

ADM1278 Evaluation Board User Guide

FEATURES

Fully functional support evaluation kit for the [ADM1278](#)
 Populated and tested with 12 V, 73 A, 3 mF design
 Special N-MOSFET footprint suits different packages
 Supports up to four sense resistors in parallel
 Supports up to six FETs in parallel
 LED indicated status outputs
 Wide input voltage range of up to 20 V
 FET temperature measurement capability
 Supports cascade setup for multiple boards
 Toggle and push-button switch for easy input control
 PMBus communication supported

PACKAGE CONTENTS

[EVAL-ADM1278EBZ](#) evaluation board

ADDITIONAL HARDWARE NEEDED

Serial I/O interface [USB-SDP-CABLEZ](#) (not included in the evaluation kit and should be ordered separately)
 Only one dongle is required in multiboard cascade setup

SOFTWARE NEEDED

Analog Devices, Inc., hot swap and power monitoring evaluation software

EVALUATION BOARD CONNECTION DIAGRAM

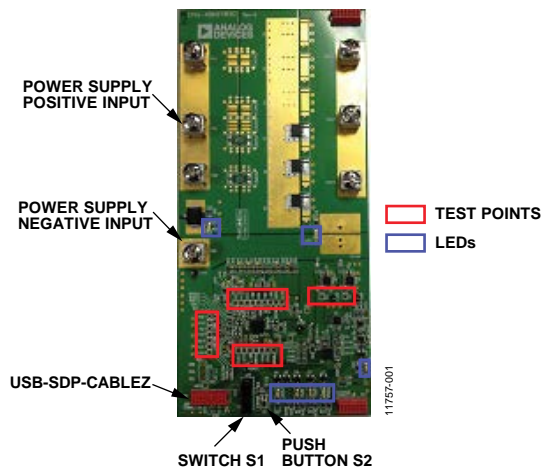


Figure 1.

GENERAL DESCRIPTION

The [EVAL-ADM1278EBZ](#) is a compact full feature evaluation board for the [ADM1278](#). The board layout gives users a clear visual of all the peripheral components and the hot swap power path. The layout also maximizes the board's ability to dissipate heat for some of the key components on the power path, allowing the evaluation of very high current hot swap setups.

Four sense-resistor slots and six multipackage FET slots give users great flexibility and allow a wide range of application setups.

Multiple test points allow easy access to all critical points/pins. Seven LEDs give users direct visual indication on variations in the board status, such as supply input, output, IC power good output, fault output, current sense output, and GPO outputs. An [AD7291](#) 8-channel, I²C, 12-bit SAR ADC allows users to measure voltage such as CSOUT and other pin voltages as well as to read ambient board temperature through an I²C bus in real time.

The kit supports I²C communication, allowing users to communicate with the [ADM1278](#). The evaluation kit also supports cascade setup so multiple evaluation boards can be connected together and share the same I²C bus.

The boards are fully compatible with the [ADM1278](#) evaluation software tool, which can be downloaded from the [ADM1278](#) product page.

Users need a [USB-SDP-CABLEZ](#) USB-to-I²C dongle to use the evaluation software tools.

The standard evaluation kit is prepopulated and tested with a 12 V, 73A hot swap design capable of working with a 3 mF output capacitor.

Complete specifications for the [ADM1278](#) are available in the [ADM1278](#) data sheet from Analog Devices and should be consulted in conjunction with this user guide when using the evaluation boards.

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REVISION HISTORY

7/14—Revision 0: Initial Version

QUICK START GUIDE

1. Download the hot swap and power monitor software from www.analog.com/hotswaptools (see the [UG-353](#) user guide for more information).
2. Connect the evaluation board ([EVAL-ADM1278EBZ](#)) to a PC through the 10-way connector and [USB-SDP-CABLEZ](#).
3. Connect the power supply to the evaluation board ([EVAL-ADM1278EBZ](#)) using thick wires suitable for the current levels that will be observed.
4. To confirm that the boards are configured correctly, set the output of the power supply to 12 V with less than 1 A current limit and with no load capacitance. If the boards are configured correctly, the green LED, labeled PWRGD on the [EVAL-ADM1278EBZ](#) should illuminate.
5. Push the ENABLE switch to the off position or press the push-button on the [EVAL-ADM1278EBZ](#). The green LED, labeled PWRGD should turn off, and then turn back on again when re-enabled.
6. If a fault event occurs (for example, a short circuit during operation), the red LED, labeled **FAULT**, illuminates. This can be cleared by toggling the ENABLE pin after the fault has been removed.
7. Disable the hot swap using the **Hot Swap Control** section of the **Basic Operation** tab of the GUI. Disabling the hot swap should turn off the green LED (PWRGD) on the evaluation board.
8. Manually program the sense resistor value if required using the options in the GUI.
9. Check that the voltage and current measurements are as expected in the **Power Monitor** tab of the software GUI.

EVALUATION BOARD DESCRIPTION

The EVAL-ADM1278EBZ is designed to demonstrate several features of the ADM1278. A simplified drawing of the evaluation board is shown in Figure 2.

The EVAL-ADM1278EBZ is connected to a PC using a USB-SDP-CABLEZ dongle for I²C communication.

The EVAL-ADM1278EBZ is shown in Figure 1. To minimize inductance, use thick wires between the power supply and the EVAL-ADM1278EBZ board connector. The PWRGD, VIN, and VOUT LEDs illuminate green after the board is powered.

The board is intended to be plugged into a system where load capacitance already exists. Two through-hole vias are provided to allow the placement of a load capacitor on the board when testing the board outside of a real system. All testing performed on the board was done with a 3 mF load capacitor.

The EVAL-ADM1278EBZ uses a 10 nF CTIMER1 capacitor to maintain a 1 ms FET safe operating area. The undervoltage and overvoltage thresholds were set using resistor dividers. A resistor divider was also used on the ISET pin to set the current limit to approximately 73 A. The constant power level was set to the 237 W to allow the board to power up while maintaining the FET SOA at all times. These values can all be fine-tuned further if necessary.

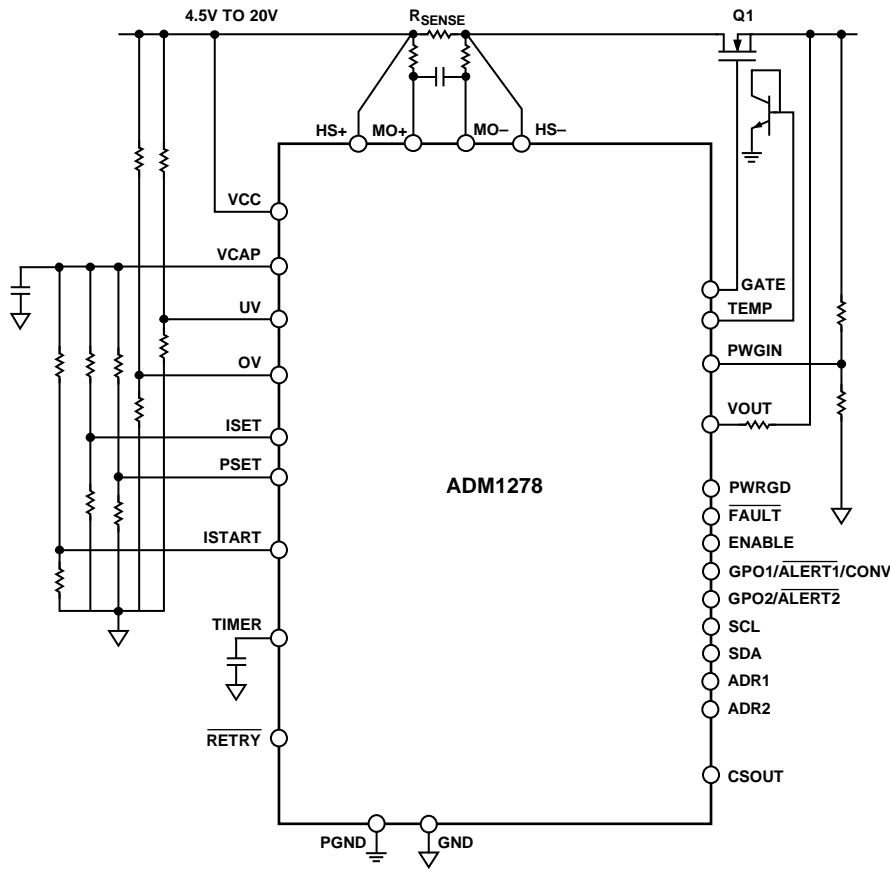


Figure 2. Basic Block Diagram

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The EVAL-ADM1278EBZ has the capability to mimic power throttling by allowing the user to set a programmable threshold on CSOUT. There is a resistor divider on the board to set the CSOUT within the input threshold range of ADC and another resistor divider is used to set it with in the input threshold range of the comparator. When the CSOUT voltage exceeds the comparator threshold programmed by the AD5622 DAC (via the evaluation software), an alert signal is asserted. The yellow LED (D2) will illuminate to mimic this alert signal. The fast response time of the CSOUT pin to a load step (typically 10 μ s) makes it suitable for fast alerts to overcurrent events. For example, it could be used to drive the fast PROCHOT pin of an Intel processor for power throttling.

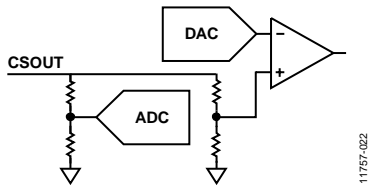


Figure 3.

For the best current sensing accuracy with the footprint shown in Figure 5, chip resistors without a nickel barrier layer (usually in green color) are recommended. The data in this user guide may not be applicable to all resistors and results may vary depending on resistor composition and size. Alternative resistors should be tested independently. It is the responsibility of the user to ensure the layout dimensions and structure of the footprint comply with individual SMT manufacturing requirements. Analog Devices does not accept responsibility for any issues that may arise as a result of using this footprint.

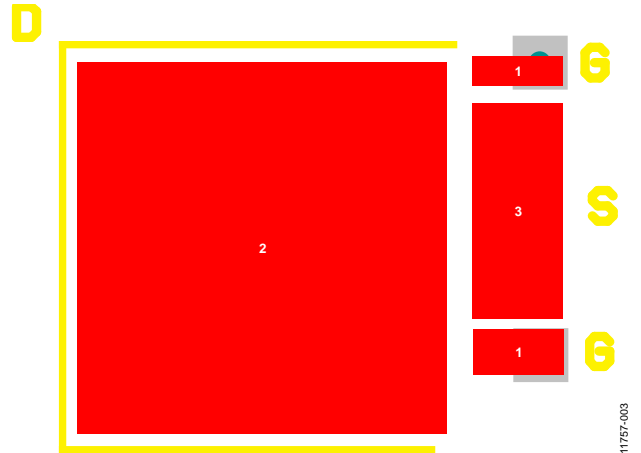


Figure 4. Multipackage N-MOSFET Footprint

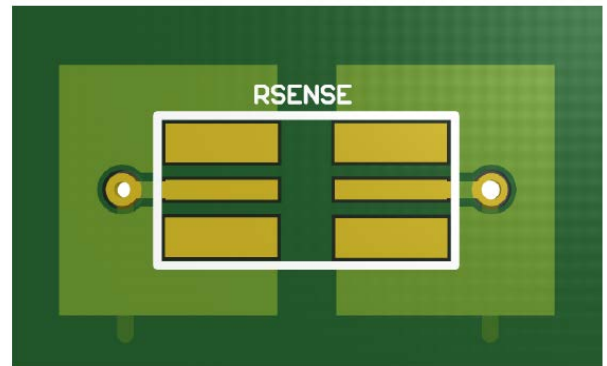


Figure 5. Recommended Sense Resistor Footprint

BOARD SPECIFICATIONS

Table 1.

Parameter	Typical Value	Unit
Load Capacitance	3000	μ F
Circuit Breaker Current	69	A
Regulation Current	73	A
Start-Up Current Limit	9.7	A
Constant Power Foldback	237	W
Ambient Temperature	60	$^{\circ}$ C
UV Falling Threshold	9.2	V
UV Rising Threshold	9.7	V
OV Rising Threshold	16.5	V
PWRGD Falling Threshold	10.1	V
TIMER Regulation	167	μ s

EVALUATION BOARD HARDWARE

SWITCH, JUMPER, AND LED FUNCTIONS

Table 2. Connector Functions

Connector	Description
VIN1, VIN2, VIN3	Hot swap line voltage input, which also powers the board. Input voltage is 4.5 V to 20 V. For low voltage operations, provide auxiliary power input through Connector VCC.
VOUT1, VOUT2, VOUT3	Hot swap line voltage output.
GND	Board common ground.
SK1	10-way connector for USB-SDP-CABLEZ
SK2	Bottom cascade connector; connect with the Micro-MaTch ribbon cable to link with another EVAL-ADM1278EBZ board.
SK4	Top cascade connector; connect with the Micro-MaTch ribbon cable to link with another EVAL-ADM1278EBZ board.

Table 3. Switch Functions

Switch	Description
S1	Toggle switch for the ENABLE pin.
S2	Push-button switch for the ENABLE pin.

Table 4. LED Functions

LED	Description
D2	CSOUT comparator output, active high, yellow
D3	FAULT, active low; red
D4	GPO1, active high; blue
D5	GPO2, active high; blue
D6	Power good, active high; green
D7	Board input power; green
D8	Board output power; green

Table 5. On-Board ICs

IC	Description
U1	ADM1278 , main IC
U2	ADP1720ARMZ-3.3 , 4 V to 28 V input, 3.3 V, 50 mA output LDO; powering EEPROM
U3	64 Kb I ² C EEPROM
U4	AD7291 , ±1°C accurate, 8-channel, I ² C, 12-bit SAR ADC with temperature sensor
U6	ADCMP370AKSZ , general-purpose comparator with open-drain output
U7	AD5622YKSZ , 2.7 V to 5.5 V 12-bit nanoDAC [®] with I ² C compatible interface
U5	ADR435ARMZ , ultralow noise XFET [®] 5 V output

TEST PLOTS

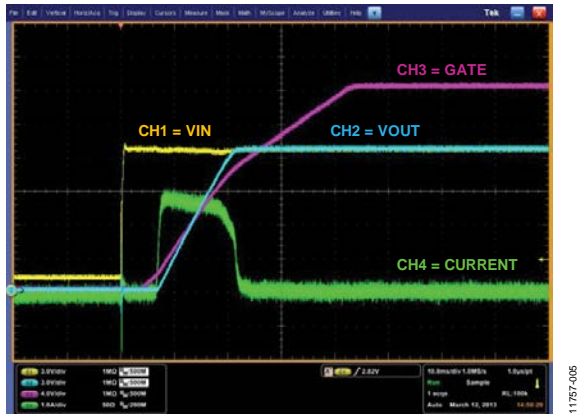


Figure 6. Power Up with 3 mF Load Capacitor and No DC Load

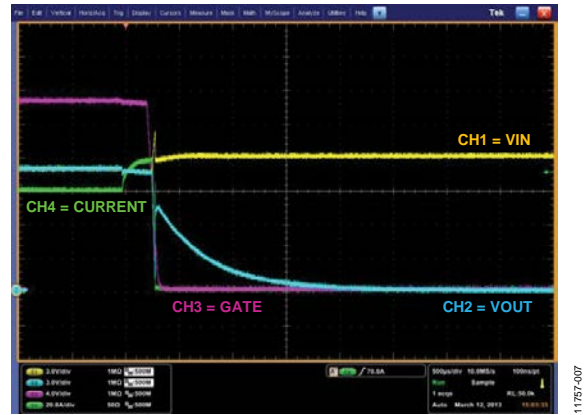


Figure 8. Over Current Shutdown

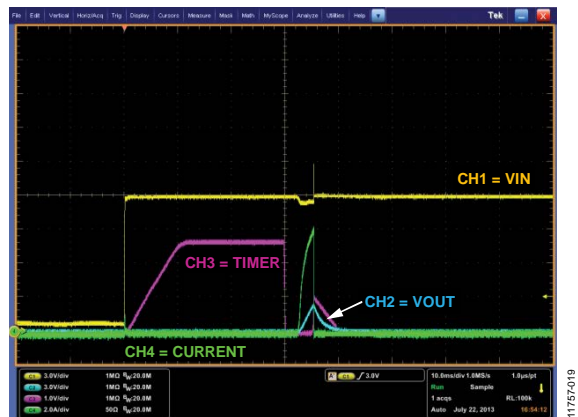


Figure 7. Power up into 0.6 Ω DC Load (Start-Up Current Circuit Break Limit = 6.5 A)

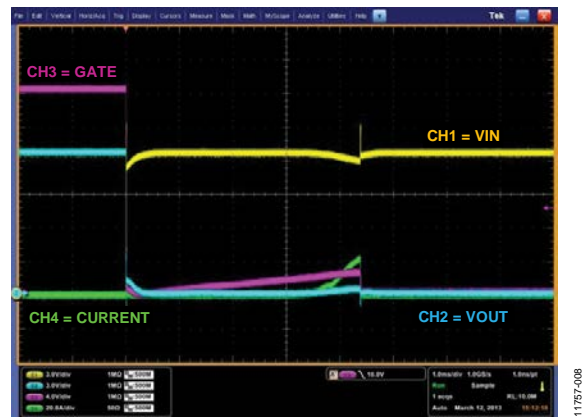


Figure 9. Output Short Circuit

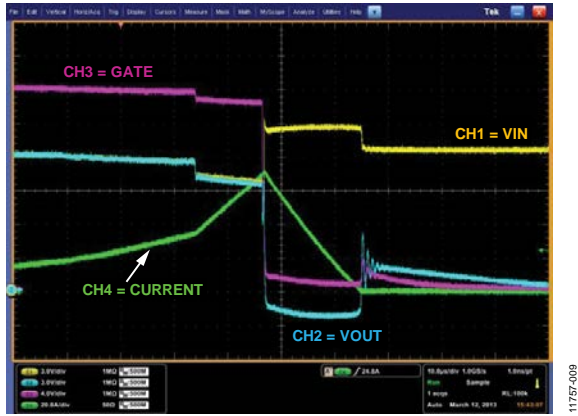


Figure 10. Output Short Circuit (Zoom-In)

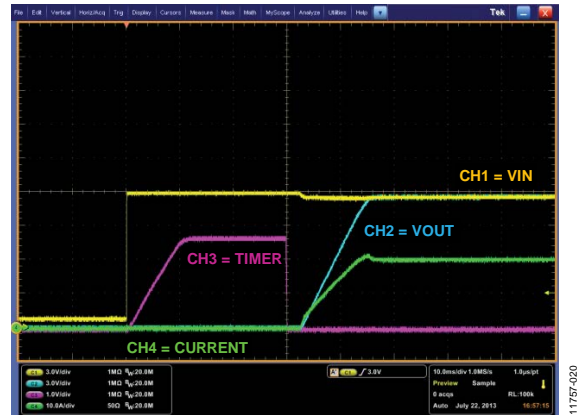


Figure 12. Power Up into 0.6 Ω DC Load with Start-Up Current Limit Disabled;

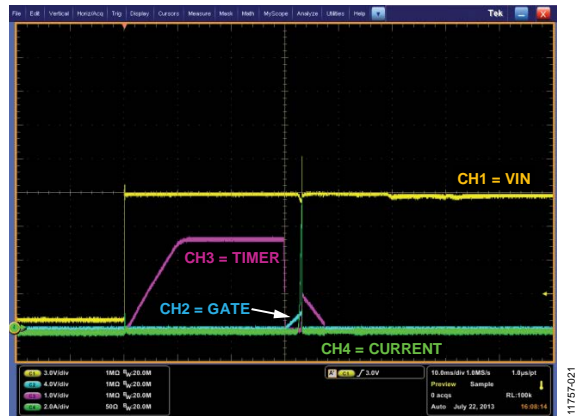


Figure 11. Power Up into Short;

EVALUATION BOARD SCHEMATICS AND ARTWORK

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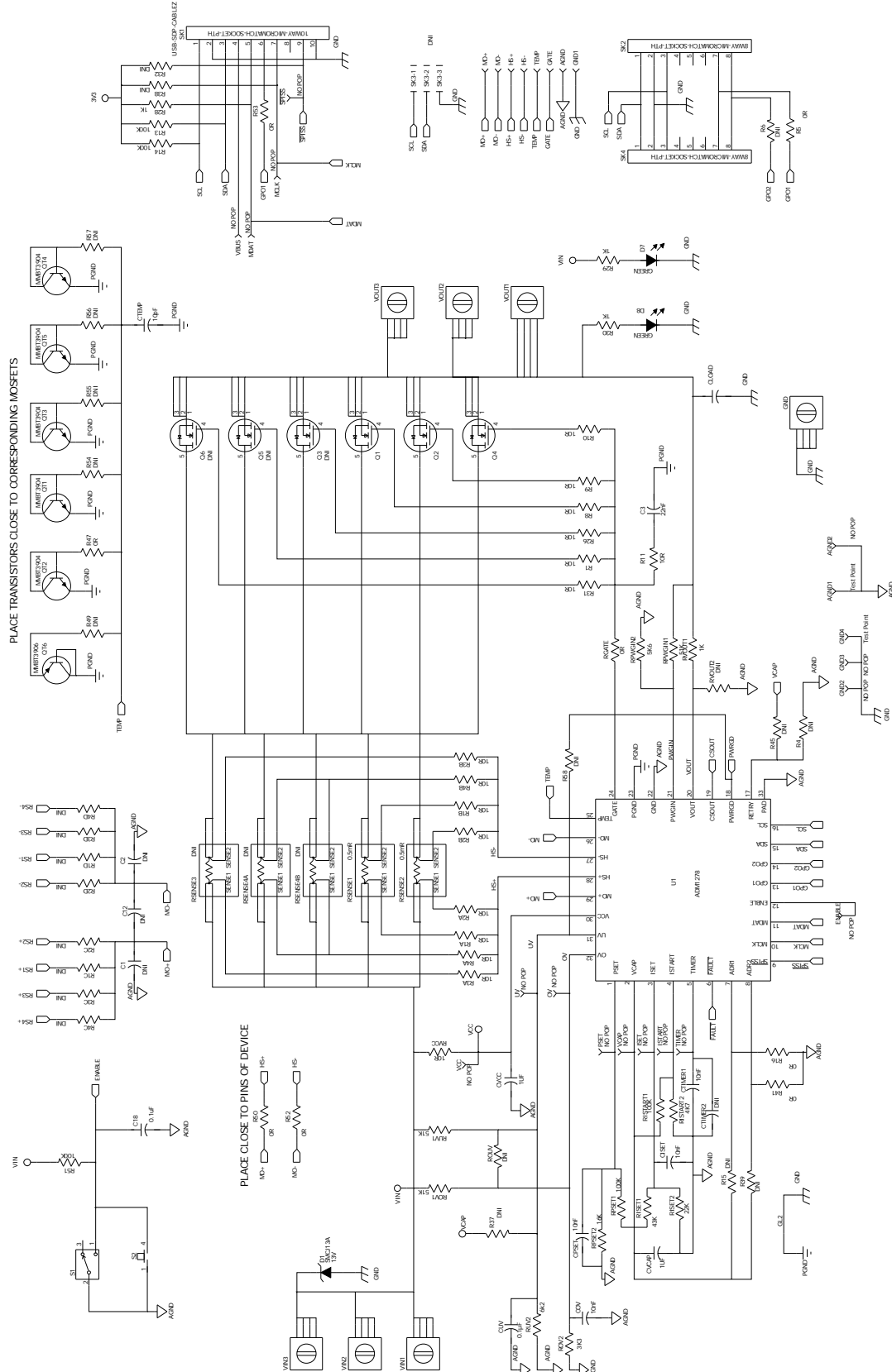


Figure 13. Evaluation Board Schematic 1
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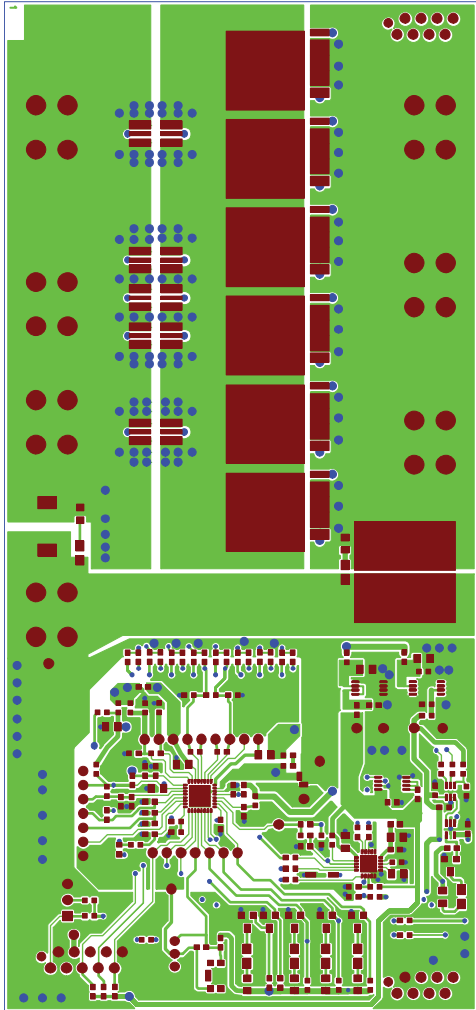


Figure 15. Top Layer 1

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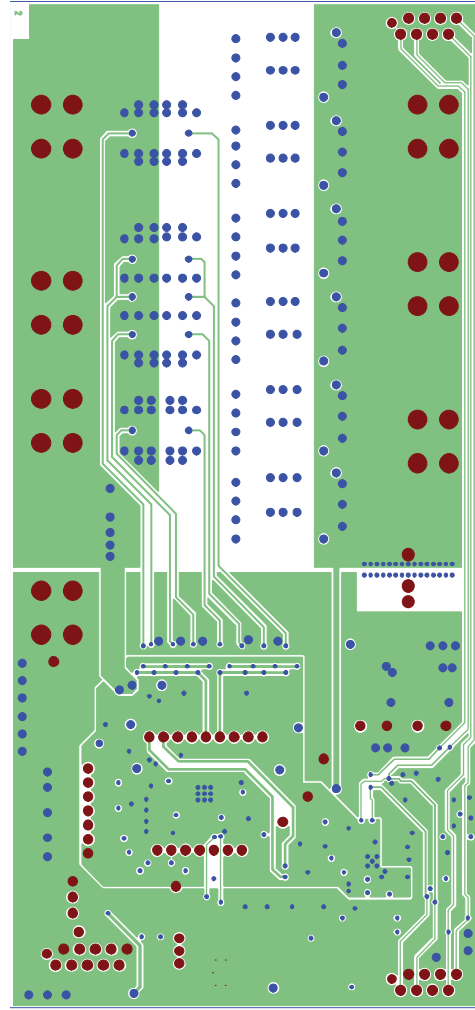


Figure 16. Inner Layer 2

11757-014

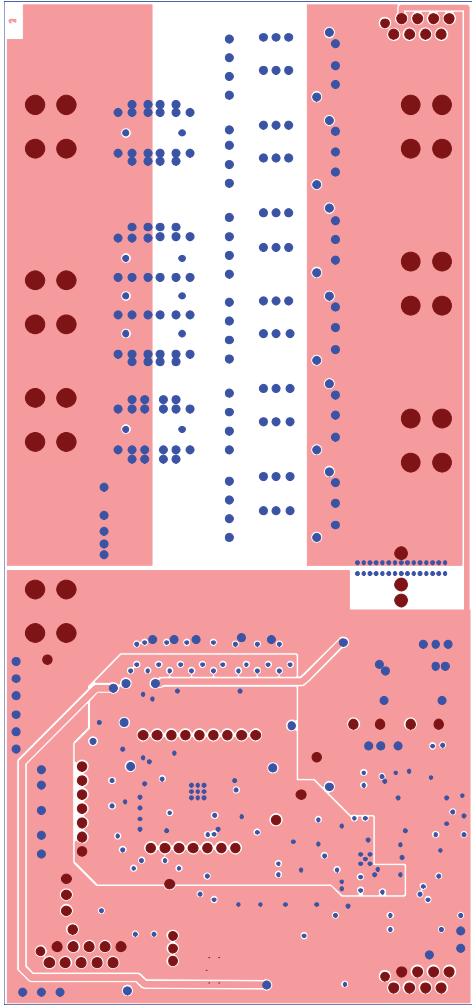


Figure 17. Inner Layer 3

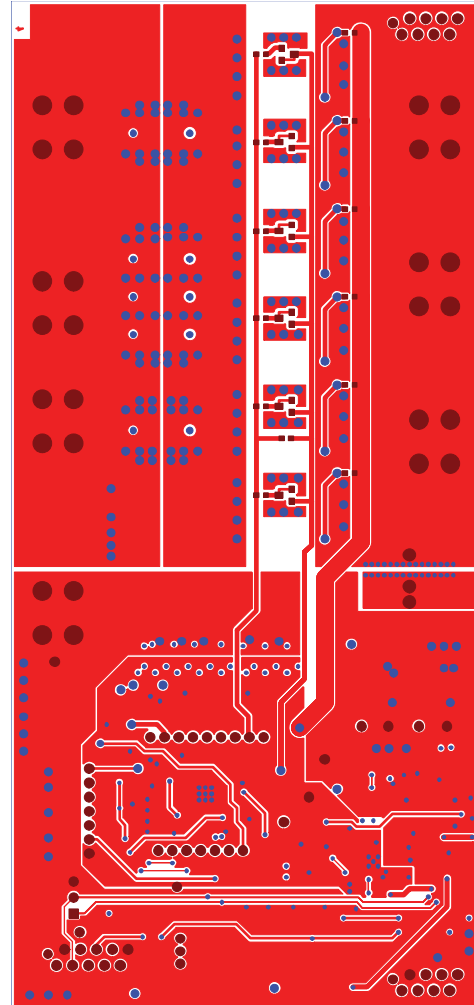
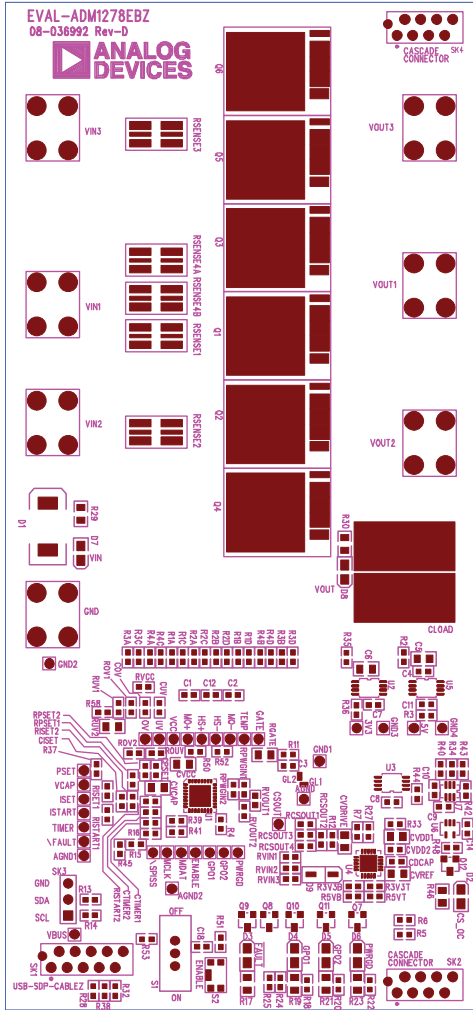
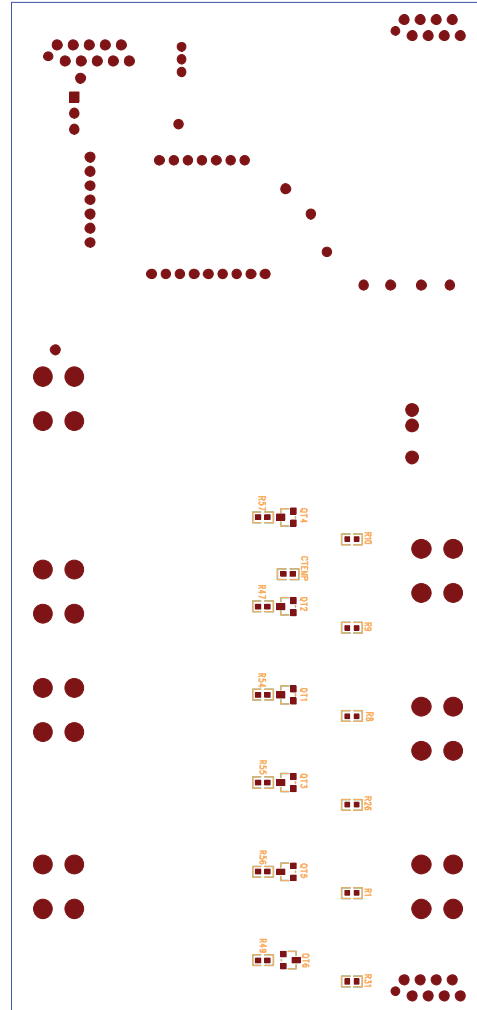


Figure 18. Bottom Layer



11757-017

Figure 19. Assembly Top



11757-018

Figure 20. Assembly Bottom

ORDERING INFORMATION

BILL OF MATERIALS

Table 6.

Reference Designator	Description	Manufacturer/Part Number
3V3	Test point	Do not insert
5V	Test point	Do not insert
AGND	Test point	FEC 8731128
AGND1	Test point	Do not insert
AGND2	Test point	FEC 8731128
C1	Unpopulated capacitor (0603)	Do not insert
C2	Unpopulated capacitor (0603)	Do not insert
C3	Capacitor 0603 22 nF 50 V	FEC 3019755
C4	Capacitor 100 nF 50 V X7R 0603	FEC 1288255
C5	Capacitor 1 μ F 25 V X7R 0805	FEC 1637035
C6	Capacitor 1 μ F 25 V X7R 0805	FEC 1637035
C7	1.0 μ F capacitor 0603	FEC 1611954
C8	Capacitor 100 nF 50 V X7R 0603	FEC 1288255
C9	Capacitor 100 nF 50 V X7R 0603	FEC 1288255
C10	1.0 μ F capacitor 0603	FEC 1611954
C11	Capacitor 100 nF 50 V X7R 0603	FEC 1288255
C12	Unpopulated capacitor (0603)	Do not insert
C14	1.0 μ F capacitor 0603	FEC 1611954
C18	Capacitor 100 nF 50 V X7R 0603	FEC 1288255
CDCAP	1.0 μ F capacitor 0603	FEC 1611954
CISSET	Capacitor 0603 10 nF 50 V X7R	FEC 1414609
CLOAD	Load capacitor	Do not insert
COV	Capacitor 0603 10 nF 50 V X7R	FEC 1414609
CPSET	Capacitor 0603 10 nF 50 V X7R	FEC 1414609
CSOUT	Red test point	Do not insert
CTEMP	Capacitor, ceramic, 10 pF, 50 V, C0G/NP0, 0603	FEC 1414601
CTIMER1	Capacitor 0603 10 nF 50 V	FEC 722236
CTIMER2	Unpopulated capacitor (0603)	Do not insert
CUV	Capacitor 100 nF 50 V X7R 0603	FEC 1288255
CVCAP	Capacitor 1 μ F 25 V X7R 0805	FEC 1637035
CVCC	Capacitor 1 μ F 25 V X7R 0805	FEC 1637035
CVDD1	10 μ F capacitor 0805 X7R 6.3V	FEC 2112846
CVDD2	Capacitor 100 nF 50 V X7R 0603	FEC 1288255
CVDRIVE	10 μ F capacitor 0805 X7R 6.3 V	FEC 2112846
CVREF	10 μ F capacitor 0805 X7R 6.3 V	FEC 2112846
D1	13 V TVS SMC diode SMCJ13A	FEC 1467622
D2	LED, SMD yellow, 0805	FEC 1318247
D3	LED, SMD red 0805	FEC 1318244
D4	LED, SMD blue 0805	FEC 8529876
D5	LED, SMD blue 0805	FEC 8529876
D6	LED, SMD green 0805	FEC 1318243
D7	LED, SMD green 0805	FEC 1318243
D8	LED, SMD green 0805	FEC 1318243
D9	Zener diode, 2.7 V, 0.5 W, SOD-123 BZT52C5V1-V-GS08	FEC 1902432
ENABLE	Test point	Do not insert
GATE	Test point	Do not insert
GND	Terminal screw vertical	Digi-Key 7691K-ND
GND1	Test point	Do not insert
GND2	Test point	FEC 8731128

Reference Designator	Description	Manufacturer/Part Number
GND3	Test point	FEC 8731128
GND4	Test point	FEC 8731128
GPO1	Test point	Do not insert
GPO2	Test point	Do not insert
HS+	Test point	Do not insert
HS-	Test point	Do not insert
ISET	Test point	Do not insert
ISTART	test point	Do not insert
MCLK	Test point	Do not insert
MDAT	Test point	Do not insert
MO+	Test point	Do not insert
MO-	Test point	Do not insert
OV	Test point	Do not insert
PSET	Test point	Do not insert
PWRGD	Red test point	Do not insert
Q1	MOSFET N-CH 25 V 100 A LPAK PSMN0R9-25YLC SOT669-CUSTOM	Digi-Key 568-6720-1-ND
Q2	MOSFET N-CH 25 V 100 A LPAK PSMN0R9-25YLC SOT669-CUSTOM	Digi-Key 568-6720-1-ND
Q3	MOSFET N-CH 25 V 100 A LPAK PSMN0R9-25YLC SOT669-CUSTOM	Do not insert
Q4	MOSFET N-CH 25 V 100 A LPAK PSMN0R9-25YLC SOT669-CUSTOM	Digi-Key 568-6720-1-ND
Q5	MOSFET N-CH 25 V 100 A LPAK PSMN0R9-25YLC SOT669-CUSTOM	Do not insert
Q6	MOSFET N-CH 25 V 100 A LPAK PSMN0R9-25YLC SOT669-CUSTOM	Do not insert
Q7	MOSFET N-CH 60 V 0.115 A SOT23 2N7002-7-F	FEC 1713823
Q8	MOSFET N-CH 60 V 0.115 A SOT23 2N7002-7-F	FEC 1713823
Q9	MOSFET N-CH 60 V 0.115 A SOT23 2N7002-7-F	FEC 1713823
Q10	MOSFET N-CH 60 V 0.115 A SOT-23 2N7002-7-F	FEC 1713823
Q11	MOSFET N-CH 60 V 0.115 A SOT-23 2N7002-7-F	FEC 1713823
Q12	MOSFET N-CH 60 V 0.115 A SOT-23 2N7002-7-F	FEC 1713823
QT1	NPN transistor SOT-23 MMBT3904	FEC 1757935
QT2	NPN transistor SOT-23 MMBT3904	FEC 1757935
QT3	NPN transistor SOT-23 MMBT3904	FEC 1757935
QT4	NPN transistor SOT-23 MMBT3904	FEC 1757935
QT5	NPN transistor SOT-23 MMBT3904	FEC 1757935
QT6	PNP transistor (SOT-23) MMBT3904	FEC 9846832
R1	Resistor 0603 10 Ω	FEC 1738878
R1A	Resistor 0603 0.1 W 10 Ω	FEC 1469751
R1B	Resistor 0603 0.1 W 10 Ω	FEC 1469751
R1C	Unpopulated resistor (0603)	Do not insert
R1D	Unpopulated resistor (0603)	Do not insert
R2	Resistor 0 Ω 0603	FEC 1469739
R2A	Resistor 0603 0.1 W 10 Ω	FEC 1469751
R2B	Resistor 0603 0.1 W 10 Ω	FEC 1469751
R2C	Unpopulated resistor (0603)	Do not insert
R2D	Unpopulated resistor (0603)	Do not insert
R3	Resistor 0 Ω 0603	FEC 1469739
R3A	Resistor 0603 0.1 W 10 Ω	FEC 1469751
R3B	Resistor 0603 0.1 W 10 Ω	FEC 1469751
R3C	Unpopulated resistor (0603)	Do not insert
R3D	Unpopulated resistor (0603)	Do not insert
R3V3B	Resistor 0603 1% 150 k Ω	FEC 2122639
R3V3T	Resistor 0603 1% 100 k Ω	FEC 1469649
R4	Unpopulated resistor (0603)	Do not insert
R4A	Resistor 0603 0.1 W 10 Ω	FEC 1469751
R4B	Resistor 0603 0.1 W 10 Ω	FEC 1469751

Reference Designator	Description	Manufacturer/Part Number
R4C	Unpopulated resistor (0603)	Do not insert
R4D	Unpopulated resistor (0603)	Do not insert
R5	Resistor 0 Ω 0603	FEC 1469739
R5VB	Resistor 0603 1% 66.5 k Ω	FEC 2122597
R5VT	Resistor 0603 1% 100 k Ω	FEC 1469649
R6	Unpopulated resistor (0603)	Do not insert
R7	Resistor 0 Ω 0603	FEC 1469739
R8	Resistor 0603 10 Ω	FEC 1738878
R9	Resistor 0603 10 Ω	FEC 1738878
R10	Resistor 0603 10 Ω	FEC 1738878
R11	Resistor 0603 10 Ω	FEC 1738878
R12	Resistor 0603 1 k Ω 1% 0.1 W	FEC 1469740
R13	Resistor 0603 100 k Ω	FEC 1469649
R14	Resistor 0603 100 k Ω	FEC 1469649
R15	Unpopulated resistor (0603)	Do not insert
R16	Resistor 0 Ω 0603	FEC 1469739
R17	Resistor 0805 1 k Ω 0.33 W 1%	FEC 1738959
R18	Resistor 0603 1% 10 k Ω	FEC 1738918
R19	Resistor 0805 1 k Ω 0.33 W 1%	FEC 1738959
R20	Resistor 0603 1% 10 k Ω	FEC 1738918
R21	Resistor 0805 1 k Ω 0.33 W 1%	FEC 1738959
R22	Resistor 0603 1% 10 k Ω	FEC 1738918
R23	Resistor 0805 1 k Ω 0.33 W 1%	FEC 1738959
R24	Resistor 0603 100 k Ω	FEC 1469649
R25	Resistor 0603 1% 10 k Ω	FEC 1738918
R26	Resistor 0603 10 Ω	FEC 1738878
R27	Resistor 0 Ω 0603	FEC 1469739
R28	Resistor 0603 1 k Ω 1% 0.1 W	FEC 1469740
R29	Resistor 0805 1 k Ω 0.33 W 1%	FEC 1738959
R30	Resistor 0805 1 k Ω 0.33 W 1%	FEC 1738959
R31	Resistor 0603 10 Ω	FEC 1738878
R32	Unpopulated resistor (0603)	Do not insert
R33	Resistor 0 Ω 0603	FEC 1469739
R34	Resistor 0 Ω 0603	FEC 1469739
R35	Resistor 0 Ω 0603	FEC 1469739
R36	Resistor 0 Ω 0603	FEC 1469739
R37	Unpopulated resistor (0603)	Do not insert
R38	Unpopulated resistor (0603)	Do not insert
R39	Unpopulated resistor (0603)	Do not insert
R40	Resistor 0 Ω 0603	FEC 1469739
R41	Resistor 0 Ω 0603	FEC 1469739
R42	Resistor 0 Ω 0603	Do not insert
R43	Resistor 0 Ω 0603	Do not insert
R44	Resistor 0603 1% 10 k Ω	FEC 1738918
R45	Unpopulated resistor (0603)	Do not insert
R46	Resistor 0805 1 k Ω 0.33 W 1%	FEC 1738959
R47	Resistor 0 Ω 0603	FEC 1469739
R48	Resistor 0603 1% 10 k Ω	FEC 1738918
R49	0603 resistor location	Do not insert
R50	Resistor 0 Ω 0603	FEC 1469739
R51	Resistor 0603 100 k Ω	FEC 1469649
R52	Resistor 0 Ω 0603	FEC 1469739
R53	Resistor 0 Ω 0603	FEC 1469739

Reference Designator	Description	Manufacturer/Part Number
R54	0603 resistor location	Do not insert
R55	0603 resistor location	Do not insert
R56	0603 resistor location	Do not insert
R57	0603 resistor location	Do not insert
R58	Unpopulated resistor (0603)	Do not insert
RCSOUT1	Resistor 0603 1% 10 kΩ	FEC 1738918
RCSOUT2	Resistor 0603 1% 13 kΩ	FEC 1652839
RCSOUT3	Resistor 0603 1% 10 kΩ	FEC 1738918
RCSOUT4	Resistor 0603 1% 3.92 kΩ	FEC 2138394
RGATE	Resistor 0 Ω 0805	FEC 1469846
RISSET1	Resistor MC 0.063 W 0603 1% 43 kΩ	FEC 9331204
RISSET2	Resistor MC 0.063 W 0603 1% 22 kΩ	FEC 9330828
RISTART1	Resistor MC 0.063 W 0603 1% 100 kΩ	FEC 9330402
RISTART2	Resistor MC 0.063 W 0603 1% 4.7 kΩ	FEC 9331247
ROUV	Unpopulated resistor (0603)	Do not insert
ROV1	Resistor 0603 51 kΩ 1%	FEC 1469822
ROV2	Resistor 0603 3.3 kΩ	FEC 1738911
RPSET1	Resistor MC 0.063 W 0603 1% 100 kΩ	FEC 9330402
RPSET2	Resistor MC 0.063 W 0603 1% 16 kΩ	FEC 9330674
RPWGIN1	Resistor MC 0.063 W 0603 1% 51 kΩ	FEC 9331310
RPWGIN2	Resistor MC 0.063 W 0603 1% 5.6 kΩ	FEC 9331352
RSENSE1	Sense resistor (2512 case size)	FEC 1292504
RSENSE2	Sense resistor (2512 case size)	FEC 1292504
RSENSE3	Sense resistor (2512 case size)	Do not insert
RSENSE4A	Sense resistor (2512 case size)	Do not insert
RSENSE4B	Sense resistor (2512 case size)	Do not insert
RUV1	Resistor 0603 51KR 1%	FEC 1469822
RUV2	Resistor MC 0.1 W 0805 1% 6.2 kΩ	FEC 9333428
RVCC	Resistor 0603 10 Ω	FEC 1738878
RVIN1	Resistor 0 Ω 0603	FEC 1469739
RVIN2	Resistor 0 Ω 0603	FEC 1469739
RVIN3	Resistor 0 Ω 0603	FEC 1469739
RVOUT1	Resistor 0603 1 kΩ 1% 0.1 W	FEC 1469740
RVOUT2	Unpopulated resistor (0603)	Do not insert
S1	SPDT slide switch	FEC 1123875
S2	Push button, 2.8 mm × 3.8 mm vertical push	FEC 1605470
SK1	10-way Micro-MaTch	FEC 148600
SK2	8-way Micro-MaTch	FEC 148593
SK3	Header right angle 1 row 3-way SIP-3P 2.54 mm	Do not insert
SK4	8-way female PTH socket Micro-MaTch	FEC 148593
TEMP	Test point	Do not insert
TIMER	Test point	Do not insert
U1	ADM1278 hot swap controller and digital power and energy monitor	ADM1278-2ACPZ
U2	50 mA, high voltage, micropower linear regulator 3.3 V	ADP1720ARMZ-3.3-R7
U3	IC EEPROM serial 64KB SMD MSOP8	FEC 1331335
U4	8-channel, I ² C, 12-bit SAR ADC with temperature sensor	AD7291BCPZ
U5	Ultralow noise XFET voltage references	ADR435ARMZ
U6	Comparator	ADCMP370AKSZ-REEL
U7	12-bit DAC	AD5622YKSZ-2500RL7
UV	Test point	Do not insert
VBUS	Test point	Do not insert
VCAP	Test point	Do not insert
VCC	Test point	Do not insert

Reference Designator	Description	Manufacturer/Part Number
VIN1	Terminal screw vertical	Digi-Key 7691K-ND
VIN2	Terminal screw vertical	Digi-Key 7691K-ND
VIN3	Terminal screw vertical	Digi-Key 7691K-ND
VOUT1	Terminal screw vertical	Digi-Key 7691K-ND
VOUT2	Terminal screw vertical	Digi-Key 7691K-ND
VOUT3	Terminal screw vertical	Digi-Key 7691K-ND
FAULT	Test point	Do not insert
SPISS	Test point	Do not insert

RELATED LINKS

Resource	Description
AD5622	Product Page, 2.7 V to 5.5 V 12-Bit <i>nanoDAC</i> ® with I ² C Compatible Interface
AD7291	Product Page, ±1°C Accurate, 8-Channel, I ² C, 12-Bit SAR ADC with Temperature Sensor
ADCMP370	Product Page, General-Purpose Comparator with Open-Drain Output
ADM1278	Product Page, Hot Swap Controller and Digital Power and Energy Monitor with PMBus Interface
ADP1720	Product Page, 4 V to 28 V Input, 3.3 V, 50 mA Output LDO; Powering EEPROM
ADR435	Product Page, Ultralow Noise XFET® 3.5 μV p-p at 2.5 V Output

NOTES

NOTES

**ESD Caution**

ESD (electrostatic discharge) sensitive device. Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.

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