MAXM17633/MAXM17634/ MAXM17635 Evaluation Kits

Evaluates: MAXM17633/MAXM17634/ MAXM17635 Modules in Application

General Description

The MAXM17633/MAXM17634/MAXM17635 evaluation kits (EV kits) provide proven designs to evaluate the performance of MAXM17633/MAXM17634/MAXM17635 modules. Each of these modules operates over a wide input range from 4.5V to 36V and delivers up to 2A output current. The modules are configured to demonstrate optimum performance and component sizes in these EV kits.

The MAXM17633 module delivers up to 2A, with a fixed 3.3V output. The module is configured to operate at 800kHz switching frequency, over a 4.5V to 36V input range.

The MAXM17634 module delivers up to 2A, with a fixed 5V output. The module is configured to operate at 1MHz switching frequency, over a 7V to 36V input range.

The MAXM17635 adjustable module is configured for a 12V output, delivering up to 2A. The module is configured to operate at a 1.8MHz switching frequency, over an 18V to 36V input range.

The EV kits feature an adjustable input undervoltage lockout, adjustable soft-start, open-drain $\overline{\text{RESET}}$ signal, external frequency synchronization, and selectable mode of operation (PWM/PFM/DCM). The MAXM17633/MAXM17634/MAXM17635 module family data sheet provides a complete description of the part that should be read in conjunction with this data sheet prior to operating the EV kits.

Features

- Wide 4.5V to 36V Input Range
- MAXM17633 Offers High 85.7% Efficiency (V_{IN} = 24V, V_{OUT} = 3.3V, I_{OUT} = 1.5A)
- MAXM17634 Offers High 90.6% Efficiency (V_{IN} = 24V, V_{OUT} = 5V, I_{OUT} = 1.4A)
- MAXM17635 Offers High 92.5% Efficiency (V_{IN} = 24V, V_{OUT} = 12V, I_{OUT} = 1.8A)
- Enable/UVLO Input, Resistor-Programmable UVLO Threshold
- Selectable PWM, PFM, and DCM Modes of Operation
- Programmed 1ms Soft-Start Time
- Provision to Synchronize the Modules to the External-Clock Source
- $\overline{\text{RESET}}$ Outputs, with Pullup Resistor to the Respective V_{CC}
- Low-Profile, Surface-Mount Components
- Proven PCB Layout
- Fully Assembled and Tested
- Complies with CISPR22(EN55022) Class B Conducted and Radiated Emissions

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

Quick Start

Required Equipment

- One 0V to 36V DC, 2A power supply
- Digital multimeters (DMM)
- Load resistors capable of sinking up to 2A at 3.3V, 5V, and 12V

Equipment Setup and Procedure

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

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

1) Disable the power supply and set the input power supply at a voltage between 4.5V and 36V (for MAXM17633), or between 7V and 36V (for MAXM17634), or between 18V and 36V (for MAXM17635).
2) Connect the positive terminal and negative terminal of the power supply to the VIN pad and its adjacent PGND pad of the module under evaluation.
3) Connect a 2A (max) resistive load across the VOUT pad and its nearest PGND pad of the corresponding module.
4) Verify that the shunts are not installed on jumpers (JU101, JU201, JU301). See Table 1 for details.
5) Select the shunt position on respective jumpers (JU102, JU202, JU302) according to the required mode of operation. See Table 2 for details.
6) Verify that the shunt is at the default position on jumper JU203. See Table 3 for details.
7) Connect digital multimeter (in voltage measurement mode) across the VOUT and its respective PGND pad.
8) Turn on the input power supply.
9) Verify that the digital multimeter displays the expected terminal voltage with respect to PGND.

Detailed Description

The MAXM17633/MAXM17634/MAXM17635 EV kits are designed to demonstrate the salient features of the MAXM17633/MAXM17634/MAXM17635 power modules. The EV kit consists of typical application circuits of three different modules. Each of these circuits are electrically isolated from each other and hosted on the same PCB. Each of the modules can be evaluated by powering them from their respective input pins. Individual module settings can be adjusted to evaluate their performance under different operating conditions.

Setting Switching Frequency

Selection of switching frequency must consider input voltage range, desired output voltage, $t_{ON(MIN)}$ and $t_{OFF(MIN)}$ of the modules. Resistors (R103, R203, R303) on the EV kits program the desired switching frequencies of the modules. To optimize performance and component size in these EV kits, 800kHz switching frequency is chosen for MAXM17633, 1MHz is chosen for MAXM17634, and 1.8MHz is chosen for MAXM17635. Use *Table 1* and the *Switching Frequency* section of the MAXM17633/MAXM17634/MAXM17635 data sheet to choose different values of resistors for programming the required switching frequency.

Enable/Undervoltage Lockout (EN/UVLO) Programming

The MAXM17633/MAXM17634/MAXM17635 EV kits offer an adjustable input undervoltage lockout level feature for the modules. In the EV kits, for normal operation, leave the jumpers (JU101, JU201, JU301) open. When jumper JU101 is left open, the MAXM17633 is enabled when the input voltage rises above 4.05V. When jumper JU201 is left open, the MAXM17634 is enabled when the input voltage rises above 6.3V. When jumper JU301 is left open, the MAXM17635 is enabled when the input voltage rises above 16.2V. To disable the modules, install shunts across pins 2–3 on jumpers (JU101, JU201, JU301). See Table 1 for jumpers (JU101, JU201, JU301) settings.

A potential divider formed by the resistors R_U (R101, R201, R301) and R_B (R102, R202, R302) sets the input voltage (V_{INU}) at which the module is enabled.

Choose R_U (R101, R201, R301) to be 3.32MΩ and then calculate R102, R202, and R302 as follows:

$$R_B = \frac{R_U \times 1.215}{(V_{INU} - 1.215)}$$

For the MAXM17633 to turn on at the 4.05V input, the resistor (R102) is calculated to be 1.422MΩ and a 1.43MΩ resistor is used in the EV kit.

For the MAXM17634 to turn on at the 6.3V input, the resistor (R202) is calculated to be 793.3kΩ and a 787kΩ resistor is used in the EV kit.

For the MAXM17635 to turn on at the 16.2V input, the resistor (R302) is calculated to be 269.2kΩ and a 267kΩ resistor is used in the EV kit.

MODE Selection and External Clock Synchronization

The MAXM17633/MAXM17634/MAXM17635 modules support PWM, PFM, and DCM modes of operation. In the EV kits, leave the jumpers (JU102, JU202, JU302) open for operating the modules in PFM mode at light load. Install shunts across the 2–3 position to configure the modules in PWM mode. Install shunts across the 1–2 position to configure the modules in DCM mode at light loads. See Table 2 for jumper (JU102, JU202, JU302) settings.

The internal oscillators of the modules can be synchronized to an external clock signal on the MODE/SYNC pin, when powered up in PWM or DCM mode. The external synchronization clock frequency must be between 1.1 x f_{SW} and 1.4 x f_{SW}, where f_{SW} is the frequency programmed by the resistors (R103, R203, R303) connected to the RT pin. The minimum on-time pulse width of the external clock should be more than 50ns and minimum off-time pulse width of the external clock should be more than 160ns.

Adjusting Output Voltage

The MAXM17635 supports a 0.9V to 12V adjustable output voltage. The MAXM17635 EV kit output voltage is preset to 12V. Output voltage can be programmed using the feedback resistive divider (R305 and R306) from V_{OUT} and GND. For programming the output to a different voltage, use the values shown in *Table 1* of the MAXM17633/MAXM17634/MAXM17635 data sheet or calculate based on the guidelines given in the data sheet.

For a 12V output, the R305 resistor is chosen as 453kΩ and R306 is chosen as 36.5kΩ

Output Capacitor Selection

X7R ceramic output capacitors are preferred due to their stability over temperature in industrial applications. The required output capacitors (C114, C214, C314) are selected from *Table 1* of the MAXM17633/MAXM17634/MAXM17635 data sheet as 47μF/10V, 22μF/25V and 10μF/50V, respectively.

Input Capacitor Selection

The input capacitors (C102, C202, C302) serve to reduce current peaks drawn from the input power supply and reduce switching frequency ripple at the input. The input capacitance must be greater than or equal to the value shown in *Table 1* of MAXM17633/MAXM17634/MAXM17635 data sheet. Input capacitors (C102, C202, C302) are chosen to be 4.7μF/50V.

Soft-Start Capacitor Selection

The EV kits offer an adjustable soft-start function to limit inrush current during startup. The soft-start time is adjusted by changing the values of soft-start capacitors (C106, C206, C306). In these EV kits, the default soft-start time is set to 1ms, which is achieved by using a 5600pF soft-start capacitor (C106, C206, C306). For programming a different soft-start times, refer to the MAXM17633/MAXM17634/MAXM17635 data sheet to calculate the soft-start capacitor value.

Linear Regulator (VCC and EXTVCC)

Powering V_{CC} from EXTVCC increases the efficiency of the module at higher input voltages. If the applied EXTVCC voltage is greater than 4.7V (typ), internal V_{CC} is powered from EXTVCC. If EXTVCC is lower than 4.7V (typ), internal V_{CC} is powered from VIN. Connect EXTVCC to OUT when output is programmed to 5V only. In the MAXM17634 EV kit, install a shunt across 1–2 on jumper JU203 to connect EXTVCC to OUT. When EXTVCC is not used, install a shunt across 2–3 on jumper JU203 to connect EXTVCC to SGND. See Table 3 for jumper JU203 settings.

Hot Plug-In and Long Input cables

The MAXM17633/MAXM17634/MAXM17635 EV kit PCBs provide optional electrolytic capacitors (C101, C201, C301, 10μF/50V) to dampen input voltage peaks and oscillations that can arise during hot-plug-in and/or due to long input cables. These capacitors limit the peak voltage at the input of the power modules when the EV kit is powered directly from a precharged capacitive source or an industrial backplane PCB. Long input cables, between input power source and the EV kit circuit can cause input-voltage oscillations due to the inductance of the cables. The equivalent series resistance (ESR) of the electrolytic capacitor helps damp out the oscillations caused by long input cables.

Electromagnetic Interference (EMI)

Compliance to conducted emissions (CE) standards requires an 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.

Use of EMI filter components as shown in the EV kits schematic results in lower conducted emissions, below CISPR22 Class B limits. The MAXM17633/MAXM17634/MAXM17635 EV kit PCB layouts are also designed to limit radiated emissions from switching nodes of the power converter, resulting in radiated emissions below CISPR22 Class B limits. Further, capacitors placed near the input of the board help in attenuating high-frequency noise.

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

SHUNT POSITION	EN/UVLO PIN	OUTPUT
Not installed*	Connected to the center nodes of the respective resistor-dividers (R101 and R102, R201 and R202, R301 and R302)	Programmed to startup at desired input-voltage level
1–2	Connected to VIN	Enabled when input-voltage is above 1.215V
2–3	Connected to GND	Disabled

**Default position.*

Table 2. MODE/SYNC Jumper Description (JU102, JU202, JU302)

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

**Default position.*

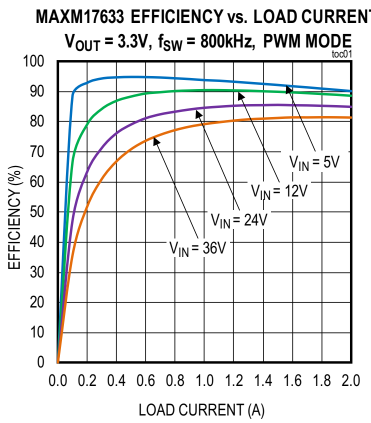
Table 3. EXTVCC Jumper Description (JU203)

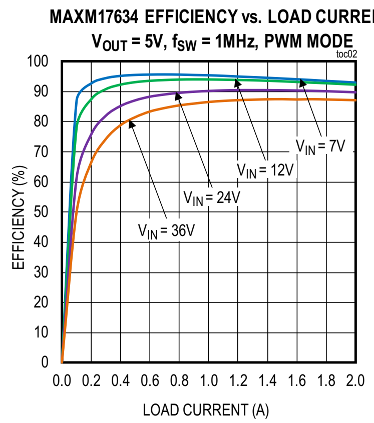
SHUNT POSITION	MODE/SYNC PIN	MODE
1–2*	Connected to VOUT	Internal LDO is driven from the output of the module
2–3	Connected to GND	Internal LDO is driven from the input of the module

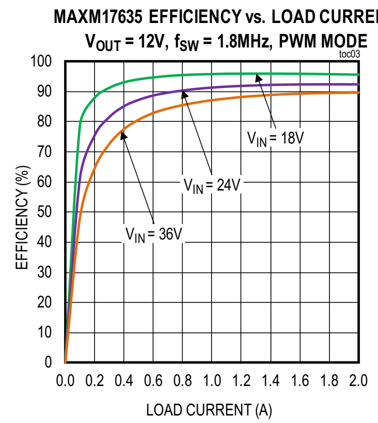
**Default position.*

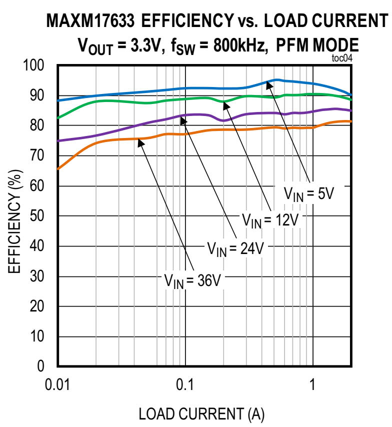
EV Kits Performance Report

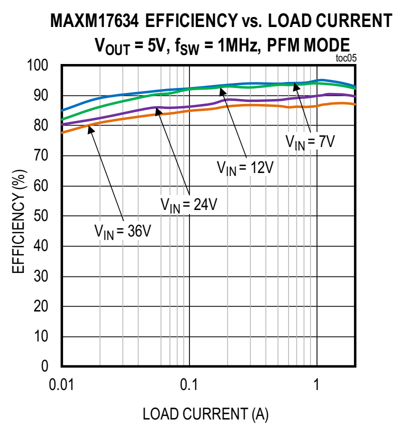
(V_{IN} = 24V, T_A = +25°C, unless otherwise noted.)

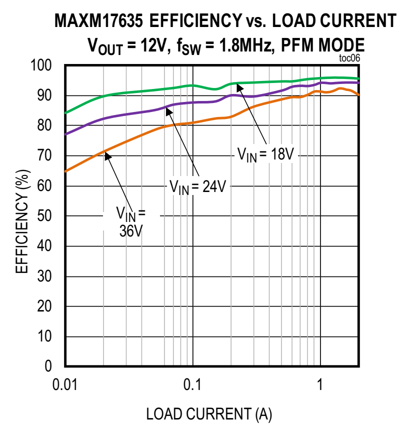


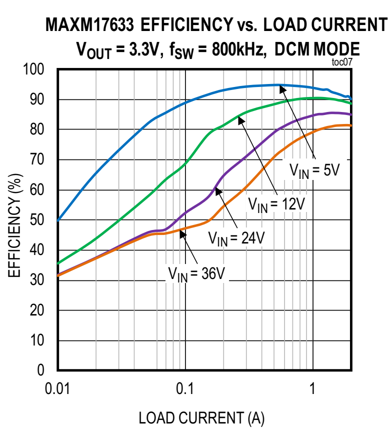


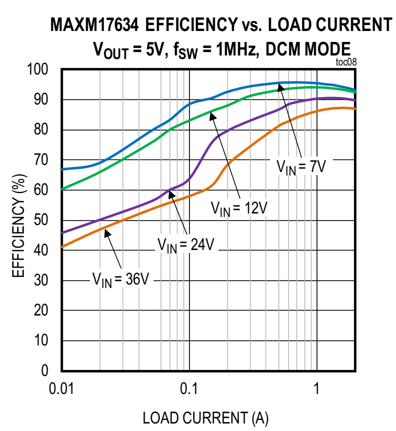


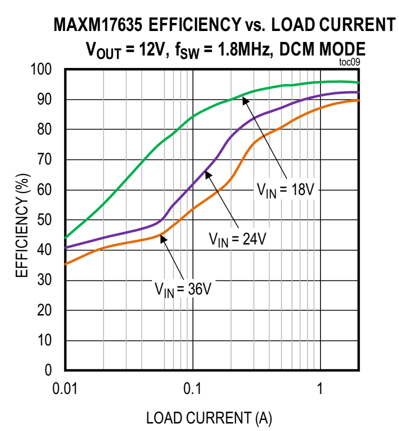








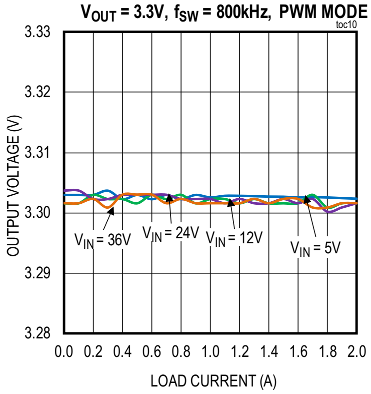




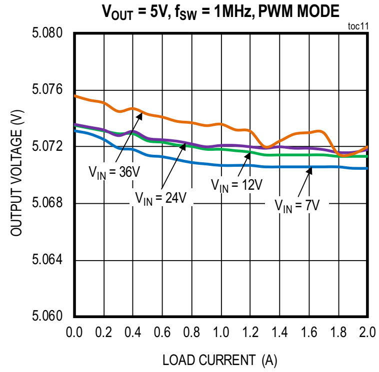
EV Kits Performance Report (continued)

(V_{IN} = 24V, T_A = +25°C, unless otherwise noted.)

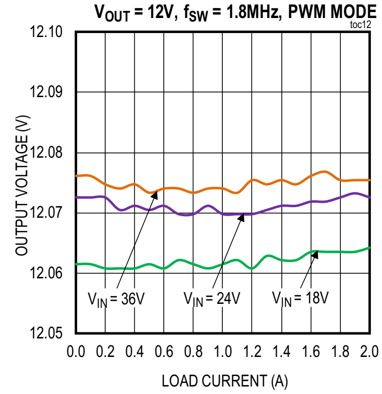
MAXM17633 OUTPUT VOLTAGE vs. LOAD CURRENT
V_{OUT} = 3.3V, f_{SW} = 800kHz, PWM MODE



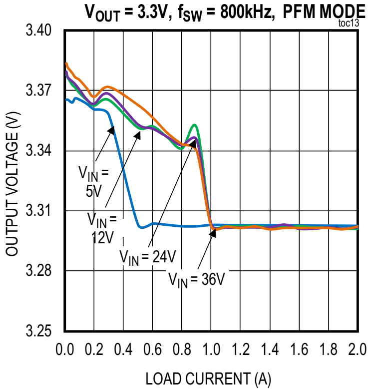
MAXM17634 OUTPUT VOLTAGE vs. LOAD CURRENT
V_{OUT} = 5V, f_{SW} = 1MHz, PWM MODE



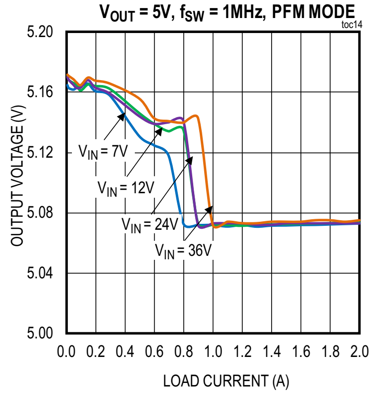
MAXM17635 OUTPUT VOLTAGE vs. LOAD CURRENT
V_{OUT} = 12V, f_{SW} = 1.8MHz, PWM MODE



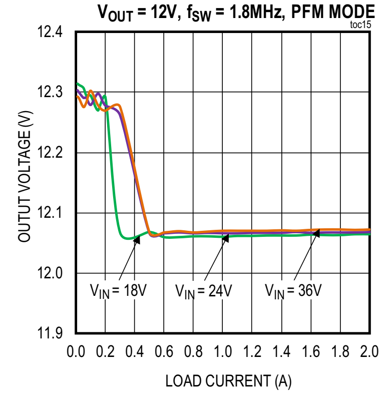
MAXM17633 OUTPUT VOLTAGE vs. LOAD CURRENT
V_{OUT} = 3.3V, f_{SW} = 800kHz, PFM MODE



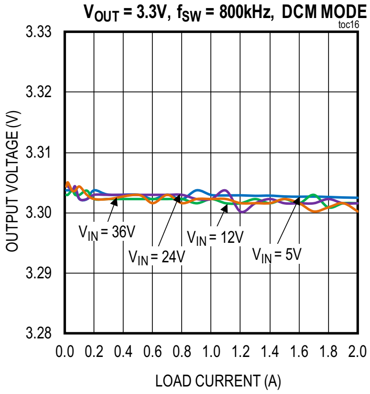
MAXM17634 OUTPUT VOLTAGE vs. LOAD CURRENT
V_{OUT} = 5V, f_{SW} = 1MHz, PFM MODE



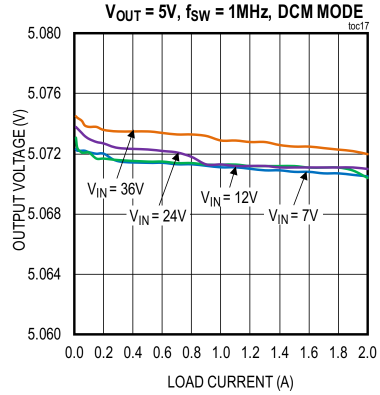
MAXM17635 OUTPUT VOLTAGE vs. LOAD CURRENT
V_{OUT} = 12V, f_{SW} = 1.8MHz, PFM MODE



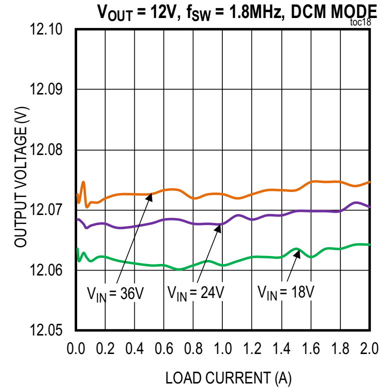
MAXM17633 OUTPUT VOLTAGE vs. LOAD CURRENT
V_{OUT} = 3.3V, f_{SW} = 800kHz, DCM MODE



MAXM17634 OUTPUT VOLTAGE vs. LOAD CURRENT
V_{OUT} = 5V, f_{SW} = 1MHz, DCM MODE



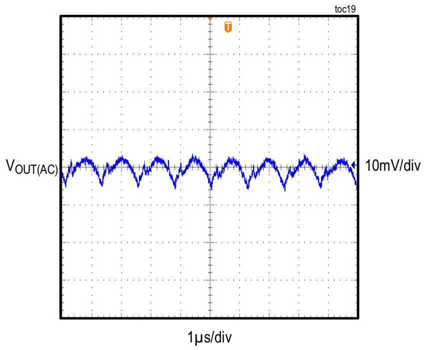
MAXM17635 OUTPUT VOLTAGE vs. LOAD CURRENT
V_{OUT} = 12V, f_{SW} = 1.8MHz, DCM MODE



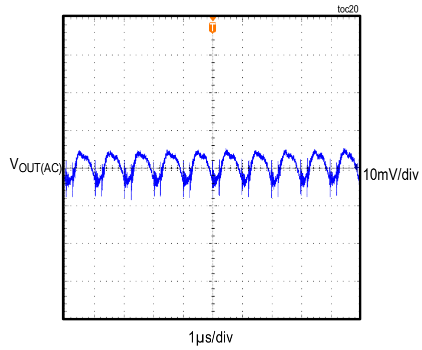
EV Kits Performance Report (continued)

(V_{IN} = 24V, T_A = +25°C, unless otherwise noted.)

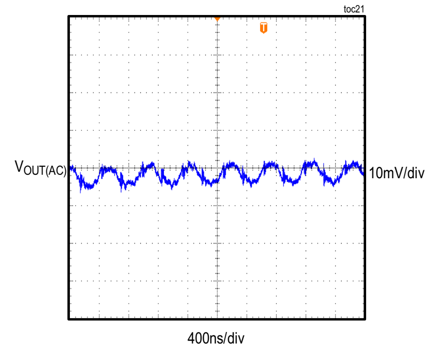
MAXM17633 STEADY-STATE OUTPUT-VOLTAGE RIPPLE V_{OUT} = 3.3V, f_{SW} = 800kHz, FULL LOAD, PWM MODE



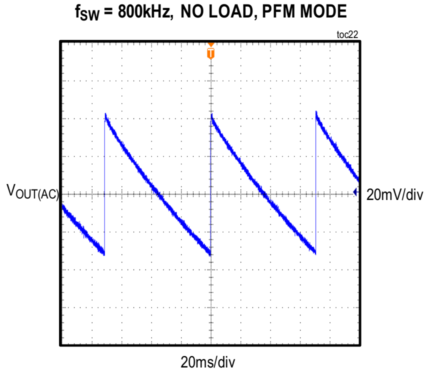
MAXM17634 STEADY-STATE OUTPUT-VOLTAGE RIPPLE V_{OUT} = 5V, f_{SW} = 1MHz, FULL LOAD, PWM MODE



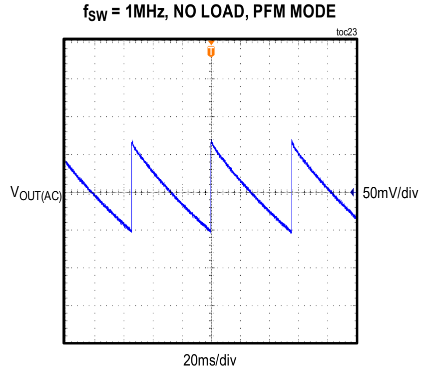
MAXM17635 STEADY-STATE OUTPUT-VOLTAGE RIPPLE V_{OUT} = 12V, f_{SW} = 1.8MHz, FULL LOAD, PWM MODE



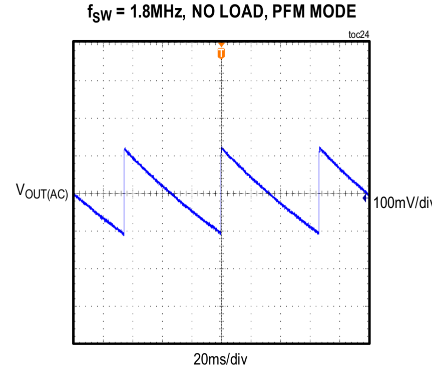
MAXM17633 STEADY-STATE OUTPUT-VOLTAGE RIPPLE V_{OUT} = 3.3V, f_{SW} = 800kHz, NO LOAD, PFM MODE



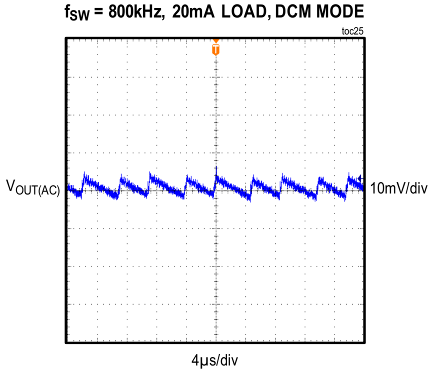
MAXM17634 STEADY-STATE OUTPUT-VOLTAGE RIPPLE V_{OUT} = 5V, f_{SW} = 1MHz, NO LOAD, PFM MODE



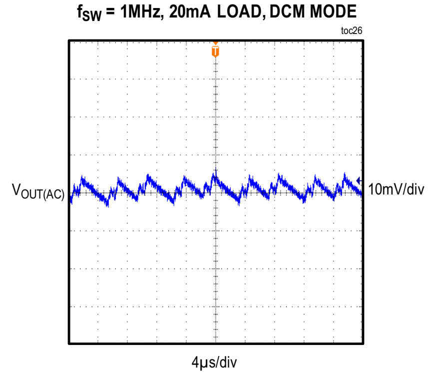
MAXM17635 STEADY-STATE OUTPUT-VOLTAGE RIPPLE V_{OUT} = 12V, f_{SW} = 1.8MHz, NO LOAD, PFM MODE



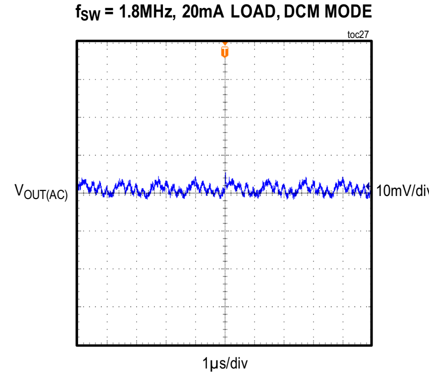
MAXM17633 STEADY-STATE OUTPUT-VOLTAGE RIPPLE V_{OUT} = 3.3V, f_{SW} = 800kHz, 20mA LOAD, DCM MODE



MAXM17634 STEADY-STATE OUTPUT-VOLTAGE RIPPLE V_{OUT} = 5V, f_{SW} = 1MHz, 20mA LOAD, DCM MODE



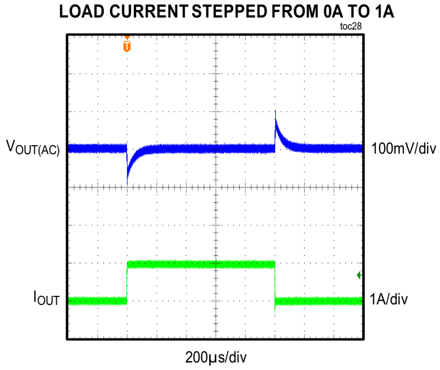
MAXM17635 STEADY-STATE OUTPUT-VOLTAGE RIPPLE V_{OUT} = 12V, f_{SW} = 1.8MHz, 20mA LOAD, DCM MODE



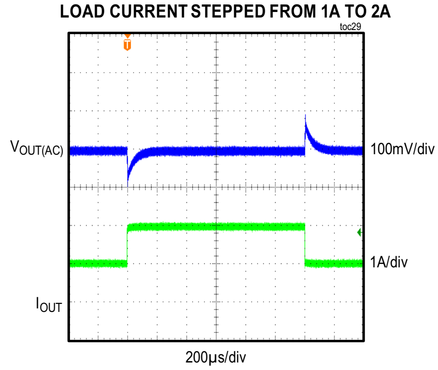
EV Kits Performance Report (continued)

(V_{IN} = 24V, T_A = +25°C, unless otherwise noted.)

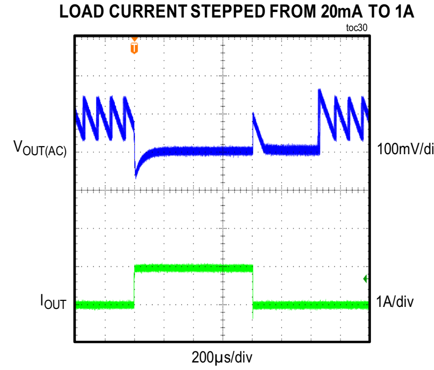
MAXM17633 LOAD-TRANSIENT RESPONSE
V_{OUT} = 3.3V, f_{SW} = 800kHz, PWM MODE,
LOAD CURRENT STEPPED FROM 0A TO 1A



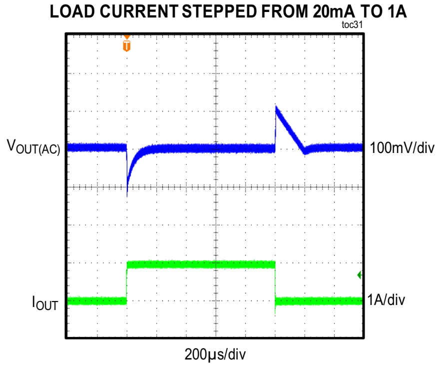
MAXM17633 LOAD-TRANSIENT RESPONSE
V_{OUT} = 3.3V, f_{SW} = 800kHz, PWM MODE,
LOAD CURRENT STEPPED FROM 1A TO 2A



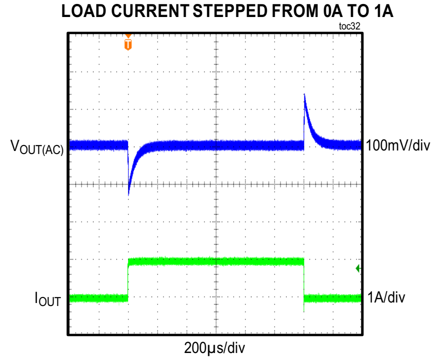
MAXM17633 LOAD-TRANSIENT RESPONSE
V_{OUT} = 3.3V, f_{SW} = 800kHz, PFM MODE,
LOAD CURRENT STEPPED FROM 20mA TO 1A



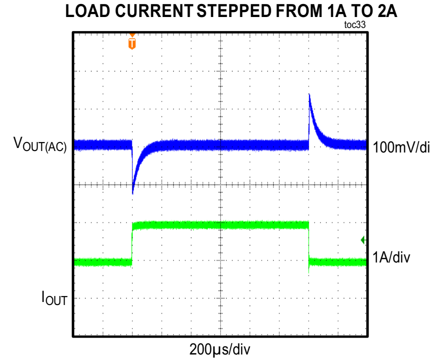
MAXM17633 LOAD-TRANSIENT RESPONSE
V_{OUT} = 3.3V, f_{SW} = 800kHz, DCM MODE,
LOAD CURRENT STEPPED FROM 20mA TO 1A



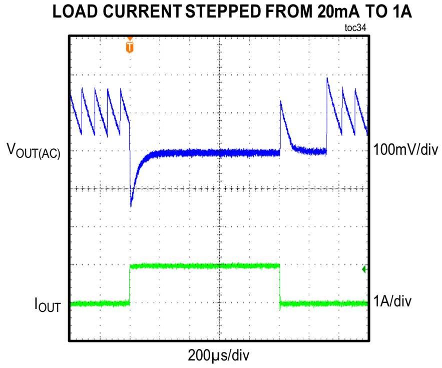
MAXM17634 LOAD-TRANSIENT RESPONSE
V_{OUT} = 5V, f_{SW} = 1MHz, PWM MODE,
LOAD CURRENT STEPPED FROM 0A TO 1A



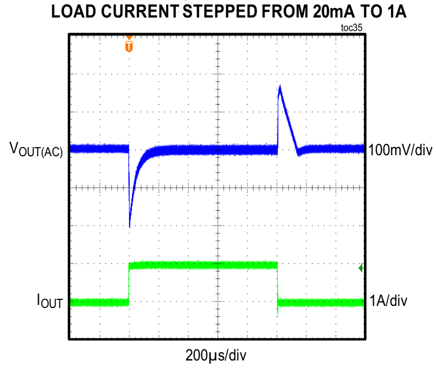
MAXM17634 LOAD-TRANSIENT RESPONSE
V_{OUT} = 5V, f_{SW} = 1MHz, PWM MODE,
LOAD CURRENT STEPPED FROM 1A TO 2A



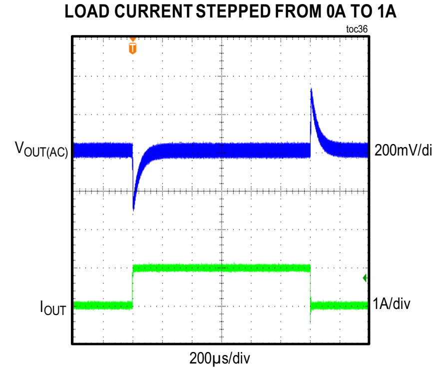
MAXM17634 LOAD-TRANSIENT RESPONSE
V_{OUT} = 5V, f_{SW} = 1MHz, PFM MODE,
LOAD CURRENT STEPPED FROM 20mA TO 1A



MAXM17634 LOAD-TRANSIENT RESPONSE
V_{OUT} = 5V, f_{SW} = 1MHz, DCM MODE,
LOAD CURRENT STEPPED FROM 20mA TO 1A



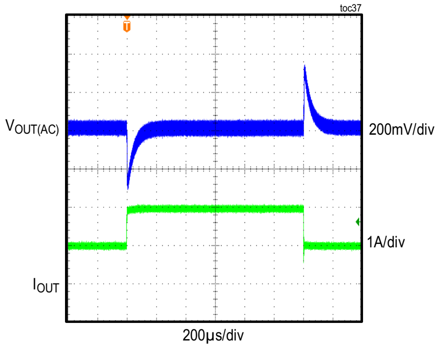
MAXM17635 LOAD-TRANSIENT RESPONSE
V_{OUT} = 12V, f_{SW} = 1.8MHz, PWM MODE,
LOAD CURRENT STEPPED FROM 0A TO 1A



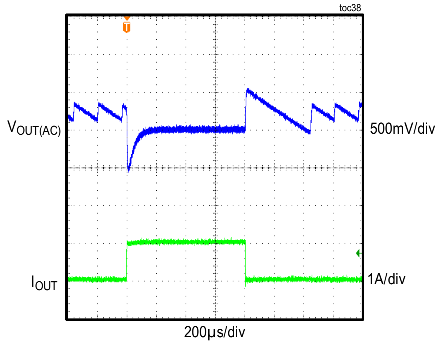
EV Kits Performance Report (continued)

(V_{IN} = 24V, T_A = +25°C, unless otherwise noted.)

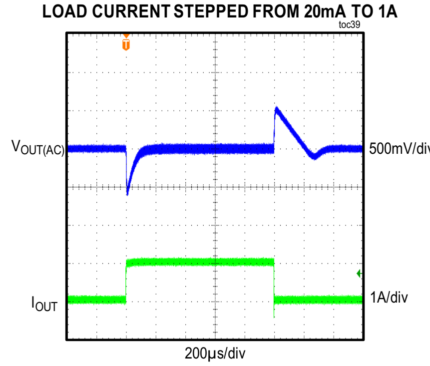
MAXM17635 LOAD-TRANSIENT RESPONSE
V_{OUT} = 12V, f_{SW} = 1.8MHz, PWM MODE,
LOAD CURRENT STEPPED FROM 1A TO 2A



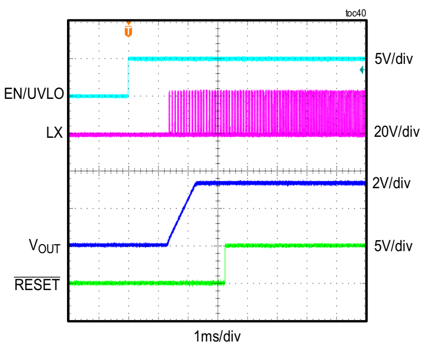
MAXM17635 LOAD-TRANSIENT RESPONSE
V_{OUT} = 12V, f_{SW} = 1.8MHz, PFM MODE,
LOAD CURRENT STEPPED FROM 20mA TO 1A



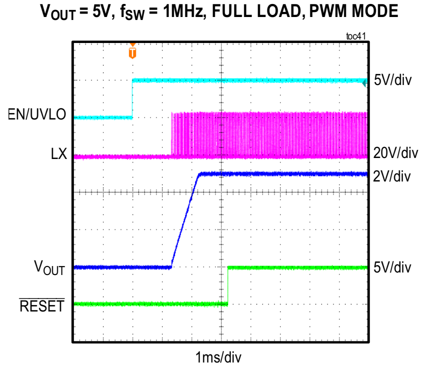
MAXM17635 LOAD-TRANSIENT RESPONSE
V_{OUT} = 12V, f_{SW} = 1.8MHz, DCM MODE,
LOAD CURRENT STEPPED FROM 20mA TO 1A



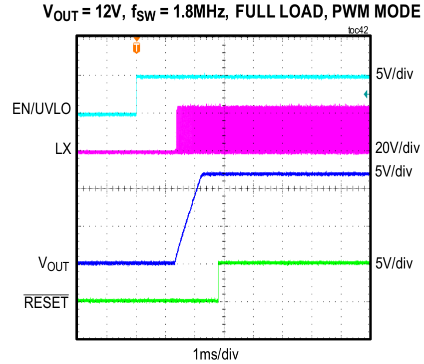
MAXM17633 STARTUP THROUGH ENABLE
V_{OUT} = 3.3V, f_{SW} = 800kHz, FULL LOAD, PWM MODE



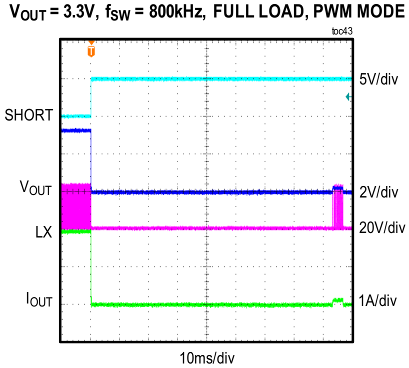
MAXM17634 STARTUP THROUGH ENABLE
V_{OUT} = 5V, f_{SW} = 1MHz, FULL LOAD, PWM MODE



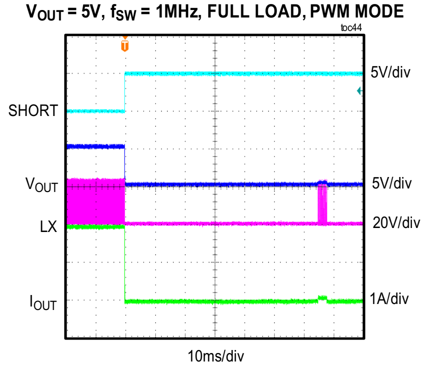
MAXM17635 STARTUP THROUGH ENABLE
V_{OUT} = 12V, f_{SW} = 1.8MHz, FULL LOAD, PWM MODE



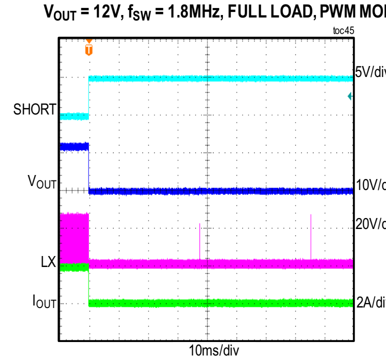
MAXM17633 OUTPUT SHORT IN STEADY STATE
V_{OUT} = 3.3V, f_{SW} = 800kHz, FULL LOAD, PWM MODE



MAXM17634 OUTPUT SHORT IN STEADY STATE
V_{OUT} = 5V, f_{SW} = 1MHz, FULL LOAD, PWM MODE



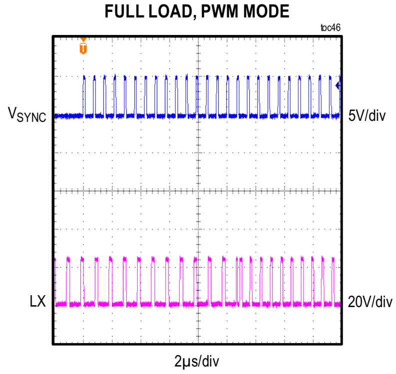
MAXM17635 OUTPUT SHORT IN STEADY STATE
V_{OUT} = 12V, f_{SW} = 1.8MHz, FULL LOAD, PWM MODE



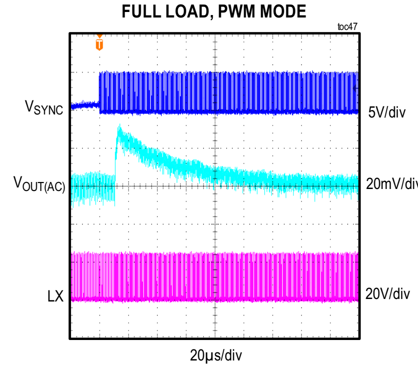
EV Kits Performance Report (continued)

(V_{IN} = 24V, T_A = +25°C, unless otherwise noted.)

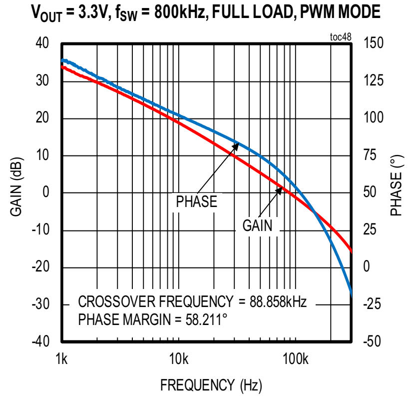
MAXM17634 EXT CLOCK SYNC
V_{OUT} = 5V, f_{SW} = 1MHz, f_{SYNC} = 1.4MHz, FULL LOAD, PWM MODE



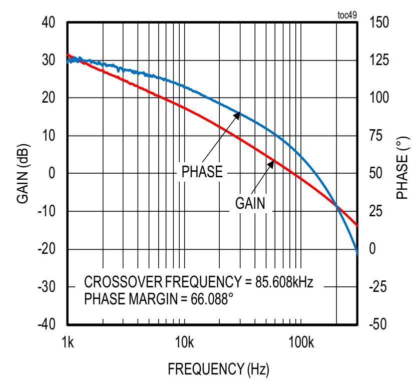
MAXM17634 EXT CLOCK SYNC
V_{OUT} = 5V, f_{SW} = 1MHz, f_{SYNC} = 1.4MHz, FULL LOAD, PWM MODE



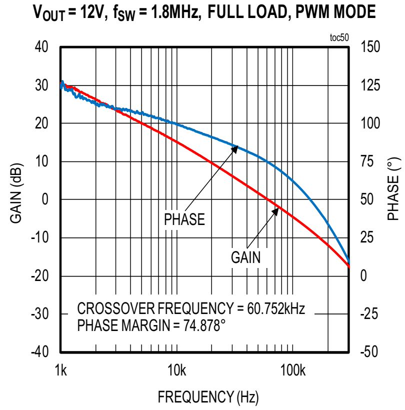
MAXM17633 BODE PLOT
V_{OUT} = 3.3V, f_{SW} = 800kHz, FULL LOAD, PWM MODE



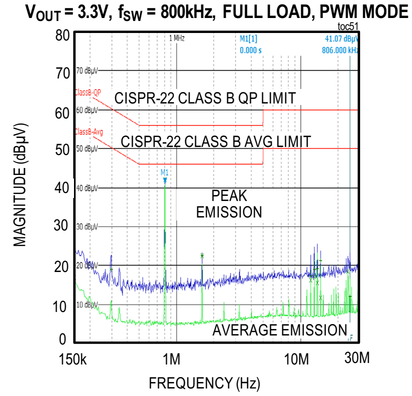
MAXM17634 BODE PLOT
V_{OUT} = 5V, f_{SW} = 1MHz, FULL LOAD, PWM MODE



MAXM17635 BODE PLOT
V_{OUT} = 12V, f_{SW} = 1.8MHz, FULL LOAD, PWM MODE



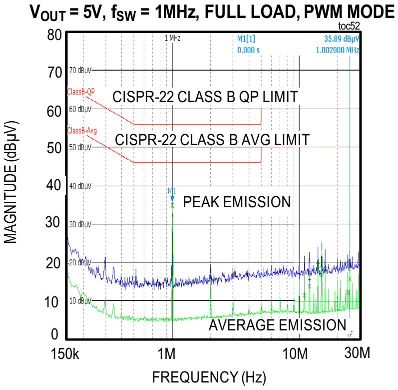
MAXM17633 CONDUCTED EMISSIONS PLOT
V_{OUT} = 3.3V, f_{SW} = 800kHz, FULL LOAD, PWM MODE



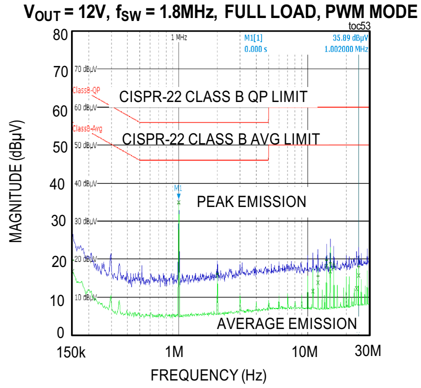
EV Kits Performance Report (continued)

(V_{IN} = 24V, T_A = +25°C, unless otherwise noted.)

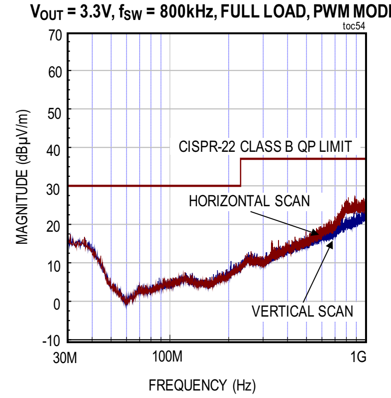
MAXM17634 CONDUCTED EMISSIONS PLOT
V_{OUT} = 5V, f_{SW} = 1MHz, FULL LOAD, PWM MODE



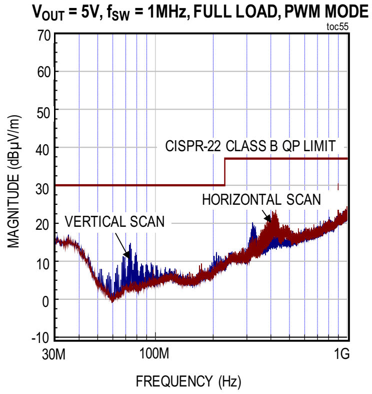
MAXM17635 CONDUCTED EMISSIONS PLOT
V_{OUT} = 12V, f_{SW} = 1.8MHz, FULL LOAD, PWM MODE



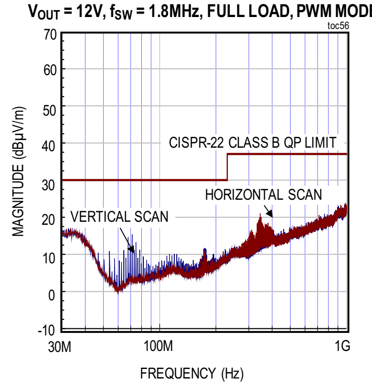
MAXM17633 RADIATED EMISSIONS PLOT
V_{OUT} = 3.3V, f_{SW} = 800kHz, FULL LOAD, PWM MODE



MAXM17634 RADIATED EMISSIONS PLOT
V_{OUT} = 5V, f_{SW} = 1MHz, FULL LOAD, PWM MODE



MAXM17635 RADIATED EMISSIONS PLOT
V_{OUT} = 12V, f_{SW} = 1.8MHz, FULL LOAD, PWM MODE



Component Suppliers

SUPPLIER	WEBSITE
Murata Americas	www.murata.com
Vishay	www.vishay.com
Panasonic Corp.	www.panasonic.com
Bourns Inc.	www.bourns.com
TDK Corp.	www.tdk.com

Note: *Indicate that you are using the MAXM17633/MAXM17634/MAXM17635 modules when contacting these component suppliers.*

Ordering Information

PART	TYPE
MAXM17633EVKIT#	EV Kit
MAXM17634EVKIT#	EV Kit
MAXM17635EVKIT#	EV Kit

#Denotes RoHS compliance.

MAXM17633/MAXM17634/MAXM17635 EV Kit Bill of Materials

ITEM	QTY	DESIGNATOR	DESCRIPTION	MANUFACTURER PART NO.
1	3	C101, C201, C301	10µF±20%, 50V, Aluminimum-Electrolytic Capacitor	Panasonic EEE-TG1H100P
2	3	C102, C202, C302	4.7µF±10%, 50V, X7R ceramic capacitor (1206)	Murata GRM31CR71H475KA12
3	6	C103, C108, C203, C208, C303, C308	0.1µF±10%, 100V, X7R ceramic capacitor (0603)	Murata GRM188R72A104KA35
4	12	C104, C107, C112, C116, C204, C207, C212, C216, C304, C307, C312, C316	220pF±10%, 100V, X7R ceramic capacitor (0402)	Murata GRM155R72A221KA01
5	3	C105, C205, C305	2.2µF±10%, 6.3V, X7R ceramic capacitor (0603)	Murata GRM188R70J225KE15
6	3	C106, C206, C306	5600pF±10%, 25V, X7R ceramic capacitor (0402)	Murata GRM155R71E562KA01
7	3	C111, C211, C311	0.1µF±10%, 50V, X7R ceramic capacitor (0402)	Murata GRM155R71H104KE14
8	6	C113, C115, C213, C215, C313, C315	0.1µF±10%, 25V, X7R ceramic capacitor (0402)	Murata GRM155R71E104KE14
9	1	C114	47µF±10%, 10V, X7R ceramic capacitor (1210)	Murata GRM32ER71A476KE15
10	1	C214	22µF±10%, 25V, X7R ceramic capacitor (1210)	Murata GRM32ER71E226KE15
11	1	C314	10µF±10%, 50V, X7R ceramic capacitor (1210)	Murata GRM32ER71H106KA12
12	3	R101, R201, R301	3.32MΩ ±1% resistor (0402)	Vishay Dale CRCW04023M32FK
13	1	R102	1.43MΩ ±1% resistor (0402)	Vishay Dale CRCW04021M43FK
14	1	R103	24.3kΩ ±1% resistor (0402)	Vishay Dale CRCW040224K3FK
15	4	R104, R204, R303, R304	10kΩ ±1% resistor (0402)	Vishay Dale CRCW040210K0FK
16	1	R202	787kΩ ±1% resistor (0402)	Vishay Dale CRCW0402787KFK
17	1	R203	19.1kΩ ±1% resistor (0402)	Vishay Dale CRCW040219K1FK
18	1	R302	267kΩ ±1% resistor (0402)	Vishay Dale CRCW0402267KFK
19	1	R305	453kΩ ±1% resistor (0402)	Vishay Dale CRCW0402453KFK
20	1	R306	36.5kΩ ±1% resistor (0402)	Vishay Dale CRCW040236K5FK
21	1	U101	MAXM17633, 24-pin uSLIC™ Step down Power Module	Maxim MAXM17633AMG+
22	1	U201	MAXM17634, 24-pin uSLIC™ Step down Power Module	Maxim MAXM17634AMG+
23	1	U301	MAXM17635, 24-pin uSLIC™ Step down Power Module	Maxim MAXM17635AMG+
24	2	C109, C209	OPTIONAL: 0.22µF±10%, 100V, X7R ceramic capacitor (1206)	TDK C3216X7R2A224K115AA
25	1	C309	OPTIONAL: 0.1µF±10%, 100V, X7R ceramic capacitor (1206)	Murata GRM319R72A104KA01
26	2	L101, L201	OPTIONAL: 22µH Ferrite Wirewound Inductor	Bourns SRN4018-220M
27	1	L301	OPTIONAL: 10µH Ferrite Wirewound Inductor	Bourns SRN4018-100M
28	3	C110, C210, C310	Package Outline 1206 capacitor	OPEN
29	2	R105, R205	Package Outline 0402 resistor	OPEN

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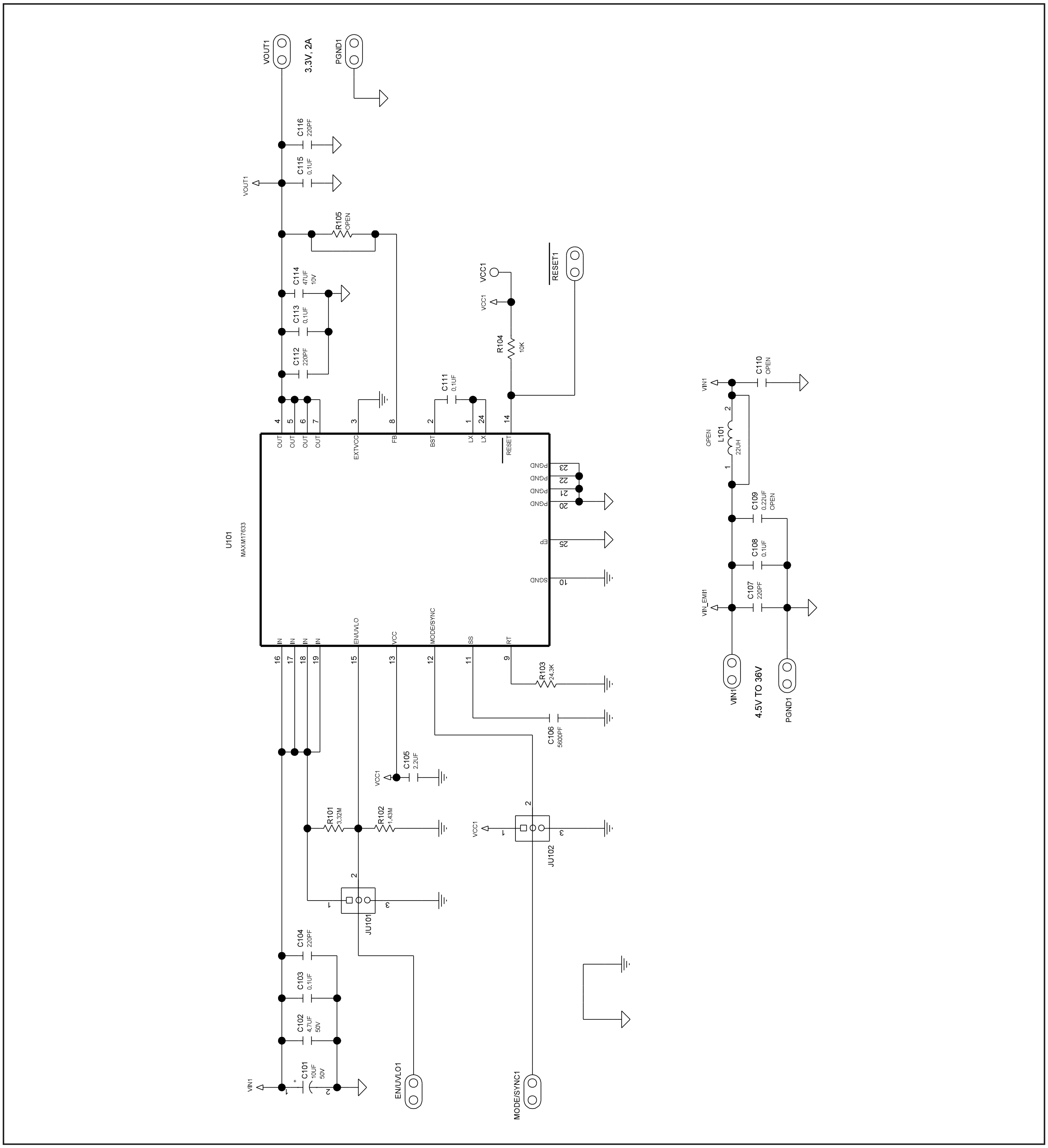
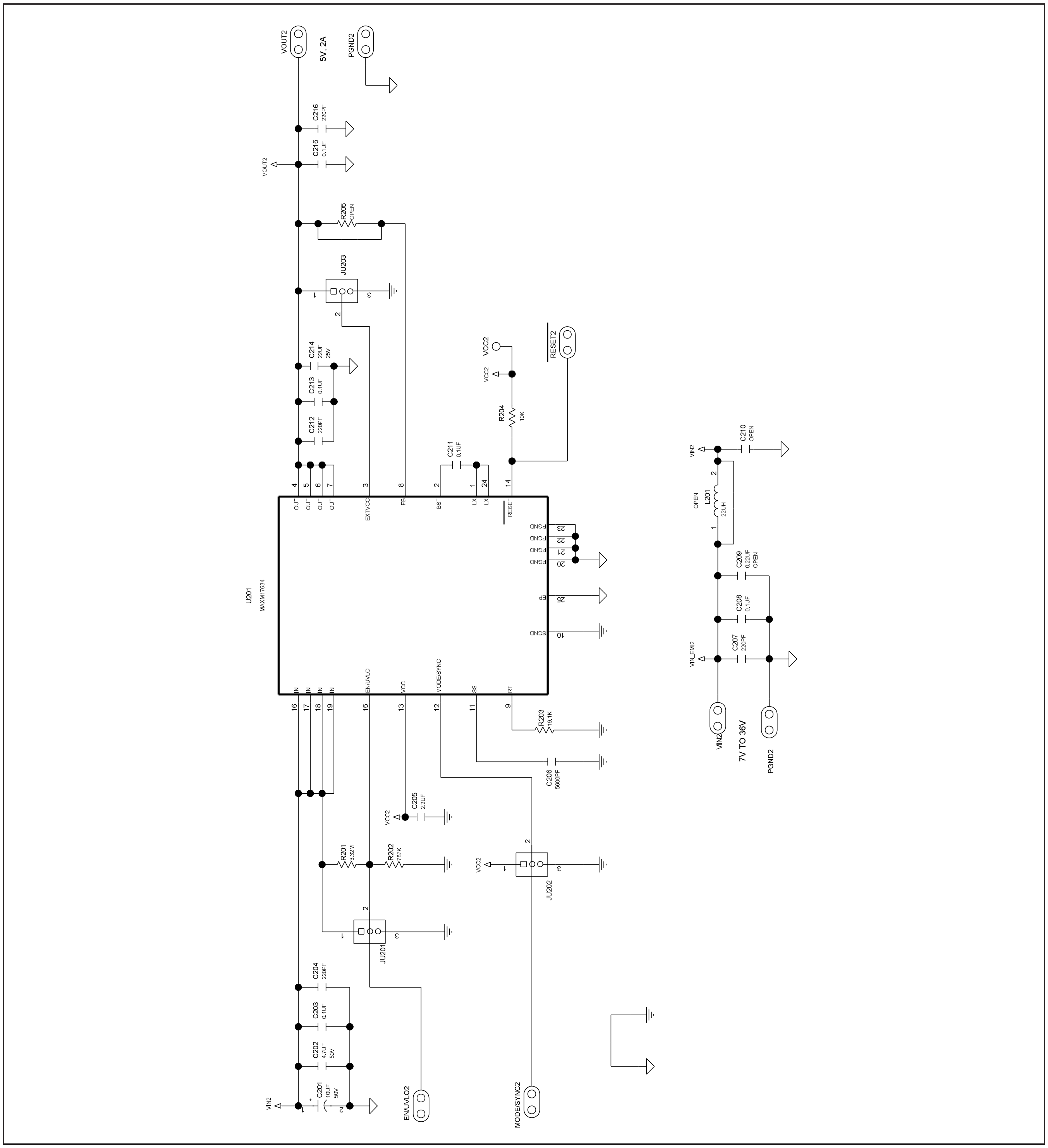
MAXM17633/MAXM17634/MAXM17635 EV Kit Schematics

MAXM17633 EV Kits Schematic



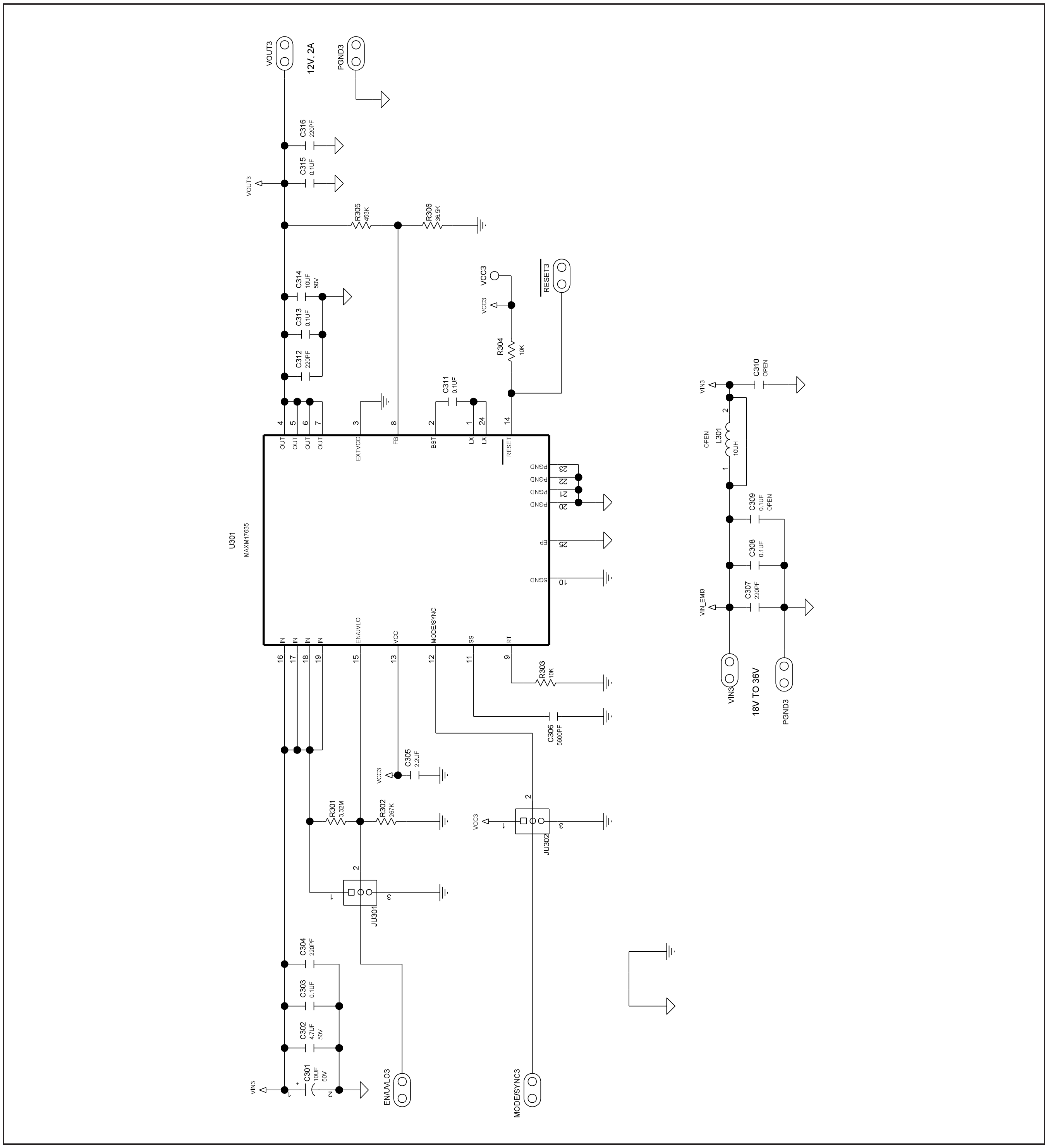
MAXM17633/MAXM17634/MAXM17635 EV Kit Schematics (continued)

MAXM17634 EV Kit Schematic

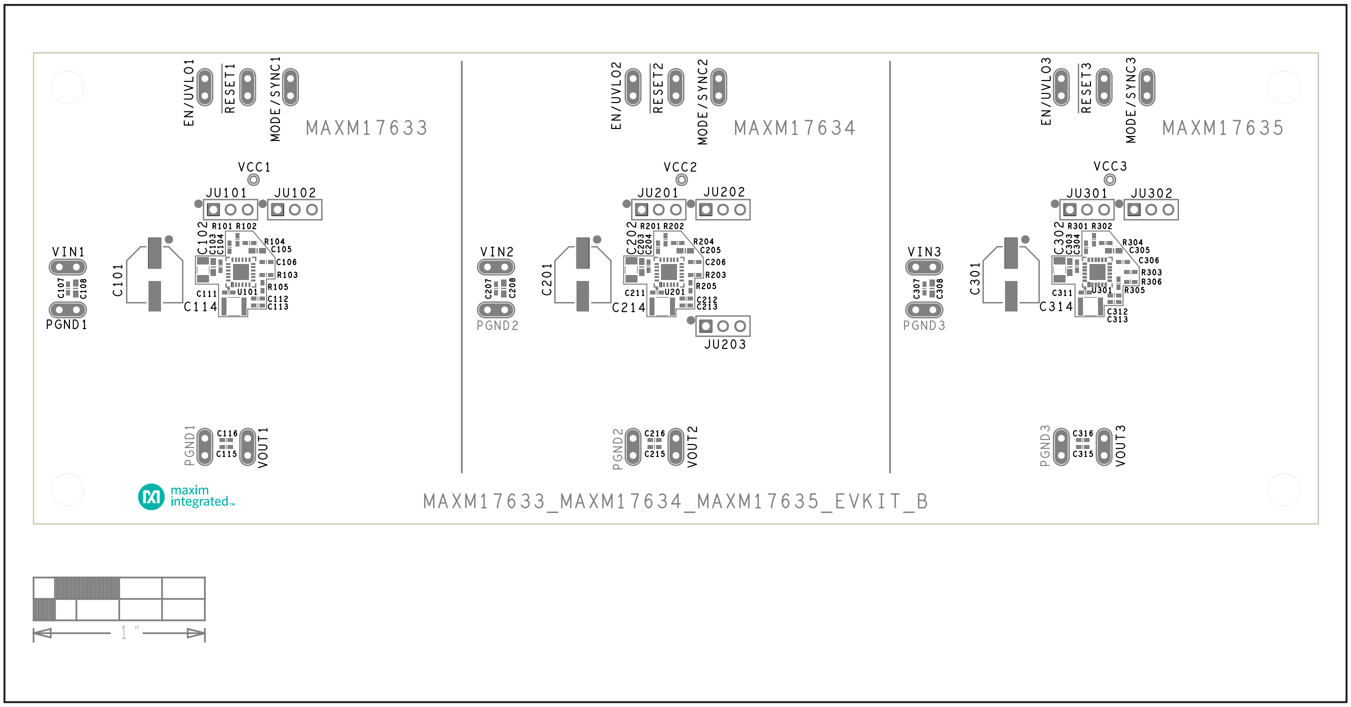


MAXM17633/MAXM17634/MAXM17635 EV Kit Schematics (continued)

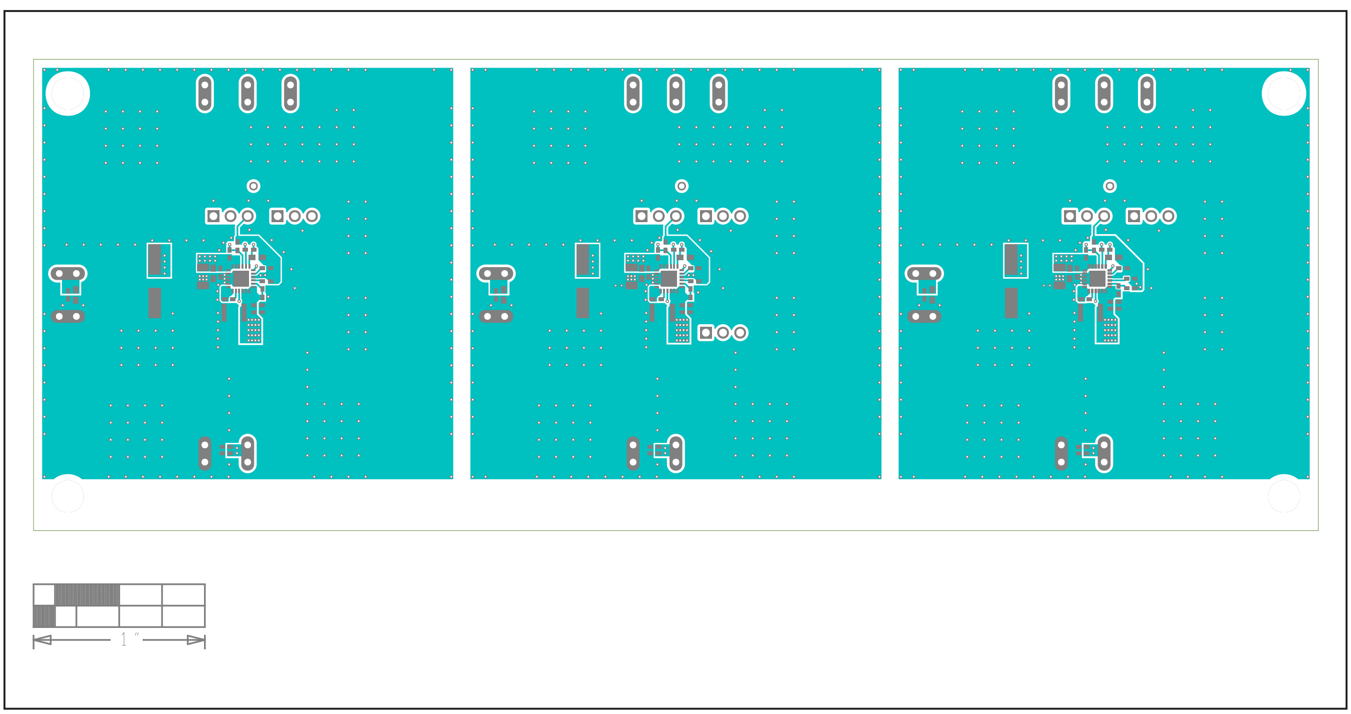
MAXM17635 EV Kit Schematic



MAXM17633/MAXM17634/MAXM17635 EV Kit PCB Layout Diagrams

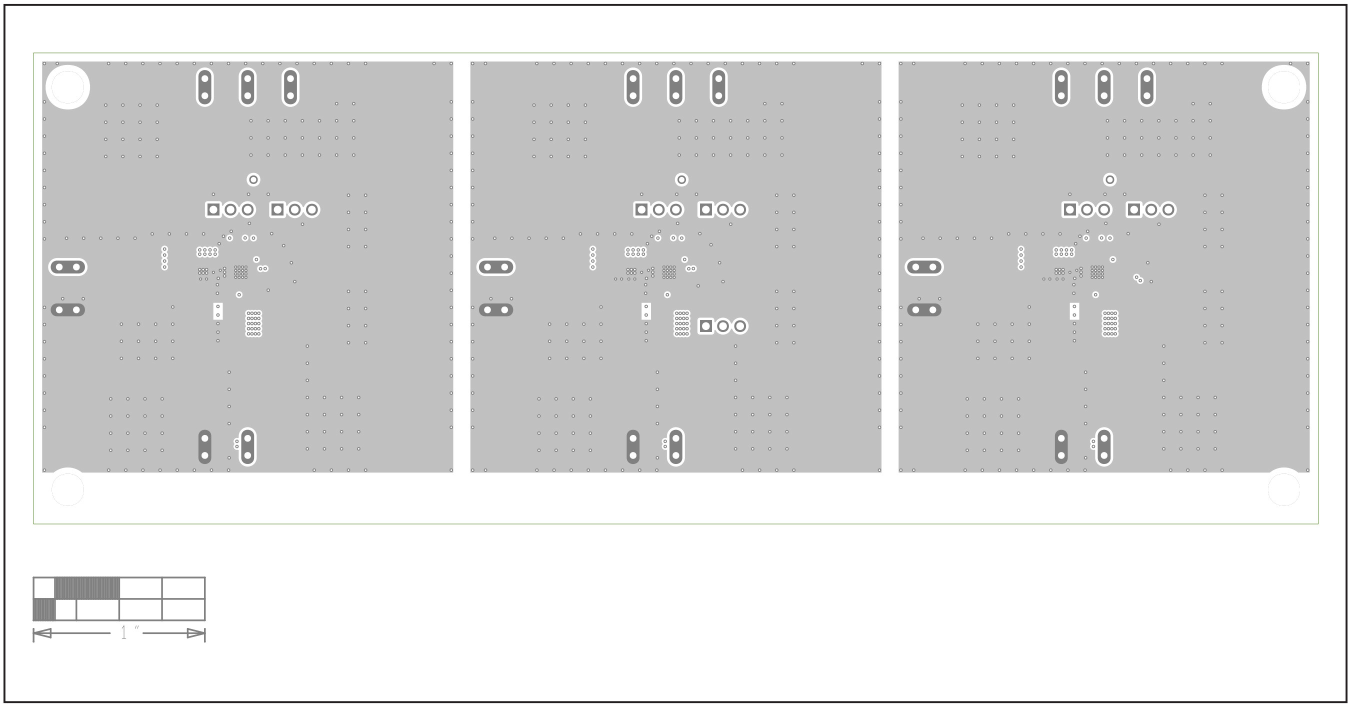


MAXM17633/MAXM17634/MAXM17635 EV Kits—Top Silkscreen

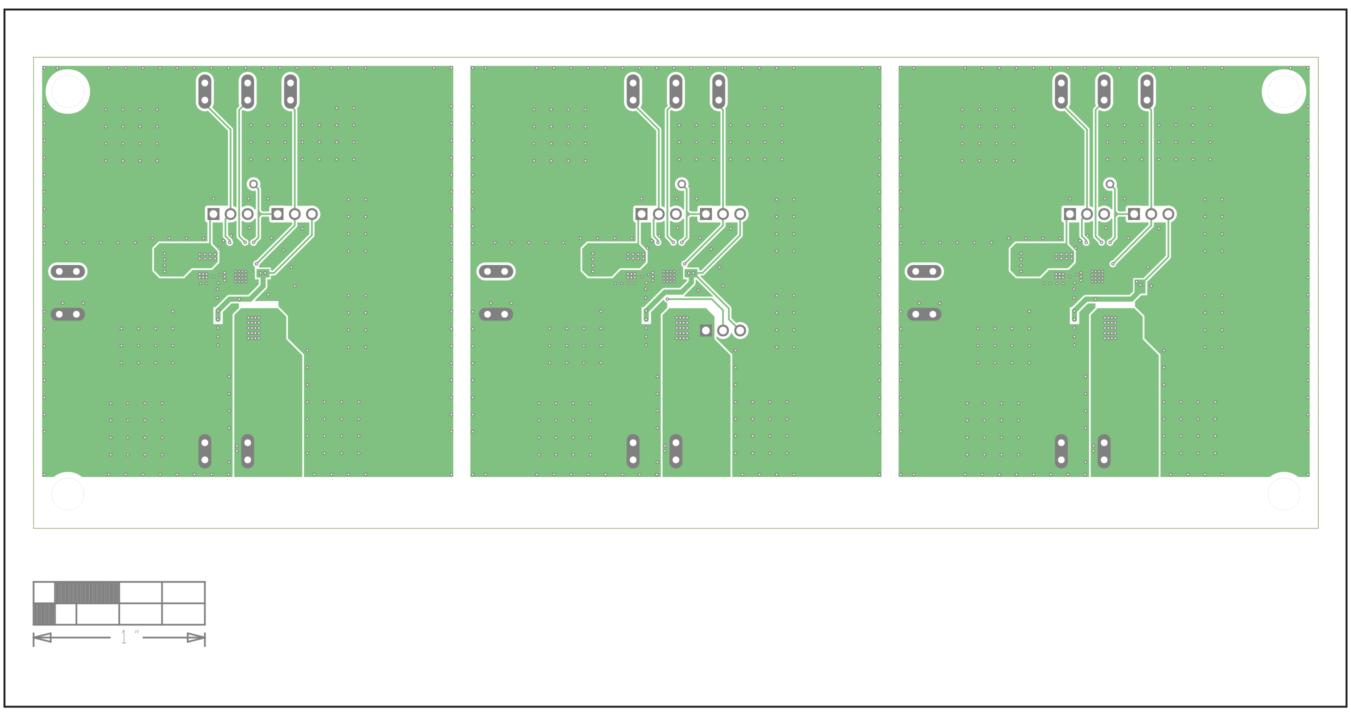


MAXM17633/MAXM17634/MAXM17635 EV Kits—Top Layer

MAXM17633/MAXM17634/MAXM17635 EV Kit PCB Layout Diagrams (continued)

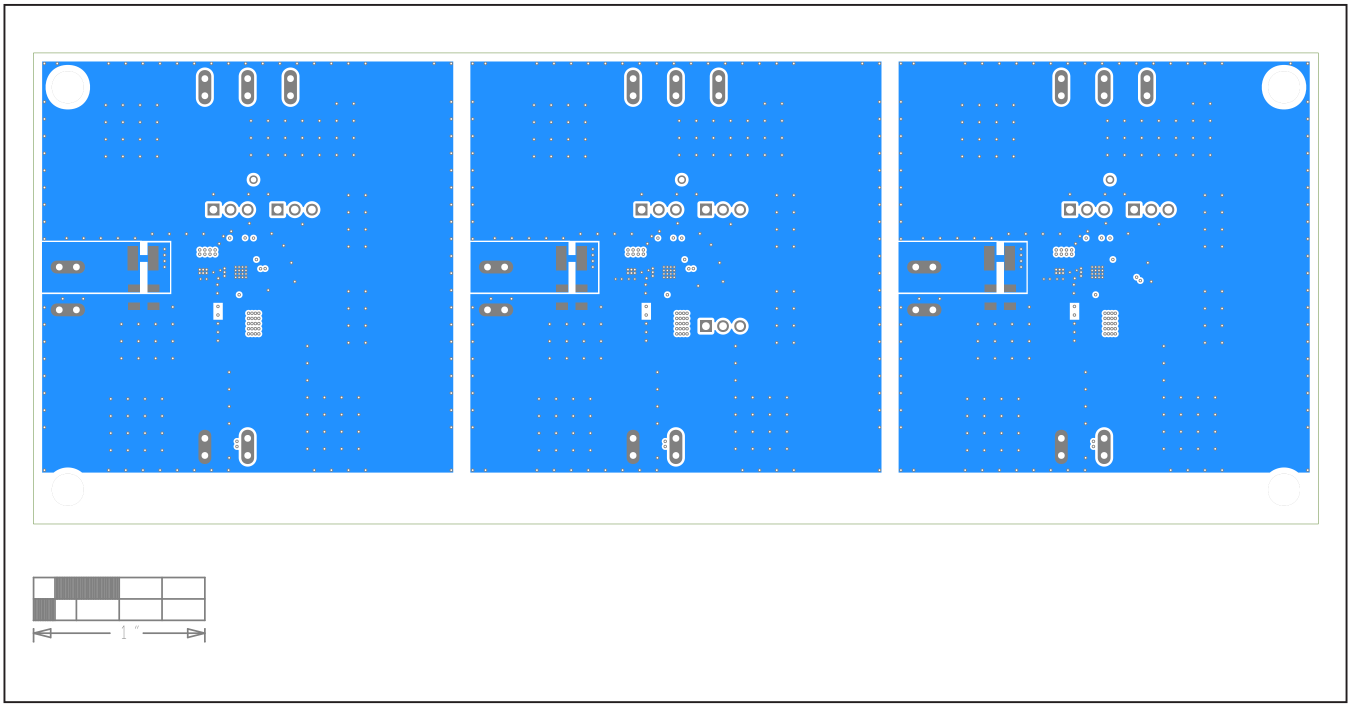


MAXM17633/MAXM17634/MAXM17635 EV Kits—Layer 2

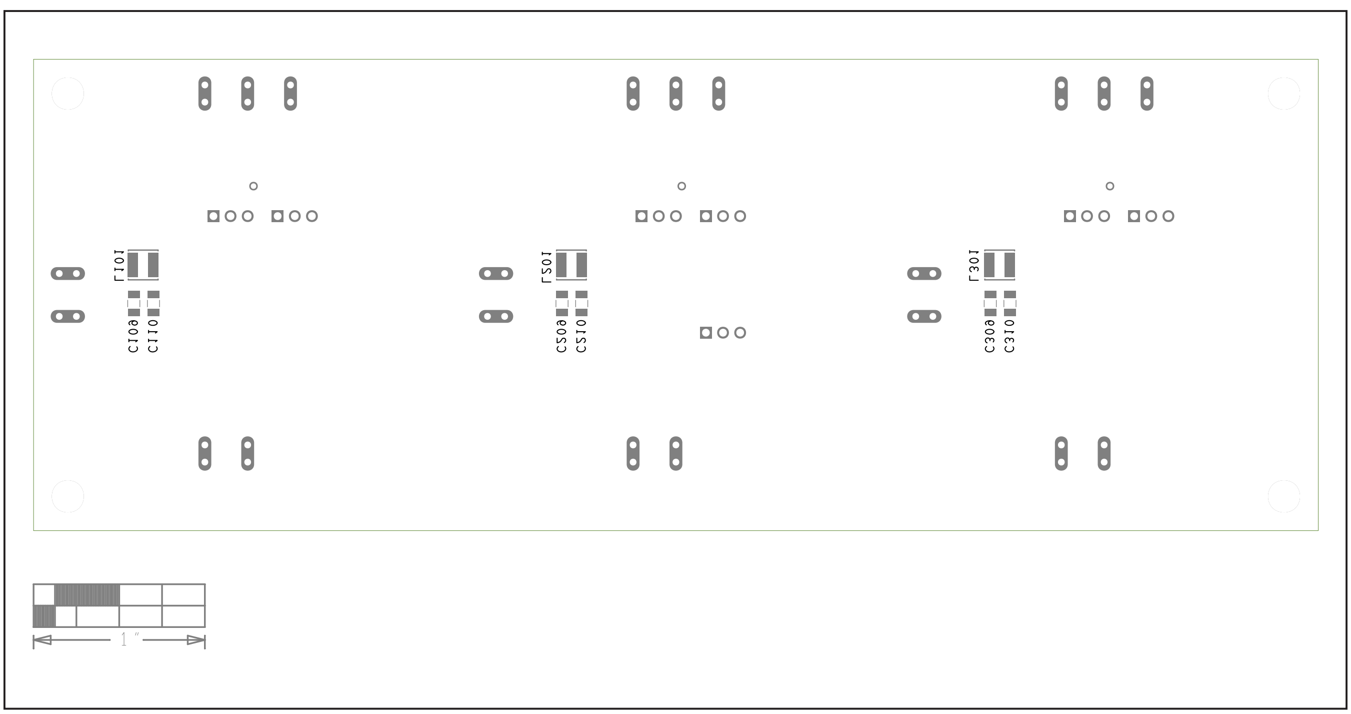


MAXM17633/MAXM17634/MAXM17635 EV Kits—Layer 3

MAXM17633/MAXM17634/MAXM17635 EV Kit PCB Layout Diagrams (continued)



MAXM17633/MAXM17634/MAXM17635 EV Kits—Bottom Layer



MAXM17633/MAXM17634/MAXM17635 EV Kits—Bottom Silkscreen