MAX31914/MAX31915 Evaluation Kits

Evaluate: MAX31914 MAX31915

General Description

The MAX31914/MAX31915 evaluation kits (EV kits) provide the hardware necessary to evaluate the MAX31914 and MAX31915 industrial octal digital input translators. There is no software required for this EV kit.

EV Kit Contents

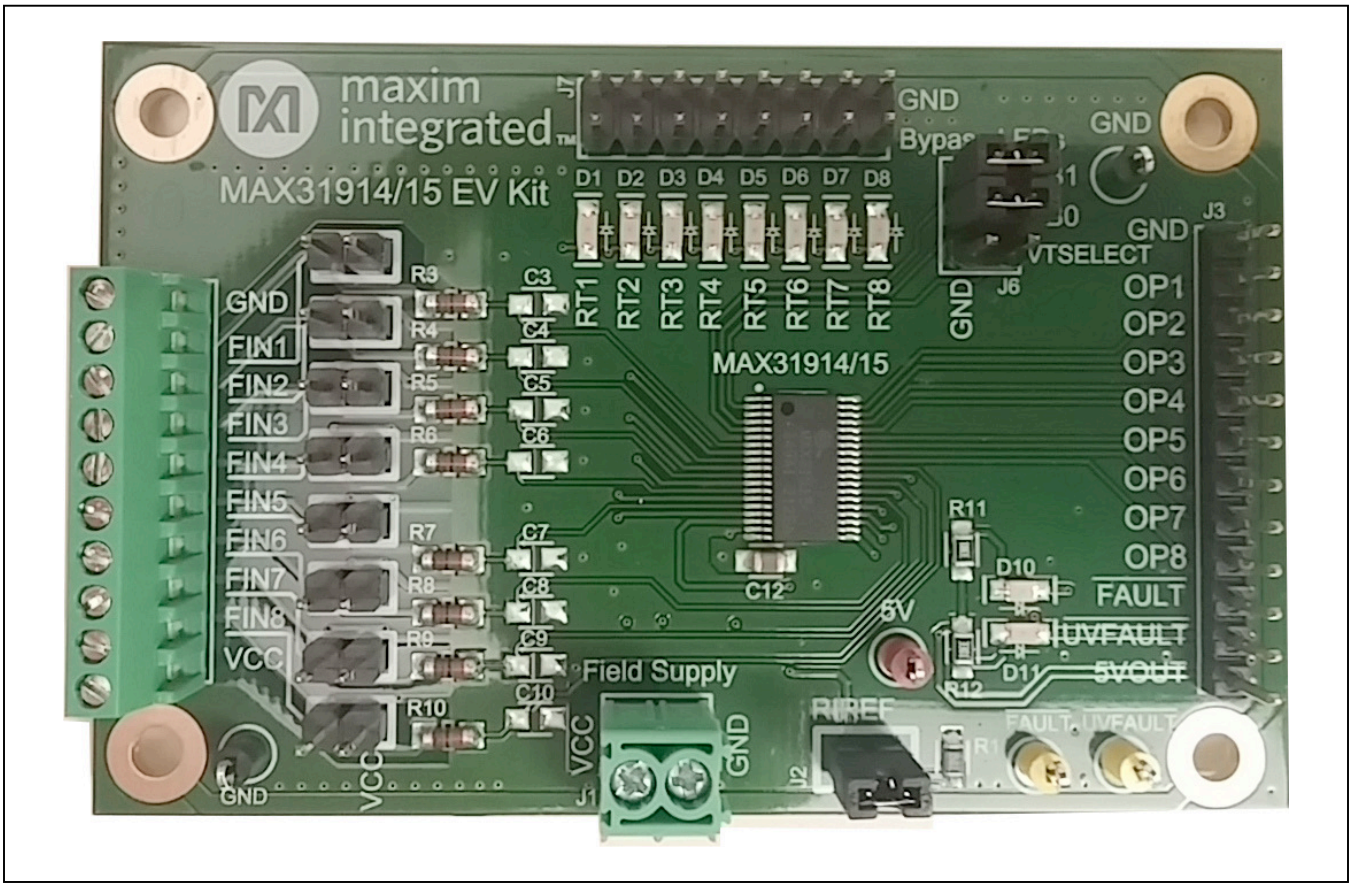
- Assembled circuit board including MAX31915

Features

- Easy Evaluation of the MAX31914 and MAX31915
- RoHS Compliant
- Proven PCB Layout
- Fully Assembled and Tested

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

MAX31915 EV Kit Photo



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Quick Start

Required Equipment

- MAX31914 and MAX31915 EV kits
- EV kit hardware (included)
- Screwdriver
- Wire
- 24V power supply

Procedure

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

1) Install a jumper on RIREF (J2).
2) Set the EV kit hardware on a nonconductive surface to ensure that nothing on the PCB gets shorted to the workspace.
3) Use the wires to connect J1 (VCC and GND) to a 24V power supply and tighten the screws on the wire.
4) Connect field inputs to J5 or install jumpers on FIN1–FIN8 to get the CMOS translation on J3 pins OP1–OP8.

Detailed Description of Hardware

Connect Field Inputs

To connect field inputs to the PCB, remove all pullup jumpers (FIN1–FIN8). Connect the field inputs to screw terminal J5 or to the left pin of jumpers FIN1–FIN8.

Adjust Current Limit

To adjust the current limit, remove the jumper on J2 and connect an external resistor to the RIREF pin on J2. Connect the other end of the resistor to GND. Another option is to keep the jumper on J2 populated and change the value of R1.

CMOS Logic Compatible Levels

To set the input trip points to CMOS logic compatiable levels, populate the VTSELECT jumper on J6. When in this mode, the RTX pins must be grounded by poplulating the jumpers on J7 to bypass the LEDs. The reference resistor (R1) must also be changed to 100kΩ to adjust the current limit.

Table 1. Description of Jumpers

JUMPER	DESCRIPTION
J2	RIREF: Connects R1 to the RIREF pin.
J6*	DB0: Pulls DB0 down to GND. Used to select digital glitch filter.
	DB1: Pulls DB1 down to GND. Used to select digital glitch filter.
	VTSELECT: Pulls VTSELECT down to GND to set the field input trip points to CMOS-compatible logic. See the *CMOS Logic-Compatible Levels* section for more details.
J7	Bypass LEDs: Connects return path RTX to GND to bypass the LED.
FIN1–FIN8	Field Inputs Pullup: Connects field input FINX to VIN.

**These inputs have internal pullups.*

Table 2. Description of LEDs (D1–D11)

LED	COLOR	DESCRIPTION
D1–D8	Red	Field Inputs: Field input is logic-high.
D10	Red	$\overline{\text{FAULT}}$: The device has detected a fault. Either the field-supply voltage is too low, the IC temperature is too high, or both.
D11	Red	$\overline{\text{UVFAULT}}$: The device has an undervoltage fault indicating the field supply voltage is too low.

Component Suppliers

SUPPLIER	WEBSITE
Bourns	www.bourns.com
ON Semiconductor	www.onsemi.com
Phoenix Contact	www.phoenixcontact.com
TE Connectivity	www.te.com
TDK Corp.	www.tdk.com
Vishay	www.vishay.com

Note: *Indicate that you are using the MAX31915 when contacting these component suppliers..*

Component List, PCB Files and Schematics

See the following links for component information, PCB files, and schematics:

- **MAX31914/MAX31915 EV BOM**
- **MAX31914/MAX31915 EV PCB Files**
- **MAX31914/MAX31915 EV Schematics**

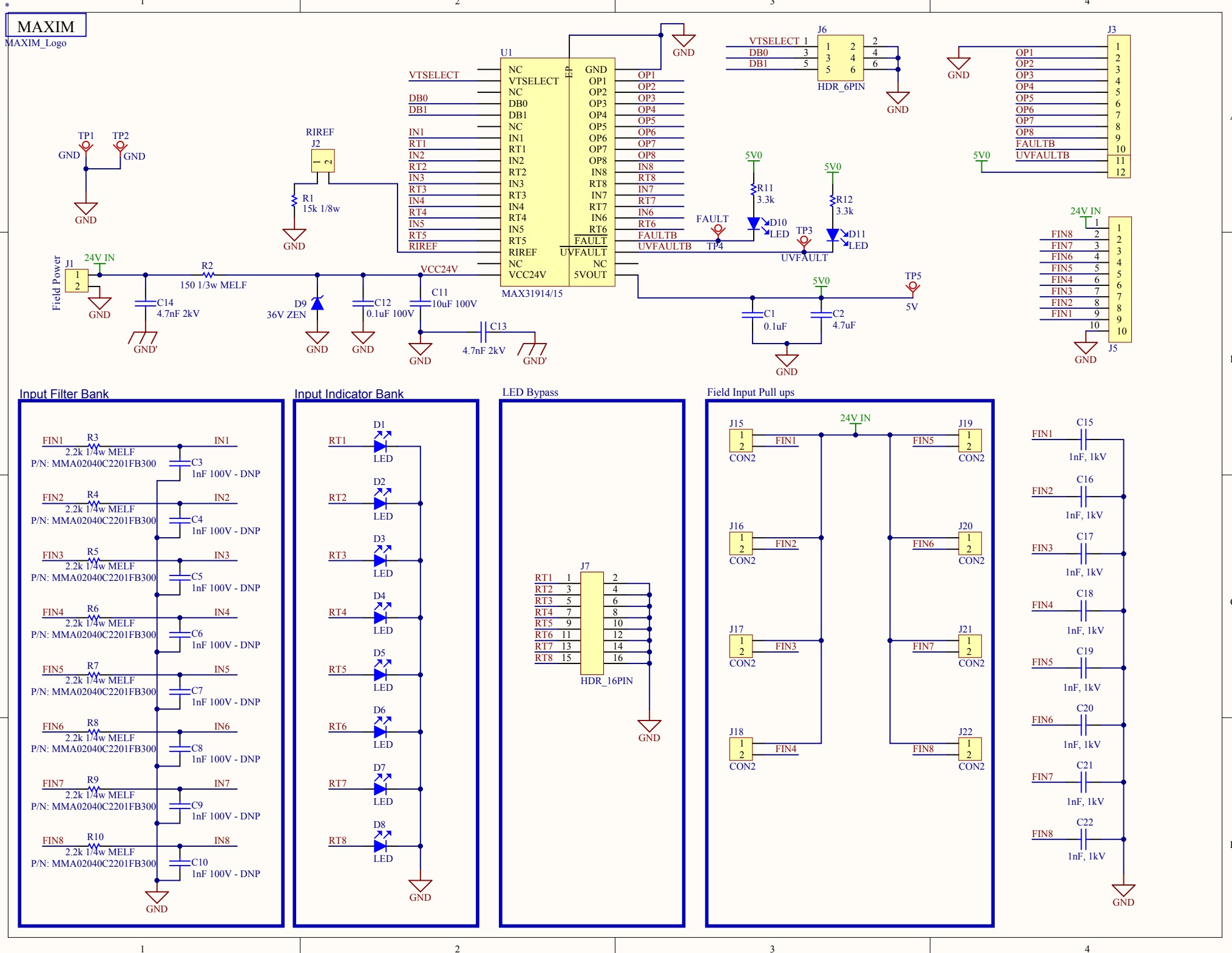
Ordering Information

PART	TYPE
MAX31914EVKIT#	EV Kit
MAX31915EVKIT#	EV Kit

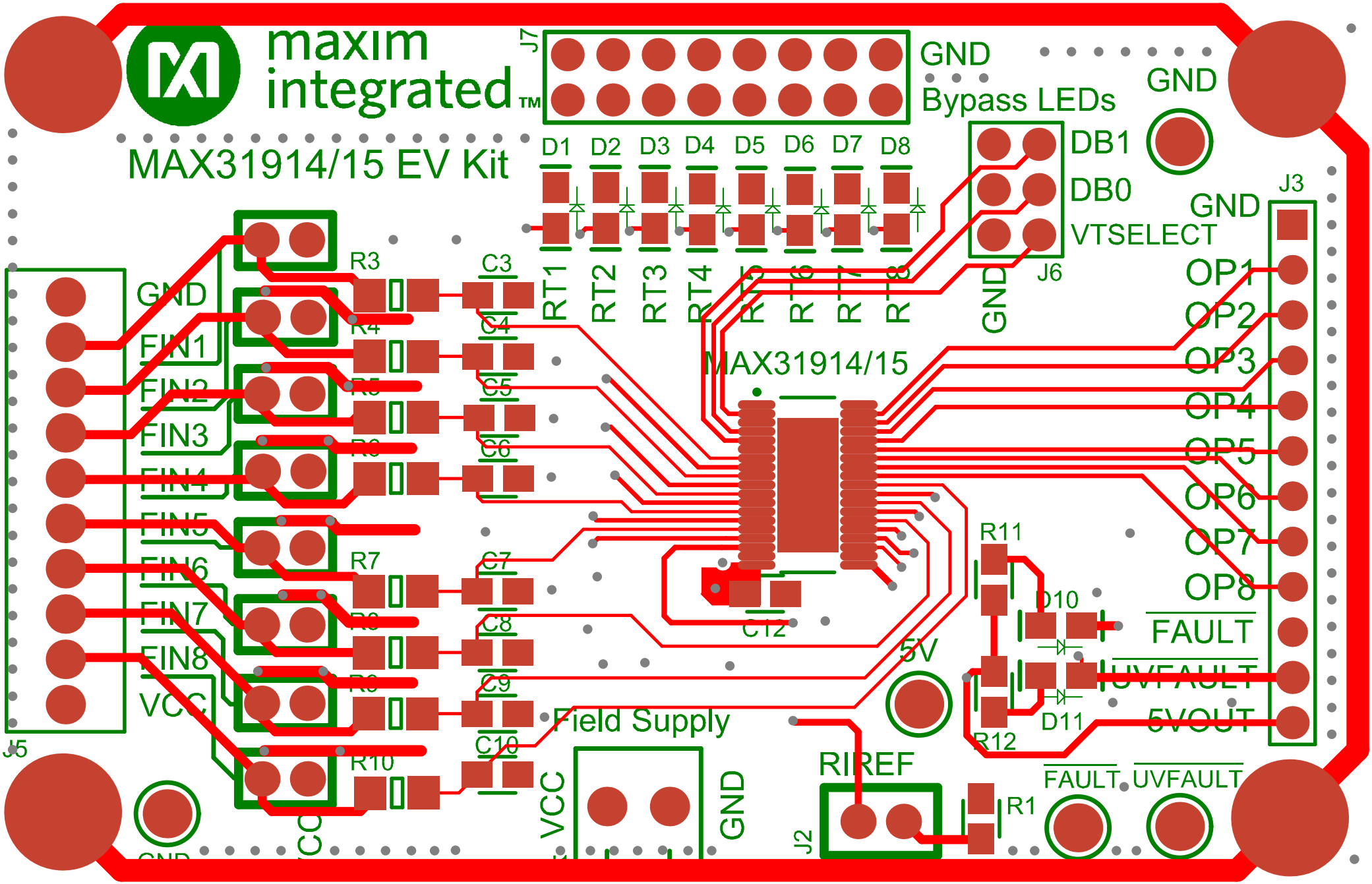
#Denotes RoHS compliant.

Revision History

REVISION NUMBER	REVISION DATE	DESCRIPTION	PAGES CHANGED
0	8/13	Initial release	—
1	5/15	Added MAX31914 information to EV kit data sheet	1-7


MAXIM
MAXIM_Logo
U1
MAX31914/15
NC
VTSELECT
DB0
DB1
IN1
RT1
IN2
RT2
IN3
RT3
IN4
RT4
IN5
RT5
RIREF
VCC24V
EP
GND
OP1
OP2
OP3
OP4
OP5
OP6
OP7
OP8
IN8
RT8
IN7
RT7
IN6
RT6
FAULTB
UVFAULTB
FAULT
UVFAULT
5VOUT
J6
HDR_6PIN
J3
FAULTB
UVFAULTB
5V0
24V IN
Field Power
J1
R1
15k 1/8w
R2
150 1/3w MELF
R11
3.3k
R12
3.3k
D10
LED
D11
LED
TP1
TP2
TP3
TP4
TP5
C1
0.1uF
C2
4.7uF
C11
10uF 100V
C12
0.1uF 100V
C13
4.7nF 2kV
C14
4.7nF 2kV
D9
36V ZEN
J5
Input Filter Bank
FIN1
FIN2
FIN3
FIN4
FIN5
FIN6
FIN7
FIN8
R3
R4
R5
R6
R7
R8
R9
R10
2.2k 1/4w MELF
P/N: MMA02040C2201FB300
IN1
IN2
IN3
IN4
IN5
IN6
IN7
IN8
C3
C4
C5
C6
C7
C8
C9
C10
1nF 100V - DNP
Input Indicator Bank
D1
D2
D3
D4
D5
D6
D7
D8
LED
LED Bypass
J7
HDR_16PIN
Field Input Pull ups
J15
J16
J17
J18
J19
J20
J21
J22
CON2
C15
C16
C17
C18
C19
C20
C21
C22
1nF, 1kV

WBS
REV A
C15
C16
C17
C18
C19
C20
C21
C22
C11
R2
C1
C2
C13
C14
D9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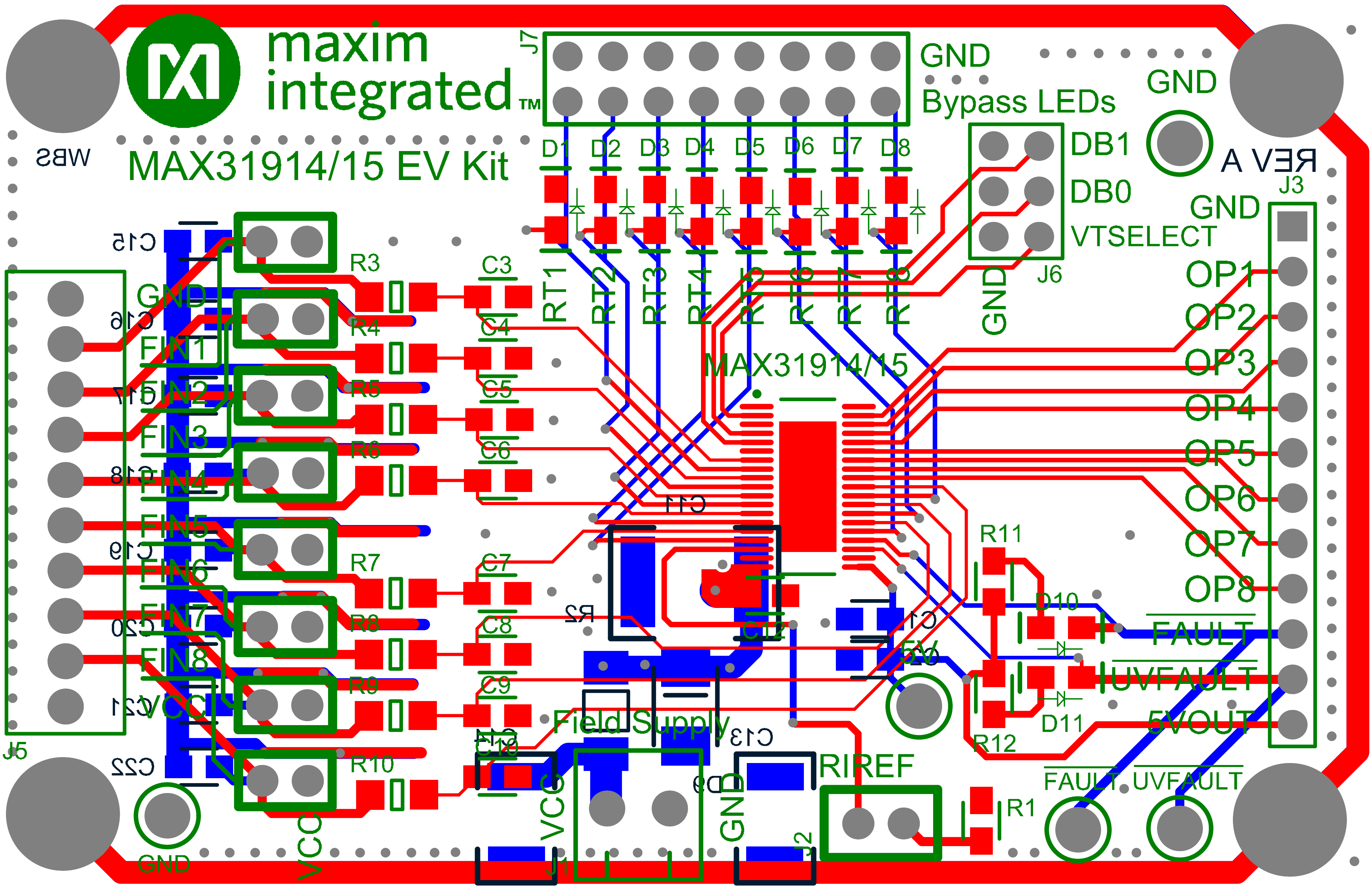
MAX31914/15 EV Kit
J7
GND
Bypass LEDs
D1 D2 D3 D4 D5 D6 D7 D8
DB1
DB0
VTSELECT
GND
J6
J3
GND
OP1
OP2
OP3
OP4
OP5
OP6
OP7
OP8
FAULT
UVFAULT
5VOUT
MAX31914/15
R3
R4
R5
R6
R7
R8
R9
R10
C3
C4
C5
C6
C7
C8
C9
C10
C12
R11
D10
D11
R12
5V
RIREF
R1
J2
Field Supply
VCC
GND
J5
GND
FIN1
FIN2
FIN3
FIN4
FIN5
FIN6
FIN7
FIN8
VCC


maxim integrated™
MAX31914/15 EV Kit
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RT1
RT2
RT3
RT4
RT5
RT6
RT7
RT8
MAX31914/15
R3
R4
R5
R6
R7
R8
R9
R10
C3
C4
C5
C6
C7
C8
C9
GND
FIN1
FIN2
FIN3
FIN4
FIN5
FIN6
FIN7
FIN8
VCC
J5
GND
VCC
C14
VCC
J1
Field Supply
GND
J2
RIREF
R1
R11
R12
D10
D11
C12
5V
FAULT
UVFAULT

BILLS OF MATERIALS (BOM) 5/15 Revision

Comment	Designator	Quan	PN#	MFG
0.1uF	C1, C12	2	CGA4J2X7R2A104K	TDK
4.7uF	C2	1	CGA4J3X5R1H475K	TDK
10uF 60V	C11	1	C5750X7S2A106M	TDK
36V ZEN	D9	1	1SMB36AT3G	ON Semi
LED	D1, D2, D3, D4, D5, D6, D7, D8, D10, D11	10	HSMS-C170	Avago Technologies
Phoenix Contact 1984617	J1	1	1984617	Phoenix Contact
CON10	J5	1	1-282834-0	TE Connectivity
RIREF, FIN1, FIN2, FIN3, FIN4, FIN5, FIN6, FIN7 FIN8, VCC, RIREF	J2, J15, J16, J17, J18, J19, J20, J21, J22	9	961102-6404-AR	3M
15k 1/8w	R1	1	CRCW080515K0FKEA	Vishay/Dale
150 1/3w MELF	R2	1	MMB02070C1500FB200	Vishay
2.2k 1/4w MELF	R3, R4, R5, R6, R7, R8, R9, R10	8	MMA02040C2201FB300	Vishay
3.3k	R11, R12	2	CRCW0805560RFKEA	Vishay/Dale
GND	TP1, TP2	2	5001	Keystone (02-TPMINI5001-00)
5V	TP5	1	5000	Keystone (02-TPMINI5000-00)
4700pF - 2kV Caps	C13, C14	2	1812GC472KAT1A	AVX
1nF- 1kV	C15, C16, C17, C18, C19, C20, C21, C22	8	C0805C102KDRACTU	Kemet
Jumpers		9	969102-0000-DA	3M
CON	J3	1	M20-9991245	Harwin
HDR_6PIN	J6	1	961206-6404-AR	3M
HDR_16PIN	J7	1	961216-6404-AR	3M

UVFAULT, FAULT	TP3, TP4	2	5004	Keystone (02-TPMINI5004-00)
MAX31914/15	U1	1		