# imall

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## Evaluates: MAX40016

#### **General Description**

The MAX40016 evaluation kit (EV Kit) provides a proven design to evaluate the MAX40016 wide dynamic range current sense amplifier. The MAX40016 integrates the sense element, eliminating a bulky and costly external sense/ shunt resistor. The device measures four of decades of current (from <  $300\mu$ A to 3A) while maintaining a highly accurate output reading. This EV kit demonstrates the MAX40016 in a tiny, space-saving, 15-bump wafer-level package (WLP).

The MAX40016 EV kit PCB comes with the MAX40016ANL+ device installed.

#### **EV kit Contents**

MAX40016 EV kit board

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

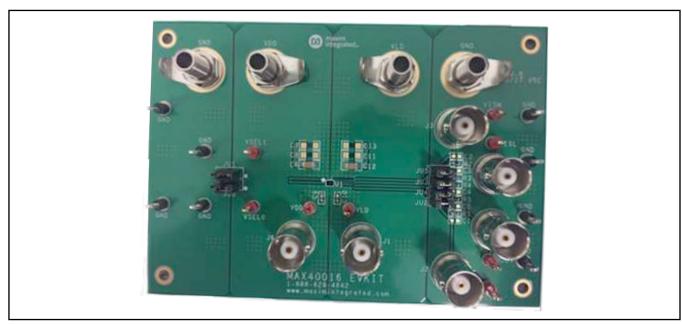
#### Features

- Integrated Current Sense Element
- 4-Decade Measurement Range
- Maintains Accuracy from < 300µA to 3A</li>
- Withstands Overloads to 4A
- +2.5V to +5.5V Input Common Mode Range
- Low Power Mode Reduces Supply Current to <10µA</li>
- Tiny 1.98mm x 1.31mm 15-Bump WLP
- -40°C to +125°C Operating Temperature Range
- Evaluates the MAX40016ANL+
- Accommodates Easy-to-Use components
- Proven PCB Layout
- Fully Assembled and Tested

#### **Quick Start**

#### **Required Equipment**

- MAX40016 EV kit
- DC power supply (2.5V to 5.5V)
- Electronic load capable of sinking up to 3A
- Two digital multimeters (DMMs)





# MAX400016 EV Kit Photo

# Evaluates: MAX40016

#### Procedure

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

**Caution:** Do not turn on the power supply or the electronic load until all the connections are made.

#### VISH Testing

- Set the DC power supply to +3.6V and turn it off. Connect the positive terminal of the supply to the VDD banana jack test point and the negative terminal of the supply to the nearest GND banana jack test point.
- Set the electronic load to sink 1A. Connect the positive terminal of the electronic load to the VLD banana jack test point and the negative terminal of the supply to the nearest banana jack GND test point.
- Connect DMM1 between V<sub>ISH</sub> and the nearest GND test point.
- Connect DMM2 between V<sub>OUT</sub> and the nearest GND test point.
- 5) Verify all the shunts are in default positions as shown in Table 1.
- 6) Enable the 3.6V supply voltage at  $V_{DD}$ .
- 7) Turn on the electronic load and verify that the current flowing is equal to the set value of 1A.
- 8) Observe the output voltage from all digital voltmeter displays. Verify that approximately,  $V_{ISH}$  = 320mV, and  $V_{OUT}$  = 480mV.
- 9) Turn off the electronic load then turn off the V<sub>DD</sub> supply voltage.

#### **VISM** Testing

- 1) To test the  $V_{\text{ISM}}$  output, change JU0 from 2-1 to 2-3 position.
- 2) Remove the DMM1 and connect it between V<sub>ISM</sub> and the nearest GND test point.
- Set the electronic load to sink 50mA. Connect the positive terminal of the electronic load to the VLD banana jack test point and the negative terminal of the supply to the nearest banana jack GND test point.
- 4) Enable the 3.6V supply voltage at V<sub>DD</sub>.
- 5) Turn on the electronic load and verify that the current flowing is equal to the set value of 50mA.
- Observe the output voltage from all digital voltmeter displays. Verify that, approximately, V<sub>ISM</sub> = 536mV, and V<sub>OUT</sub> = 804mV.
- 7) Turn off the electronic load, then turn off the V<sub>DD</sub> supply voltage.

#### VISL Testing

- 1) To test the V<sub>ISL</sub> output, change JU0 from 2-3 to 2-1 position, and change JU1 from 2-1 to 2-3 position.
- 2) Remove the DMM1 and connect it between V<sub>ISL</sub> and the nearest GND test point.
- 3) Set the electronic load to sink 1mA.
- 4) Enable the 3.6V supply voltage at V<sub>DD</sub>.
- 5) Turn on the electronic load and verify that the current flowing is equal to the set value of 1mA.
- 6) Observe the output voltage from all digital voltmeter displays. Verify that approximately,  $V_{ISM}$  = 320mV, and  $V_{OUT}$  = 480mV.

JUMPER	SHUNT POSITION	DESCRIPTION	
JUO	2-1*	Connect SEL1 to V <sub>DD</sub>	
J00	2-3	Connect SEL1 to GND	
	2-1*	Connect SEL0 to V <sub>DD</sub>	
JU1	2-3	Connect SEL0 to GND	
1110	Install*	Connect R1 to ISH	
JU2	Not install	Disconnect R1 from ISH	
JU3	Install*	Connect R3 to ISL	
505	Not install	Disconnect R3 from ISL	
JU4	Install*	Connect R4 to V <sub>OUT</sub>	
504	Not install	Disconnect R4 from V <sub>OUT</sub>	
JU5	Install*	Connect R2 to ISM	
505	Not install	Disconnect R2 from ISM	

 Table 1. Jumper Description

\*Default position.

7) Turn off the electronic load then turn off the  ${\rm V}_{\rm DD}$  supply voltage

#### Low Power Mode Testing

- 1) To put the device in low power mode, change JU0 from 2-1 to 2-3 position.
- 2) Enable the 3.6V supply voltage at V<sub>DD</sub>.
- 3) Turn on the electronic load and verify that the current flowing is equal to the set value of 1mA.
- Observe the output voltage from all digital voltmeter displays. Verify that V<sub>ISL</sub> is about 0mV and V<sub>OUT</sub> is 0mV.
- 5) Turn off the electronic load then turn off the V<sub>DD</sub> supply voltage.
- 6) Return JU1 and JU2 to the default values stated in Table 1.

#### **Detailed Description of Hardware**

The MAX40016 EV kit provides a proven design to evaluate the MAX40016 15-bump, WLP, space-saving, wide-range current sense amplifier. The EV kit is capable of sensing from <  $300\mu$ A to >3A current and is mode-configurable to look at all multiplexed outputs (ISH, ISM, or ISL) and the internal amplifier V<sub>OUT</sub> output (see <u>Table 2</u>).

When programmed in low power mode (SEL0 = SEL1 = GND) the MAX40016 turns off all multiplexed outputs and send the amplifier output to high impedance. The low ( $10\mu$ A typical) supply current is independent of the load current. The MAX40016 EV kit operates from supplies of 2.5V to 5.5V.

#### **Scaling Resistors**

The typical multiplexed current from the MAX40016's ISL, or ISM, or ISH pin is specified as 2mA/A. The scaling resistors' values at ISH, ISM, and ISL should be chosen such as not to exceed the 1V of the internal amplifier input voltage range. Care should be taken to account for all tolerances, not to exceed the 0.01V to 1.0V range of the internal amplifier. The MAX40016 EV Kit has R<sub>ISH</sub> = 160 $\Omega$ , R<sub>ISM</sub> = 5.36k $\Omega$  and R<sub>ISL</sub> = 160k $\Omega$  installed to split the range up equally.

#### **Power Supplies Bypassing**

The MAX40016 EV kit is fully tested with single supply voltage from +2.5V to +5.5V applying to the VDD and GND banana jack inputs. The VDD supply input is also the measured current input terminal and is bypassed to ground with a  $0.1\mu$ F in parallel with a  $10\mu$ F ceramic capacitors. The measured current output, LD terminal, is also bypassed with a  $0.1\mu$ F in parallel with a  $10\mu$ F ceramic capacitor. Additional pad holders (C6, C7, C12, and C13) can be used if larger capacitive load needed for experimenting larger load output current transients.

SEL0	SEL1	OPERATING MODE/RANGE		
0	0 Low Power Mode is enabled. V <sub>OUT</sub> is high impedance. In low power mode, the current sensing element still passes current just as an external sense resistor would. There is no capability to turn off the current.			
0	1	Middle current sense range (ISM) is enabled. The resistor R <sub>ISM</sub> connected at this current output terminal defines the full-scale voltage of 1V to the internal amplifier.		
1	0	Low current sense range (ISL) is enabled. The resistor $R_{ISL}$ connected at this current output terminal defines the full-scale voltage of 1V to the internal amplifier.		
1	1	High current sense range (ISH) is enabled. The resistor R <sub>ISH</sub> connected at this current output terminal defines the full-scale voltage of 1V to the internal amplifier.		

#### **Table 2. Current Sense Range Selection**

#### **Ordering Information**

PART	TYPE		
MAX40016EVKIT#	EV Kit		

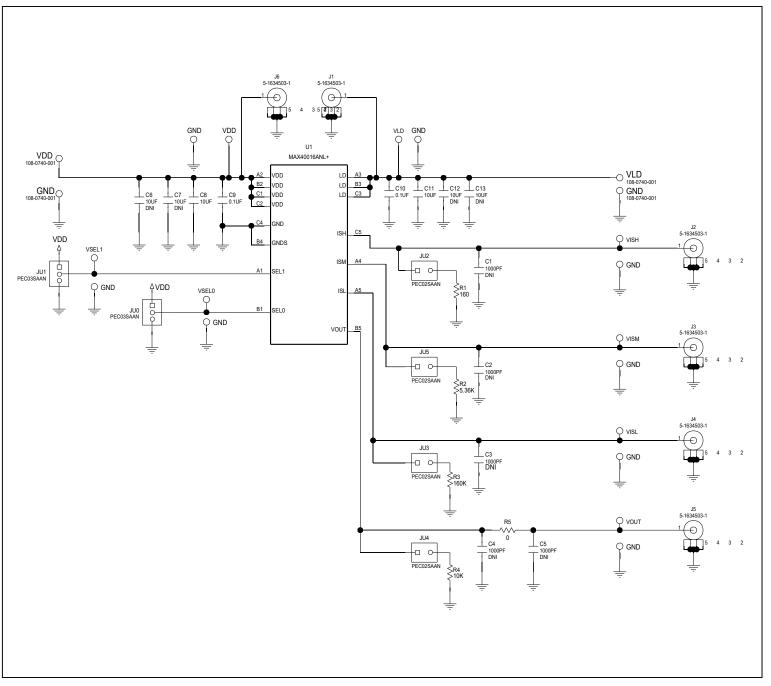
#Denotes RoHS compliant.

# Evaluates: MAX40016

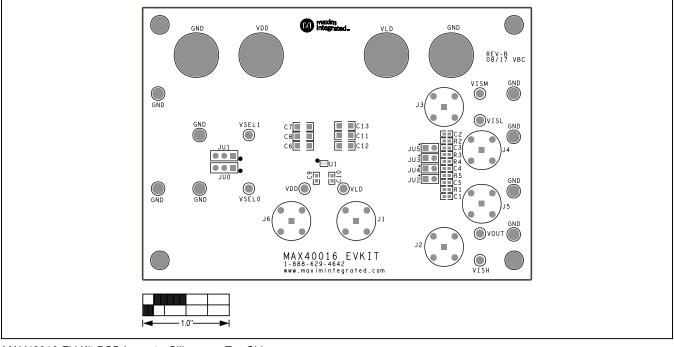
1         O6, C11          2         GRADICST/C0064A12 CMADICST/C0064A12         MURATA         10µF         CMCPTORE SMTTPSSIC CESAMIC CMP 10µF. 100 CH 10%, TG = 45V TO 150°C, TC = 5/R           3         O.00, UDD, LOD, UDD, CMO, VDD, 10          2         CMCMOMSALC: CMCBATCH 1104K         KENET TOK         0.1µF         CMCPTORE SMTTPSSIC CESAMIC CMP 10µF. 50V TOL = 10%, TG = 45V TO - 150°C, TC = 5/R           4         JFL-S          6         5.16548D1         TE CONNECTIVITY         5.16548021         CONNECTOR TALE_PROCEMANCE STRAIGHT 119N           5         JUDI, JUT          6         5.16548D1         TE CONNECTIVITY         5.16548021         CONNECTOR TALE_PROCEMANCE STRAIGHT 12NN           6         JUDI, JUT          4         PEODSAMI         SULLINS         PEODSAMI         CONNECTOR TALE_PROCEMANCE STRAIGHT 12NNS           7         R1          1         REVERSENT         SULLINS         PEODSAMI         CONNECTOR MALE_THOROUGH NUE! BEGAMANKY STRAIGHT 12NNS           8         R2          1         REVERSENT         SULLINS         PEODSAMI         CONNECTOR MALE_THOROUGH NUE! BEGAMANKY STRAIGHT 12NNS           9         R2         R1         CRONECTOR MALE TARCHARCE NONE: SULLINS         PEODSAMI         SULINS         CONNECTOR MALE_T	ITEM	REF_DES	DNI/DNP	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
2         09,010         -         2         CHBRANCH HIGHK         MEMBER (LINK         0.1µP         SVV, TOL = 108, TG = -SPC TO - 122°C, TG = 'XPR           3         (AND, VDD, LOAD, TPT7         -         4         186/0740-001         EMERSON NETWORK POWER         108/0740-001         CONNECTOR, TML: PARELMOUNT, BANAM, JACK:           4         J.JB         -         6         S163403-1         TE CONNECTIVITY         5-163463-1         CONNECTOR, TEMALE; THROUGH HOLE: LOW PROFILE BAP CD SOCKET STRUCHT, SPINS           5         J.J.U., J.UI         -         2         PEC0SSAM         SULLINS         PEC03SAM         CONNECTOR MLE: THROUGH HOLE: LOW PROFILE BAP CD SOCKET STRUCHT, SPINS           6         J.J.2, JUS         -         4         PEC02SAM         SULLINS         PEC03SAM         CONNECTOR MLE: THROUGH HOLE: BREAKAWAY, STRUCHT, SPINS           7         R1         -         1         Refores1614         PANASONC         SOK         RESISTOR, 608, 1600, 01%, 259PM, 0.1W; THN FILM           8         R2         -         1         ERABLETH         PANASONC         SOK         RESISTOR, 608, 1602, 01%, 259PM, 0.1W; THN FILM           9         R3         1         ERABLETH         PANASONC         160K         RESISTOR, 6083, 160C, 01%, 259PM, 0.1W; THN FILM           10	1	C8, C11	-	2		MURATA	10µF	
3         LOAD, TP17         -         4         108/JARLON         EMERSION REINDER FOMER         108/JARLON         STRAIGHT; FIN           4         JI-J&B         -         6         5-16M600-1         CONNECTOR FEMALE; THROUGH HOLE; LOW PROFILE BIX PRO SOCKET, STRAIGHT; SINS         CONNECTOR, MALE; THROUGH HOLE; BIREAKAWAY, STRAIGHT; SINS           6         JUD, JU1         -         2         PEC03SAAN         SULLINS         PEC03SAAN         CONNECTOR, MALE; THROUGH HOLE; BIREAKAWAY, STRAIGHT; SINS           7         R1         -         1         ROBREAKAWAY, STRAIGHT; SINS         CONNECTOR, MALE; THROUGH HOLE; BIREAKAWAY, STRAIGHT; ZINS           9         R3         -         1         ROBREAKAWAY, STRAIGHT; ZINS         CONNECTOR, MALE; THROUGH HOLE; BIREAKAWAY, STRAIGHT; ZINS           9         R3         -         1         ROBREAKAWAY, STRAIGHT; ZINS         CONNECTOR, MALE; THROUGH HOLE; BIREAKAWAY, STRAIGHT; ZINS           9         R3         -         1         REAMBERISA         PANASONC         SISKOR, ROBO; SIGKIC, 0.1%, ZIPPM, 0.1%, THIN FILM           10         R4         -         1         CRCMOB0310KOFK; ERJ-SISKOR (ROB; SIGKIC, 0.1%, SIGKIC, 0.1%	2	C9, C10	-	2		KEMET; TDK	0.1µF	
4         JT-B         -         6         5183430-1         TECONNECTOR INTERNO         COM PROFILE BIX POR BOOKET. STRAIGHT; SPINS           5         JUD, JU1         -         2         PEC03SAAN         SULLINS         PEC03SAAN         COM ROFECTOR, MALE: THROUGH HOLE: BREAKWAY, STRAIGHT; SPINS           6         JU2-JU5         -         4         PEC02SAAN         SULLINS         PEC03SAAN         COMNECTOR, MALE: THROUGH HOLE: BREAKWAY, STRAIGHT; SPINS           7         R1         -         1         RG1688P-161-8         SUSJAU         160         RESISTOR, 603, 1600; 19%; 28PPM, 0.1W; THIN FILM           8         R2         1         ERASAEDS161         PANASONIC         5.56K         RESISTOR, 603, 1600; 19%; 28PPM, 0.1W; THIN FILM           9         R3         -         1         ERASAEDS161         PANASONIC         160K         RESISTOR, 603, 160; 19; 28PPM, 0.1W; THIN FILM           10         R4         -         1         ERASAEDS161         PANASONIC         160K         RESISTOR, 603, 160; 19; 28PPM, 0.1W; THIN FILM           11         RAGE 51         1         CROM0503000CPC; ERASAEDCD2         VISHAY DALEROHM PANASONIC         10K         RESISTOR, 603, 10C, 0%; JUMPER 0.10W; THICK FILM           11         R5         1         S011         KEYSTONE	3	- / /	-	4	108-0740-001	EMERSON NETWORK POWER	108-0740-001	
5         JUU, JU1         -         2         PECUSSAW         SULLINS         PECUSSAW         BREAKAWAY: STRAIGHT; PHINS           6         JU2-JU5         -         4         PECOZSAW         SULLINS         PECOZSAW         COMMECTOR; MALE; THROUGH HOLE; BREAKAWAY: STRAIGHT; PHINS           7         R1         -         1         R01608P-161-B         SUSUMU         160         RESISTOR, 6003; 1602, 0.1%; 25PM, 0.1W; THIN FILM           8         R2         -         1         ERAJABES161         PANASONIC         5.36K         RESISTOR, 6003; 1602, 0.1%; 25PM, 0.1W; THIN FILM           9         R3         -         1         ERAJAEE164         PANASONIC         160K         RESISTOR, 6003; 160K, 0.1%; 25PM, 0.1W; THIN FILM           10         R4         -         1         ERAJAEE164         PANASONIC         160K         RESISTOR, 6003; 10K; 1%; 100PPM; 0.10W; THICK FILM           11         R5         -         1         CRCW060300002S; WIGR060C         VISHAY DALEROHM         0         RESISTOR, 6003; 0Q; 0%; JUMPER, 0.10W; THICK FILM           11         R5         -         1         CRCW060300002S; WIGR060C         VISHAY DALEROHM         0         RESISTOR, 6003; 0Q; 0%; JUMPER, 0.10W; THICK FILM           12         TP1, TP2, TP4.TP7, TP15, TP16         -	4	J1-J6	-	6	5-1634503-1	TE CONNECTIVITY	5-1634503-1	
6         JU2/JU5         -         4         PECUZSAAN         SULINS         PECUZSAAN         BREAKAWAY; STRAIGHT; 2PINS           7         R1         -         1         R1608-161-B         SUSUMU         160         RESISTOR, 6603; 1602; 0.1%; 22PPM, 0.1W; THIN FILM           8         R2         -         1         ERAABESIS61         PANASONIC         5.36K         RESISTOR, 6603; 1602; 0.1%; 22PPM, 0.1W; THIN FILM           9         R3         -         1         ERAABESIS61         PANASONIC         160K         RESISTOR, 6603; 160KD; 0.1%; 22PPM, 0.1W; THIN FILM           10         R4         -         1         CRCW0603000CF; ERJ-3EKF1002         UISHAY DALE; PANASONIC         10K         RESISTOR, 6603; 10K; 1%; 100PPM; 0.10W; THICK FILM           11         R5         -         1         CRCW06030002S; MCR0822P.000; ERJ-3GEY0R00         VISHAY DALE; ROHW; PANASONIC         0         RESISTOR, 6603; 00; 0%; JUMPER; 0.10W; THICK FILM           12         TP1, TP2, TP1, TP2, TP15, TP16         -         8         5011         KEYSTONE         N/A         TEST POINT; PIN DIA = 0.12SIN; TOTAL LENGTH = 0.445IN; BOARD HOLE = 0.633N; BLACK, PHOSPHOR BRONZE WIRE SILVER PLATE FINSH;           13         U1         -         1         MAX40016ANL+         MAXIN         MAX40016ANL+; PACKAGE CODE: N15181-1; WLP15	5	JU0, JU1	-	2	PEC03SAAN	SULLINS	PEC03SAAN	
8         R2         -         1         ERA&EBSS61         PANASONIC         5.36K         RESISTOR_0633_6.26KC_0.1%; 25PPM; 0.1W; THIN FILM           9         R3         -         1         ERA3AEB164         PANASONIC         160K         RESISTOR_0633; 16KC0_0.1%; 25PPM; 0.1W; THIN FILM           10         R4         -         1         ERA3AEB164         PANASONIC         160K         RESISTOR_0633; 10K; 1%; 100PPM; 0.1W; THIN FILM           10         R4         -         1         CRCW06030002S; ER3/3EKF1002         VISHAY DALE; PANASONIC         10K         RESISTOR_0633; 02; 0%; JUMPER; 0.10W; THICK FILM           11         R5         -         1         CRCW06030002S; ER3/3EK71002;         VISHAY DALE; PANASONIC         10K         RESISTOR_0633; 02; 0%; JUMPER; 0.10W; THICK FILM           12         TP1, TP2, TP4.TP7, TP15, TP16         -         8         5011         KEYSTONE         NIA         TEST POINT; PIN DIA = 0.125IN; TOTAL LENGTH = 0.445IN; BOARD HOLE = 0.063N; 01ACK; PHOSPHOR BRONZE WIRE SLIVER PLATE FINISH;           13         U1         -         1         MAX40016ANL+         MAXIM         MAX40016ANL+         PACKAGE COULINE; 21.100213; PACKAGE COULINE; 21.100216; PACKAGE COULINE; 21.100216; PACKAGE COULINE; 1151B1-1; VILP15           14         VLD, VDD1, VISH, VISL, VISH, VOUT, VSEL0, VSEL1         -         1	6	JU2-JU5	-	4	PEC02SAAN	SULLINS	PEC02SAAN	
9         R3         ·         1         ERASAEB164         PANASONIC         160K         RESISTOR, 6603; 160KΩ, 0.1%, 29PPH; 0.1W; THIN FILM           10         R4         ·         1         CRCW0603000/CR; ERJ-SEKF1002         VISHAY DALE; PANASONIC         10K         RESISTOR, 6603; 16KΩ, 0.1%, 29PPH; 0.1W; THICK FILM           11         R5         ·         1         CRCW0693000/2S; CRCW0692000/2S; MC00322PJ000; ERJ-SGEV000         VISHAY DALE; PANASONIC         0         RESISTOR, 6603; 10K; 1%; 100PPH; 0.10W; THICK FILM           12         TP1, TP2, TP4-TP7, TP15, TP16         ·         8         5011         KEYSTONE         N/A         TEST POINT: PIN DIA = 0.12SIN; TOTAL LENGTH = 0.44SIN; BOARD HOLE = 0.063in; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;           13         U1         ·         1         MAX40016ANL+         MAXIM         MAX40016ANL+         PACKAGE COUTLINE; 21-100213; PACKAGE COUTLINE; 21-10213; PACKAGE COUTLINE	7	R1	-	1	RG1608P-161-B	SUSUMU	160	RESISTOR; 0603; 160Ω; 0.1%; 25PPM; 0.1W; THIN FILM
10         R4         -         1         CRCW060310K0FK; ERJ3EKF1002         VISHAY DALE; PANASONIC         10K         RESISTOR; 0603; 10K; 1%; 100PPM; 0.10W; THICK FILM           11         R5         -         1         CRCW06030002S; MCR03E2P,0000; ERJ3GE70R00         VISHAY DALE/COHM/ PANASONIC         0         RESISTOR; 0603; 00; 0%; JUMPER; 0.10W; THICK FILM           12         TP1, TP2, TP4.TP7, TP15, TP16         -         8         5011         KEYSTONE         N/A         TEST POINT; PIN DIA = 0.12BN; TOTAL LENGTH = 0.445IN; BOARD HOLE = 0.063IN; BLACK; PHOEPNER BROXEE WIRE SILVER PLATE FINISH;           13         U1         -         1         MAX40016ANL+         MAXIM         MAX40016ANL+         PACKAGE OUTLINE 2:1-100213; PACKAGE OUTLINE 2:1-100213; PACKAGE OUTLINE 2:1-100213; PACKAGE OUTLINE 2:1-100213; PACKAGE CODE: N151B1+1; WLP15           14         VLD, VDD1, VISH, VISL, VISM, VOUT, VSEL0, VSEL1         -         8         5010         KEYSTONE         N/A         TESTPOINT WITH 180MM HOLE DIA, RED, MULTIPURPOSE;           15         PC8         -         1         MAX40016         MAXIM         PC8         PC8 MAX40016           16         C1-C5         DNP         0         GRM31CR71C106KAC7; GRM31CR71C106KAC7; GRM31CR71C106KAC7; GRM31CR71C106KA12         MURATA         10µF         CAPACITOR; SMT (1206); CERAMIC CHIP; 10µF; 16V; TOL = 10%; TG = 55°C TO + 125°C; TG = X7R	8	R2	-	1	ERA3AEB5361	PANASONIC	5.36K	RESISTOR; 0603; 5.36KΩ; 0.1%; 25PPM; 0.1W; THIN FILM
10         R4         -         1         ERJ-SEKF1002         PANASONIC         TUK         RESISTOR; 0603; 042; 9%; JUMPER; 0.10W; THICK FILM           11         R5         -         1         CRCW060300025; MCR03E2PJ000; ERJ-3GEY0R00         VISHAY DALE/ROHM/ PANASONIC         0         RESISTOR; 0603; 042; 9%; JUMPER; 0.10W; THICK FILM           12         TP1, TP2, TP4-TP7, TP15, TP16         -         8         5011         KEYSTONE         N/A         TEST POINT; PIN DIA = 0.125IN; TOTAL LENGTH = 0.445IN; BOARD HOLE = 0.063IN; BLACK; PACKAGE OUTLINE; 21-100213; PACKAGE OUTLINE; 21-100213; PACKAGE CODE: NIS1BL-1; WLP PIS           13         U1         -         1         MAX40016ANL+         MAX40016ANL+         EVXIT PART-IC; MAX40016ANL+; PACKAGE CODE: NIS1BL-1; WLP PIS           14         VLD, VDD1, VISH, VISL, VISM, VOUT, VSEL0, VSEL1         -         8         5010         KEYSTONE         N/A         TESTPOINT WITH 180M HOLE DIA, RED, MULTIPURPOSE;           15         PCB         -         1         MAX40016         MAXIM         PCB         PCB:MAX40016           16         C1-C5         DNP         0         GRM31CR71/C106KAC7; C0003X7R500-102KNE         MURATA         100PF         CAPACITOR: SMT; 0003; CERAMIC; 1000pF; 50V; 10%; XTR - 55°C to ±125°C; to ±125°C; to ±125°C;           17         O6, C7, C12, C13         DNP         0	9	R3	-	1	ERA3AEB164	PANASONIC	160K	RESISTOR; 0603; 160KΩ; 0.1%; 25PPM; 0.1W; THIN FILM
11         R5         -         1         MCR03E2PJ000; ERJ-3GEY0R00         VISHAY DALEROHM/ PANASONIC         0         RESISTOR; 0603; 0.0; 0%; JUMPER; 0.10W; THICK FILM           12         TP1, TP2; TP4TP7, TP15; TP16         -         8         5011         KEYSTONE         NIA         TEST POINT; PIN DIA = 0.125IN; TOTAL LENGTH = 0.445IN; BOARD HOLE = 0.065IN; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;           13         U1         -         1         MAX40016ANL+         MAXIM         MAX40016ANL+         PACKAGE OUTLINE: 21-100213; PACKAGE OUTLINE: 21-100213; PACKAGE CODE: N151B1+1; WLP15           14         VLD, VDD1, VISH, VISL, VISM, VOUT, VSEL0, VSEL1         -         8         5010         KEYSTONE         NIA         TESTPOINT WITH 1.80MM HOLE DIA, RED, MULTIPURPOSE;           15         PCB         -         1         MAX40016         MAXIM         PCB         PCBMAX40016           16         C1-C5         DNP         0         C0603C102KSRAC; GRM168R71H102KA01; C0603X7R500-102KNE         KEMET/MURATA/ VENKEL         1000PF         CAPACITOR; SMT: (603; CERAMIC; MID, STC' to +125°C; to +125°C; to +125°C; to +125°C;           17         C6; C7, C12, C13         DNP         0         GRM31CR71C106KAC7; GRM31CR71C106KA12         MURATA         10µF         CAPACITOR; SMT (1206); CERAMIC CHIP; 10µF; 10%; TG = -55°C TO +125°C; to +125°C; to +125°C;	10	R4	-	1			10K	RESISTOR; 0603; 10K; 1%; 100PPM; 0.10W; THICK FILM
12         TP4-TP7, TP15, TP16         -         8         5011         KEYSTONE         NA         BOARD HOLE = 0.063IN; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;           13         U1         -         1         MAX40016ANL+         MAXIM         MAX40016ANL+         EVKIT PART-IC; MAX40016ANL+; PACKAGE CUTLINE: 21-100213; PACKAGE CODE: N151B1+1; WLP15           14         VLD, VDD1, VISH, VISL, VISM, VOUT, VSEL0, VSEL1         -         8         5010         KEYSTONE         N/A         TESTPOINT WITH 1.80MM HOLE DIA, RED, MULTIPURPOSE;           15         PCB         -         1         MAX40016         MAXIM         PCB         PCB-MAX40016         PCB           16         C1-C5         DNP         0         C06032102KSRAC; GRM188R71H102KA01; C06033X7R500-102KNE         KEMET/MURATA/ VENKEL         1000PF         CAPACITOR; SMT; 0603; CERAMIC; 1000pF; 50V; 10%; XTR; -55°C to +125°C; to +125°C;           17         C6, C7, C12, C13         DNP         0         GRM31CR71C106KAC7; GRM31CR71C106KAC7; GRM31CR71C106KA12         MURATA         10µF         CAPACITOR; SMT (1206); CERAMIC CHIP; 10µF; 16V; TOL = 10%; TG = -55°C TO +125°C; TC = XTR	11	R5	-	1	MCR03EZPJ000;		0	RESISTOR; 0603; 0Ω; 0%; JUMPER; 0.10W; THICK FILM
13U1-1MAX40016ANL+MAXIMMAX40016ANL+PACKAGE OUTLINE: 21-100213; PACKAGE CODE: N151B1+1; WLP1514VLD, VDD1, VISH, VISL, VISM, VOUT, VSEL0, VSEL1-85010KEYSTONEN/ATESTPOINT WITH 1.80MM HOLE DIA, RED, MULTIPURPOSE;15PCB-1MAX40016MAXIMPCBPCB:MAX4001616C1-C5DNP0C0603C102KSRAC; GRM188R71H102KA01; C0603X7R500-102KNEKEMET/MURATA/ VENKEL1000PFCAPACITOR; SMT; 0603; CERAMIC; 1000PF; 50V; 10%; X7R; -55°C to +125°C; ±15% from -55°C to +125°C17C6, C7, C12, C13DNP0GRM31CR71C106KA27; GRM31CR71C106KA12MURATA10µFCAPACITOR; SMT (1206); CERAMIC CHIP; 10µF; 16V; TOL = 10%; TG = -55°C TO +125°C; TC = X7R	12	TP4-TP7,	-	8	5011	KEYSTONE	N/A	BOARD HOLE = 0.063IN; BLACK;
14         VISL, VISM, VOUT, VSEL0, VSEL1         -         8         5010         KEYSTONE         N/A         TEST POINT WITH 1.80MM HOLE DIA, RED, MULTIPURPOSE;           15         PCB         -         1         MAX40016         MAXIM         PCB         PCB:MAX40016           16         C1-C5         DNP         0         C0603C102KSRAC; GRM18871H102KA01; C0603X7R500-102KNE         KEMET/MURATA/ VENKEL         1000PF         CAPACITOR; SMT; 0603; CERAMIC; 1000pF; 50V; 10%; X7R; -55°C to +125°C; ±15% from -55°C to +125°C           17         C6, C7, C12, C13         DNP         0         GRM31CR71C106KAC7; GRM31CR71C106KA12         MURATA         10µF         CAPACITOR; SMT (1206); CERAMIC CHIP; 10µF; 16V; TOL = 10%; TG = -55°C TO +125°C; TC = X7R	13	U1	-	1	MAX40016ANL+	MAXIM	MAX40016ANL+	PACKAGE OUTLINE: 21-100213;
16         C1-C5         DNP         0         C0603C102KSRAC; GRM188R71H102KA01; C0603X7R500-102KNE         KEMET/MURATA/ VENKEL         1000PF         CAPACITOR; SMT; 0603; CERAMIC; 1000pF; 50V; 10%; X7R; -55°C to +125°C; ±15% from -55°C to +125°C           17         C6, C7, C12, C13         DNP         0         GRM31CR71C106KAC7; GRM31CR71C106KA12         MURATA         10µF         CAPACITOR; SMT (1206); CERAMIC CHIP; 10µF; 16V; TOL = 10%; TG = -55°C TO +125°C; TC = X7R	14	VISL, VISM, VOUT,	-	8	5010	KEYSTONE	N/A	
16         C1-C5         DNP         0         GRM188R71H102KA01; C0603X7R500-102KNE         KEME1/MURA1A/ VENKEL         1000PF         CAPACITOR; SMI; 0603; CERAMIC; 1000p; 500; 10%; X7R; -55°C to +125°C; ±15% from -55°C to +125°C           17         C6, C7, C12, C13         DNP         0         GRM31CR71C106KAC7; GRM31CR71C106KA12         MURATA         10μF         CAPACITOR; SMT (1206); CERAMIC CHIP; 10μF; 16V; T0L = 10%; TG = -55°C TO +125°C; TC = X7R	15	PCB	-	1	MAX40016	MAXIM	PCB	PCB:MAX40016
17 C6, C7, C12, C13 DNP 0 GRM31CR71C106KA12 MURAIA 10µF 16V; T0L = 10%; TG = -55°C T0 +125°C; TC = X7R	16	C1-C5	DNP	0	GRM188R71H102KA01;		1000PF	
TOTAL 43	17	C6, C7, C12, C13	DNP	0		MURATA	10µF	
	TOTAL			43		•		

## MAX40016 EV Kit Bill of Materials

# MAX40016 EV Kit Schematic

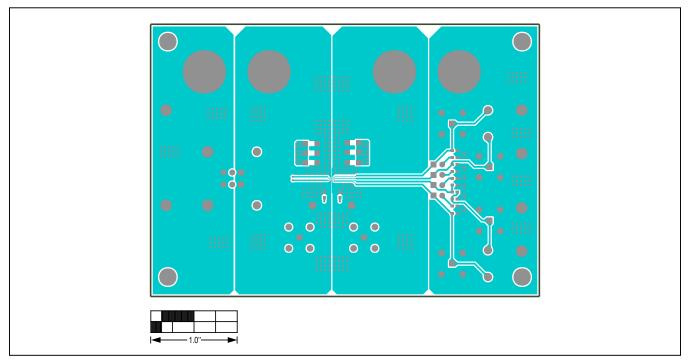


Evaluates: MAX40016

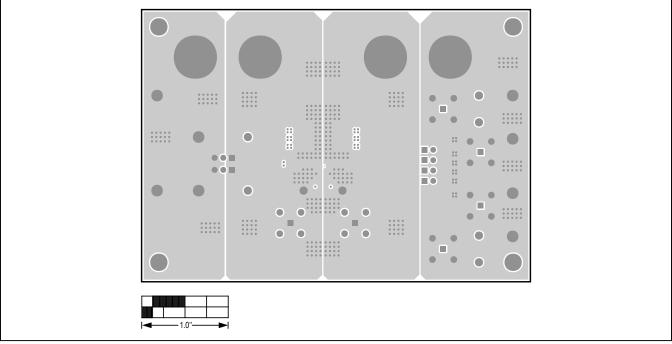


# MAX40016 EV Kit PCB Layout Diagrams

MAX40016 EV Kit PCB Layout—Silkscreen Top Side

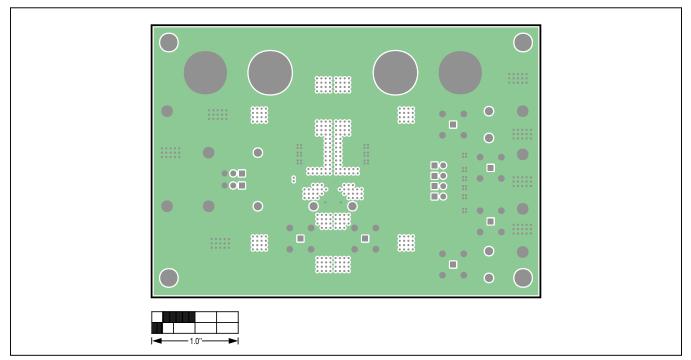


MAX40016 EV Kit PCB Layout—Silkscreen Top Side

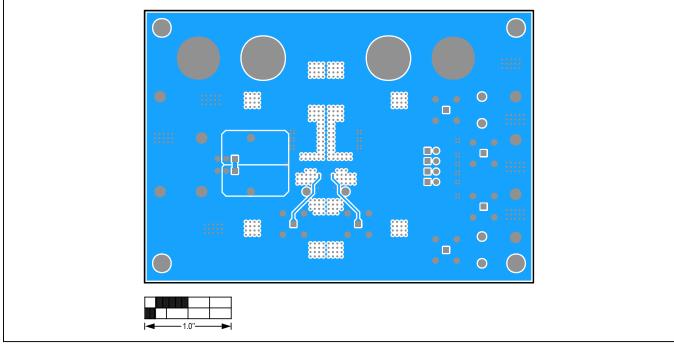


# MAX40016 EV Kit PCB Layout Diagrams (continued)

MAX40016 EV Kit PCB Layout—Internal Layer 2



MAX40016 EV Kit PCB Layout—Internal Layer 3



# MAX40016 EV Kit PCB Layout Diagrams (continued)

MAX40016 EV Kit PCB Layout—Bottom Side

# Evaluates: MAX40016

### **Revision History**

REVISION	REVISION	DESCRIPTION	PAGES
NUMBER	DATE		CHANGED
0	10/17	Initial release	—

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