

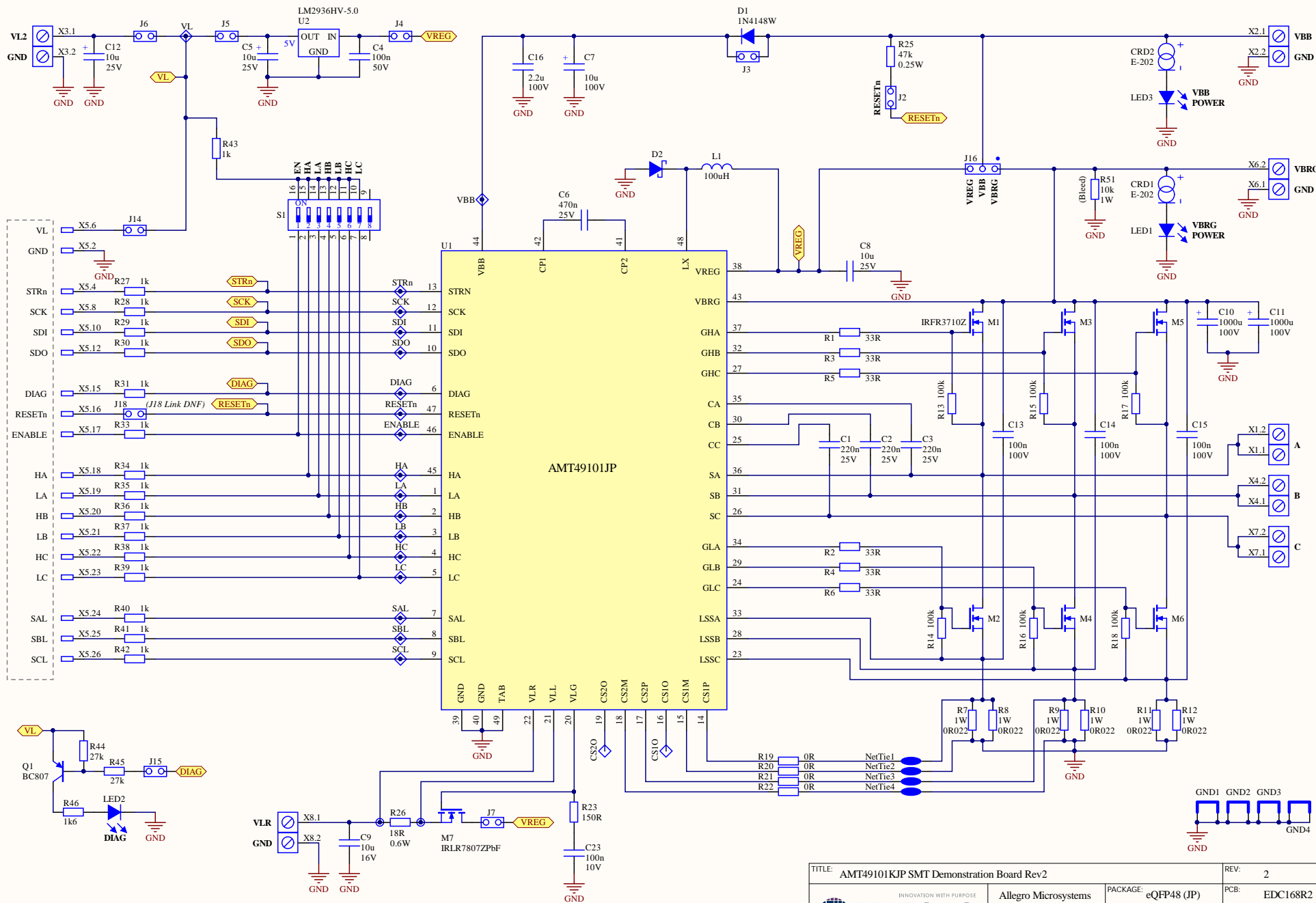


Board title:


AMT49101KJP-A-3 SMT Demonstration Board Rev2

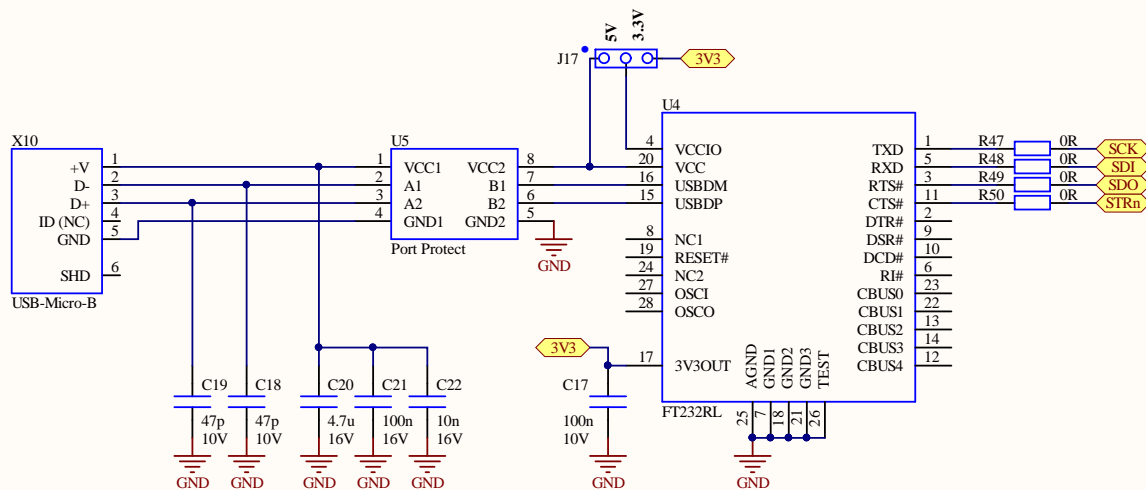
PCB reference:

EDC168R2



Note: **Bold** font = Text to be visible on PCB silkscreen.

TITLE: AMT49101KJP SMT Demonstration Board Rev2		REV: 2	
	Allegro Microsystems 955 Premier Road Manchester NH 03103 USA	PACKAGE: eQFP48 (JP)	PCB: EDC168R2
		AUTHOR: M.Hunkin	DATE: 29th Jan 2020
		SIZE: B4	SHEET: 1 of 2



Jumper J16 - Power configurations:-

1. If AMT49101 buck regulator disabled (BRE bit in the device System register set to 0), link VREG to VBB on J16, connect a regulated supply to X2 and bridge supply to X6.
2. If AMT49101 buck regulator enabled (BRE bit in the device System register set to 1), link VBB to VBRG on J16, connect bridge supply to X6.

Refer to AMT49101 datasheet for further information including permissible supply voltage ranges.

Jumper J17:-


Set J17 to 5V or 3.3V to match the AMT49101 Logic I/O Regulator Voltage, VIO, value as set by the VIO bit in the device System register.

Refer to AMT49101 datasheet for further information.

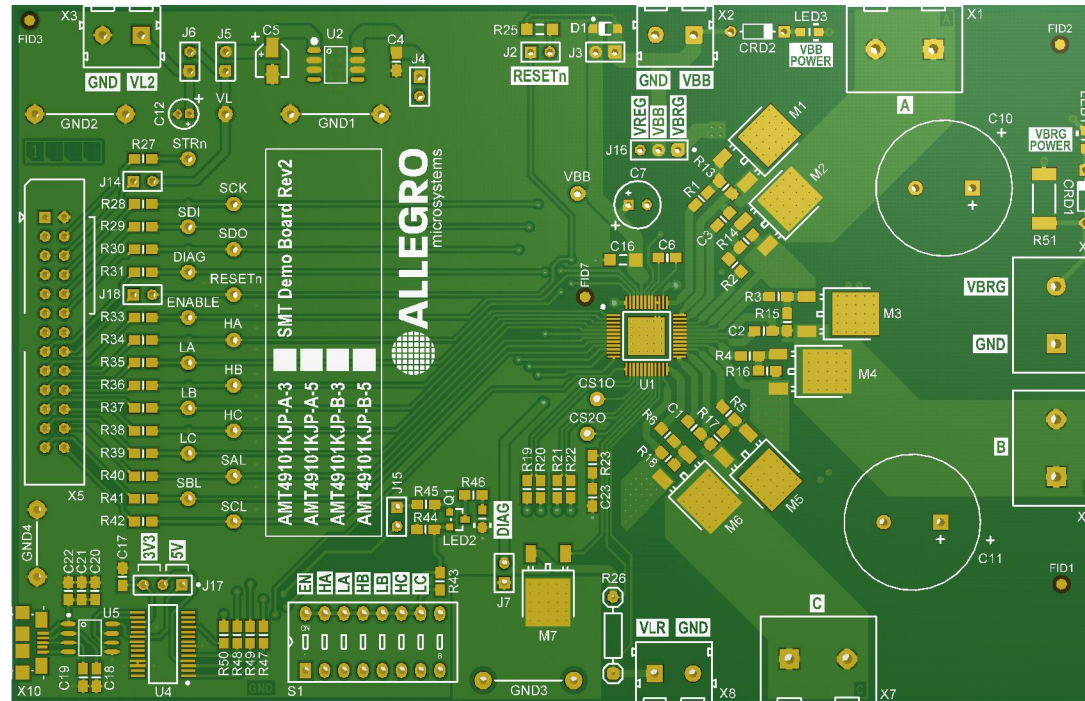
X5 pinout:- (IDC26) (top view)

1		GND	2
3		STRn	4
5		VL	6
7		SCK	8
9		SDI	10
11		SDO	12
13			14
15	DIAG	RSTn	16
17	EN	HA	18
19	LA	HB	20
21	LB	HC	22
23	LC	SAL	24
25	SBL	SCL	26

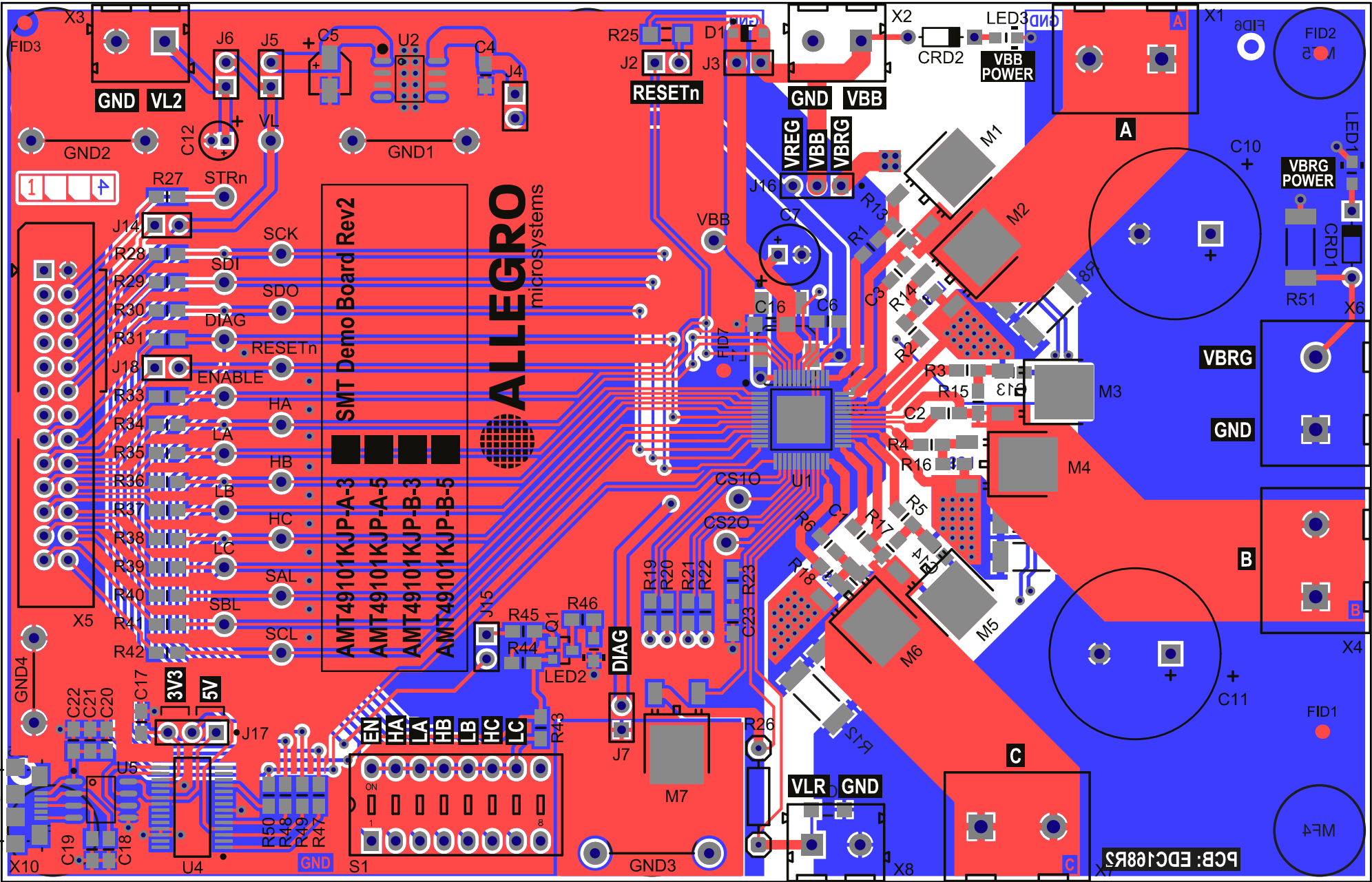
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1:1 Scale



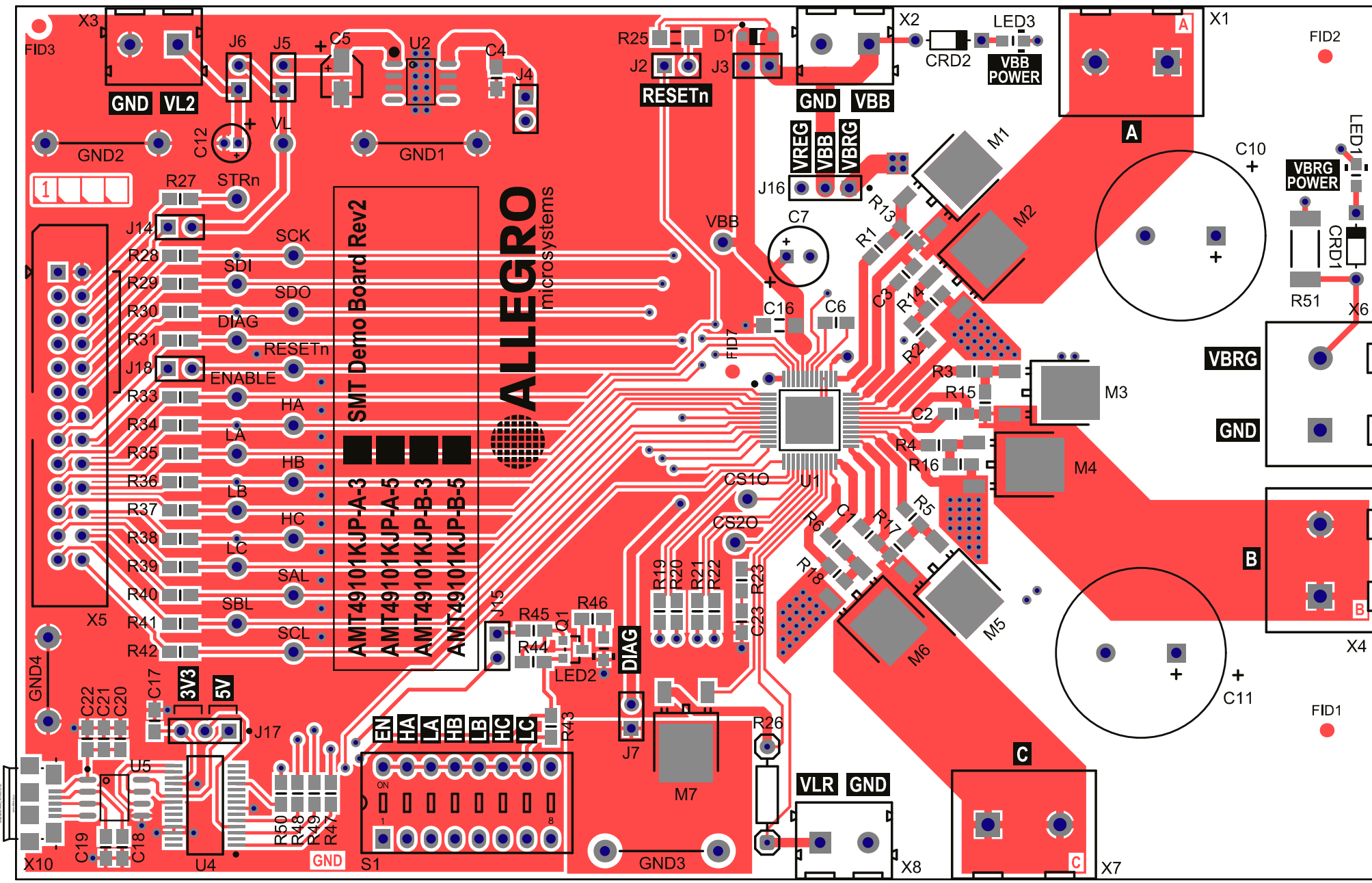
Top Paste Top Silk Top Layer (L1) Btm Layer (L2) Btm Silk Btm Paste



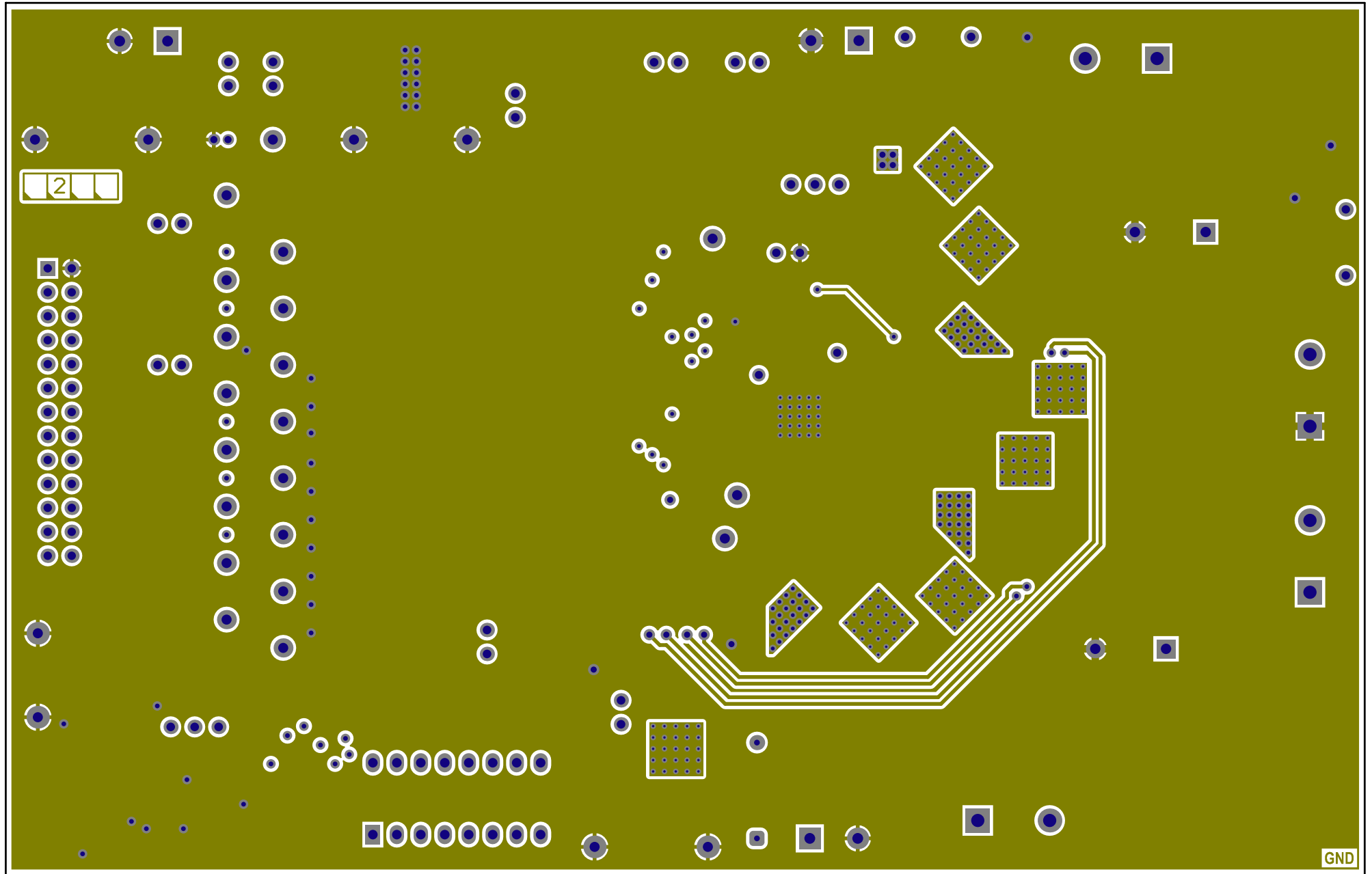
Top View Orientation Watermark

Top Paste Top Silk

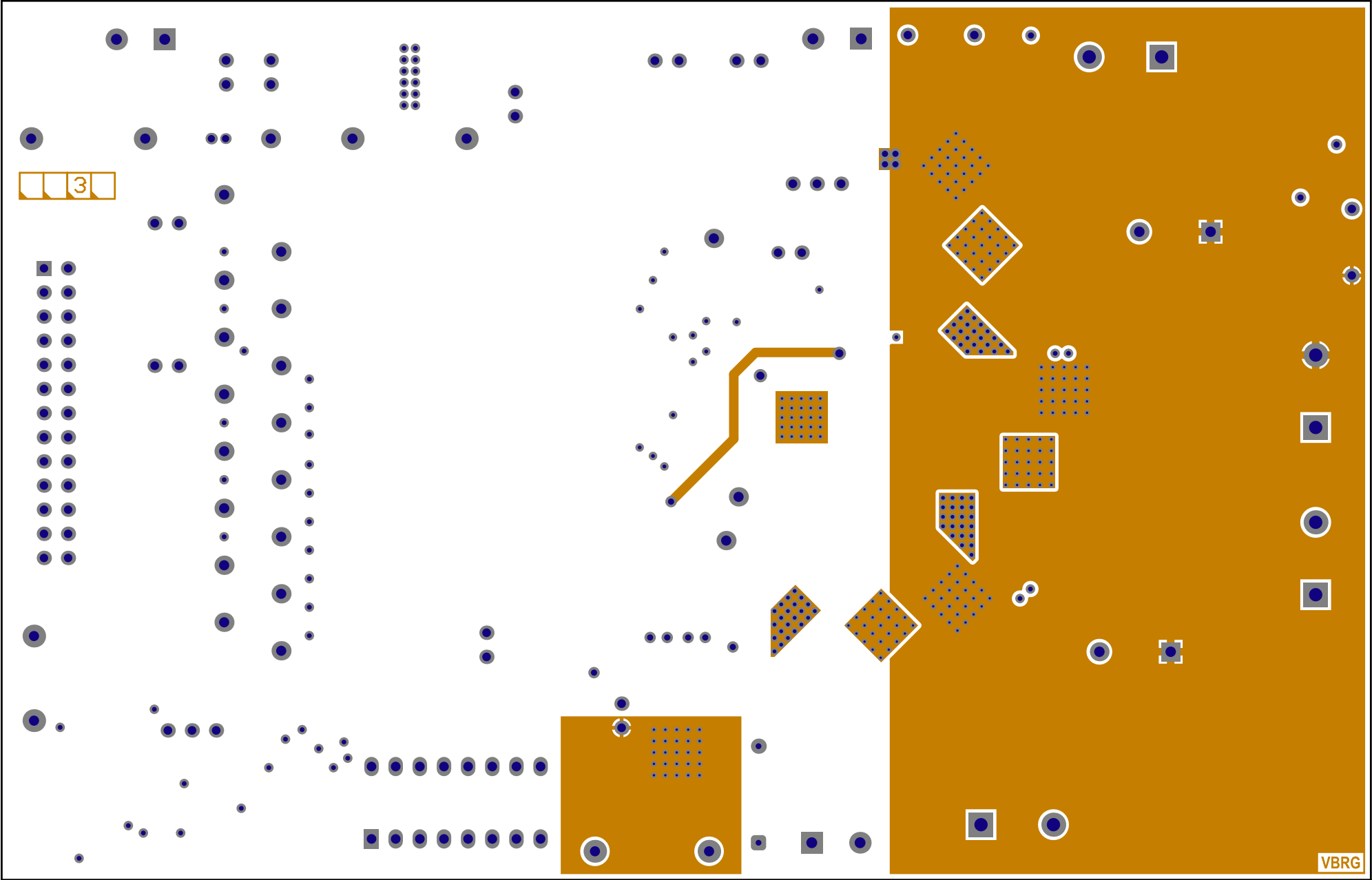
Top Layer (L1)



Top View Orientation Watermark



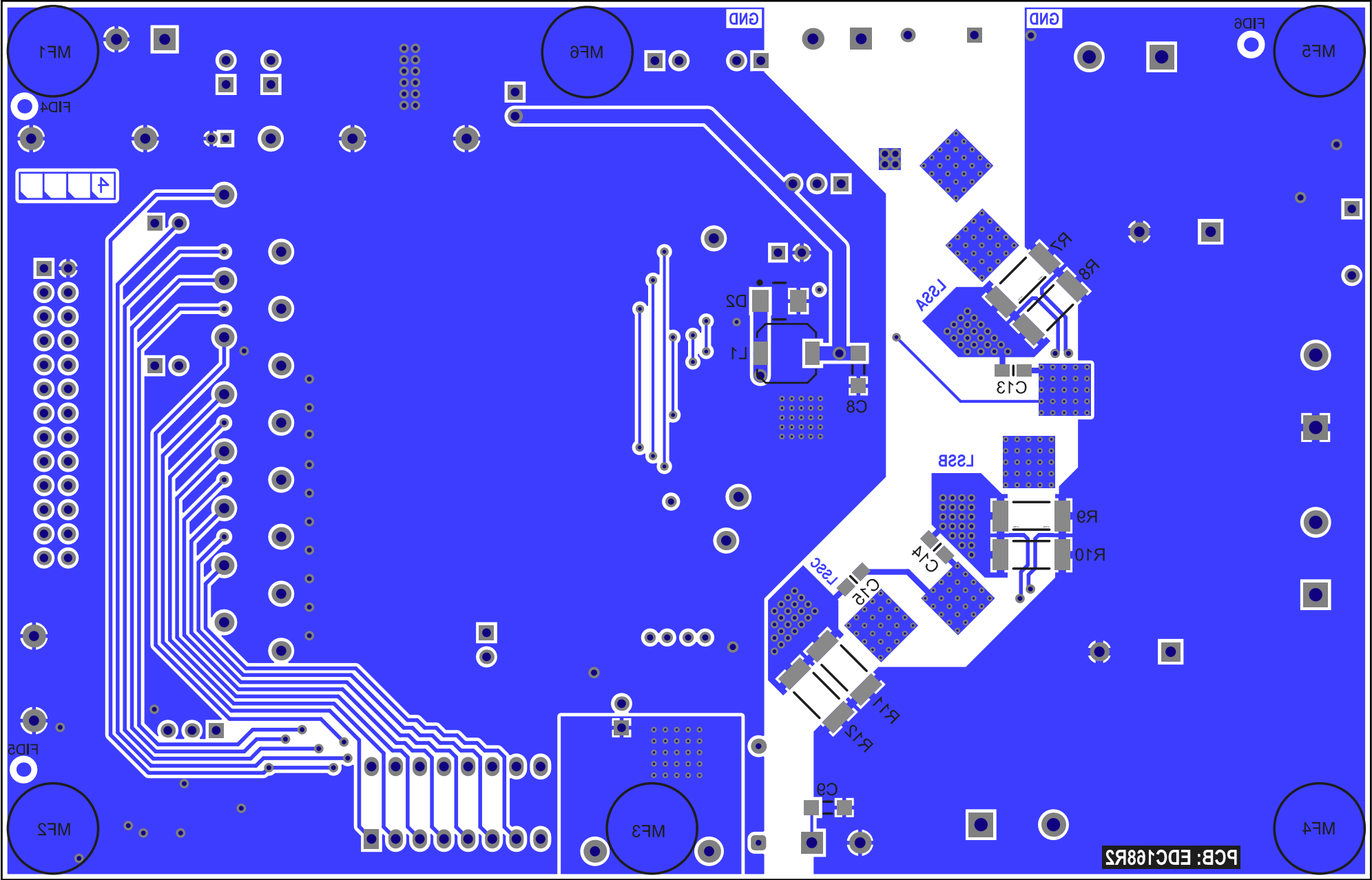
Top View Orientation Watermark



Top View Orientation Watermark

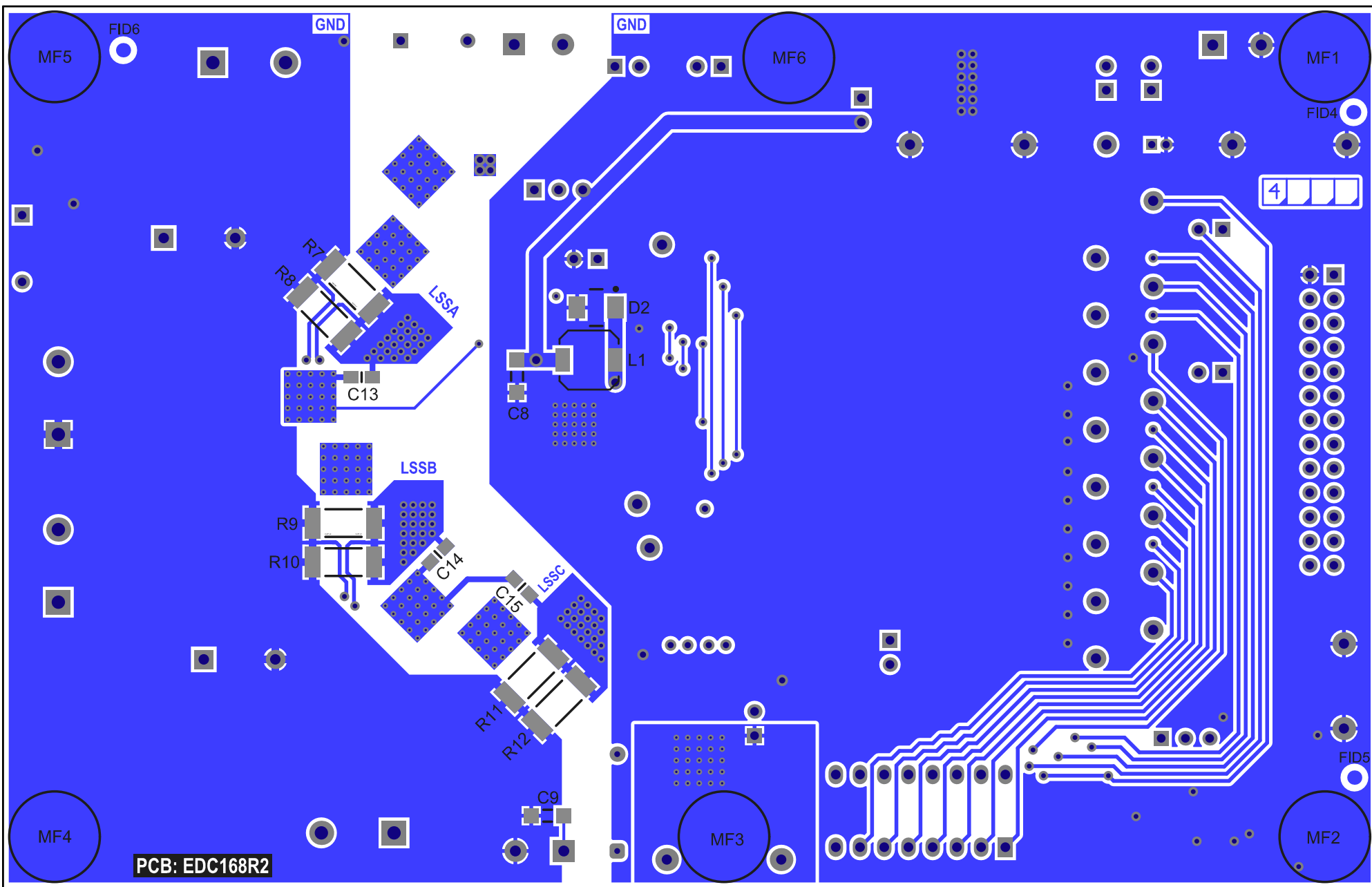
Btm Layer (L2)

Btm Silk Btm Paste



Top View Orientation Watermark

Top View Orientation Watermark



Btm Layer (L2)

Btm Silk Btm Paste

Designator	SIL Skt	Value	Rating	Tol	Part Number	Footprint	Description	DNF	Qty
C1, C2, C3	\	220n	25V	X7R	\	SM : 0805	Capacitor : Ceramic Chip	\	3
C4	\	100n	50V	X7R	\	SM : 0805	Capacitor : Ceramic Chip	\	1
C5	\	10u	25V	20%	Panasonic EEEFP1E100AR	SM : Case B (4mm Dia, 5.8mm H)	Capacitor : Alu Electrolytic SMT	\	1
C6	\	470n	25V	X7R	\	SM : 0805	Capacitor : Ceramic Chip	\	1
C7	\	10u	100V	20%	Rubycon 100YXF10MEFC6.3X11	TH : 2.5mm Pitch, 6.3mm Dia, 11mm H	Capacitor : Alu Electrolytic Radial	\	1
C8	\	10u	25V	X7R	\	SM : 1206	Capacitor : Ceramic Chip	\	1
C9	\	10u	16V	X7R	\	SM : 1206	Capacitor : Ceramic Chip	\	1
C10, C11	\	1000u	100V	20%	Panasonic ECA2AM102	TH : 7.5mm Pitch, 18mm Dia, 35.5mm H	Capacitor : Alu Electrolytic Radial	\	2
C12	\	10u	25V	20%	\	TH : 1.5mm Pitch, 4mm Dia	Capacitor : Alu Electrolytic Radial	\	1
C13, C14, C15	\	100n	100V	X7R	\	SM : 0805	Capacitor : Ceramic Chip	\	3
C16	\	2.2u	100V	X7R	\	SM : 1206	Capacitor : Ceramic Chip	\	1
C17, C23	\	100n	10V	X7R	\	SM : 0805	Capacitor : Ceramic Chip	\	2
C18, C19	\	47p	10V	COG	\	SM : 0805	Capacitor : Ceramic Chip	\	2
C20	\	4.7u	16V	X7R	\	SM : 0805	Capacitor : Ceramic Chip	\	1
C21	\	100n	16V	X7R	\	SM : 0805	Capacitor : Ceramic Chip	\	1
C22	\	10n	16V	X7R	\	SM : 0805	Capacitor : Ceramic Chip	\	1
CRD1, CRD2	\	\	\	\	ATC Semitec E-202	TH : 1.8x3.9mm Body	Diode : Current Regulation, 100V, 2mA	\	2
CS10, CS20, DIAG, ENABLE, HA, HB, HC, LA, LB, LC, RESETn, SAL, SBL, SCK, SCL, SDI, SDO, STRn, VBB, VL	\	\	\	\	Vero 20-313137 or RS Pro 262-2185	TH : 1.02mm Dia Hole	Test Point : 1.4mm Round Loop, Red	\	20
D1	\	\	\	\	1N4148W	SM : SOD123	Diode : Rectifier, 100V, 0.15A	\	1
D2	\	\	\	\	Diodes Inc B1100B-13-F	SM : DO214AA (SMB)	Diode : Schottky, 100V, 1A	\	1
FID1, FID2, FID3, FID4, FID5, FID6, FID7	\	\	\	\	\	SM : 1.5mm dia pad untented	PCB : Fudicial (No Component)	\	0
GND1, GND2, GND3	\	\	\	\	\	TH : 12mm Pitch, 20swg	Ground Bar : Tinned Copper Wire	\	3
GND4	\	\	\	\	\	TH : 9mm Pitch, 20swg	Ground Bar : Tinned Copper Wire	\	1
J2, J3, J4, J5, J6, J7, J14, J15	\	\	\	\	\	TH : SIL2, 2.54mm Pitch, 1x2	Jumper : Header Male 2-pin	\	8
J16, J17	\	\	\	\	\	TH : SIL3, 2.54mm Pitch, 1x3	Jumper : Header Male 3-pin	\	2
J18	\	\	\	\	\	TH : SIL2, 2.54mm Pitch, 1x2	Jumper : Header Male 2-pin	Link DNF	1
L1	\	100uH	\	20%	Epcos TDK B82462G4104M	SM : 6.3x6.3x3mm Body	Inductor : Epcos TDK B82462G4104M	\	1
LED1, LED2, LED3	\	\	\	\	\	SM : 0805	LED : 2pin, Red, 2mA	\	3
M1, M2, M3, M4, M5, M6	\	\	\	\	Infineon IRFR3710ZPBF	SM : TO-252 (DPAK)	Mosfet : N Channel, 42A, 100V	\	6
M7	\	\	\	\	Infineon IRLR7807ZPbF	SM : TO-252 (DPAK)	Mosfet : N Channel, 43A, 30V	\	1
MF1, MF2, MF3, MF4, MF5, MF6	\	\	\	\	\	SM : 8-9.5mm Dia, 3.2-5mm H, Clr/Blk	Mount Foot : Adhesive Rubber	\	6
NetTie1, NetTie2, NetTie3, NetTie4	\	\	\	\	\	SM : 0.4mm Track	PCB : Net-Tie : Copper Track (No Component)	\	0
PCB	\	\	\	\	Allegro Microsystems EDC168R2	FR4, 2oz Cu, 4 Layer	PCB : AMT49101JP SMT Demo	\	1
Q1	\	\	\	\	BC807	SM : SOT23	Transistor : PNP, 45V, 0.5A	\	1
R1, R2, R3, R4, R5, R6	\	33R	0.125W	1%	\	SM : 0805	Resistor : Ceramic Chip	\	6
R7, R8, R9, R10, R11, R12	\	0R022	1W	1%	\	SM : 2512	Resistor : Ceramic Chip	\	6
R13, R14, R15, R16, R17, R18	\	100k	0.125W	1%	\	SM : 0805	Resistor : Ceramic Chip	\	6
R19, R20, R21, R22, R47, R48, R49, R50	\	0R	0.125W	1%	\	SM : 0805	Resistor : Ceramic Chip	\	8
R23	\	150R	0.125W	1%	\	SM : 0805	Resistor : Ceramic Chip	\	1
R25	\	47k	0.25W	1%	\	SM : 1206	Resistor : Ceramic Chip	\	1
R26	Skt	18R	0.6W	1%	\	TH : 10mm Pitch, 6mm Body [SKT]	Resistor : Axial [SKT]	\	1
R27, R28, R29, R30, R31, R33, R34, R35, R36, R37, R38, R39, R40, R41, R42, R43	\	1k	0.125W	1%	\	SM : 0805	Resistor : Ceramic Chip	\	16
R44, R45	\	27k	0.125W	1%	\	SM : 0805	Resistor : Ceramic Chip	\	2
R46	\	1k6	0.125W	1%	\	SM : 0805	Resistor : Ceramic Chip	\	1
R51	\	10k	1W	5%	\	SM : 2512	Resistor : Ceramic Chip	\	1
S1	\	\	\	\	Grayhill 78B08ST	TH : 2.54mm (100mils) Pitch	Switch : DIL, 8-way, Raised Actuator	\	1
U1	\	\	\	\	Allegro Microsystems AMT49101KJP-A-3	SM : eQFP48	Device : Allegro Motor Driver	\	1
U2	\	\	\	\	Ti LM2936HVMA-5.0/NOPB	SM : SOIC8	Device : Voltage Regulator 5V (Vin <60V)	\	1
U4	\	\	\	\	FTDi FT232RL	SM : SSOP28	Device : USB UART	\	1
U5	\	\	\	\	ST USB6B1RL	SM : SO8	Device : USB Port Protection	\	1
X1, X4, X6, X7	\	\	\	\	Phoenix Contact 1731721	TH : 7.62mm (300mils) Pitch	Connector : Screw Terminal, 2-way	\	4
X2, X3, X8	\	\	\	\	Weidmüller 1760510000	TH : 5.08mm (200mils) Pitch	Connector : Screw Terminal, 2-way	\	3
X5	\	\	\	\	\	TH : 2.54mm Pitch, 2x13	Connector : IDC 26-way Ribbon Header	\	1
X10	\	\	\	\	Molex 47346-0001 or compatible	SM : Horizontal, Top Mount	Connector : USB Micro B Female	\	1
[ESDBAG_5x8]	\	\	\	\	\	\	ESD Bag : 127x203mm (5x8")	\	1
[JMP_SHORT_R]	\	\	\	\	Valcon TSL-260-R-O-R or RS Pro 251-8531	\	Jumper Short/Shunt Link : Red	\	9

Note: "DNF" = "Do No Fit" (component not fitted).

Note: Part numbers are only stated where a specific part is required to be used.

Note: Required for SPI connection at Micro-B socket: USB-A to USB-Micro-B cable and GUI/driver software for this board.

Note: For thro-hole resistors rated nominally 0.125W on the schematic, larger 0.6W parts are used on the board for their more easily manipulated physical size and lead strength.

Note: Supplier "RS" = RS Components:-

<http://uk.RS-online.com/>