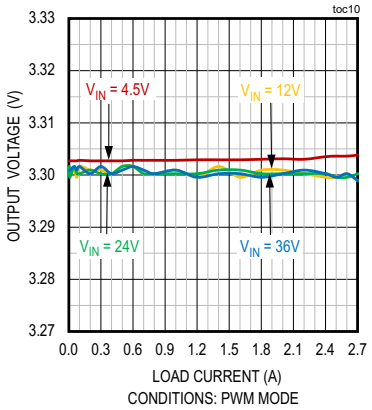


CONDITIONS: PFM MODE

EV Kits Performance Report (continued)

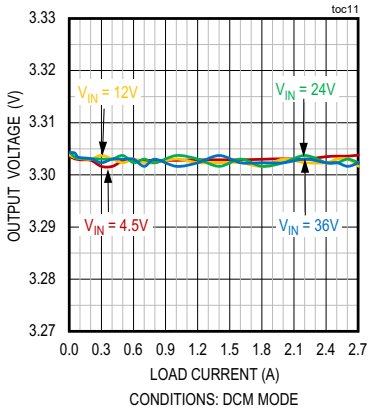
(V_{IN1} = V_{IN2} = V_{IN3} = 24V, f_{SW1} = f_{SW2} = f_{SW3} = 500kHz, T_A = +25°C, unless otherwise noted)

MAX17644A, V_{OUT1} = 3.3V LOAD AND LINE REGULATION,



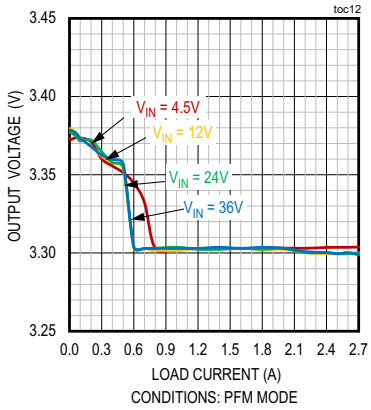
CONDITIONS: PWM MODE

MAX17644A, V_{OUT1} = 3.3V LOAD AND LINE REGULATION



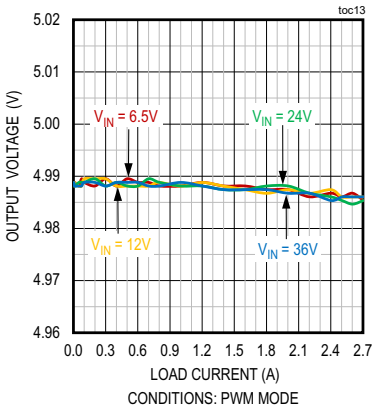
CONDITIONS: DCM MODE

MAX17644A, V_{OUT1} = 3.3V LOAD AND LINE REGULATION



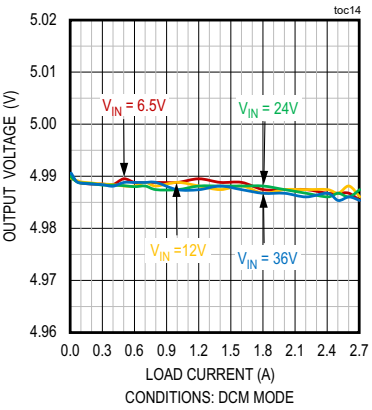
CONDITIONS: PFM MODE

MAX17644B, V_{OUT2} = 5V LOAD AND LINE REGULATION



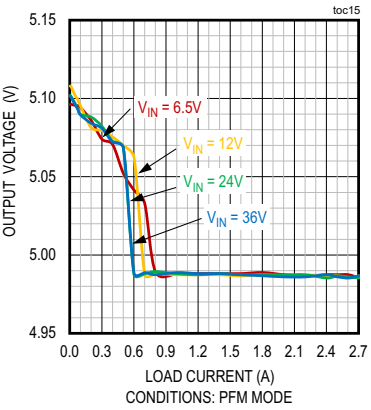
CONDITIONS: PWM MODE

MAX17644B, V_{OUT2} = 5V LOAD AND LINE REGULATION



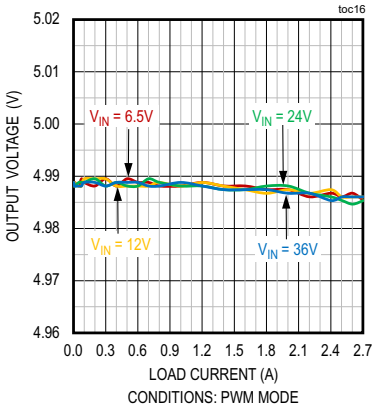
CONDITIONS: DCM MODE

MAX17644B, V_{OUT2} = 5V LOAD AND LINE REGULATION



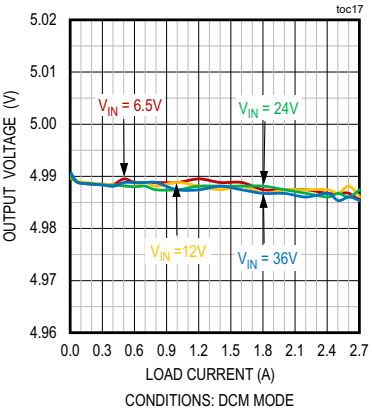
CONDITIONS: PFM MODE

MAX17644C, V_{OUT3} = 5V LOAD AND LINE REGULATION



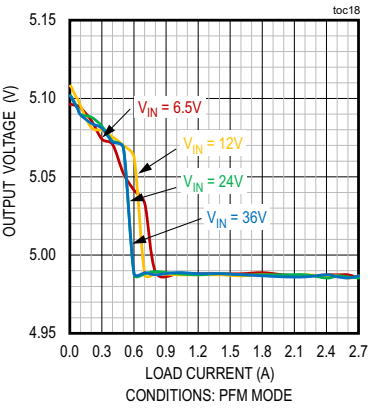
CONDITIONS: PWM MODE

MAX17644C, V_{OUT3} = 5V LOAD AND LINE REGULATION



CONDITIONS: DCM MODE

MAX17644C, V_{OUT3} = 5V LOAD AND LINE REGULATION

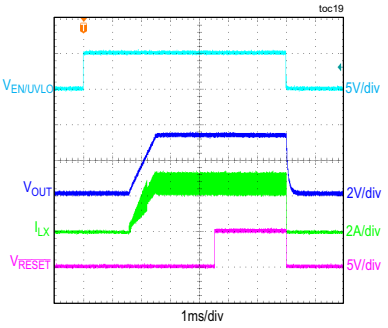


CONDITIONS: PFM MODE

EV Kits Performance Report (continued)

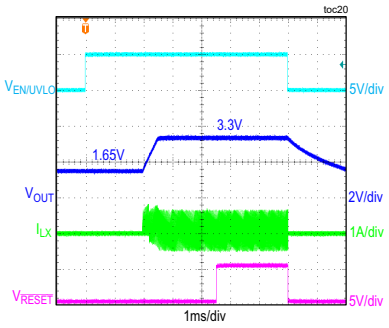
(V_{IN1} = V_{IN2} = V_{IN3} = 24V, f_{SW1} = f_{SW2} = f_{SW3} = 500kHz, T_A = +25°C, unless otherwise noted)

MAX17644A, V_{OUT1} = 3.3V
SOFT-START/SHUTDOWN THROUGH EN/UVLO



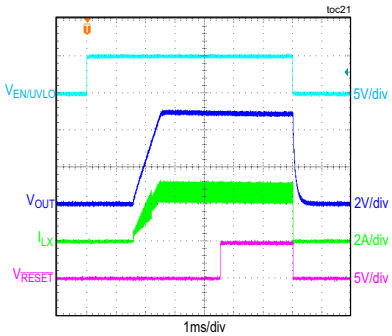
CONDITIONS: 1.22Ω RESISTIVE LOAD

MAX17644A, V_{OUT1} = 3.3V
SOFT-START/SHUTDOWN WITH PREBIAS VOLTAGE OF 1.65V



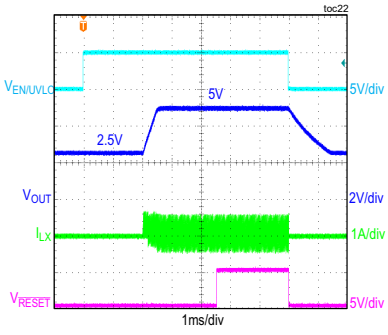
CONDITIONS: PWM MODE, 61Ω RESISTIVE LOAD

MAX17644B, V_{OUT2} = 5V
SOFT-START/SHUTDOWN THROUGH EN/UVLO



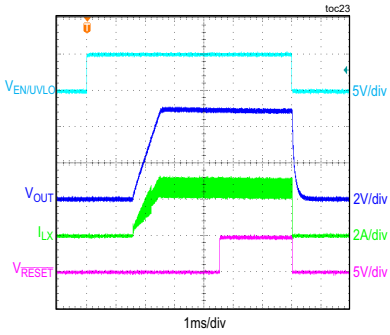
CONDITIONS: 1.85Ω RESISTIVE LOAD

MAX17644B, V_{OUT2} = 5V
SOFT-START/SHUTDOWN WITH PREBIAS VOLTAGE OF 2.5V



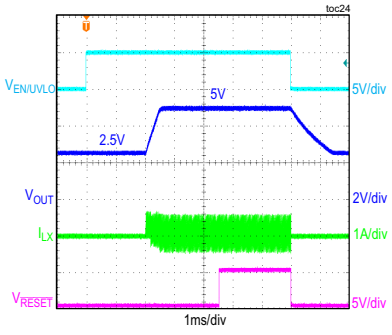
CONDITIONS: PWM MODE, 92Ω RESISTIVE LOAD

MAX17644C, V_{OUT3} = 5V
SOFT-START/SHUTDOWN THROUGH EN/UVLO



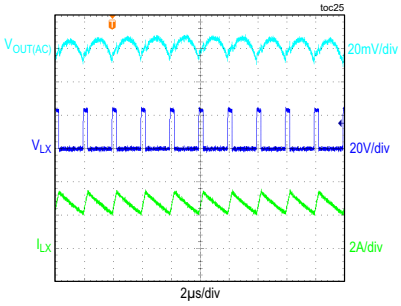
CONDITIONS: 1.85Ω RESISTIVE LOAD

MAX17644C, V_{OUT3} = 5V
SOFT-START/SHUTDOWN WITH PREBIAS VOLTAGE OF 2.5V



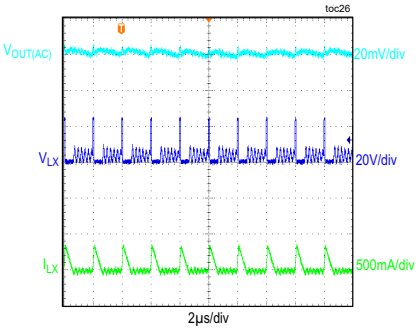
CONDITIONS: PWM MODE, 92Ω RESISTIVE LOAD

MAX17644A, V_{OUT1} = 3.3V
STEADY STATE PERFORMANCE



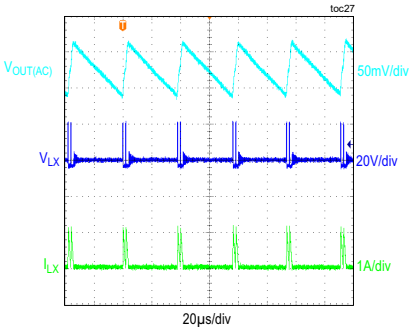
CONDITIONS: PWM MODE, 2.7A LOAD

MAX17644A, V_{OUT1} = 3.3V
STEADY STATE PERFORMANCE



CONDITIONS: DCM MODE, 54mA LOAD

MAX17644A, V_{OUT1} = 3.3V
STEADY STATE PERFORMANCE

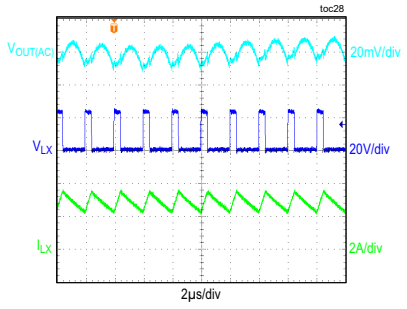


CONDITIONS: PFM MODE, 54mA LOAD

EV Kits Performance Report (continued)

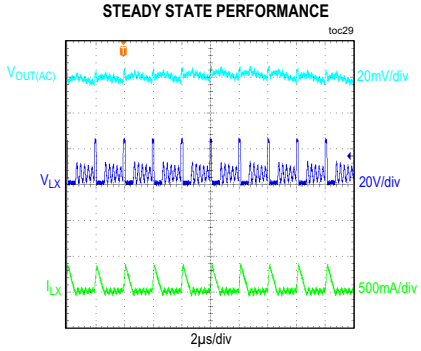
(V_{IN1} = V_{IN2} = V_{IN3} = 24V, f_{SW1} = f_{SW2} = f_{SW3} = 500kHz, T_A = +25°C, unless otherwise noted)

**MAX17644B, V_{OUT2} = 5V
STEADY STATE PERFORMANCE**



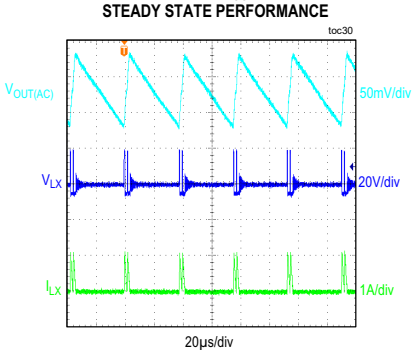
CONDITIONS: PWM MODE, 2.7A LOAD

**MAX17644B, V_{OUT2} = 5V
STEADY STATE PERFORMANCE**



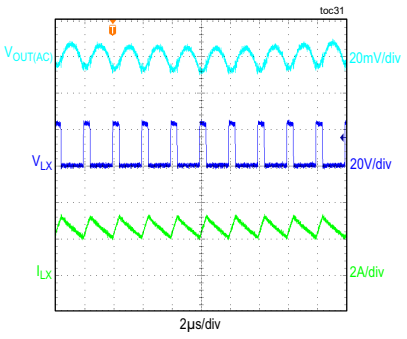
CONDITIONS: DCM MODE, 54mA LOAD

**MAX17644B, V_{OUT2} = 5V
STEADY STATE PERFORMANCE**



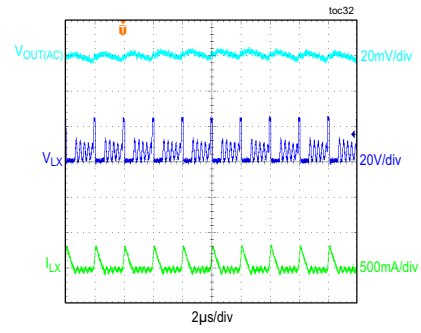
CONDITIONS: PFM MODE, 54mA LOAD

**MAX17644C, V_{OUT3} = 5V
STEADY STATE PERFORMANCE**



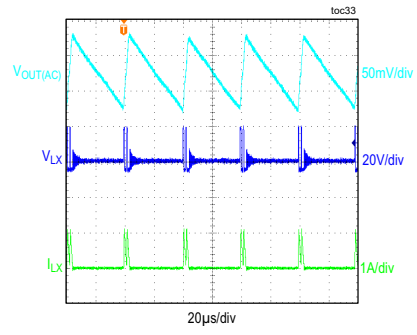
CONDITIONS: PWM MODE, 2.7A LOAD

**MAX17644C, V_{OUT3} = 5V
STEADY STATE PERFORMANCE**



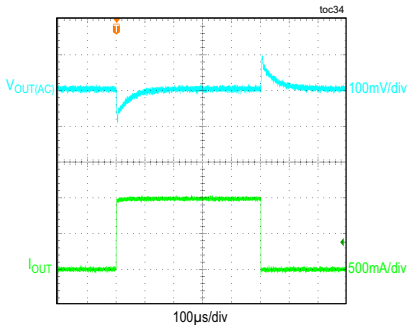
CONDITIONS: DCM MODE, 54mA LOAD

**MAX17644C, V_{OUT3} = 5V
STEADY STATE PERFORMANCE**



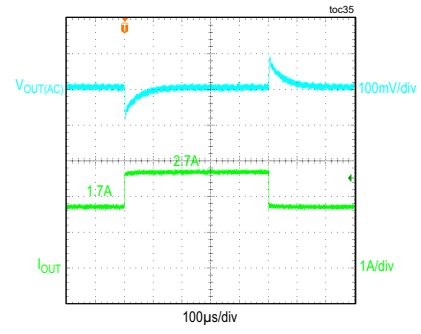
CONDITIONS: PFM MODE, 54mA LOAD

**MAX17644A, V_{OUT1} = 3.3V
LOAD TRANSIENT BETWEEN 0 AND 1A**



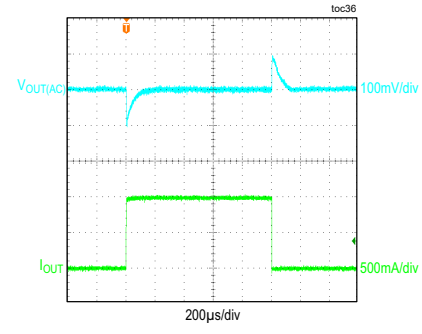
CONDITIONS: PWM MODE

**MAX17644A, V_{OUT1} = 3.3V
LOAD TRANSIENT BETWEEN 1.7A AND 2.7A**



CONDITIONS: PWM MODE

**MAX17644A, V_{OUT1} = 3.3V
LOAD TRANSIENT BETWEEN 0.054A AND 1A**

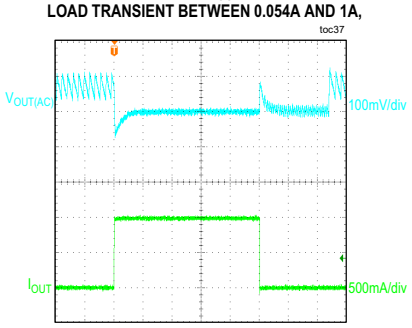


CONDITIONS: DCM MODE

EV Kits Performance Report (continued)

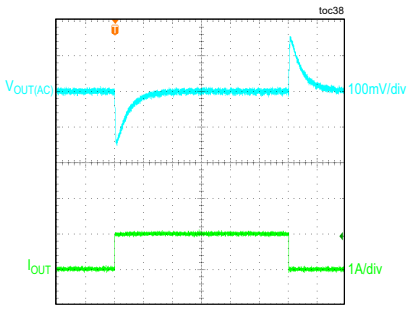
(V_{IN1} = V_{IN2} = V_{IN3} = 24V, f_{SW1} = f_{SW2} = f_{SW3} = 500kHz, T_A = +25°C, unless otherwise noted)

MAX17644A, V_{OUT1} = 3.3V
LOAD TRANSIENT BETWEEN 0.054A AND 1A,



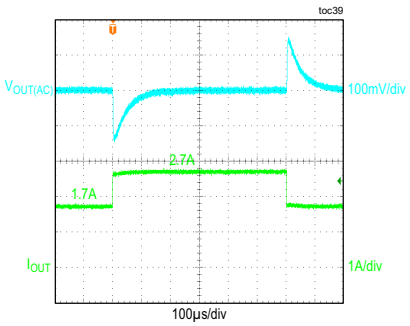
CONDITIONS: PFM MODE

MAX17644B, V_{OUT2} = 5V
LOAD TRANSIENT BETWEEN 0 AND 1A



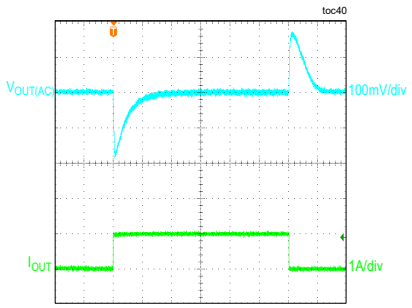
CONDITIONS: PWM MODE

MAX17644B, V_{OUT2} = 5V
LOAD TRANSIENT BETWEEN 1.7A AND 2.7A



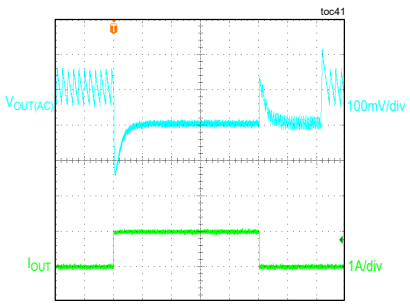
CONDITIONS: PWM MODE

MAX17644B, V_{OUT2} = 5V
LOAD TRANSIENT BETWEEN 0.054A AND 1A



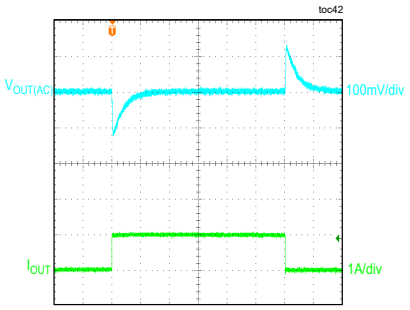
CONDITIONS: DCM MODE

MAX17644B, V_{OUT2} = 5V
LOAD TRANSIENT BETWEEN 0.054A AND 1A



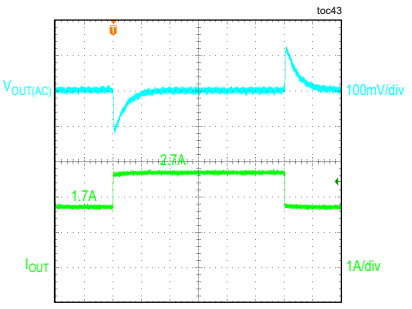
CONDITIONS: PFM MODE

MAX17644C, V_{OUT3} = 5V
LOAD TRANSIENT BETWEEN 0 AND 1A



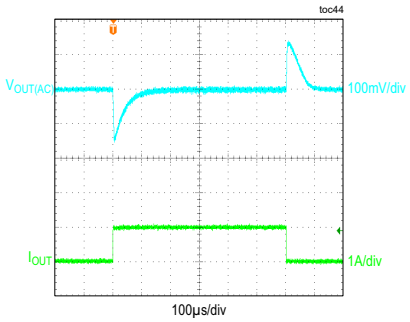
CONDITIONS: PWM MODE

MAX17644C, V_{OUT3} = 5V
LOAD TRANSIENT BETWEEN 1.7A AND 2.7A



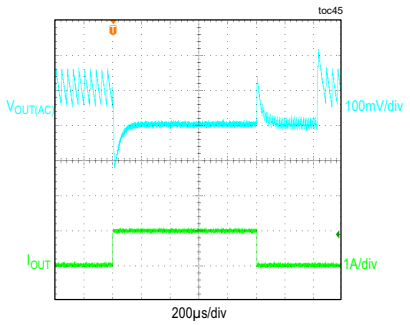
CONDITIONS: PWM MODE

MAX17644C, V_{OUT3} = 5V
LOAD TRANSIENT BETWEEN 0.054A AND 1A



CONDITIONS: DCM MODE

MAX17644C, V_{OUT3} = 5V
LOAD TRANSIENT BETWEEN 0.054A AND 1A

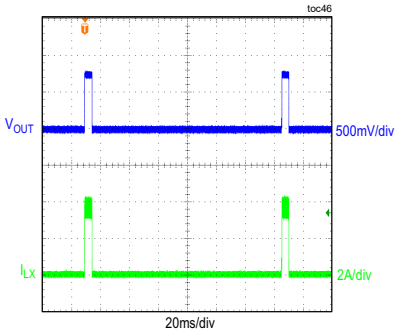


CONDITIONS: PFM MODE

EV Kits Performance Report (continued)

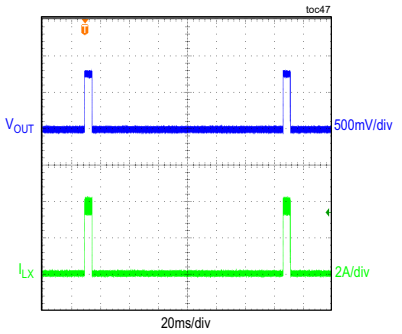
(V_{IN1} = V_{IN2} = V_{IN3} = 24V, f_{SW1} = f_{SW2} = f_{SW3} = 500kHz, T_A = +25°C, unless otherwise noted)

MAX17644A, V_{OUT1} = 3.3V OVERLOAD PROTECTION



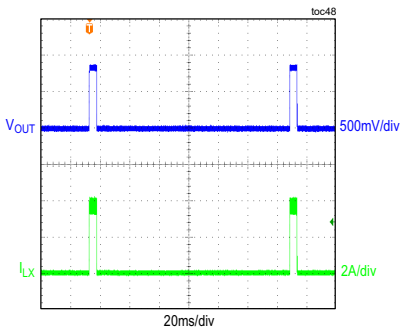
CONDITIONS: 0.2Ω RESISTIVE LOAD

MAX17644B, V_{OUT2} = 5V OVERLOAD PROTECTION



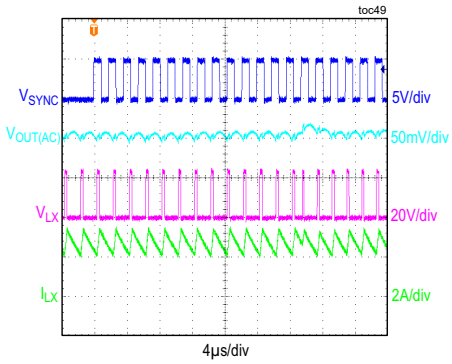
CONDITIONS: 0.2Ω RESISTIVE LOAD

MAX17644C, V_{OUT3} = 5V OVERLOAD PROTECTION



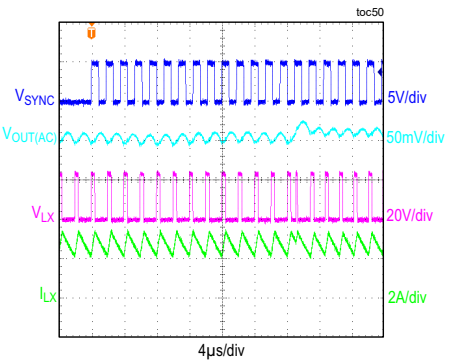
CONDITIONS: 0.2Ω RESISTIVE LOAD

MAX17644A, V_{OUT1} = 3.3V EXTERNAL CLOCK SYNCHRONIZATION



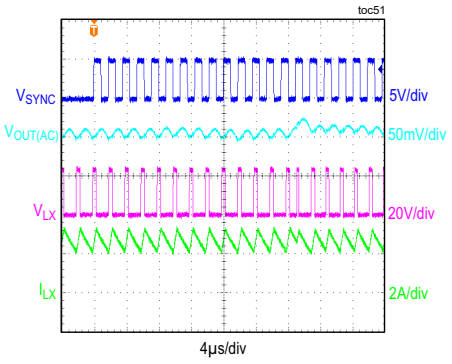
CONDITIONS: 2.7A LOAD CURRENT
EXTERNAL CLOCK FREQUENCY = 550kHz

MAX17644B, V_{OUT2} = 5V EXTERNAL CLOCK SYNCHRONIZATION



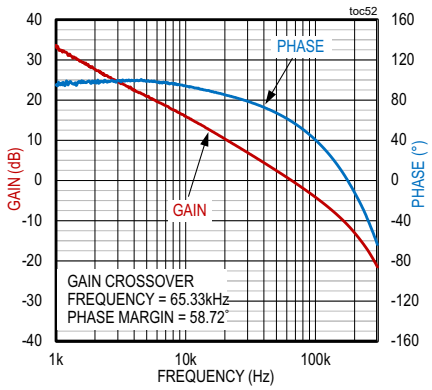
CONDITIONS: 2.7A LOAD CURRENT
EXTERNAL CLOCK FREQUENCY = 550kHz

MAX17644C, V_{OUT3} = 5V EXTERNAL CLOCK SYNCHRONIZATION



CONDITIONS: 2.7A LOAD CURRENT
EXTERNAL CLOCK FREQUENCY = 550kHz

MAX17644A, V_{OUT1} = 3.3V BODE PLOT

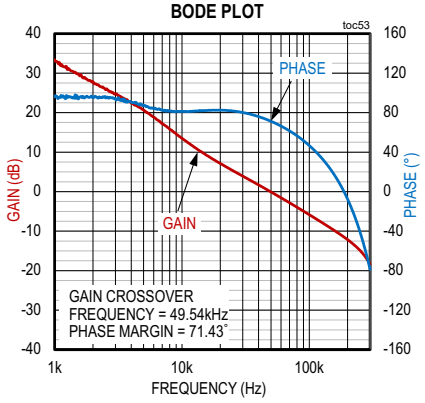


CONDITIONS: 1.22Ω RESISTIVE LOAD

EV Kits Performance Report (continued)

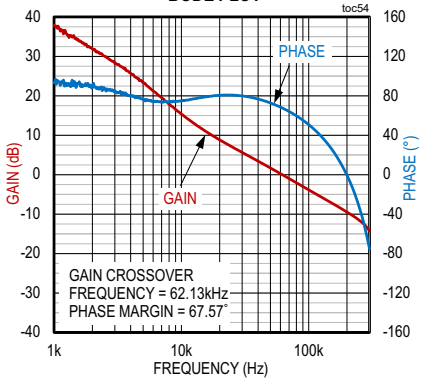
(V_{IN1} = V_{IN2} = V_{IN3} = 24V, f_{SW1} = f_{SW2} = f_{SW3} = 500kHz, T_A = +25°C, unless otherwise noted)

MAX17644B, V_{OUT2} = 5V BODE PLOT



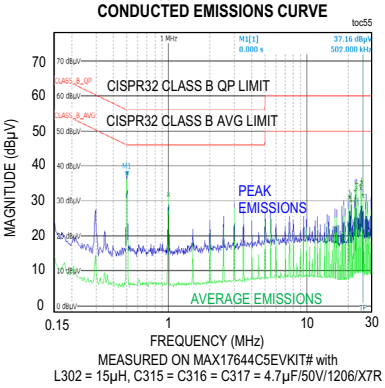
CONDITIONS: 1.85Ω RESISTIVE LOAD

MAX17644C, V_{OUT3} = 5V BODE PLOT



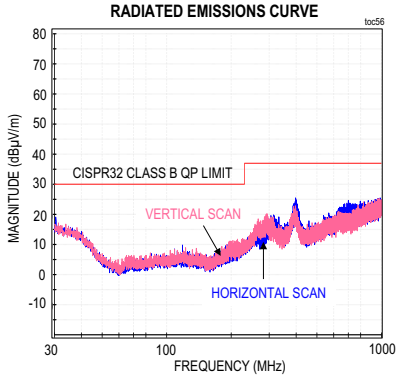
CONDITIONS: 1.85Ω RESISTIVE LOAD

MAX17644C, V_{OUT3} = 5V, 2.7A LOAD CURRENT CONDUCTED EMISSIONS CURVE



MEASURED ON MAX17644C5EVKIT# with
L302 = 15µH, C315 = C316 = C317 = 4.7µF/50V/1206/X7R

RADIATED EMISSIONS CURVE



MEASURED ON MAX17644C5EVKIT#

Component Suppliers

SUPPLIER	WEBSITE
Coilcraft	www.coilcraft.com
Murata Americas	www.murata.com
Panasonic	www.panasonic.com
TDK corp.	www.tdk.com
SullinsCorp	www.sullinscorp.com

Note: *Indicate that you are using the MAX17644A/MAX17644B/MAX17644C when contacting these component suppliers.*

Ordering Information

PART	TYPE
MAX17644AEVKIT#	EV Kit
MAX17644BEVKIT#	EV Kit
MAX17644C5EVKIT#	EV Kit

#Denotes RoHS compliance.

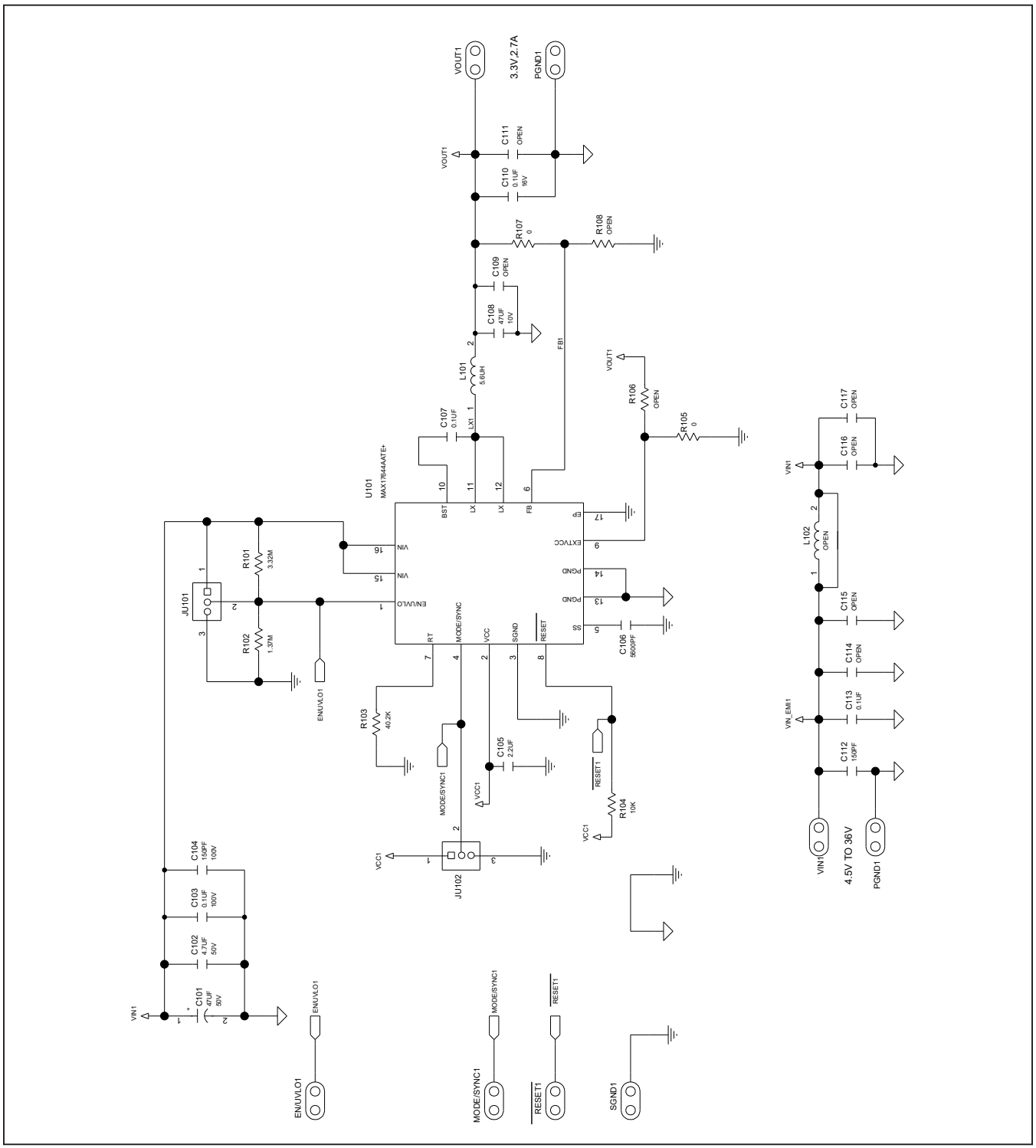
MAX17644 EV Kit Bill of Materials

S.No	DESIGNATOR	DESCRIPTION	QUANITITY	MANUFACTURER PART NUMBER
1	C101, C201, C301	47µF; 20%; 50V; Electrolytic Capacitor	3	PANASONIC EEE-TG1H470UP
2	C102, C202, C302	4.7µF±10%; 50V; X7R; Ceramic Capacitor (1206)	3	MURATA GRM31CR71H475KA12
3	C103, C113, C203, C213, C303, C313	0.1µF±10%; 100V; X7R; Ceramic Capacitor (0603)	6	MURATA GRM188R72A104KA35
4	C104, C112, C204, C212, C304, C312	150pF±5%; 100V; C0G; Ceramic Capacitor (0402)	6	TDK C1005C0G2A151J050BA
5	C105, C205, C305	2.2µF±10%; 10V; X7R; Ceramic Capacitor (0603)	3	MURATA GRM188R71A225KE15
6	C106, C206, C306	5600pF±10%; 25V; X7R; Ceramic Capacitor (0402)	3	MURATA GRM155R71E562KA01
7	C107, C110, C207, C210, C307, C310	0.1µF±10%; 16V; X7R; Ceramic Capacitor (0402)	6	TDK C1005X7R1C104K050BC
8	C108	47µF±10%; 10V; X7R; Ceramic Capacitor (1210)	1	MURATA GRM32ER71A476KE15
9	C208, C308	22µF±20%; 16V; X7R; Ceramic Capacitor (1210)	2	TDK C3225X7R1C226M250AC
10	JU101, JU102, JU201, JU202, JU301, JU302	3-pin Header (2.54mm)	6	SULLINS PEC03SAAN
11	L101	5.6µH±20%; IRMS = 7.2A; Inductor (5.3mmx5.5mm)	1	COILCRAFT XAL5050-562ME
12	L201, L301	8.2µH±20%; IRMS = 4.5A; Inductor (5.3mmx5.5mm)	2	COILCRAFT XAL5050-822ME
13	R101, R201, R301	3.32MΩ ±1%; 0.063W, Resistor (0402)	3	
14	R102	1.37MΩ±1%; 0.063W, Resistor (0402)	1	
15	R103, R203, R303	40.2kΩ±1%; 0.063W, Resistor (0402)	3	
16	R104, R204, R304	10kΩ±1%; 0.063W, Resistor (0402)	3	
17	R105, R107, R206, R207, R306	0; Jumper; 0.1W, Resistor (0402)	5	
18	R202, R302	825kΩ±1%; 0.063W, Resistor (0402)	2	
19	R307	200kΩ±1%; 0.063W, Resistor (0402)	1	
20	R308	44.2kΩ±1%; 0.1W, Resistor (0402)	1	
21	SU101, SU102, SU201, SU202, SU301, SU302	Jumper Socket (2.54mm)	6	SULLINS STC02SYAN
22	U101	High-Efficiency, Synchronous Step-Down DC-DC Converter (16 Pin TQFN, 3mmx3mm)	1	MAXIM INTEGRATED MAX17644AATE+
23	U201	High-Efficiency, Synchronous Step-Down DC-DC Converter (16 Pin TQFN, 3mmx3mm)	1	MAXIM INTEGRATED MAX17644BATE+
24	U301	High-Efficiency, Synchronous Step-Down DC-DC Converter (16 Pin TQFN, 3mmx3mm)	1	MAXIM INTEGRATED MAX17644CATE+
25	C315-C317	Optional: 4.7µF±10%; 50V; X7R; Ceramic Capacitor (1206)	3	MURATA GRM31CR71H475KA12
26	L302	Optional: 15µH±20%; IRMS = 2.2A, Inductor (4mm x 4mm)	1	COILCRAFT XAL4040-153ME
27	C115-C117, C215-C217	Open: Capacitor (1210)	0	
28	L102, L202	Open: Inductor (4mmx4mm)	0	
29	C109, C209, C309	Open: Capacitor (1210)	0	
30	C111, C114, C211, C214, C311, C314	Open: Capacitor (0402)	0	
31	R106, R108, R205, R208, R305	Open: Resistor (0402)	0	

DEFAULT JUMPER TABLE	
JUMPER	SHUNT POSITION
JU101, JU201, JU301	Open
JU102, JU202, JU302	Open

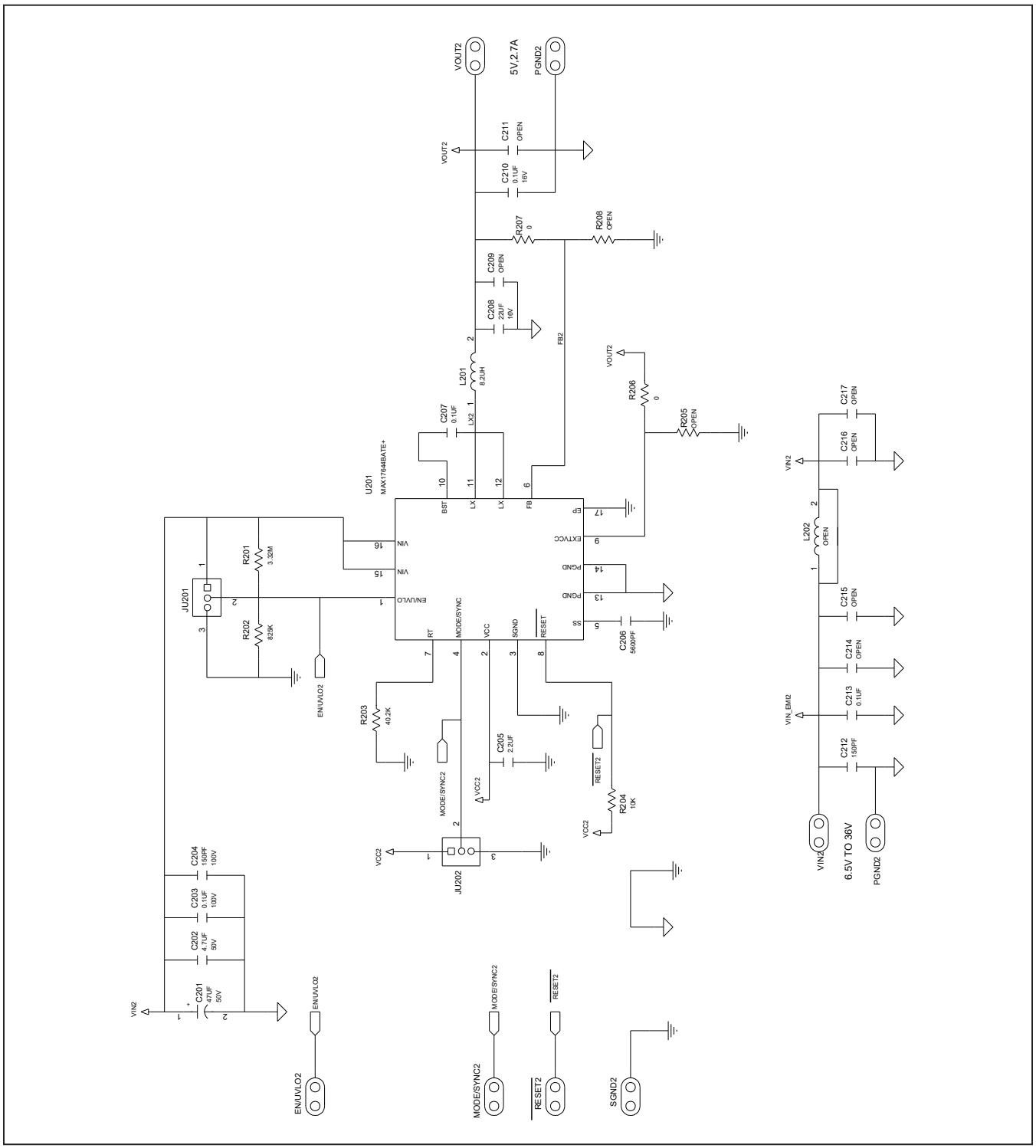
MAX17644 EV Kit Schematics

MAX17644AEVKIT# Schematic Diagram



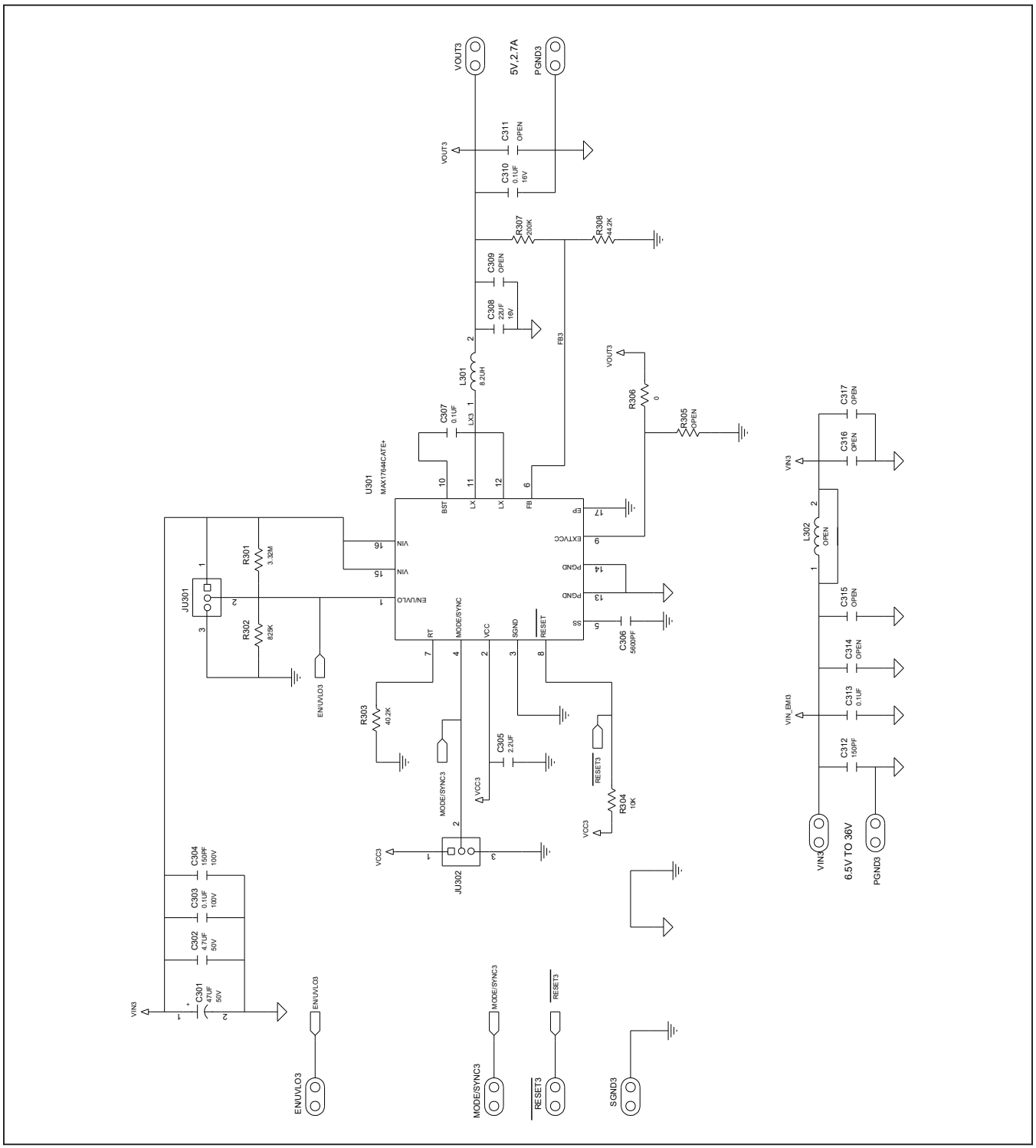
MAX17644 EV Kit Schematics (continued)

MAX17644BEVKIT# Schematic Diagram

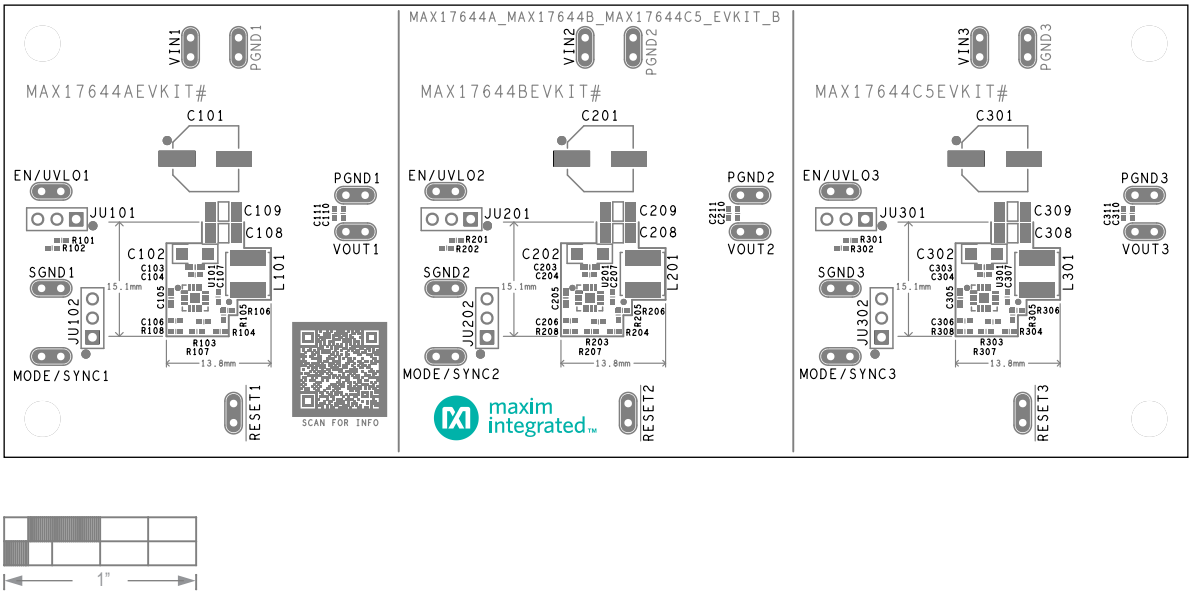


MAX17644 EV Kit Schematics (continued)

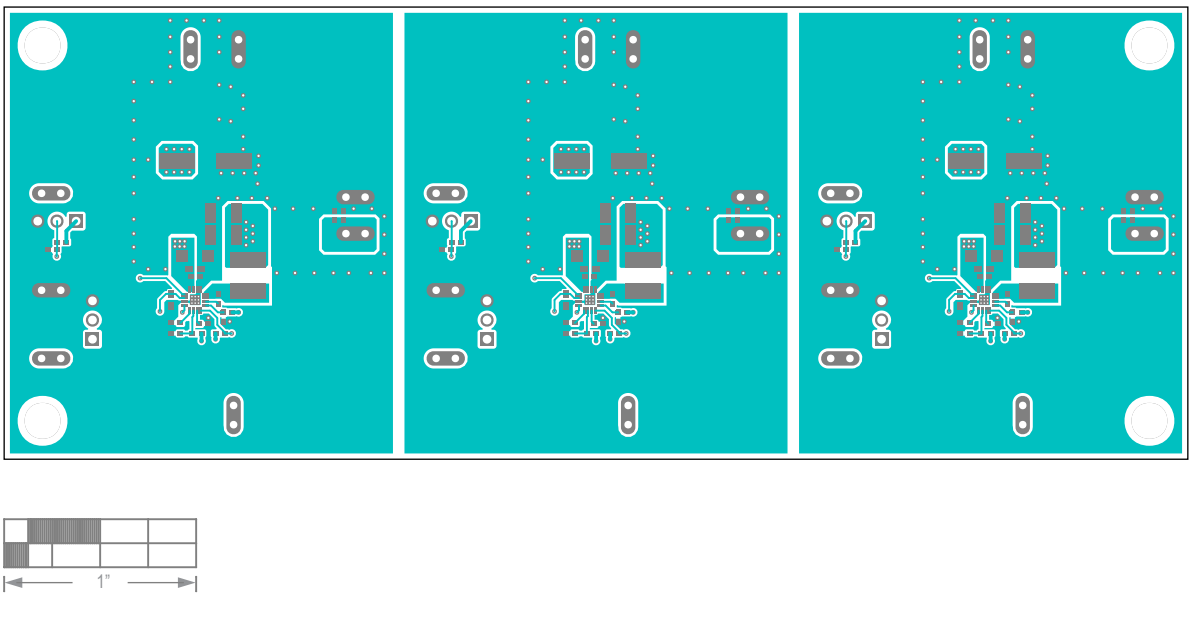
MAX17644C5EVKIT# Schematic Diagram



MAX17644 EV Kit PCB Layout

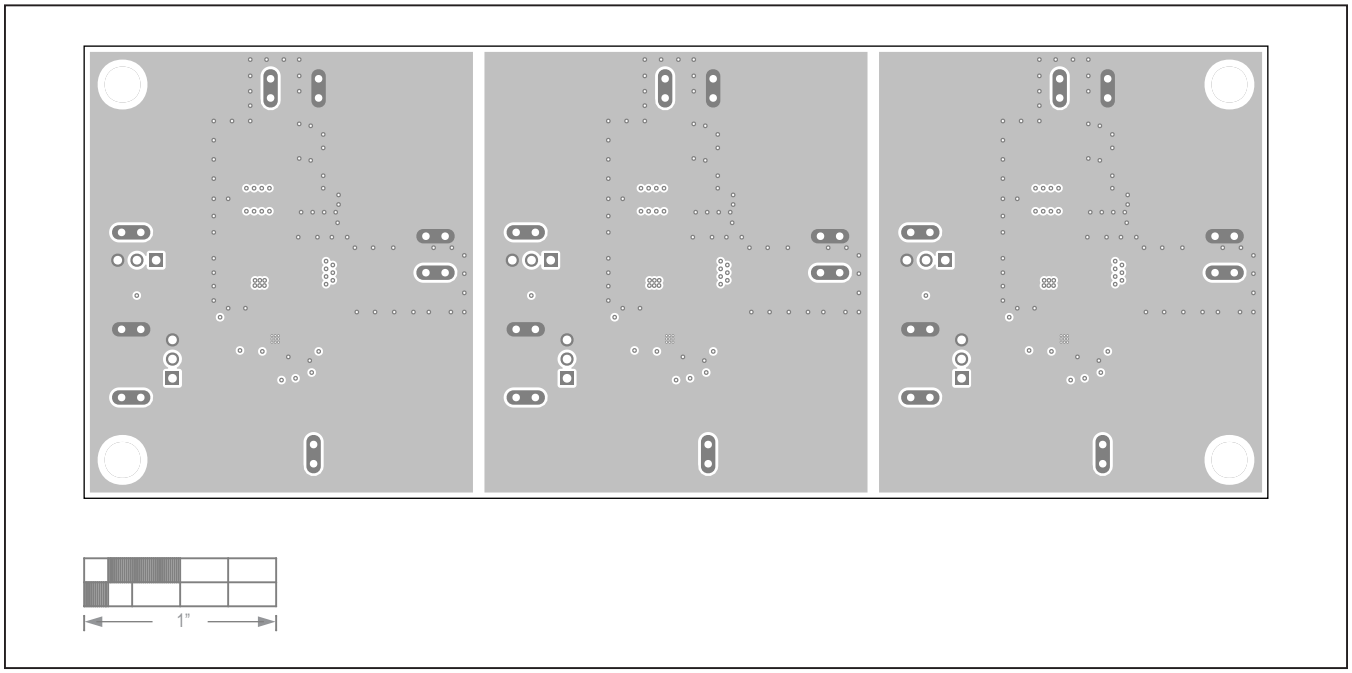


MAX17644 EV Kits–Silk Top

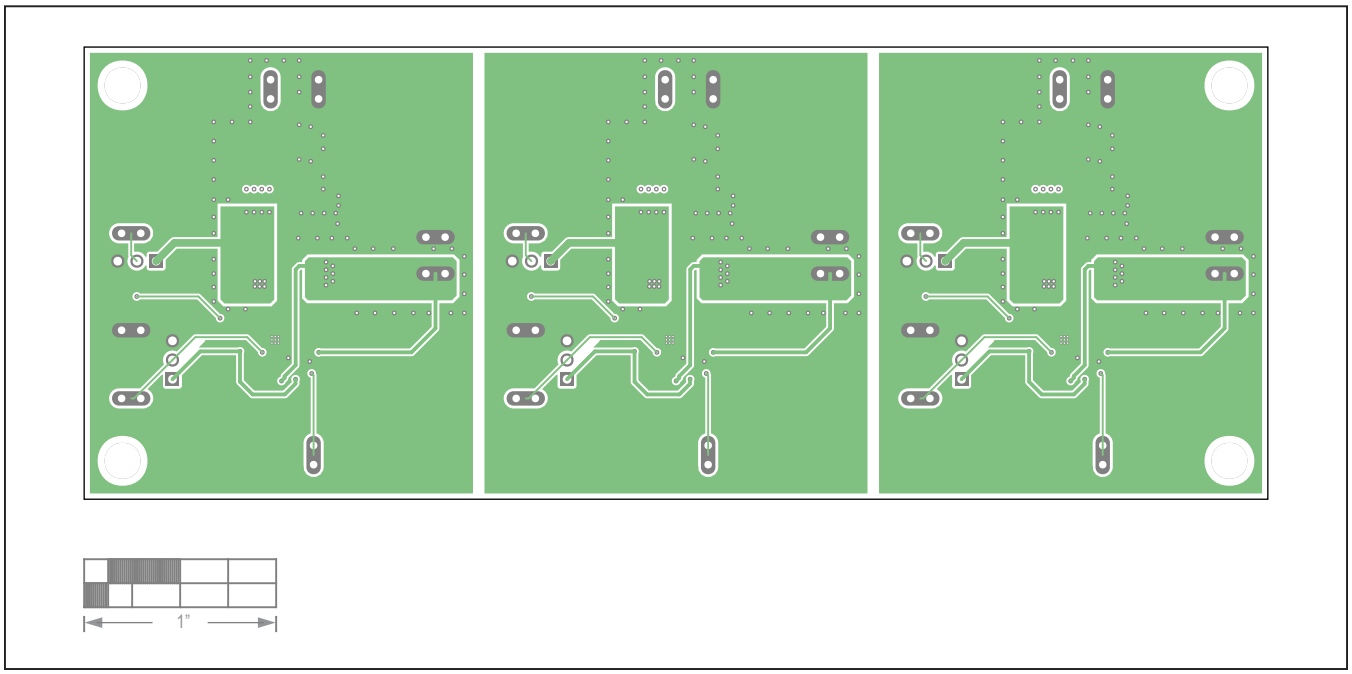


MAX17644 EV Kits–Top

MAX17644 EV Kit PCB Layout (continued)

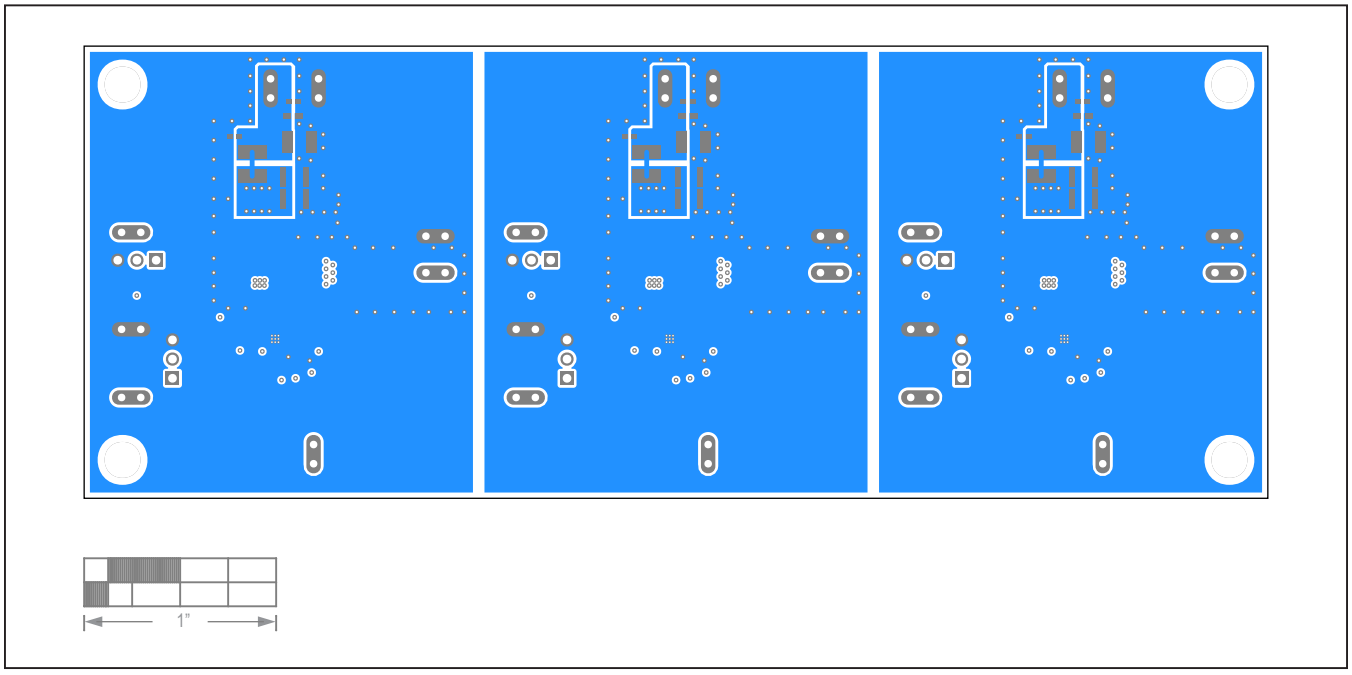


MAX17644 EV Kits–L2 GND

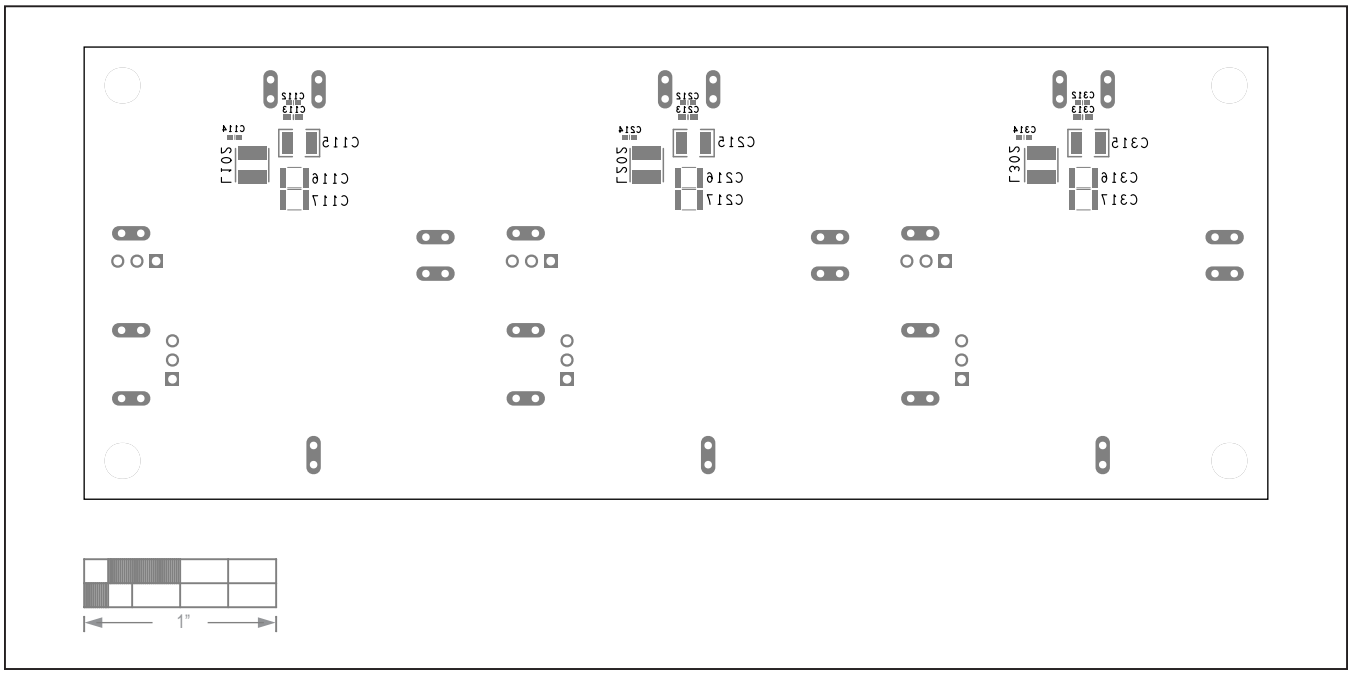


MAX17644 EV Kits–L3 GND

MAX17644 EV Kit PCB Layout (continued)



MAX17644 EV Kits–Bottom



MAX17644 EV Kits–Silk Bottom

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	3/21	Initial release	—