

MAXM38643A EMGA Evaluation Kit

Evaluates: MAXM38643

General Description

The MAXM38643A EMGA evaluation kit (EV kit) evaluates the MAXM38643A IC in an EMGA package. The MAXM38643A is an ultra-low quiescent current step-down DC-DC converter. The EV kit operates over an input range of 1.8V to 5.5V and provides resistor-configurable output voltages from 0.7V to 3.3V. The EV kit delivers up to 600mA of current. The EV kit comes with the MAXM38643AEMB+ installed.

Features and Benefits

- Evaluates the MAXM38643A IC in a (2.1mm x 2.6mm) 10-pin EMGA Package
- 1.8V to 5.5V Input Range
- 0.7V to 3.3V Resistor-Configurable Output Voltages
- Up to 600mA Output Current
- Proven 2-Layer 1oz Copper PCB Layout
- Demonstrates Compact Solution Size
- Fully Assembled and Tested

MAXM38643A EV Kit Files

FILE	DESCRIPTION
MAXM38643A	EV Kit Bill of Materials
MAXM38643A	EV Kit PCB Layout
MAXM38643A	EV Kit Schematic

[Ordering Information](#) appears at end of data sheet.

EV Kit Photo



Quick Start

Required Equipment

- MAXM38643A EMGA EV kit
- 5.5V, 3A DC power supply
- Electronic load capable of 600mA
- Digital voltmeter (DVM)

Procedure

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

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

1. Verify that jumpers JU1 and JU2 are in their default positions, as shown in Tables 1 and 2.
2. Connect the 5.5V power supply between the IN and nearest GND terminal posts.
3. Connect the 600mA electronic load between the OUT and nearest GND terminal posts.
4. Connect the DVM between the OUT and nearest GND terminal posts.
5. Turn on the power supply.
6. Enable the electronic load.
7. Verify that the voltage at the OUT terminal post is approximately 1.0V.

Detailed Description of Hardware

The MAXM38643A EMGA EV kit evaluates the MAXM38643A IC in an EMGA package. The MAXM38643A IC is an ultra-low quiescent current step-down DC-DC converter. The EV kit operates over an input range of 1.8V to 5.5V and provides resistor-configurable output voltages from 0.7V to 3.3V. The EV kit delivers up to 600mA of current. The EV kit comes with the MAXM38643AEMB+ installed.

Table 1. EN (JU1)

SHUNT POSITION	DESCRIPTION
1-2*	EV Kit Enabled
1-3	EV Kit Controlled by External (TTL) Source Connected to EXT_EN
1-4	EV Kit Disabled

*Default Position

Table 2. RSEL (JU2)

SHUNT POSITION	DESCRIPTION
1-2*	OUT = 1.0V
1-3	OUT = 1.5V
1-4	OUT = 1.8V
1-5	OUT = 3.3V
OPEN	OUT = 2.5V

*Default Position

EN

The MAXM38643A EMGA EV kit provides a jumper JU1 to enable or disable the MAXM38643A. See Table 1 for jumper JU1 settings.

RSEL

The MAXM38643A EMGA EV kit provides a jumper JU2 to configure the RSEL pin of the MAXM38643A. See Table 2 for jumper JU2 settings.

Ordering Information

PART	TYPE
MAXM38643AEVK#EMGA	EV Kit

#Denotes RoHS compliance.

MAXM38643A EMGA EV Kit Bill of Materials

ITEM	REF_DES	QTY	MFG PART#	MANUFACTURER	DESCRIPTION
1	C1-C3	3	CL10A226KQ8NRN	SAMSUNG	CAP; SMT (0603); 22µF; 10%; 6.3V; X5R; CERAMIC
2	C5	1	25SVPF100M	PANASONIC	CAP; SMT (CASE_E7); 100µF; 20%; 25V; ALUMINUM-ORGANIC
3	EXT_EN	1	5007	KEYSTONE	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.35IN; BOARD HOLE=0.063IN; WHITE; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;
4	GND_1, GND_2, GND_4	3	5006	KEYSTONE	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.35IN; BOARD HOLE=0.063IN; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;
5	GND_3, IN, OUT	3	108-0740-001	EMERSON NETWORK POWER	CONNECTOR; MALE; PANELMOUNT; BANANA JACK; STRAIGHT; 1PIN
6	JU1	1	PEC04SAAN	SULLINS ELECTRONICS CORP.	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS
7	JU2	1	PBC05SAAN	SULLINS ELECTRONICS CORP.	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 5PINS; -65 DEGC TO +125 DEGC
8	LX	1	131-4353-00	TEKTRONICS	CONNECTOR; WIREMOUNT; CIRCUIT BOARD TEST POINT MINIATURE PROBE; STRAIGHT; 4PINS
9	R2	1	CRCW0603191KFK	VISHAY DALE	RES; SMT (0603); 191kΩ; 1%; +/-100PPM/DEGK; 0.1000W
10	R3	1	ERJ-3EKF6343	PANASONIC	RES; SMT (0603); 634kΩ; 1%; +/-100PPM/DEGC; 0.1000W
11	R4	1	MCR03EZPFX2002; ERJ-3EKF2002; CR0603FX2002ELF; CRCW060320K0FK	ROHM; PANASONIC; BOURNS; VISHAY DALE	RES; SMT (0603); 20kΩ; 1%; +/-100PPM/DEGC; 0.1000W
12	R5	1	CRCW060356K2FK; ERJ-3EKF5622	VISHAY; PANASONIC	RES; SMT (0603); 56.2kΩ; 1%; +/-100PPM/DEGC; 0.1000W
13	R6	1	RC1608J000CS; CR0603-J/-000ELF; RC0603JR-070RL	SAMSUNG ELECTRONICS; BOURNS; YAGEO PH	RES; SMT (0603); 0Ω; 5%; JUMPER; 0.1000W
14	R7	1	ERJ-2GE0R00	PANASONIC	RES; SMT (0402); 0Ω; JUMPER; 0.1000W
15	SU1, SU2	2	S1100-B; SX1100-B; STC02SYAN	KYCON; SULLINS ELECTRONICS CORP.	TEST POINT; JUMPER; STR; TOTAL LENGTH=0.24IN; BLACK; INSULATION=PBT; PHOSPHOR BRONZE CONTACT=GOLD PLATED
16	U1	1	MAXM38643AEMB+	MAXIM	EVKIT PART - IC; TINY 1.8V - 5.5V INPUT; 300NANO-AMP NANOPOWER IQ; 600 MILLI-AMP NANOPOWER BUCK MODULE; PACKAGE OUTLINE: 21-100245; PACKAGE LAND PATTERN: 90-100084; EMGA10
17	PCB	1	MAXM38643AEMGA	MAXIM	PCB: MAXM38643AEMGA

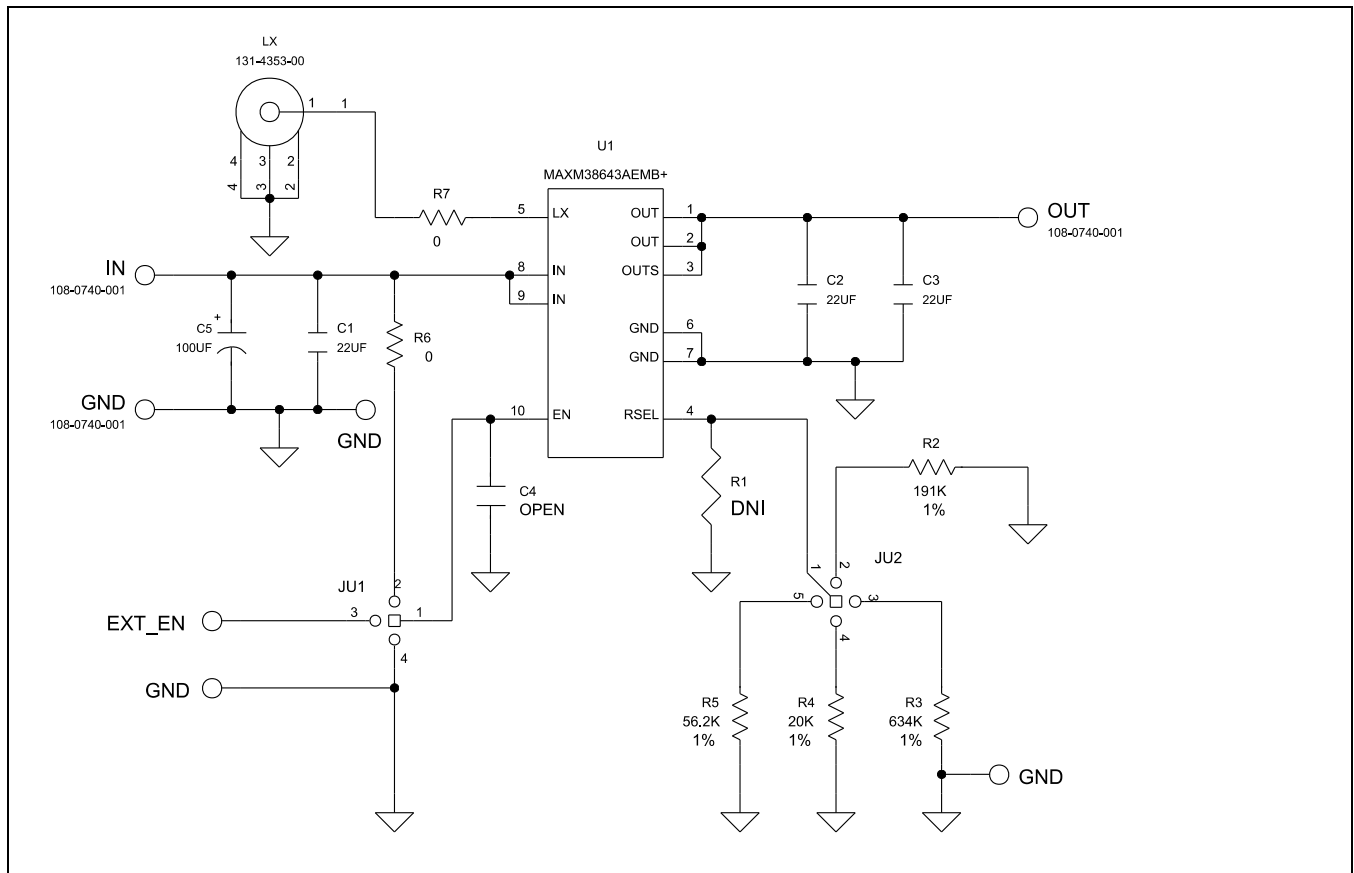
18	R1	0	N/A	N/A	PACKAGE OUTLINE 0603 RESISTOR
19	C4	0	N/A	N/A	PACKAGE OUTLINE 0603 NON-POLAR CAPACITOR
Total		24			

Component Suppliers

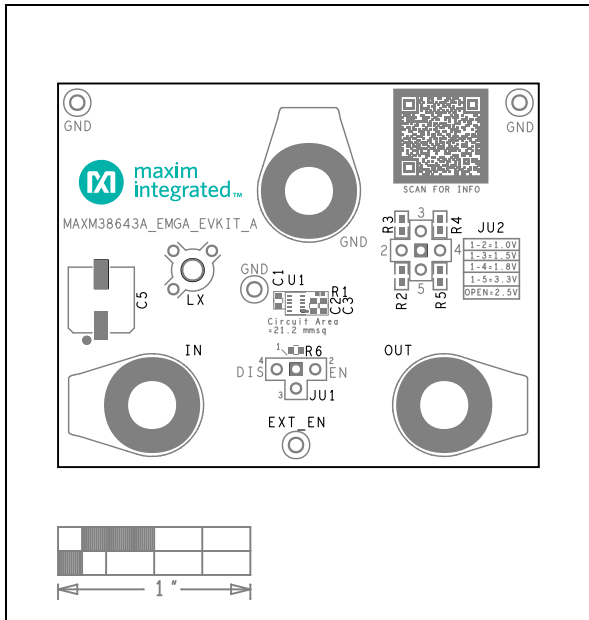
SUPPLIER	WEBSITE
Samsung Electronics	www.samsung.com
Panasonic	https://na.industrial.panasonic.com/

Note: Indicate that you are using the MAXM38643A when contacting these component suppliers.

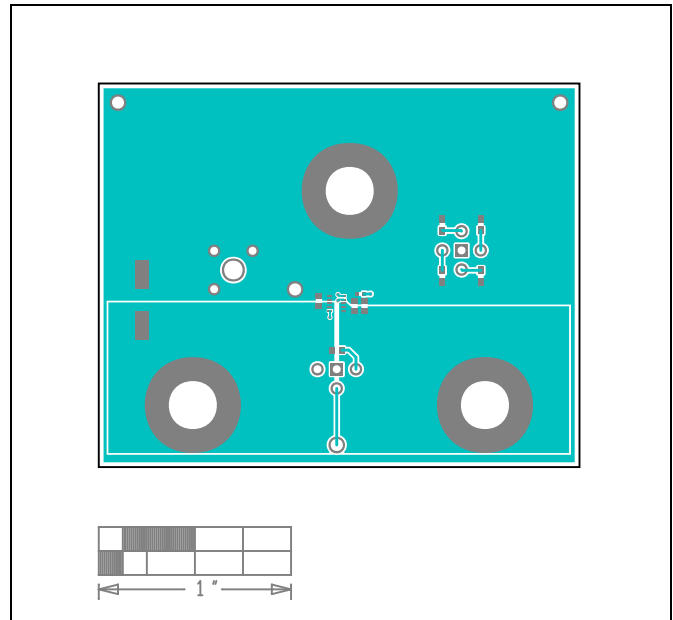
MAXM38643A EMGA EV Kit Schematic



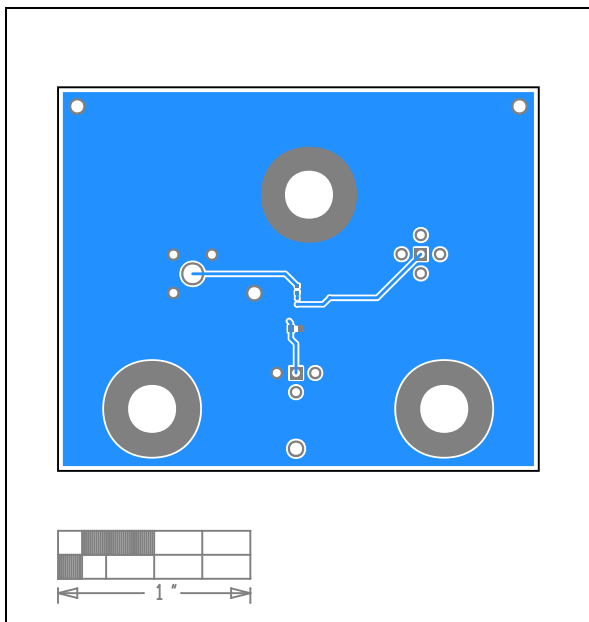
MAXM38643A EMGA EV Kit PCB Layout



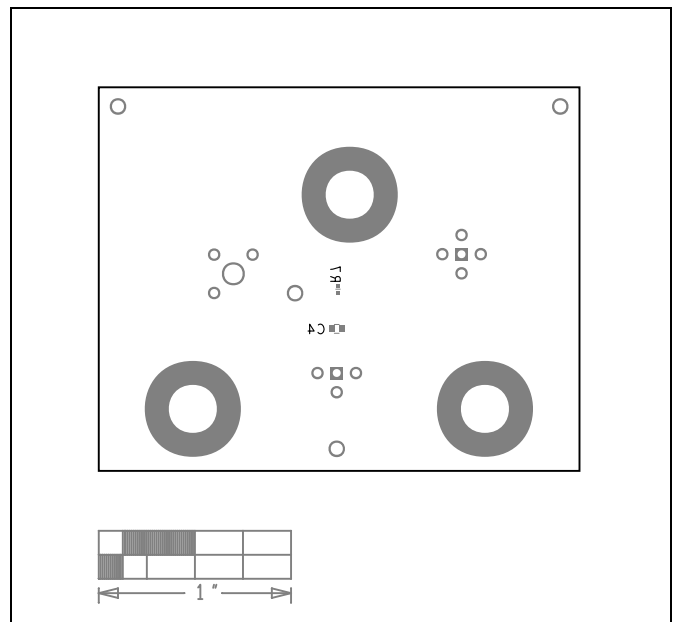
MAXM38643A EMGA EV Kit Component Placement Guide—Top Silkscreen



MAXM38643A EMGA EV Kit PCB Layout—Top



MAXM38643A EMGA EV Kit PCB Layout—Bottom



MAXM38643A EMGA EV Kit Component Placement Guide—Bottom Silkscreen

Evaluation Kit

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	05/21	Initial release	—

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

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