

KITUSBSPIDGL Evaluation Board



Figure 1. KITUSBSPIDGL Board

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1 Kit Contents / Packing List

- 700-21857: PWA, KITUSBSPIDGLEVME
- 600-75489: Cable, 6ft. USB2.0 A-M To B-M
- 600-76375: Cable, Ribbon Flat 16 Pin Assy, 0.100" Pitch, 6" Length
- 920-90570-00: Technical Information Center Freescale Semiconductor , Inc.
- 920-75133: Warranty Card, Freescale
- 770-21857: Hardware Document CD,CDUSBSPIDGL

To lower radiated emissions, purchase the EMI/RFI Suppressors & Ferrites Flat 20 Wire Black Cable Clamp Filter (available at www.Mouser.com, Part Number: 810-ZCAT3618-2630DBK).

2 Important Notice

Freescale provides the enclosed product(s) under the following conditions:

This evaluation kit is intended for use of ENGINEERING DEVELOPMENT OR EVALUATION PURPOSES ONLY. It is provided as a sample IC pre-soldered to a printed circuit board to make it easier to access inputs, outputs, and supply terminals. This EVB may be used with any development system or other source of I/O signals by simply connecting it to the host MCU or computer board via off-the-shelf cables. This EVB is not a Reference Design and is not intended to represent a final design recommendation for any particular application. Final device in an application will be heavily dependent on proper printed circuit board layout and heat sinking design as well as attention to supply filtering, transient suppression, and I/O signal quality.

The goods provided may not be complete in terms of required design, marketing, and or manufacturing related protective considerations, including product safety measures typically found in the end product incorporating the goods. Due to the open construction of the product, it is the user's responsibility to take any and all appropriate precautions with regard to electrostatic discharge. In order to minimize risks associated with the customer applications, adequate design and operating safeguards must be provided by the customer to minimize inherent or procedural hazards. For any safety concerns, contact Freescale sales and technical support services.

Should this evaluation kit not meet the specifications indicated in the kit, it may be returned within 30 days from the date of delivery and will be replaced by a new kit.

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3 Schematic

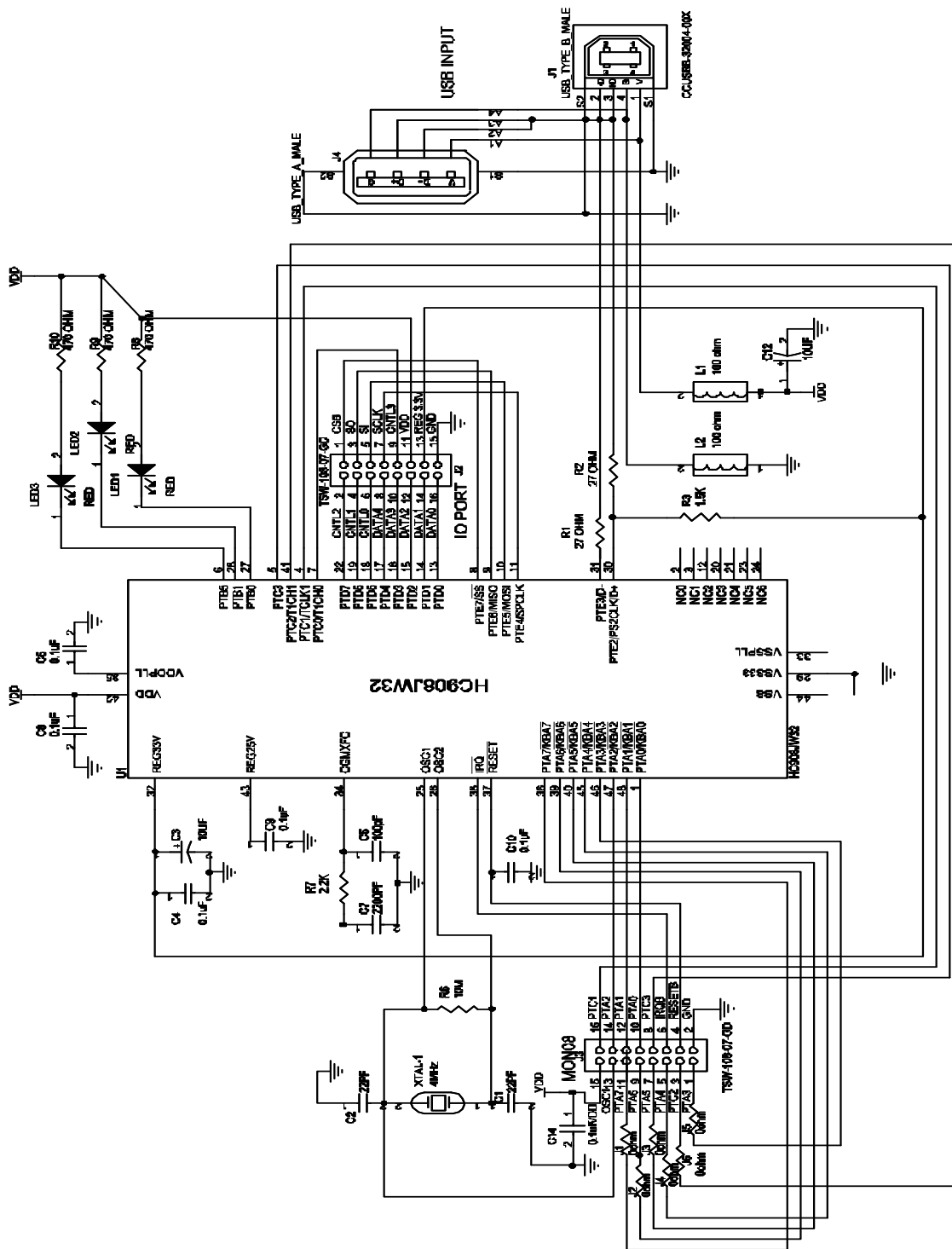


Figure 1. Schematic Drawing

4 Board Layout

4.1 Assembly Drawing

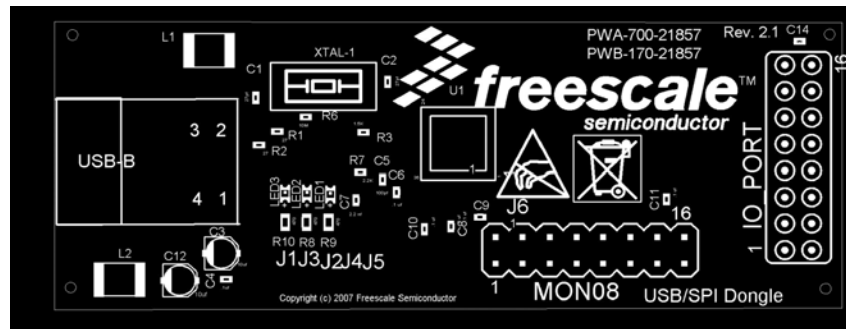


Figure 2. Assembly Drawing

4.2 Top Copper

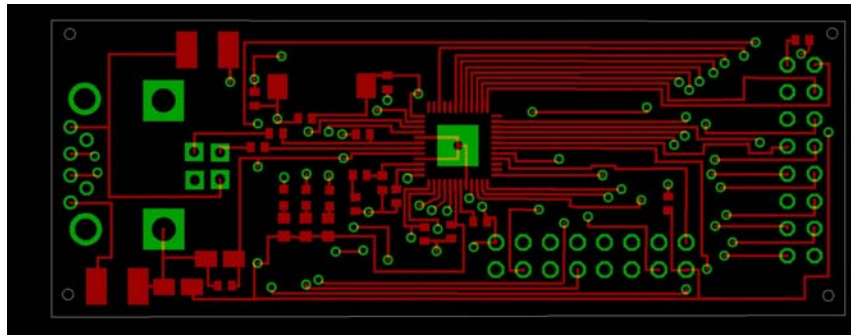


Figure 3. Top Copper

4.3 Bottom Copper

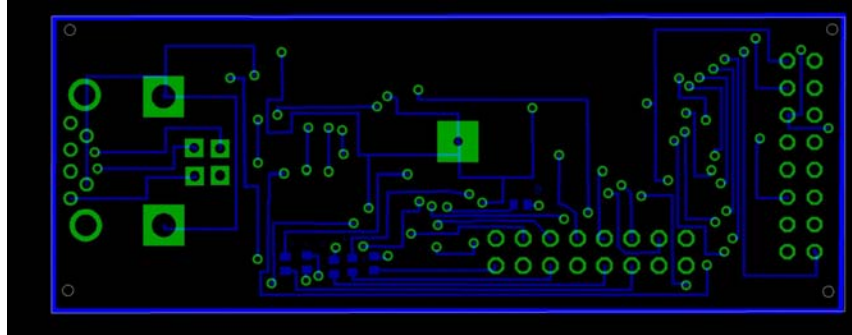


Figure 4. Bottom Copper

5 Bill of Material

| Schematic Designation | Device or Signal Name | Description | Mfr. Name | Mfr. Part Number |
|-----------------------|-----------------------|--|-------------------------------|-------------------|
| C1 | OSC2 | CAP CER 22PF 50V 5% C0G CC0402 | AVX | 04025A220JAT2A |
| C2 | OSC1 | CAP CER 22PF 50V 5% C0G CC0402 | AVX | 04025A220JAT2A |
| C3 | REG3.3V | CAP TANT 10UF 10V 10% -- -- | VISHAY INTERTECHNOLOGY | 293D106X9010A2TE3 |
| C4 | REG3.3V | CAP CER 0.1UF 10V 20% Y5V 0402 | AVX | CM05Y5V104Z16AH |
| C5 | CGMXFC | CAP CERAMIC 100PF 50V NP0 0402 | YAGEO CORP. | CC0402JRNPO9BN101 |
| C6 | VDD PLL | CAP CER 0.1UF 10V 20% Y5V 0402 | AVX | CM05Y5V104Z16AH |
| C7 | CGMXFC | CAP CERM .022UF 10% 16V X7R 0402 | AVX | 0402YC223KAT2A |
| C8 | VDD | CAP CER 0.1UF 10V 20% Y5V 0402 | AVX | CM05Y5V104Z16AH |
| C9 | REG2.5V | CAP CER 0.1UF 10V 20% Y5V 0402 | AVX | CM05Y5V104Z16AH |
| C10 | RESET | CAP CER 0.1UF 10V 20% Y5V 0402 | AVX | CM05Y5V104Z16AH |
| C11 | VDD | CAP CER 0.1UF 10V 20% Y5V 0402 | AVX | CM05Y5V104Z16AH |
| C12 | VDD | CAP TANT 10UF 10V 10% -- -- | VISHAY INTERTECHNOLOGY | 293D106X9010A2TE3 |
| C14 | VDD | CAP CER 0.1UF 10V 20% Y5V 0402 | AVX | CM05Y5V104Z16AH |
| R1 | D+ | RES 27 OHM 1/16W 5% 0402 SMD | PANASONIC ECG | ERJ-2GEJ270X |
| R2 | D- | RES 27 OHM 1/16W 5% 0402 SMD | PANASONIC ECG | ERJ-2GEJ270X |
| R3 | D+ | RES TF 1.5K 1/16W 1% RC0402 ROHS | BOURNS | CR0402FX1501GLF |
| R6 | OSC1 OSC2 | RESISTOR 10M OHM 1/16W 5% 0402 | PANASONIC ECG | ERJ-2GEJ106X |
| R7 | CGMXFC | RES 2.2K OHM 1/16W 5% 0402 SMD | YAGEO CORP. | RC0402JR-072K2L |
| R8 | LED1 | RES 470 OHM 1/10W 5% 0603 SMD | YAGEO CORP. | RC0603JR-07470RL |
| R9 | LED2 | RES 470 OHM 1/10W 5% 0603 SMD | YAGEO CORP. | RC0603JR-07470RL |
| R10 | LED3 | RES 470 OHM 1/10W 5% 0603 SMD | YAGEO CORP. | RC0603JR-07470RL |
| L1 | +5V | FERRITE 8A 125 OHMS 1812 SMD | STEWARD | HI1812V101R-10 |
| L2 | GND | FERRITE 8A 125 OHMS 1812 SMD | STEWARD | HI1812V101R-10 |
| J1 | PTA7 | JUMPER TO CONNECT PTA7 to Pin 11 of MON08 connector | Wire jumper | |
| J2 | PTA6 | JUMPER TO CONNECT PTA6 to Pin 9 of MON08 connector | Wire jumper | |
| J3 | PTA5 | JUMPER TO CONNECT PTA5 to Pin 7 of MON08 connector | Wire jumper | |
| J4 | PTA4 | JUMPER TO CONNECT PTA4 to Pin 5 of MON08 connector | Wire jumper | |
| J5 | PTA3 | JUMPER TO CONNECT PTA3 to Pin 1 of MON08 connector | Wire jumper | |
| J6 | PTC2 | JUMPER TO CONNECT PTC2 to Pin 3 of MON08 connector | Wire jumper | |
| U1 | MICRO | MCHC908JW32FC 8 bit USB/SPI microcontroller ROHS COMPLIANT | FREESCALE SEMICONDUCTOR | MC68HC908JW32 |
| LED1 | LED1 | LED 660NM RED DIFF 0603 SMD | AVAGO TECHNOLOGIES US INC. | HSMH-C190 |
| LED2 | LED2 | LED 660NM RED DIFF 0603 SMD | AVAGO TECHNOLOGIES US INC. | HSMH-C190 |
| LED3 | LED3 | LED 660NM RED DIFF 0603 SMD | AVAGO TECHNOLOGIES US INC. | HSMH-C190 |
| IO PORT | MA08-2 | CONN HEADER .100 DUAL STR 16POS | 3M CORP | 929665-02-08-I |
| MON08 | MA08-2 | CONN HEADER .100 DUAL STR 16POS | 3M CORP | 929665-02-08-I |

| Schematic Designation | Device or Signal Name | Description | Mfr. Name | Mfr. Part Number |
|------------------------------|------------------------------|----------------------------------|----------------------------------|-------------------------|
| XTAL-1 | OSC1 OSC2 | CRYSTAL 4.0 MHZ 20PF SMD | FOX ELECTRONICS | FQ1045A-4 |
| USB-A | USB-A Input | USB-A Male PC Board mount | SPARK FUN ELECTRONICS | PType-USB-A |
| USB-B | USB-B Input | CONN USB RT ANG RECPT TYPE B BLK | MOLEX/WALDOM ELECTRONICS CORP | 67068-8000 |

6 References

Following are URLs where you can obtain information on other Freescale products and application solutions:

| Description | URL |
|---|---|
| Reference Web Sites | Reference URL Locations |
| Freescale Web Site | http://www.freescale.com/ |
| KITUSBSPIDGLEVME Summary Page | http://www.freescale.com/webapp/sps/site/prod_summary.jsp?code=KITUSBSPIDGLEVME |

7 Revision History

| Revision | Date | Description of Changes |
|----------|--------|------------------------|
| 1.0 | 8/2010 | Initial Release |

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KTUSBSPIDGLUG

Rev. 1.0

10/2010