Evaluation Board User Guide

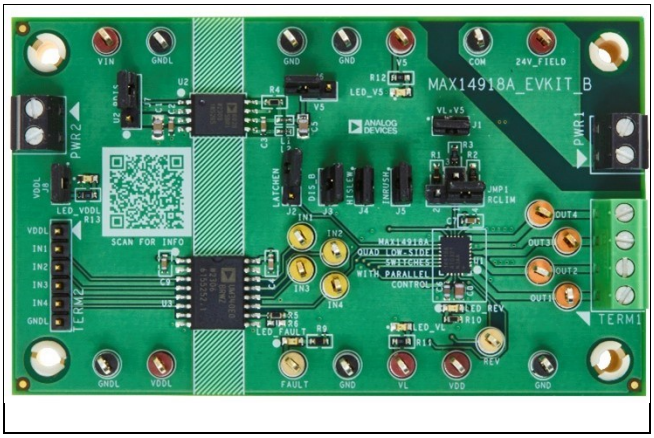
MAX14918A

MAX14918A Evaluation Kit

General Description

The MAX14918A evaluation kit (EV kit) provides a proven design to evaluate the MAX14918A, parallel controlled quad low-side switches with reverse-current detection. The MAX14918A EV kit features an isolated power and digital interface to provide pin-level control of the four low-side switches in the MAX14918A. The EV kit also features reverse-current protection to prevent damage caused by miswiring faults at output and COM return terminals. The EV kit comes with the MAX14918AATG+ in a 4mm x 5mm 24-pin TQFN package, installed as U1.

EV Kit Photo



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

Features and Benefits

- Easy Evaluation of the MAX14918A
- Robust Operation with a Wide Range of Output Voltages and Load Conditions
- LED Indication of Fault and Reverse-Current Detection Conditions
- Robust Design at Field Outputs
  - Internal Inductive Fast Demagnetization
  - Short-Circuit Protection
  - Up to ±1.2kV IEC 61000-4-5 Surge Protection
  - Up to ±8kV IEC 61000-4-2 Contact ESD Protection
  - Up to ±25kV IEC 61000-4-2 Air-Gap ESD Protection
- Resistor-Settable Load Current Limit
- 2x Inrush Load Current Option for 10ms (min)
- Onboard MOSFET for Output Reverse-Current Protection
- Optional Onboard Isolated 5V to Power the MAX14918A from the Logic-Side Supply
- Galvanic Power and Data Isolation Using *ADuM6028* and *ADuM340E*
- Proven PCB Layout
- Fully Assembled and Tested
- RoHs Compliant

One Analog Way, Wilmington, MA 01887-2356, U.S.A. | Tel: 781.329.4700

Quick Start

Required Equipment

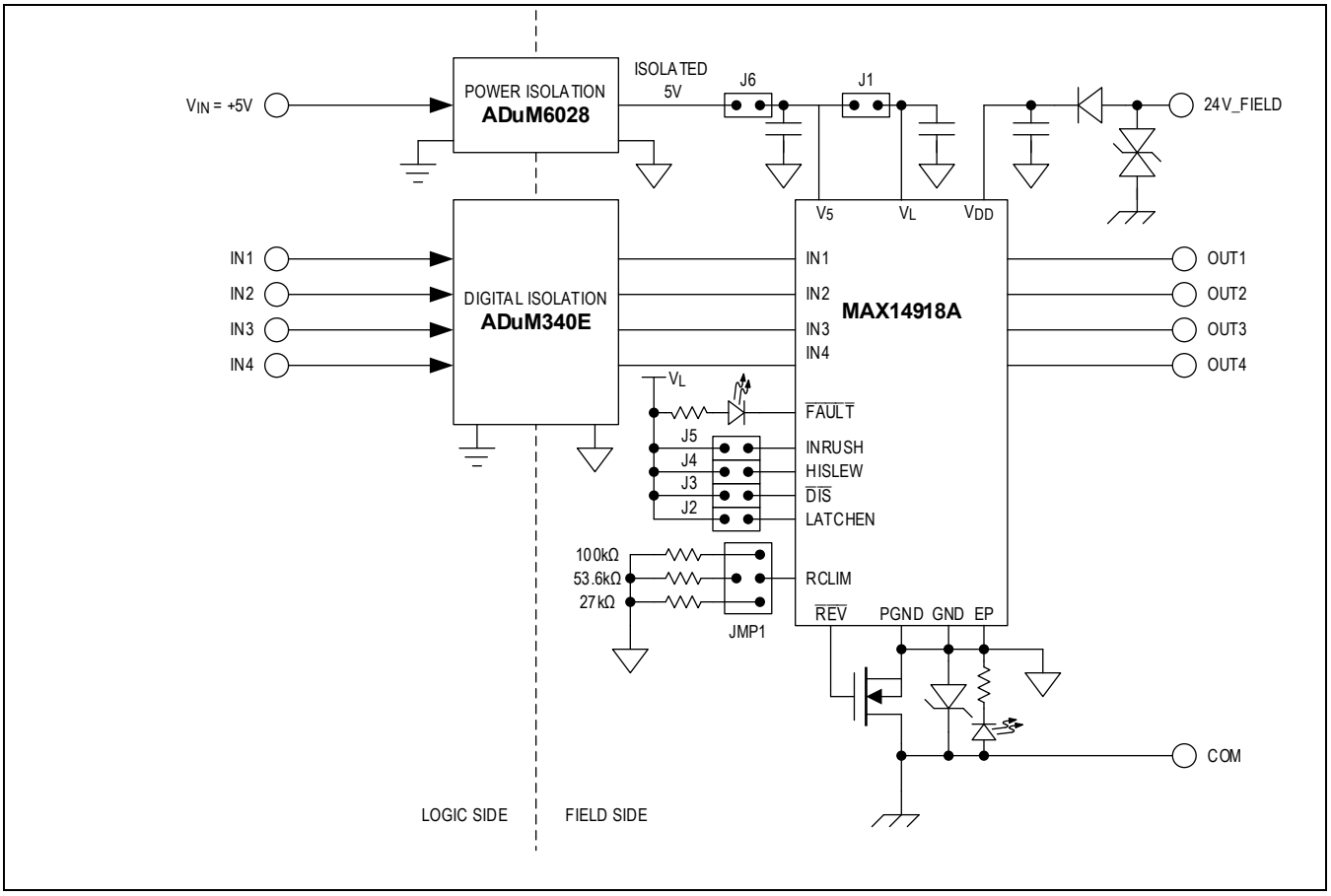
- MAX14918A EV kit
- +5V DC power supply
- +24V DC power supply
- Resistive load
- Functional generator
- Oscilloscope

Procedure

The EV kit is fully assembled and tested. The test setup is shown in *Figure 1*. To verify the board operation, do the following steps:

1. Verify that all jumper settings are in default position from *Table 1*.
2. Connect the EV kit PWR1 terminal Pin 1 and Pin 2 to the +24V DC supply. Connect the positive terminal of the power supply to Pin 2, which is the 24V field supply of the EV kit, and the negative terminal to Pin 1, which is the COM return of the EV kit. Do not turn on the power supply.
3. Connect the EV kit PWR2 terminal Pin 1 and Pin 2 to the +5V DC supply. Connect the positive terminal of the power supply to Pin 1 and the negative terminal to Pin 2. Do not turn on the power supply.
4. Turn on the +24V supply and +5V supply and verify that LED_VDDL (green), LED_V5 (green), and LED_VL (green) are illuminated, which indicates that the EV kit logic-side supply V_{DDL}, MAX14918A V_5 and V_L are present and MAX14918A is powered up normally.
5. Connect the positive output of the functional generator to TERM2 Pin 2 test point, which is the isolated IN1 input of the MAX14918A. Connect the negative output of the functional generator to TERM2 Pin 6, or any GNDL test point on the logic-side of the EV kit. Set the functional generator output at 1kHz, 50% duty-cycle square wave with output high voltage of 5V and low voltage of 0V. Do not enable the functional generator output.
6. Connect the positive terminal of the +24V DC supply to one end of the resistive load. Connect the other end of the resistive load to OUT1 test point or TERM1 Pin 1.
7. Connect a scope probe at OUT1 with respect to the COM test point of the EV kit for monitoring purpose.
8. Enable the functional generator and verify on the scope that the MAX14918A OUT1 channel is switching between 24V and 0V at 1kHz, 50% duty cycle.
9. Disable the functional generator output and repeat the steps 5 through 8 by connecting the control signal to TERM2 Pin 3 to Pin 5, corresponding to the isolated IN2 to IN4 input of the MAX14918A, and connecting the resistive load and scope probe to TERM1 Pin 2 to Pin 4, corresponding to the MAX14918A OUT2 to OUT4 channels, and observe the functionality of each channel.
10. Disable the functional generator and power supplies after the evaluation.

MAX14918A EV Kit Block Diagram



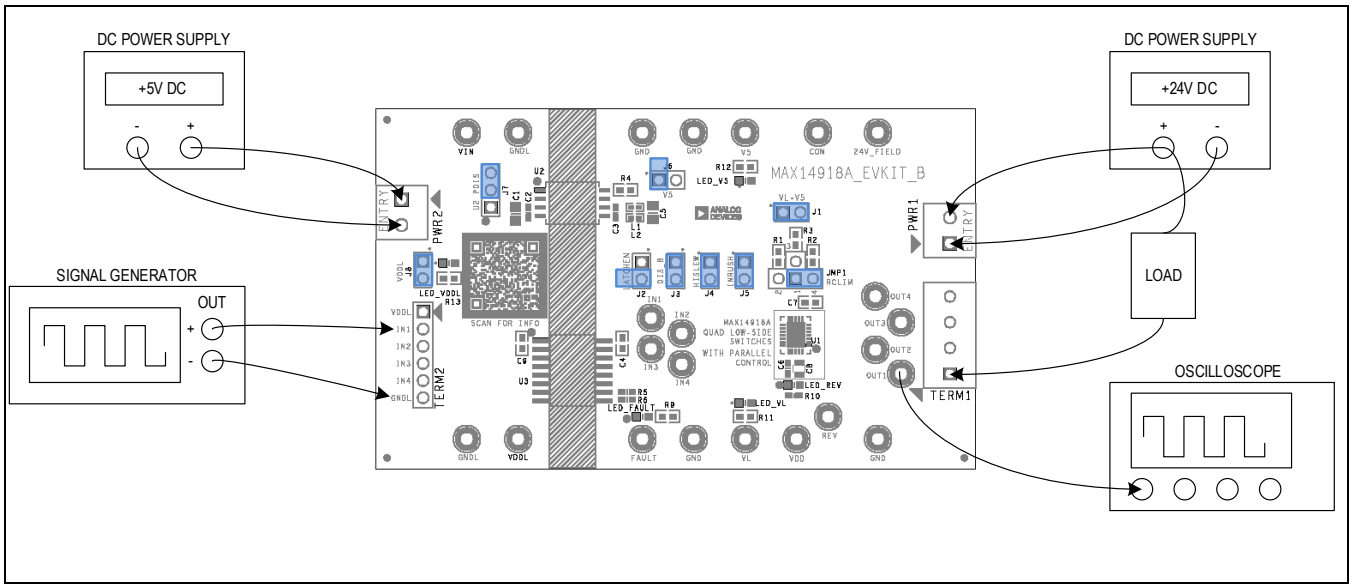


Figure 1. MAX14918A EV Kit Board Connections

Table 1. MAX14918A EV Kit Jumper Connection Guide

JUMPER	DEFAULT CONNECTION	FEATURE
J1	**1-2***	Connect V_5 supply to V_L supply. When V_{DD} is powered by an external power supply, V_5 is the 5V internal regulator output and V_L is powered by V_5. When V_{DD} is connected to ground (GNDF) or left unconnected, connect an external 5V supply at VL or V5 test point.
	Open	V_5 and V_L supply are disconnected. Connect an external +1.62V to +5.5V supply to VL test point. When V_{DD} is powered by an external power supply, V_5 is the 5V internal regulator output. When V_{DD} is connected to ground (GNDF) or left unconnected, connect an external 5V supply to V5 test point.
J2	1-2	Connect the LATCHEN pin to V_L to latch the logic at the IN_ inputs.
	Open*	Leave the LATCHEN pin unconnected. The IN_ input to OUT_ output control is transparent.
J3	**1-2***	Connect the $\overline{DIS}$ pin to V_L. All outputs are switched according to their associated input state.
	Open	Leave the $\overline{DIS}$ pin unconnected to turn off all OUT_ switches.
J4	**1-2***	Connect the HISLEW pin to V_L to enable high slew rate on all outputs.
	Open	Leave the HISLEW pin unconnected for slow slew rate on all outputs.
J5	**1-2***	Connect the INRUSH pin to V_L to enable 2x current limit for 10ms (min) after any switch is turned on.
	Open	Leave the INRUSH pin unconnected to disable inrush current mode.
J6	1-2	Connect the onboard isolated 5V supply to V_5. This configuration is used when V_5 is not powered by an external 5V supply or by MAX14918A internal regulator.
	Open*	Disconnect the onboard isolated 5V supply from V_5. This is used when V_{DD} is powered by an external power supply and V_5 is the internal regulator output, or when V_{DD} is connected to ground (GNDF) or left unconnected and V_5 is powered by an external +5V supply.
J7	1-2	Connect the PDIS pin of the onboard isolated DC-DC converter *ADuM6028* to logic-side +5V supply to disable the field-side +5V output.
	2-3*	Connect the PDIS pin of the onboard isolated DC-DC converter ADuM6028 to logic-side ground (GNDL) to enable the field-side +5V output.
J8	**1-2***	Connect the logic-side +5V supply to the digital isolator logic-side supply V_{DDL}. Leave VDDL test point unconnected when J8 is in 1-2 position.
	Open	Disconnect the logic-side +5V supply from the digital isolator logic-side supply V_{DDL}. Connect an external +2.25V to +5.5V supply to VDDL test point.
JMP1	1-2	Select 100kΩ as the MAX14918A RCLIM resistor, which sets the output current limit to be 216mA (typ).
	1-3	Select 53.6kΩ as the MAX14918A RCLIM resistor, which sets the output current limit to be 403mA (typ).
	1-4*	Select 27kΩ as the MAX14918A RCLIM resistor, which sets the output current limit to be 800mA (typ).

**Default options are bold.*

Table 2. MAX14918A EV Kit Test Point and Connector Guide

ITEM	DESCRIPTION
TEST POINTS	
24V_FIELD (Red)	External +24V field supply input for the MAX14918A EV kit. Connect +24V DC power supply between 24V_FIELD and COM test points.
COM (Black)	Field supply and load return.
VDD (Red)	Field-side supply input for the MAX14918A V_{DD}. Protected by reverse polarity diode D5.
V5 (Red)	Field-side analog supply for the MAX14918A V_5. +5V when the MAX14918A V_{DD} is powered by an external power supply. Apply an external +5V supply when the MAX14918A V_{DD} is connected to ground (GNDF) or left unconnected.
VL (Red)	Field-side logic supply for the MAX14918A V_L. V_L is connected to the MAX14918A V_5 when jumper J1 is closed. Apply an external +1.62V to +5.5V supply when J1 is open.
GND (Black)	Field-side ground (GNDF).
VIN (Red)	Logic-side +5V supply for the isolated DC-DC converter *ADuM6028*, which generates the isolated field-side +5V supply.
VDDL (Red)	Logic-side +2.25V to +5.5V supply for the digital isolator *ADuM340E*. V_{DDL} is connected to the ADuM6028 logic-side supply when jumper J8 is closed. Leave VDDL test point unconnected when V_{IN} is powered and J8 is closed.
GNDL (Black)	Logic-side ground.
IN1 to IN4 (Yellow)	Field-side inputs for the MAX14918A IN1 to IN4.
OUT1 to OUT4 (Orange)	Field-side outputs for the MAX14918A OUT1 to OUT4.
FAULT (White)	MAX14918A $\overline{FAULT}$ signal.
REV (White)	MAX14918A $\overline{REV}$ signal.
CONNECTORS	
PWR1	Terminal block for the +24V field supply input and COM return for the MAX14918A EV kit. Pin 1 is the COM return, same as COM test point, and Pin 2 is the +24V field supply input, same as 24V_FIELD test point.
TERM1	Terminal block for the MAX14918A OUT1 to OUT4 digital outputs. Pin 1 is OUT1, Pin 2 is OUT2, Pin 3 is OUT3, and Pin 4 is OUT4, same as OUT1 to OUT4 test points.
PWR2	Terminal block for the +5V logic-side power supply. Pin 1 is the +5V supply input, same as VIN test point, and Pin 2 is the logic-side ground return, same as GNDL test point.
TERM2	6-pin male connector for the logic-side IN1 to IN4 input connections. Pin 1 is the digital isolator logic-side supply input, same as VDDL test point. Pin 1 can be left unconnected when V_{DDL} is supplied by the +5V logic-side supply when V_{IN} is powered and jumper J8 is closed. Pin 2 to Pin 5 are the logic-side IN1 to IN4 input control. Pin 6 is the logic-side ground return, same as GNDL test point.

Detailed Description of Hardware

The MAX14918A EV kit provides an easy-to-use and flexible solution to evaluate the MAX14918A, parallel controlled quad low-side switches with reverse-current detection, for industrial applications. The EV kit comes with field-side terminal blocks to allow connections to industrial loads for easy evaluation of the device and the system. The EV kit can be powered by a single +5V logic-side supply, which powers the onboard isolated DC-DC converter generating an isolated +5V analog supply as the main supply for the MAX14918A.

The MAX14918A EV kit comes with an n-channel MOSFET installed to protect against reverse current at outputs. All field-side outputs and field-side supply are protected against line-to-ground surges up to ±1.2kV/42Ω per IEC 61000-4-5.

This MAX14918A EV kit user guide must be used with the *MAX14918/MAX14918A* data sheet.

For the latest versions of the documents, refer to the *MAX14918A* product page.

Power Supplies

The EV kit has two power domains, the **logic side**, which is powered from a logic-side +5V DC supply connected to PWR2 terminal block or VIN and GNDL test points, and the **field side**, which is typically powered from an external +24V DC supply connected to PWR1 terminal block or 24V_FIELD and COM test points.

The logic side of the MAX14918A EV kit is powered by applying an external +5V DC voltage to PWR2 terminal block or VIN and GNDL test points. It is the logic-side supply for the onboard isolated DC-DC converter *ADuM6028*, which generates an isolated +5V output at the field side to power the MAX14918A V_5 when J6 is closed (see *Table 1*). The logic-side +5V supply also powers the logic-side of the digital isolator *ADuM340E* V_{DDL} when J8 is closed (see *Table 1*). If a different logic level than +5V is required at the logic side, J8 can be removed and apply a +2.25V to +5.5V DC voltage to V_{DDL} (terminal block TERM2 Pin 1) to supply the ADuM340E and set its logic level.

When the field-side +24V supply is provided, the MAX14918A is powered by V_{DD}. In this case, the MAX14918A internal regulator is enabled to provide low voltage output at V_5 (5V, nominal), which is connected to V_L, the logic supply of the MAX14918A, when J1 is closed (see *Table 1*). V_L also powers the field-side of the digital isolator ADuM340E. If a different logic level than +5V is desired on the MAX14918A digital pins, J1 can be removed and apply a +1.62V to +5.5V DC voltage on the VL test point to power the MAX14918A V_L and set the device logic level.

When the field-side +24V supply is not connected or the MAX14918A V_{DD} is connected to field-side ground (GNDF), the MAX14918A main analog supply V_5 can be powered by either an external +5V DC voltage through V5 and GND test points, or by the onboard isolated +5V supply generated by the ADuM6028 when J6 is closed (see *Table 1*).

The MAX14918A EV kit can be powered by a single +5V DC supply at logic side through terminal block PWR2. The logic side ADuM6028 and ADuM340E are both powered by the +5V with J8 in 1-2 position. The isolated field-side +5V generated by the ADuM6028 provides the main analog supply to the MAX14918A V_5 with J6 in 1-2 position, and to the field-side logic supply V_L with J1 in 1-2 position. For more details, see the *MAX14918A EV Kit Schematic* section.

MAX14918A Output Control

The field-side IN1 to IN4 inputs of the MAX14918A are controlled by TERM2 Pin 2 to Pin 5, which are the logic-side IN1 to IN4 inputs. These signals are isolated by the onboard digital isolator ADuM340E before feeding into the MAX14918A. The field-side inputs IN1 to IN4 can be monitored using the IN1 to IN4 test points. The MAX14918A switching outputs OUT1 to OUT4 are controlled by the IN1 to IN4 control inputs, respectively. For more details, see the *MAX14918A EV Kit Schematic* section.

All the MAX14918A output switches are turned off regardless of their respective input state when the global $\overline{DIS}$ input is set to low. When $\overline{DIS}$ is set to high, all outputs are switched according to their associated input state. The $\overline{DIS}$ input has a weak internal pull-down. When jumper J3 is open, the $\overline{DIS}$ input is set to low by the internal pull-down, thus all outputs are turned off. When jumper J3 is in 1-2 position, the $\overline{DIS}$ input is connected to V_L, thus all outputs are switched according to IN1 to IN4 input states.

The latch enable input (LATCHEN) allows the MAX14918A to be used in transparent or hold mode. When the latch enable is high (jumper J2 in 1-2 position), the output (OUT_) is not affected by its associated input (IN_). When the latch enable is low (jumper J2 in open position), the input (IN_) to output (OUT_) control is transparent. The LATCHEN input has a weak internal pull-down.

Slew Rate Control

The MAX14918A features output slew-rate control on turn-on edges. When the HISLEW input is low (jumper J4 in open position), output transitions are slower, and the MAX14918A operates up to 50kHz switching frequency. The HISLEW input has a weak internal pull-down. The slow slew-rate mode is useful in applications where the load is capacitive and is connected through a long cable.

When the HISLEW input is high (jumper J4 in 1-2 position), the output transitions are much faster, and the MAX14918A can operate up to 500kHz switching frequency. This mode is useful in applications where the device drives resistive loads.

Current Limit Setting and INRUSH Mode

The MAX14918A features resistor-settable active current limiting, common to all output switches (OUT1 to OUT4). When the current across the switch exceeds the current limit, the load current is limited by the low-side switch. The current limit is set by the R_{CLIM} resistor between RCLIM pin and device ground (GNDF). The MAX14918A EV kit provides three current limit options, selected by jumper JMP1. When JMP1 is in 1-2 position, the current limit is set to 216mA (typ) as a 100kΩ resistor is connected between RCLIM pin and GNDF. When JMP1 is in 1-3 position, the current limit is set to 403mA (typ) as a 53.6kΩ resistor is connected between RCLIM pin and GNDF. When JMP1 is in 1-4 position (default), the current limit is set to 800mA (typ) as a 27kΩ resistor is connected between RCLIM pin and GNDF. For the equation to calculate the current limit I_{LIM} based on the R_{CLIM} resistor value, refer to the *MAX14918/MAX14918A* data sheet.

The MAX14918A offers the inrush mode, which supports loads that draw higher current during turn-on. In the inrush mode, each switch provides at least double the current set by the R_{CLIM} resistor for the inrush duration of 10ms (min). After the inrush period, the switch current limit reverts to the value set by R_{CLIM}. The inrush mode is enabled when the INRUSH pin is set to high (jumper J5 in 1-2 position) and disabled when the INRUSH pin is set to low (jumper J5 in open position). The INRUSH input has a weak internal pull-down.

Reverse-Current Protection

The MAX14918A features reverse-current detection with OUT_ switch either in on or off state, which is signaled by the $\overline{REV}$ logic output. A reverse current on any output (OUT_) can happen when the field supply is miswired with a reverse polarity, or when a direct reverse connection is between OUT_ and COM.

When any reverse current more than 150mA (typ) is flowing out of any output, the $\overline{REV}$ output transitions low and the MAX14918A automatically turns off all four outputs. The $\overline{REV}$ output drives the gate of the onboard n-channel MOSFET (Q1) low, which opens the MAX14918A device ground (GNDF) to the field COM (COM) connection, therefore stopping the reverse current flow. The $\overline{REV}$ output is held low, and all outputs remain off for the auto-retry duration of 2 seconds (typ) before the $\overline{REV}$ output is pulled high again and outputs are turned back on based on the input state to see whether the reverse-current condition is still present. If the reverse-current condition is still present and a reverse current is again detected, the $\overline{REV}$ is turned low again, and all outputs are turned off for another 2 seconds. For more details on the reverse-current detection feature, refer to the *MAX14918/MAX14918A* data sheet.

The EV kit also protects against reverse polarity on the MAX14918A V_{DD} pin by implementing reverse protection diode D5. For more details, see the *MAX14918A EV Kit Schematic* section.

Diagnostic Features

The MAX14918A features a global fault indication pin, $\overline{FAULT}$. It is an open-drain logic output that transitions low when the MAX14918A detects a fault condition and is pulled high when the device exits fault status. A red LED is connected in series with the pull-up resistor on the $\overline{FAULT}$ pin to indicate when fault conditions are detected, which include chip thermal shutdown, any of the output switches that are turned on in thermal overload, reverse current detected at any of the outputs, V_5 UVLO or short-circuit detected on the RCLIM pin.

Another red LED is implemented between the MAX14918A local ground (GNDF) and field return connection (COM). It is turned on when any reverse current is flowing from COM to GNDF, which indicates that a reverse current fault on the MAX14918A EV kit. For more details, see the *MAX14918A EV Kit Schematic* section.

Galvanic Isolation

The MAX14918A EV kit uses an isolated DC-DC converter and a digital isolator to provide galvanic isolation for both power and data between the logic side and the field side. The *ADuM6028* is a low-emission, 5kV isolated DC-DC converter that generates an isolated 5V (V_{ISO}) on the field side (GNDF) when powered by a 5V supply (V_{DDP}) on the logic side (GNDL). The MAX14918A can be powered by V_{ISO} when it is connected to V_5 and V_L with jumper J7 in 2-3 position, and

J6 and J1 in 1-2 position (see *Table 1*). This allows the MAX14918A EV kit to be powered by a single logic-side supply with no external field-side supply needed.

The digital isolation is achieved by the *ADuM340E*, 5.7kV$_{RMS}$ quad digital isolator, which provides data isolation on IN1 to IN4 input control signals. The isolator has two power supplies (V_{DD1} and V_{DD2}), which operate between +2.25V to +5.5V and provide voltage translation as well as galvanic isolation. The logic-side V_{DD1} of the isolator can be the same 5V supply applied to the *ADuM6028* V_{DDP} and GNDL when J8 is in 1-2 position, or a different voltage level can be applied to V_{DD1} through connector TERM2 Pin 1 when J8 is open. The field-side V_{DD2} of the isolator is powered from V_L and GNDF, same as the MAX14918A logic supply. When testing isolation performance, users must take care that there is no short connection between GNDF and GNDL through a multichannel oscilloscope ground connection.

IEC 61000-4 Transient Immunity

Each output of the MAX14918A is protected against IEC 61000-4-5 1.2µs/50µs surges up to ±1.2kV/(42Ω + 0.5µF) line-to-ground, IEC 61000-4-2 ESD contact discharge up to ±8kV line-to-ground, and IEC 61000-4-2 ESD air-gap discharge up to ±25kV line-to-ground without the need for external protection diodes from OUT_ to GNDF. The MAX14918A EV kit comes with an external n-channel MOSFET (Q1) for reverse-current protection. A TVS diode (D1) is placed in parallel to Q1 to protect it from high voltage transients such as surge or ESD events. Another TVS diode (D5) provides protection against surges and ESD transients applied through 24V_FIELD and COM terminal block and diode D6 blocks the reverse current to the V_{DD} pin of the MAX14918A during negative transients.

Ordering Information

PART	TYPE
MAX14918AEVKIT#	EV Kit

#Denotes RoHS-compliant.

MAX14918A EV Kit Bill of Materials

ITEM	REF_DES	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
1	C1, C5	2	CL21B106KOQNNN;GRM21BZ71C106KE15;GMC21X7R106K16NT	SAMSUNG;MURATA;CAL-CHIP	10UF	CAP; SMT (0805); 10UF; 10%; 16V; X7R; CERAMIC
2	C2-C4, C7, C9	5	GCJ188R71H104KA12;GCM188R71H104K;CGA3E2X7R1H104K080AA;CGA3E2X7R1H104K080AD;CL10B104KB8WPN	MURATA;MURATA;TDK;TDK;SAMSUNG	0.1UF	CAP; SMT (0603); 0.1UF; 10%; 50V; X7R; CERAMIC
3	C6	1	UMK107AB7105KA;CC0603KRX7R9BB105	TAIYO YUDEN;YAGEO	1UF	CAP; SMT (0603); 1UF; 10%; 50V; X7R; CERAMIC
4	C8	1	08051C105K4Z2A	AVX	1UF	CAP; SMT (0805); 1UF; 10%; 100V; X7R; CERAMIC
5	D1	1	SMCJ36A	LITTEL FUSE	36V	DIODE; TVS; SMC (DO-214AB); VRM=36V; IPP=25.9A
6	D4	1	SMAJ33CA	VISHAY GENERAL SEMICONDUCTOR	33V	DIODE; TVS; SMA (DO-214AC); VRM=33V; IPP=7.5A
7	D5	1	MMBD6050LT1G	ON SEMICONDUCTOR	MMBD6050LT1G	DIODE; SWT; SMT (SOT-23); PIV=70V; IF=0.2A
8	D6	1	MBRA210LT3G	ON SEMICONDUCTOR	MBRA210LT3G	DIODE; SCH; SMA (DO-214AC); PIV=10V; IF=2A
9	J1-J6, J8	7	PCC02SAAN	SULLINS	PCC02SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 2PINS; -65 DEGC TO +125 DEGC
10	J7	1	PCC03SAAN	SULLINS	PCC03SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT THROUGH; 3PINS; -65 DEGC TO +125 DEGC
11	JMP1	1	PEC04SAAN	SULLINS ELECTRONICS CORP.	PEC04SAAN	CONNECTOR; MALE; THROUGH HOLE; BREAKAWAY; STRAIGHT; 4PINS
12	L1, L2	2	BLM15HD182SN1	MURATA	1800	INDUCTOR; SMT (0402); FERRITE-BEAD; 1800; TOL=+/-; 0.20A
13	LED_FAULT, LED_REV	2	APT1608LSECK/J3-PRV	KINGBRIGHT	APT1608LSECK/J3-PRV	DIODE; LED; HYPER RED WATER CLEAR; RED; SMT (0603); VF=1.8V; IF=0.002A
14	LED_V5, LED_VDDL, LED_VL	3	APT1608CGCK	KINGBRIGHT	APT1608CGCK	DIODE; LED; STANDARD; GREEN; SMT (0603); PIV=2.1V; IF=0.02A; -40 DEGC TO +85 DEGC
15	MTH1-MTH4	4	9032	KEYSTONE	9032	MACHINE FABRICATED; ROUND-THRU HOLE SPACER; NO THREAD; M3.5; 5/8IN; NYLON
16	PWR1, PWR2	2	1985823	PHOENIX CONTACT	1985823	CONNECTOR; FEMALE; THROUGH HOLE; PCB TERMINAL BLOCK; STRAIGHT; 2PINS

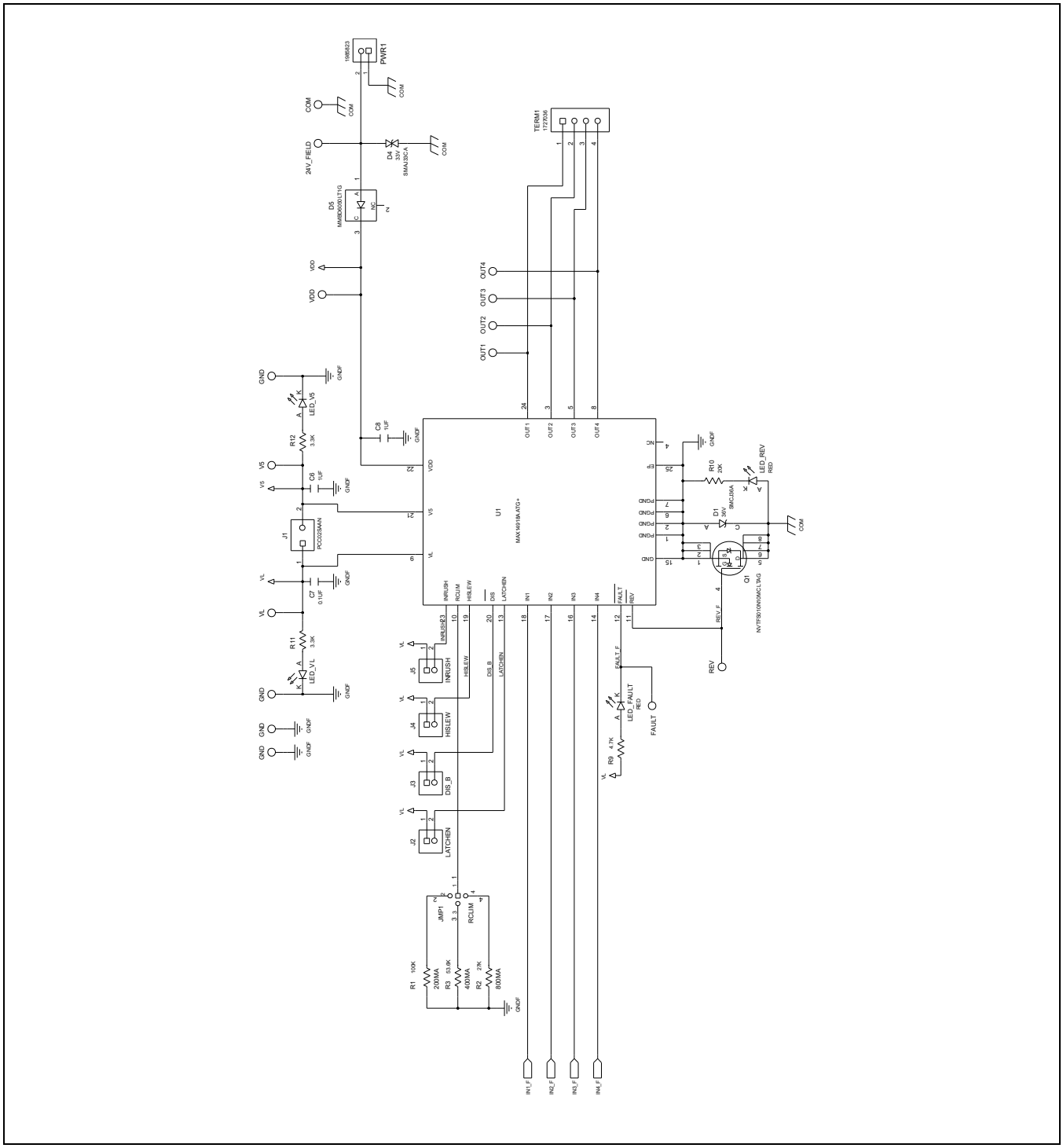
MAX14918A EV Kit Bill of Materials (continued)

ITEM	REF_DES	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
17	Q1	1	NVTFS010N10MCLTAG	ON SEMICONDUCTOR	NVTFS010N10MCLTAG	TRAN; NCH; POWER MOSFET; SINGLE N-CHANNEL; WDFN8; PD-(77.8W); I-(57.8A); V-(100V)
18	R1	1	CRCW0603100KFK;RC0603FR-07100KL;RC0603FR-13100KL;ERJ-3EKF1003;AC0603FR-07100KL	VISHAY DALE;YAGEO;YAGEO;PANASONIC;YAGEO	100K	RES; SMT (0603); 100K; 1%; +/-100PPM/DEGC; 0.1000W
19	R2	1	CRCW060327K0FK	VISHAY DALE	27K	RES; SMT (0603); 27K; 1%; +/-100PPM/DEGC; 0.1000W
20	R3	1	CRCW060353K6FK;MCWR06X5362FTL	VISHAY DALE;MULTICOMP	53.6K	RES; SMT (0603); 53.6K; 1%; +/-100PPM/DEGC; 0.1000W
21	R4, R5	2	CRCW06030000Z0	VISHAY DALE	0	RES; SMT (0603); 0; JUMPER; JUMPER; 0.1000W
22	R9	1	CRCW06034K70FK	VISHAY DALE	4.7K	RES; SMT (0603); 4.7K; 1%; +/-100PPM/DEGC; 0.1000W
23	R10	1	MCR03EZPFX2002;ERJ-3EKF2002;CR0603-FX-2002ELF;CRCW060320K0FK;RMCF0603FT20K0	ROHM;PANASONIC;BOURNS;VISHAY;STACKPOLE ELECTRONICS INC	20K	RES; SMT (0603); 20K; 1%; +/-100PPM/DEGC; 0.1000W
24	R11-R13	3	RCW06033K30FK;RC0603FR-073K3L;RK73H1J3301F	VISHAY;YAGEO;VISHAY	3.3K	RES; SMT (0603); 3.3K; 1%; +/-100PPM/DEGC; 0.1000W
25	SU1-SU9	9	NPC02SXON-RC	SULLINS ELECTRONICS CORP.	NPC02SXON-RC	CONNECTOR; FEMALE; MINI SHUNT; 0.100IN CC; OPEN TOP; JUMPER; STRAIGHT; 2PINS
26	TERM1	1	1727036	PHOENIX CONTACT	1727036	CONNECTOR; FEMALE; THROUGH HOLE; GREEN PCB TERMINAL BLOCK; STRAIGHT; 4PINS
27	TERM2	1	TSW-106-07-F-S	SAMTEC	TSW-106-07-F-S	CONNECTOR; MALE; THROUGH HOLE; 0.025IN SQ POST SOCKET; STRAIGHT; 6PINS
28	TP1-TP4	4	5014	KEYSTONE	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; YELLOW; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;
29	TP5, TP8, TP9, TP22, VDDL, VIN	6	5010	KEYSTONE	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; RED; PHOSPHOR BRONZE WIRE SIL;
30	TP7, TP10-TP14, TP24	7	5011	KEYSTONE	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; BLACK; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;

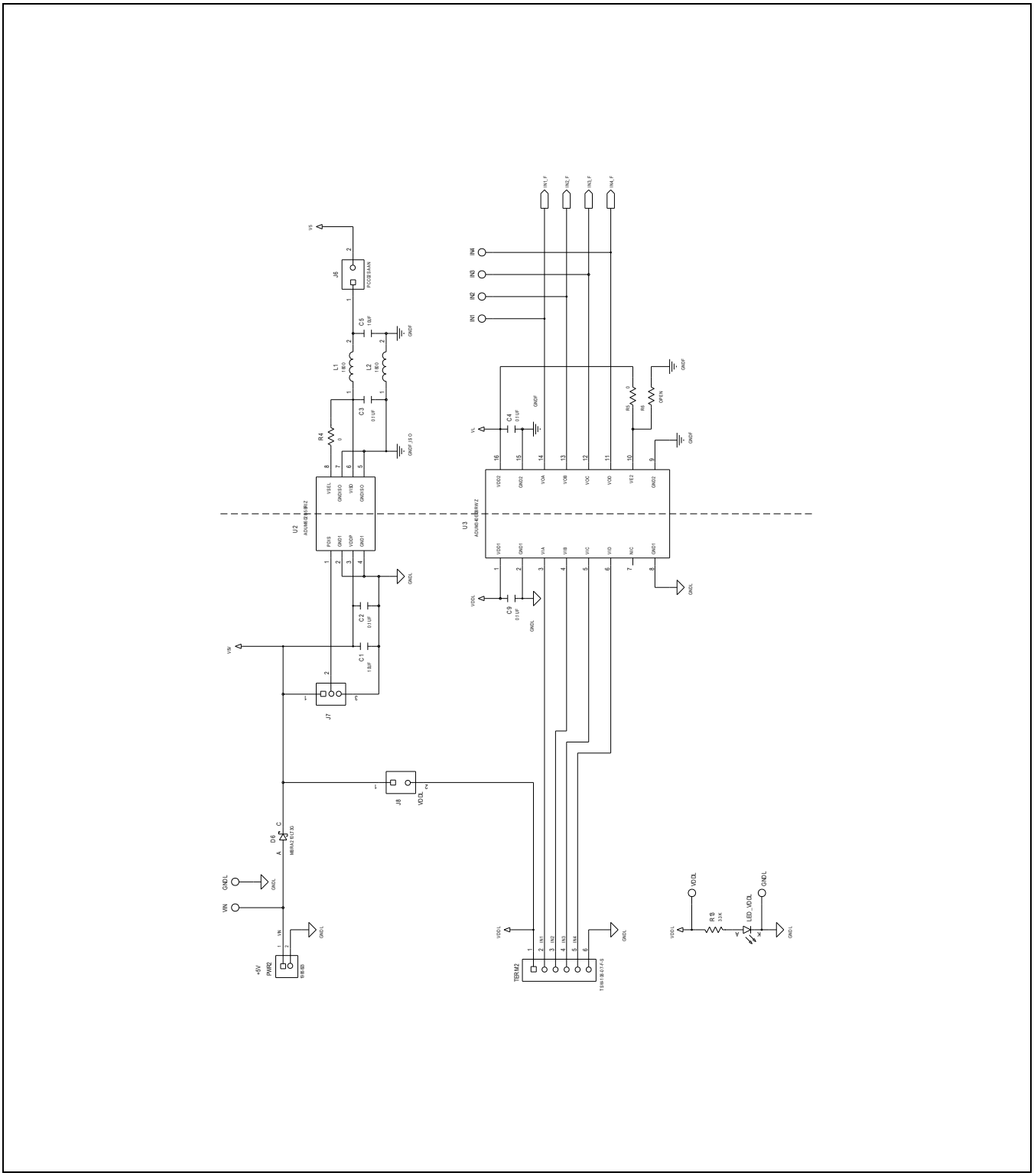
MAX14918A EV Kit Bill of Materials (continued)

ITEM	REF_DES	QTY	MFG PART #	MANUFACTURER	VALUE	DESCRIPTION
31	TP17, TP19	2	5012	KEYSTONE	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; WHITE; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;
32	TP25, TP27, TP29, TP31	4	5013	KEYSTONE	N/A	TEST POINT; PIN DIA=0.125IN; TOTAL LENGTH=0.445IN; BOARD HOLE=0.063IN; ORANGE; PHOSPHOR BRONZE WIRE SILVER PLATE FINISH;
33	U1	1	MAX14918AATG+	ANALOG DEVICES	MAX14918 AATG+	EVKIT PART - IC; MAX14918AATG+; PACKAGE OUTLINE DRAWING: 21-0201; LAND PATTERN: 90-0083; PACKAGE CODE: T2445+2C; TQFN24-EP
34	U2	1	ADUM6028-5BRIZ	ANALOG DEVICES	ADUM6028-5BRIZ	IC; VCON; LOW EMISSION; 5 KV ISOLATED DC-TO-DC CONVERTERS; WSOIC8; WSOIC8 300MIL
35	U3	1	ADUM340E0BRWZ	ANALOG DEVICES	ADUM340E 0BRWZ	IC; ISO; 5.7 KV RMS QUAD DIGITAL ISOLATORS; WSOIC16; WSOIC16 300MIL
36	R6	0	N/A	N/A	OPEN	PACKAGE OUTLINE 0603 RESISTOR

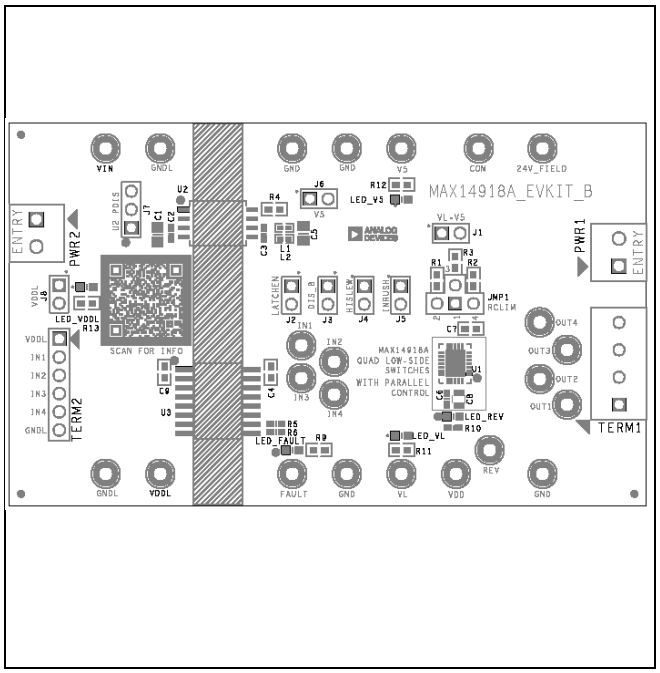
MAX14918A EV Kit Schematic



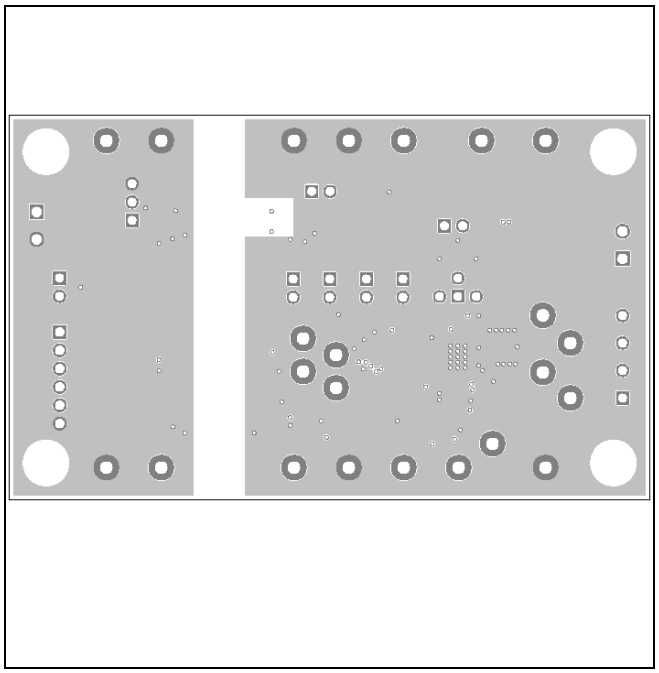
MAX14918A EV Kit Schematic (continued)



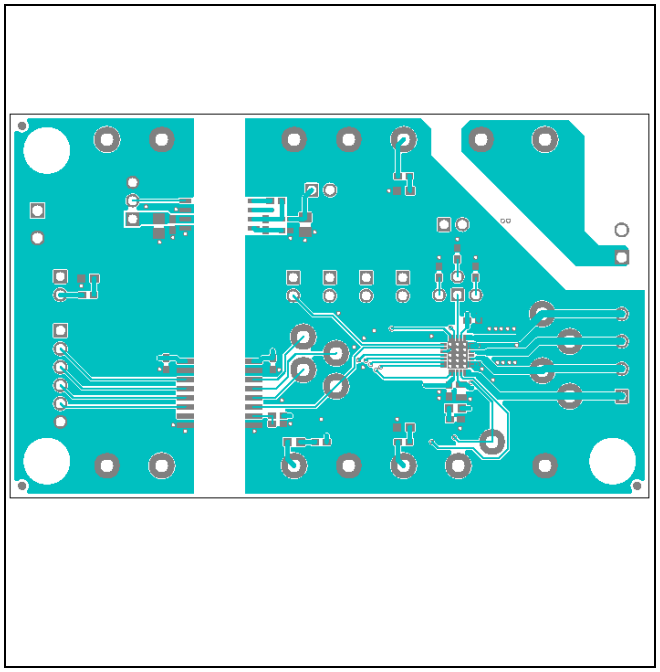
MAX14918A EV Kit PCB Layout Diagrams



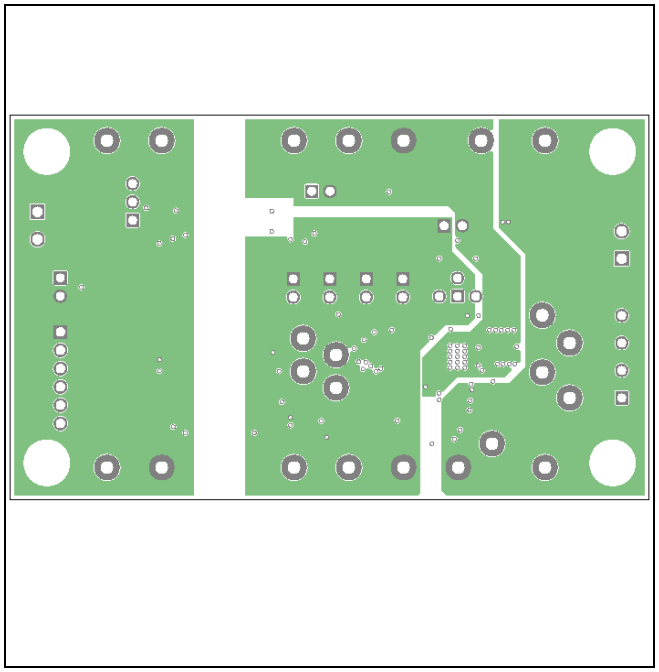
MAX14918A EV Kit Component Placement Guide—Top Silkscreen



MAX14918A EV Kit PCB Layout—Layer 2

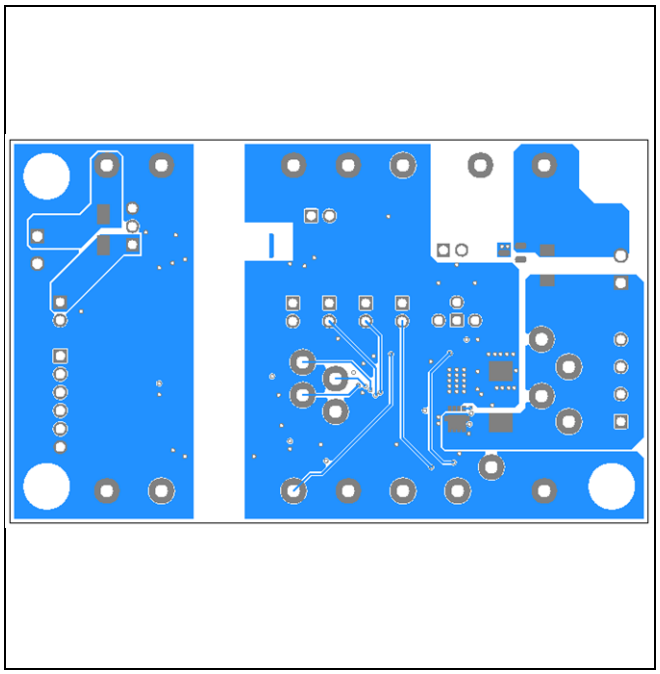


MAX14918A EV Kit PCB Layout—Top

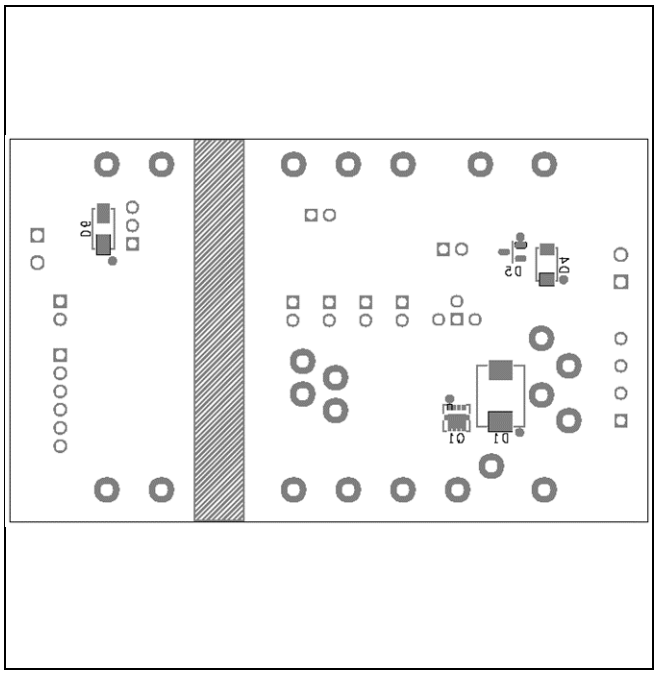


MAX14918A EV Kit PCB Layout—Layer 3

MAX14918A EV Kit PCB Layout Diagrams (continued)



MAX14918A EV Kit PCB Layout—Bottom



MAX14918A EV Kit Component Placement Guide—Bottom Silkscreen

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	5/24	Initial release	—

Notes