Demo Board Schematic/Layout

CONFIGURATION INFORMATION
for the EDC023 demonstration circuit board

Thank you for choosing to evaluate this product.

The following notes will help you to identify which version of the printed circuit board assembly you have received.

All revisions of the EDC023 printed board can be configured to support the A3986 and 4989 ICs or the A3985 IC.

The primary source of identification of the type of board you have received is the label attached to the outside of the antistatic bag the demonstration board was delivered.

Labels with the marking **APEK3986SLD** and **APEK4989SLD** confirm the printed board assembly is configured both for the A3986 and A4989.

These two products may be fitted into the IC socket on the board without requiring any modification.

Printed circuit board designs from EDC023R2 onwards include both A3986 and A4989 in the component legend. Revisions EDC023R0 and EDC023R1 only list A3986 in the legend.

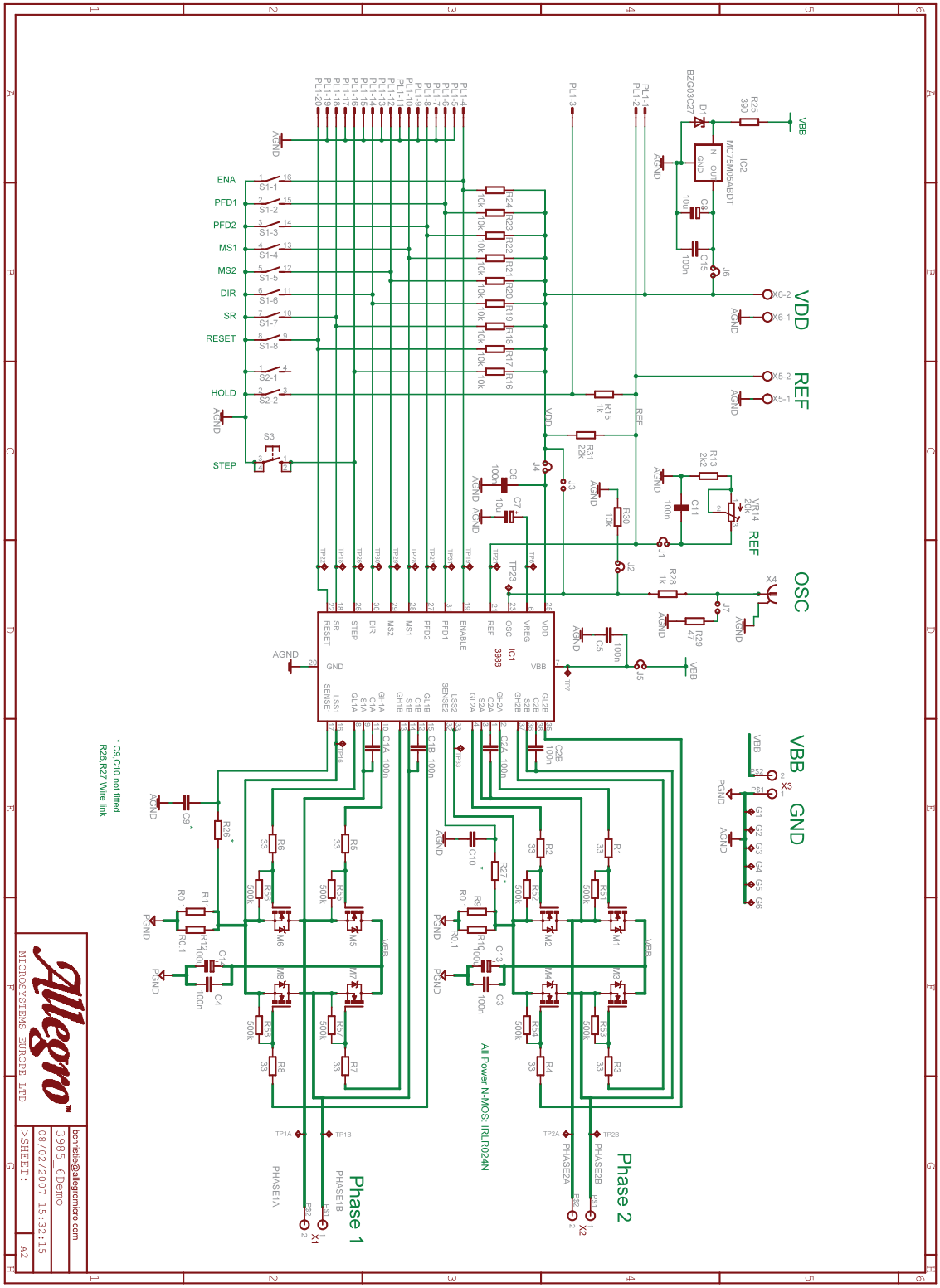
A secondary source of identification is the absence of the BNC connector, X4, on the printed board assembly.

Labels with the marking **APEK3985SLD** confirm the printed circuit assembly is configured for the A3985 IC only. This version cannot be used with either A3986 or A4989 ICs without modification.

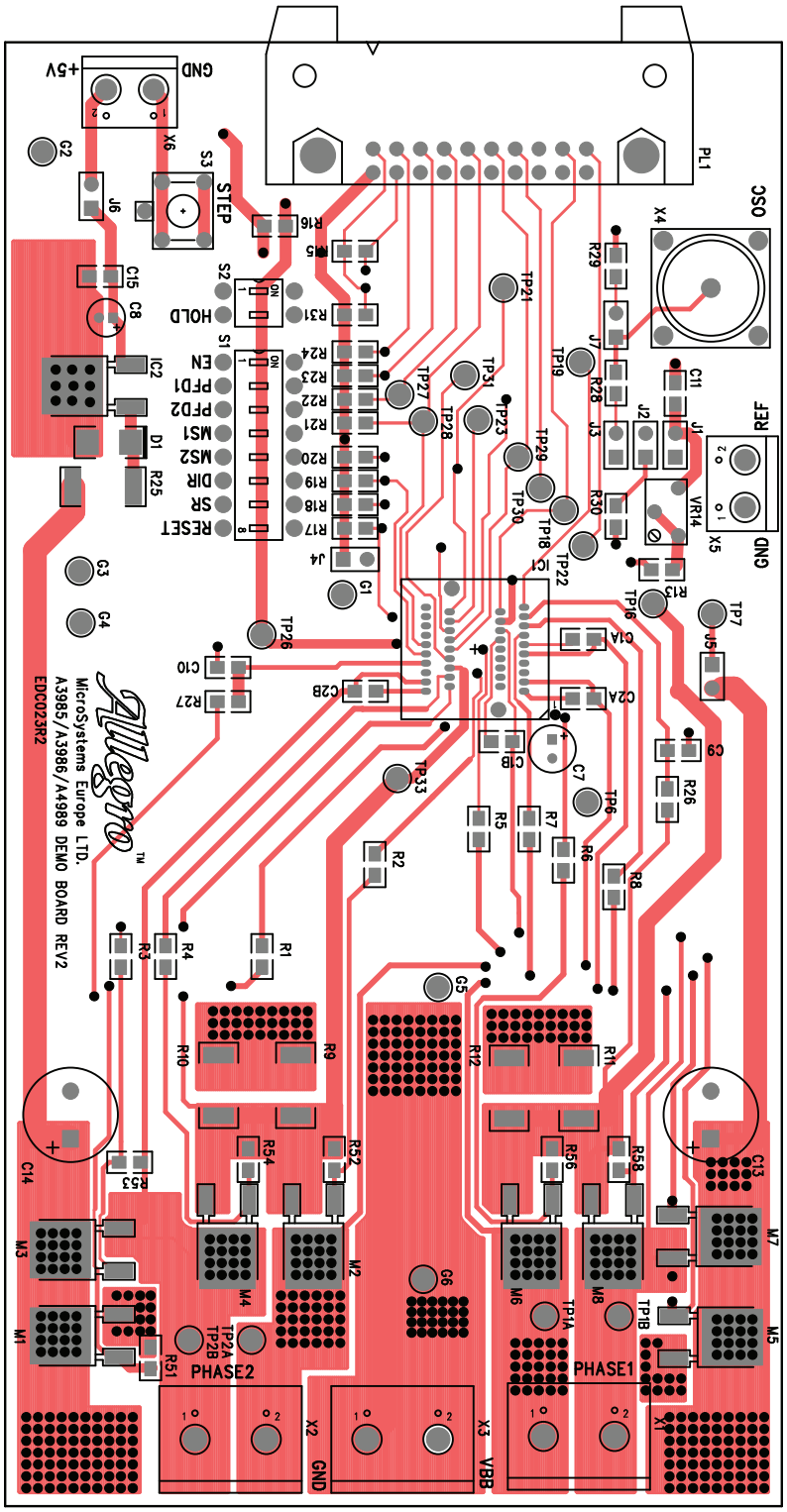
The secondary source of confirmation is the presence of the BNC connector, X4 on the board.

If you need more assistance or advice on how to modify this demonstration board, contact your regional Allegro field applications engineer, found at http://www.allegromicro.com/Design-Center/Technical-Assistance.aspx.

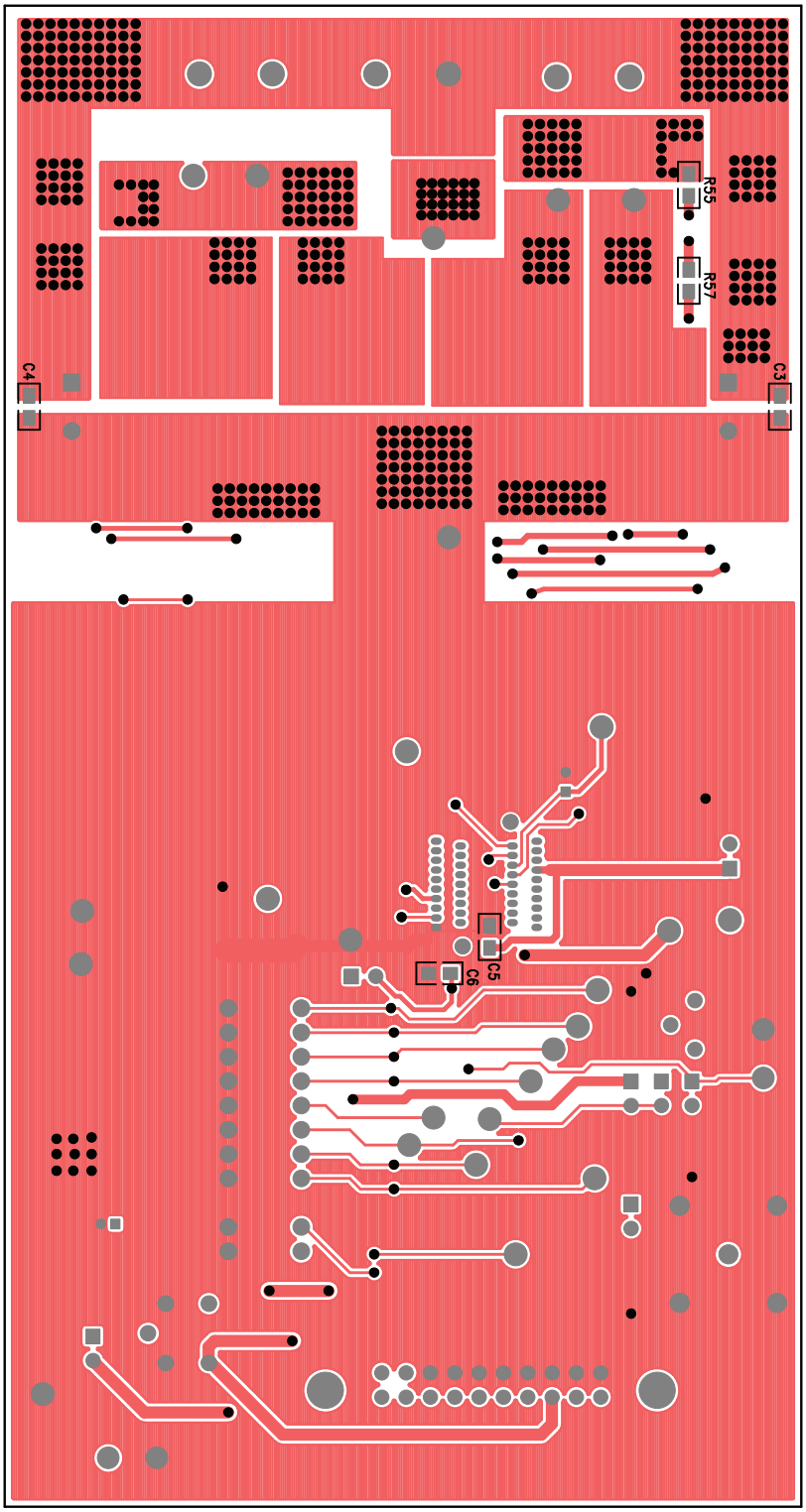
SCHEMATIC


VDD
REF
OSC
VBB
GND
Phase 1
Phase 2
IC1
3986
IC2
MC78M05ABDT
All Power N-MOS: IRLR0024N
* C9,C10 not fitted.
R26 R27 Wire link
Allegro
MICROSYSTEMS EUROPE LTD
bchristie@allegromicro.com
3985_GDemo
08/02/2007 15:32:15
A2

LAYOUT


+5V
GND
X6
S3
STEP
OSC
X4
PL1
REF
X5
GND
VR14
HOLD
EN
PFD1
PFD2
MS1
MS2
DIR
SR
RESET
PHASE2
PHASE1
X2
GND
X3
VBB
X1
Allegro
MicroSystems Europe LTD.
A3985/A3986/A4989 DEMO BOARD REV2
EDC023R2

LAYOUT



BILL OF MATERIALS

A3986/A4989 Demo Board Rev2 Component List

All components to be RoHS compliant

Part	Value	Description	Package	RS Part
C1A	100n	Chip capacitor, ceramic, 20V	SMT 0805	464-6688
C1B	100n	Chip capacitor, ceramic, 20V	SMT 0805	464-6688
C2A	100n	Chip capacitor, ceramic, 20V	SMT 0805	464-6688
C2B	100n	Chip capacitor, ceramic, 20V	SMT 0805	464-6688
C3	100n	Chip capacitor, ceramic, 50V	SMT 0805	464-6688
C4	100n	Chip capacitor, ceramic, 50V	SMT 0805	464-6688
C5	100n	Chip capacitor, ceramic, 50V	SMT 0805	464-6688
C6	100n	Chip capacitor, ceramic, 10V	SMT 0805	464-6688
C7	10u	Alu, El'ytic, 35V 105C	5 / 2mm	414-9064
C8	10u	Alu, El'ytic, 16V 105C	4 / 1.5mm	414-9008
C9	Not Fitted			
C10	Not Fitted			
C11	100n	Chip capacitor, ceramic, 10V	SMT 0805	464-6688
C13	100u	Alu, Low R, El'ytic, 63V, 105C	10 / 5mm	315-0962
C14	100u	Alu, Low R, El'ytic, 63V, 105C	10 / 5mm	315-0962
C15	100n	Chip capacitor, ceramic, 10V	SMT 0805	464-6688
D1	BZG03C27	27V 3W Zener Diode	SMA (DO214)	543-9879
Gx	\	Test Point, Black (x6 per pcb)	1.32mm Hole	262-2214
IC1	A3986/A4989	Dual H/Stepper FET Driver	TSSOP38 Socket	\
		(Wells CTI part no. 656J0382212)		
IC2	MC78M05ABDT	Linear 5V regulator	D-PAK	516-5922
J1	\	Jumper Header, 2-way, 7mm H	2.54mm	251-8086
J2	\	Jumper Header, 2-way, 7mm H	2.54mm	251-8086
J3	\	Jumper Header, 2-way, 7mm H	2.54mm	251-8086
J4	\	Jumper Header, 2-way, 7mm H	2.54mm	251-8086
J5	\	Jumper Header, 2-way, 7mm H	2.54mm	251-8086
J6	\	Jumper Header, 2-way, 7mm H	2.54mm	251-8086
J7	Not Fitted			
M1	IRFR024NPBF	Power MOSFET	D-PAK	540-9913
M2	IRFR024NPBF	Power MOSFET	D-PAK	540-9913
M3	IRFR024NPBF	Power MOSFET	D-PAK	540-9913
M4	IRFR024NPBF	Power MOSFET	D-PAK	540-9913
M5	IRFR024NPBF	Power MOSFET	D-PAK	540-9913
M6	IRFR024NPBF	Power MOSFET	D-PAK	540-9913
M7	IRFR024NPBF	Power MOSFET	D-PAK	540-9913
M8	IRFR024NPBF	Power MOSFET	D-PAK	540-9913
PL1	\	IDC Connector, 20way, 3M	\	542-9125
R1	33	Chip Resistor	SMT 0805	223-0225
R2	33	Chip Resistor	SMT 0805	223-0225
R3	33	Chip Resistor	SMT 0805	223-0225
R4	33	Chip Resistor	SMT 0805	223-0225
R5	33	Chip Resistor	SMT 0805	223-0225
R6	33	Chip Resistor	SMT 0805	223-0225
R7	33	Chip Resistor	SMT 0805	223-0225

Part	Value	Description	Package	RS Part
R8	33	Chip Resistor	SMT 0805	223-0225
R9	0.1	1W Chip Resistor	SMT 2512	223-0972
R10	0.1	1W Chip Resistor	SMT 2512	223-0972
R11	0.1	1W Chip Resistor	SMT 2512	223-0972
R12	0.1	1W Chip Resistor	SMT 2512	223-0972
R13	2k2	Chip Resistor	SMT 0805	223-0477
R15	1k	Chip Resistor	SMT 0805	223-0427
R16	10k	Chip Resistor	SMT 0805	223-0562
R17	10k	Chip Resistor	SMT 0805	223-0562
R18	10k	Chip Resistor	SMT 0805	223-0562
R19	10k	Chip Resistor	SMT 0805	223-0562
R20	10k	Chip Resistor	SMT 0805	223-0562
R21	10k	Chip Resistor	SMT 0805	223-0562
R22	10k	Chip Resistor	SMT 0805	223-0562
R23	10k	Chip Resistor	SMT 0805	223-0562
R24	10k	Chip Resistor	SMT 0805	223-0562
R25	390	Resistor, 1 watt	SMT 2512	224-0351
R26	0R	Chip Resistor (shorting)	SMT 0805	223-0146
R27	0R	Chip Resistor (shorting)	SMT 0805	223-0146
R28	Not Fitted			
R29	Not Fitted			
R30	10k	Chip Resistor	SMT 0805	223-0562
R31	22k	Chip Resistor	SMT 0805	223-0607
R51	470k	Chip Resistor	SMT 0805	223-0786
R52	470k	Chip Resistor	SMT 0805	223-0786
R53	470k	Chip Resistor	SMT 0805	223-0786
R54	470k	Chip Resistor	SMT 0805	223-0786
R55	470k	Chip Resistor	SMT 0805	223-0786
R56	470k	Chip Resistor	SMT 0805	223-0786
R57	470k	Chip Resistor	SMT 0805	223-0786
R58	470k	Chip Resistor	SMT 0805	223-0786
S1	\	DIP Switch, 8-pole	DIL-16	342-118
S2	\	DIP Switch, 2-pole	DIL-4	342-095
S3	\	Switch, Tactile Push	6mm	378-6410
TPx	\	Test Point, Red (x19 per pcb)	1.32mm Hole	262-2220
VR14	20k	Multiturn Cermet Trim Resistor	6mm	521-9259
X1	\	2way Screw Terminal, 300mils	7.62mm	189-5966
X2	\	2way Screw Terminal, 300mils	7.62mm	189-5966
X3	\	2way Screw Terminal, 300mils	7.62mm	189-5966
X4	Not Fitted			
X5	\	2way Screw Terminal, 200mils	5.08mm	425-8720
X6	\	2way Screw Terminal, 200mils	5.08mm	425-8720
\	\	Jumper Shorting Link (Red)*	\	251-8531
\	\	Rubber Feet**	8mm dia	388-7030

BOARD BUILD NOTES:-

(1) *Jumper shorting link = Fit x5 per board (all except J3).
(2) **Rubber Feet = Fit x5 per board, 1 in each corner (as near as possible) & 1 in centre near socket.
(3) Final 'active' stage = board wash (no flux present on finished boards).
(4) No manufacturer stick-on label's on topside of pcb, bottom side only.
(5) PCB to be a smooth routed finish with no breakout 'lugs' remaining.

Revision History

Number	Date	Description
–	August 22, 2016	Initial release

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www.allegromicro.com