ALM2402-Q1 Dual High-Current Amplifier

This document explains the usage and provides schematics for the simple ALM2402Q1EVM.

Contents

1 Introduction 1
1.1 Using the ALM2402Q1EVM 1

List of Figures

1 ALM2402Q1EVM Schematic 2
2 ALM2402Q1EVM Schematic (with DNP for open footprints) 3
3 ALM2402Q1EVM Bill of Materials 4

1 Introduction

1.1 Using the ALM2402Q1EVM

The ALM2402Q1EVM is intended to be very simple. Test points throughout the board allow a connection to every pin of the device. The board is full of empty resistor footprints in order to allow the customer full customization of their ALM2402Q1 test circuit. For most paths, non-populated resistor footprints are in parallel to allow for any variation in resistor sizes the customer may use. There are many more options for load resistor footprint sizes, as the ALM2402Q1 is able to output hundreds of mA. For small resistive loads, use the larger available footprints and populate with resistors with higher power dissipation ratings.

By default, the ALM2402Q1EVM is configured as a unity gain amplifier for both of the amplifiers inside the ALM2402Q1.

See Figure 1 for the full schematic, and Figure 2 for the board schematic explaining which resistors are not populated.

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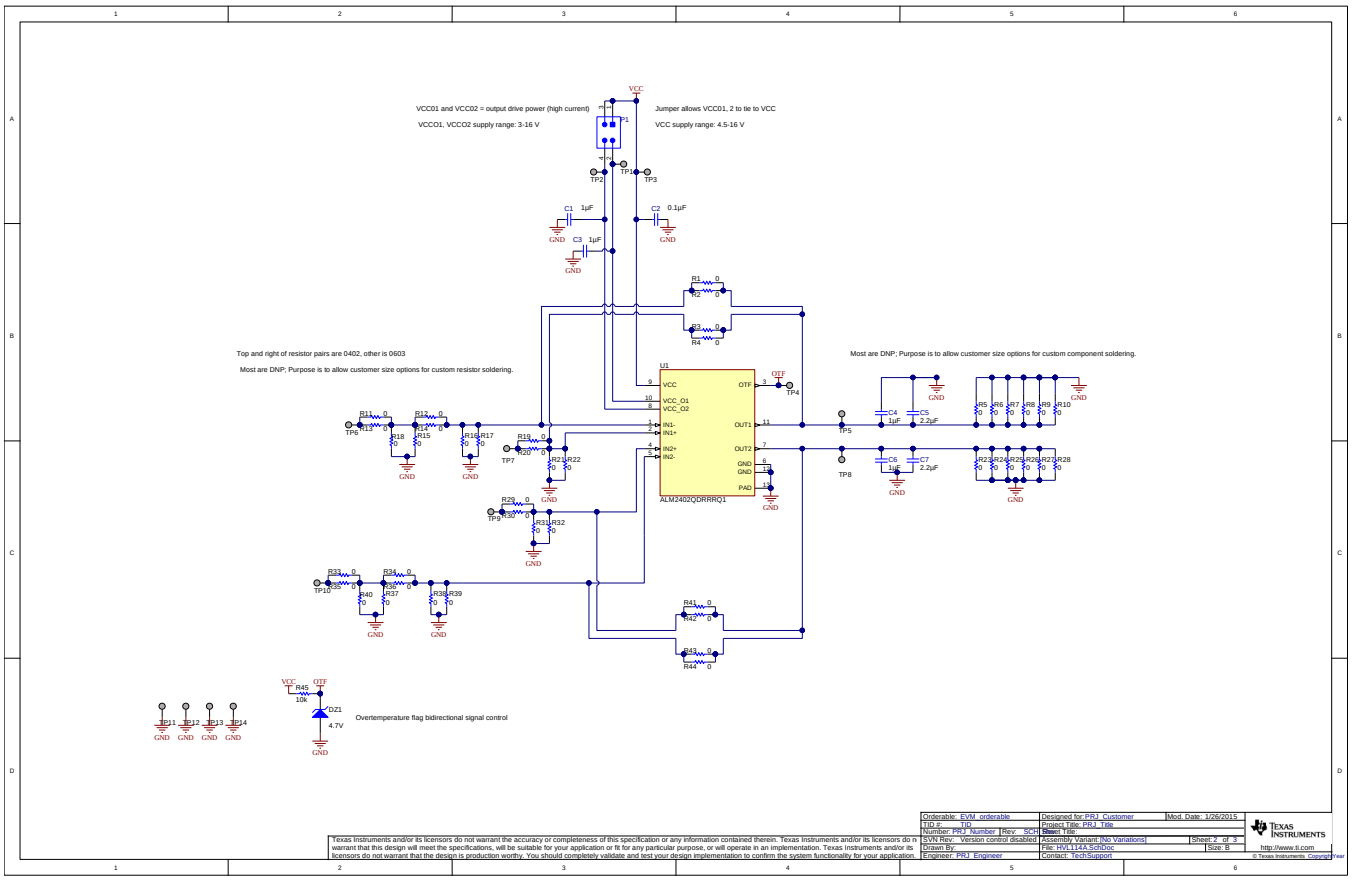

Figure 1. ALM2402Q1EVM Schematic

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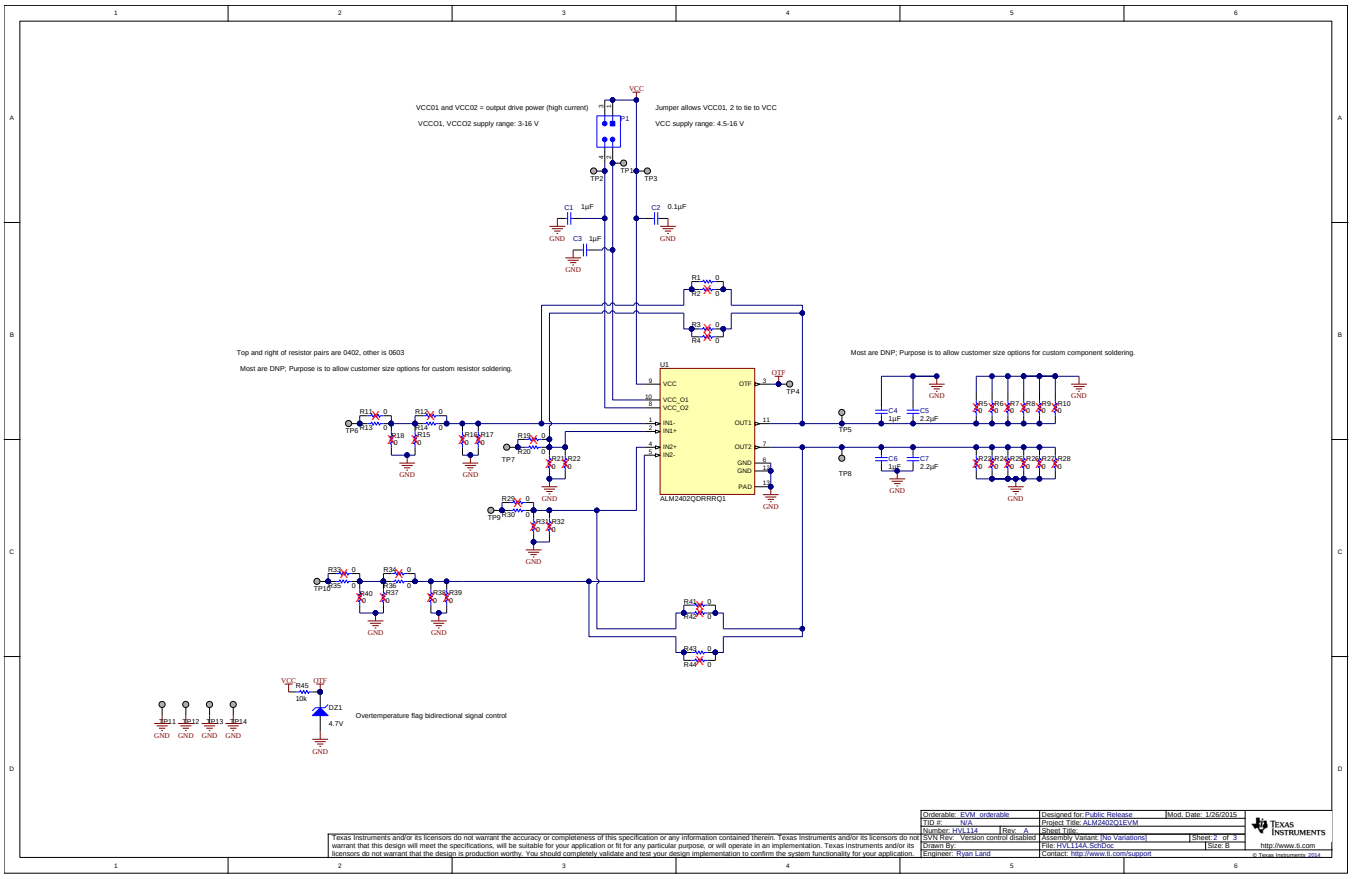

Figure 2. ALM2402Q1EVM Schematic (with DNP for open footprints)

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Designator	Quantity	Value	Description	PackageReference	PartNumber	Manufacturer
!PCB1	1		Printed Circuit Board		HVL114	Any
C1, C3	2	1uF	CAP, CERM, 1 µF, 6.3 V, +/- 10%, X5R, 0603	0603	C1608X5R0J105K	TDK
C2	1	0.1uF	CAP, CERM, 0.1 µF, 16 V, +/- 10%, X5R, 0603	0603	GRM188R61C104KA01D	MuRata
DZ1	1	4.7V	Diode, Zener, 4.7 V, 550 mW, SMB	SMB	1SMB5917BT3G	ON Semiconductor
P1	1		Header, 100mil, 2x2, Tin, SMT	2x2 100mil Tin Header	15-91-2040	Molex
R1, R43	2	0	RES, 0, 5%, 0.063 W, 0402	0402	ERJ-2GE0R00X	Panasonic
R13, R14, R20, R30, R35, R36	6	0	RES, 0, 5%, 0.1 W, 0603	0603	ERJ-3GEY0R00V	Panasonic
R45	1	10k	RES, 10 k, 5%, 0.063 W, 0402	0402	CRCW040210K0JNED	Vishay-Dale
TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10	10		Test Point, Miniature, SMT	Test Point, Miniature, SMT	5019	Keystone
U1	1		Dual Opamp with High Current Output, DRR0012A	DRR0012A	ALM2402QDRRRQ1	Texas Instruments
C4, C6	0	1uF	CAP, CERM, 1 µF, 25 V, +/- 10%, X7R, 0805	0805	GRM21BR71E105KA99L	MuRata
C5, C7	0	2.2uF	CAP, CERM, 2.2 µF, 50 V, +/- 10%, X7R, 1206	1206	GRM31CR71H225KA88L	MuRata
FID1, FID2, FID3	0		Fiducial mark. There is nothing to buy or mount.	Fiducial	N/A	N/A
R2, R4, R10, R16, R18, R21, R23, R31, R38, R40, R42, R44	0	0	RES, 0, 5%, 0.1 W, 0603	0603	ERJ-3GEY0R00V	Panasonic
R3, R9, R11, R12, R15, R17, R19, R22, R24, R29, R32, R33, R34, R37, R39, R41	0	0	RES, 0, 5%, 0.063 W, 0402	0402	ERJ-2GE0R00X	Panasonic
R5, R28	0	0	RES, 0, 5%, 1 W, 2512	2512	CRCW25120000Z0EG	Vishay-Dale
R6, R27	0	0	RES, 0, 5%, 0.75 W, 2010	2010	CRCW20100000Z0EF	Vishay-Dale
R7, R26	0	0	RES, 0, 5%, 0.25 W, 1206	1206	ERJ-8GEY0R00V	Panasonic
R8, R25	0	0	RES, 0, 5%, 0.125 W, 0805	0805	ERJ-6GEY0R00V	Panasonic

Figure 3. ALM2402Q1EVM Bill of Materials

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