

This figure displays a technical drawing of a Printed Wiring Board (PWB) design, specifically a Freescale Semiconductor FRDM-MC-LVBLDC board. The drawing includes various views and specifications:

- Top View:** Shows the overall dimensions (2.400 x 2.100 inches), primary datum grid origin, and a detailed view of the component side (Layer 1) and solder side (Layer 2).
- Bottom View:** Shows the overall dimensions (2.400 x 2.100 inches) and a detailed view of the component side (Layer 1) and solder side (Layer 2).
- Section A-A:** A cross-section view showing the layer stackup and material properties.
- Drill Chart:** A table listing hole sizes, tolerances, plating, and quantities.
- Notes:** A series of numbered notes providing manufacturing requirements and specifications.

The drawing is oriented horizontally, with the top edge labeled "A" and the bottom edge labeled "B". The left edge is labeled "8" and the right edge is labeled "1".

**NOTES (UNLESS OTHERWISE SPECIFIED):**

- THIS DRAWING SPECIFIES THE REQUIREMENTS FOR A PRINTED WIRING BOARD IN ACCORDANCE WITH SPECIFICATION IPC-A-600 CLASS 2 (LATEST REVISION).
- THE PWB MUST BE LEAD FREE ASSEMBLY PROCESS COMPATIBLE AND MUST BE ABLE TO HANDLE A MINIMUM OF 5 CYCLES AT 260 DEGREES CELSIUS FOR 10 SECONDS.
- BASE MATERIAL - LAMINATE AND PREPREG SHALL MEET IPC-4101B-26, 83 or 98  
Tg - MUST BE GREATER THAN OR EQUAL TO 150 DEGREES CELSIUS.  
Td - MUST BE GREATER THAN OR EQUAL TO 330 DEGREES CELSIUS.
- COPPER FOIL WEIGHT - SEE STACKUP DETAIL 'A'
- CHARACTERISTIC IMPEDANCE - NONE
- MINIMUM CONDUCTIVE WIDTH/SPACING TO BE .005"/.004"
- PLATING FINISH - BOTH SIDES ENIG (ELECTROLESS NICKEL IMMERSION GOLD):  
.05080 - .232 MICRON (22 - 8 MICROINCH) OF GOLD OVER  
2.540 - 6.350 MICRON (100 - 250 MICROINCH) OF NICKEL.
- ALL THROUGH HOLE VIAS MAY BE PLATED SHUT.
- SOLDERMASK - ORANGE COLOR LPI SOLDERMASK BOTH SIDES.  
MODIFICATION OF SOLDERMASK IS NOT ALLOWED WITHOUT WRITTEN PERMISSION FROM FREESCALE.
- SILKSCREEN - WHITE EPOXY INK, BOTH SIDES. NO SILK ON PADS.
- ELECTRICAL TEST - 100% IPCD356.
- PRINTED WIRING BOARD IS TO BE INDIVIDUALLY BAGGED.
- DRC'S MUST BE RUN ON THE GERBER BEFORE BUILDING BOARDS,  
UNLESS PRIOR APPROVAL IS GIVEN IN WRITING BY FREESCALE.
- TEARDROPS MAYBE ADDED AT THE FAB HOUSE TO ALL SIGNAL LAYERS.
- 2 SOLDER SAMPLES TO BE PROVIDED.
- BASIC GRID INCREMENT AT 1:1 IS .0001.
- SUPPLIER MARKINGS - ON SOLDER SIDE ONLY, WHERE SHOWN.  
- MUST BE UL RECOGNIZED AND MUST HAVE AN ID THAT CONFORMS TO UL94V-0
- THE PWB WILL BE MARKED AS LEAD FREE BY USE OF AN INK STAMP **LF**
- THE PWB WILL BE MARKED AS LEAD FREE PROCESS COMPATIBLE BY USE OF AN INK STAMP **260°C**
- ALL PLATED AND NON-PLATED THROUGH HOLES ARE TO BE DRILLED AT PRIMARY DRILL STEP.  
ALL HOLE LOCATION TOLERANCES ARE TO BE +/- .002 IN REFERENCE TO THE PRIMARY DATUM.
- FINISHED PCB MUST BE PANELIZED FOR ASSEMBLY ACCORDING TO CONTRACT MANUFACTURERS REQUIREMENTS.  
THE ADDITION OF RAILS AND .125" NON-PLATED TOOLING HOLES ARE AT THE DISCRETION OF CONTRACT MANUFACTURER.PANELIZATION MUST BE APPROVED BY CONTRACT MANUFACTURER.
- DO NOT PROVIDE SOLDERMASK CLEARANCES FOR THE SPECIFIC LOCATIONS  
LEAVE SOLDERMASK AS THEY APPEAR ON CAD.
- INTENTIONAL SHORT AT SH1, SH2, AND SH3 BETWEEN NETS GND AND GNDM.

**DRILL CHART: TOP to BOTTOM**  
ALL UNITS ARE IN MILS

FIGURE	SIZE	TOLERANCE	PLATED	QTY
*	12.0	+2.0/-12.0	PLATED	155
□	30.0	+3.0/-3.0	PLATED	6
°	40.0	+2.0/-2.0	PLATED	5
°	40.0	+3.0/-3.0	PLATED	5
*	42.0	+3.0/-3.0	PLATED	64
°	52.0	+3.0/-3.0	PLATED	3
*	125.0	+3.0/-3.0	NON-PLATED	4
°	63.0x40.0	+3.0/-3.0	PLATED	2
°	63.0x40.0	+3.0/-3.0	PLATED	1

**DETAIL A**  
LAYER STACKUP  
SCALE: NONE

**FINISHED Cu WEIGHT**

LAYER	DESCRIPTION	WEIGHT
LAYER 1	COMPONENT SIDE	1 oz.
LAYER 2	SOLDER SIDE	1 oz.

**PART NO. 170-28719**

**FREESCALE SEMICONDUCTOR**

6501 WILLIAM CANNON DRIVE WEST AUSTIN, TEXAS 78735 USA

**TITLE: PRINTED WIRING BOARD FRDM-MC-LVBLDC**

**APPROVALS**

DESIGN ENGINEER	DATE
AVID TECH.	07/20/15

**UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES**

**TOLERANCES ARE:**

DECIMALS	ANGLES
.XX .01	.0-.30°
.XXX .005	

**✓ RMS ALL MACHINED SURFACES.**

**BREFX ALL SHARP EDGES AND CORNERS.**

**REMOVE BURRS.**

**UNDERLINED DIM. NOT TO SCALE.**

**THIRD ANGLE ORTHOGRAPHIC PROJECTION IS USED.**

**SCALE 1/1 DO NOT SCALE DRAWING SHEET 1 OF 1**