

PACKING LIST - KIT CONTENTS

KIT33810EKEVME

MC33810 Automotive Engine Control Evaluation Board

<u>QUANTITY</u>		<u>REVISION</u>
1	770-21848 HARDWARE DOC CD, CD33810	1.0
	Documentation Package for KIT33810EKEVME	
	Notice	----
	Instructions	1.0
	EVB setup diagram	1.0
	Schematic Drawing	1.0
	Assembly Drawing	1.0
	PCB - Top copper	1.0
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	Bill of Materials	1.0
	SPI Gen 5.0.0 Installation Program (setup.exe)	----
	Object code for programing MCHC908JW32FC	----
	KT33810EKEVBUG User's Guide	1.0
	MC33810 Data Sheet	4.0
1	700-21848 PWA, KIT33810EKEVME	
1	600-75489, CABLE, 6FT. USB2.0 A-M TO B-M	
1	920-90570-00: TECHNICAL INFORMATION CENTER FREESCALE SEMICONDUCTOR , INC. , BR1530	
1	920-75133: WARRANTY CARD, FREESCALE	

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INSTRUCTIONS

KIT33810EKEVME

MC33810 Automotive Engine Control Evaluation Board

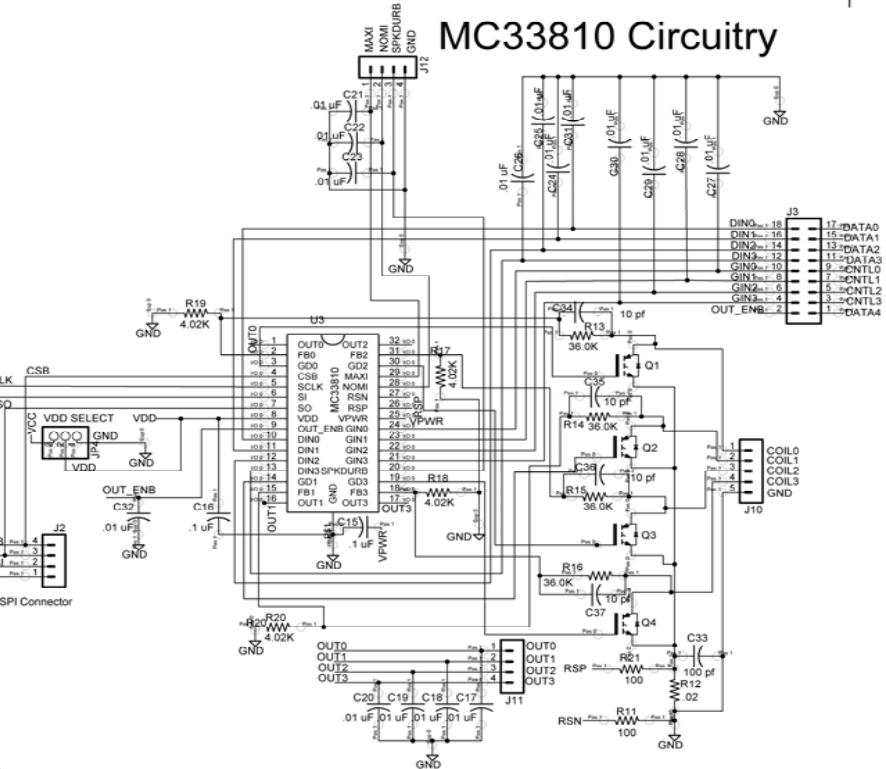
Using the EVB

Warning: Always wear Safety Glasses when working around electronic modules and when soldering.

See file KT33810EKEVBUG on this CD for Instructions



MC33810 Circuitry



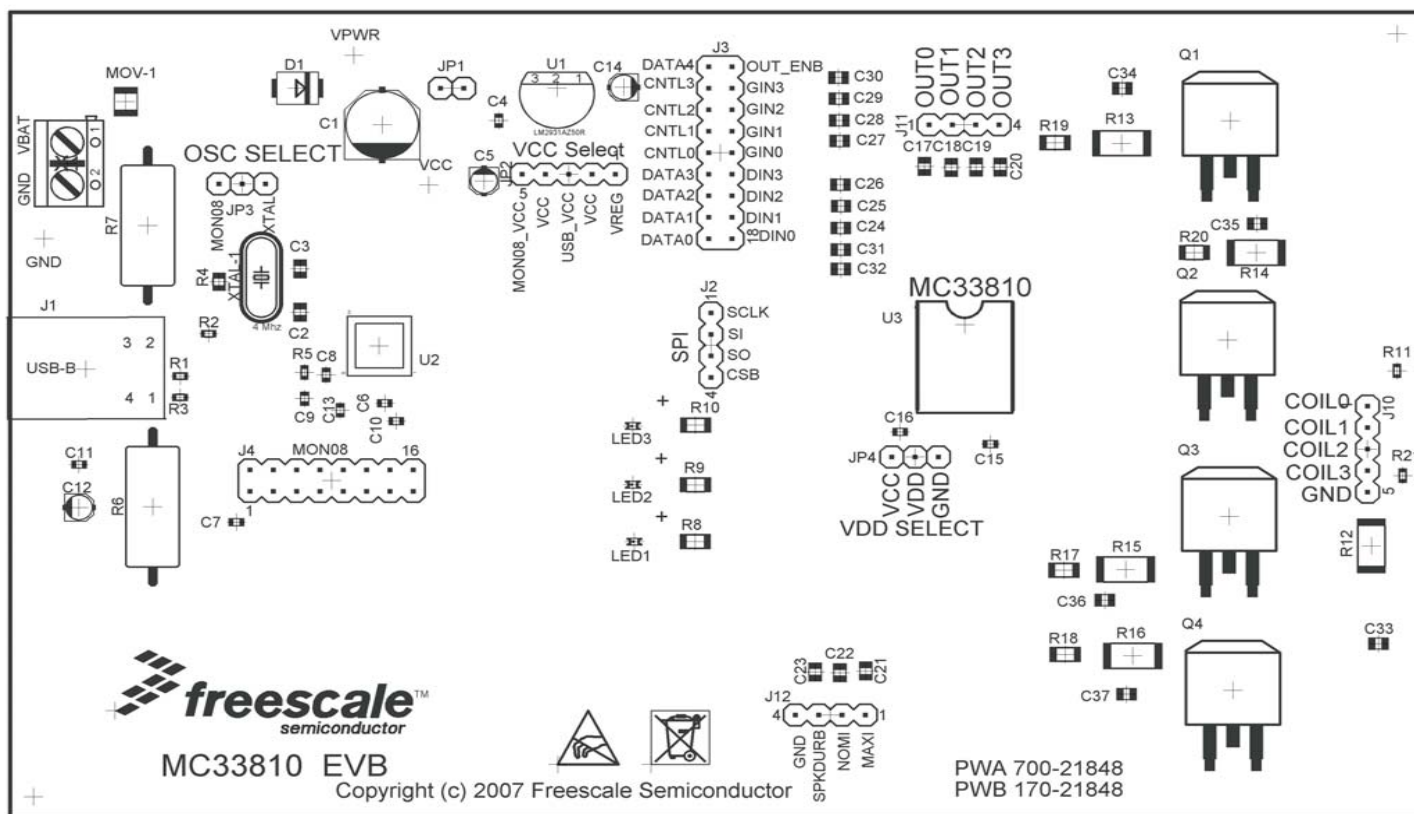
Power Supply Section Schematic:

- Battery Input:** X1-1 (V_{BAT} A), X1-2 (GND).
- Protection:** MOV (Metal Oxide Varistor) in parallel with the input.
- Voltage Regulation:** LM2931AZ (Internal Regulator) with feedback network (VR1, VR2) and output filter (C4).
- Output:** VR_OUT (regulated voltage) connected to USB VCC (P51) and MON08_VCC (J5).
- VCC Select Jumper (J4):** Selects between internal VCC (jumper 1-2) and USB VCC (jumper 2-3).
- Notes:**
 - 1. Finish
 - 2. Finish
 - 3. Surface
 - 4. Board
 - 5. Solid
 - 6. Solid

9. Finished Hole Size: $\pm 0.003"$



REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0	ORIGINAL	12/7/2006	RCJF
1	FINAL	7/18/2007	RCJF



Default Jumper Positions:

JP1 ON

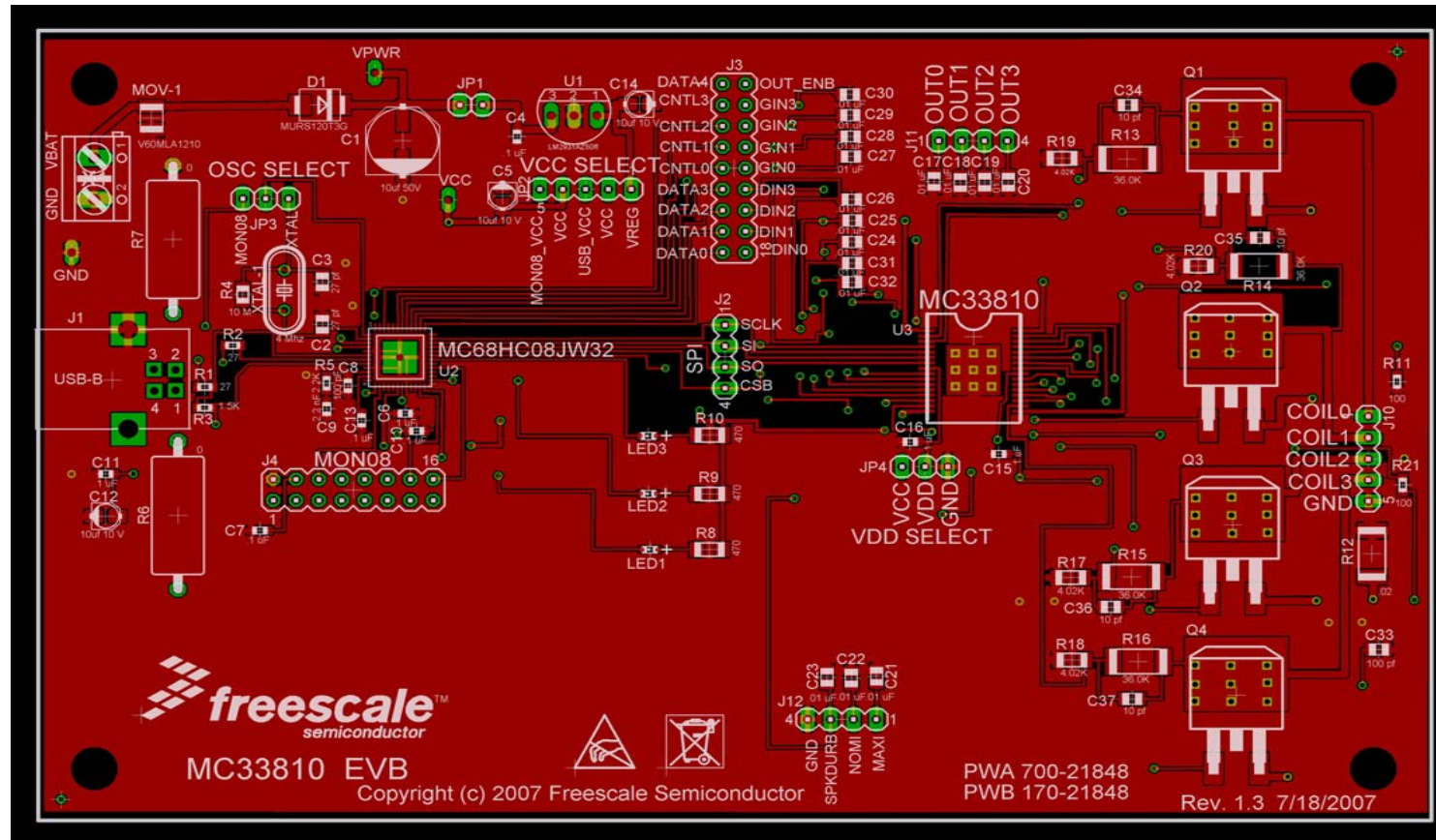
VCC SELECT JP2 VCC-VREG

OSC SELECT - JP3-XTAL

VDD SELECT -JP4 VCC-VDD

NOTES:
1. TOP COPPER

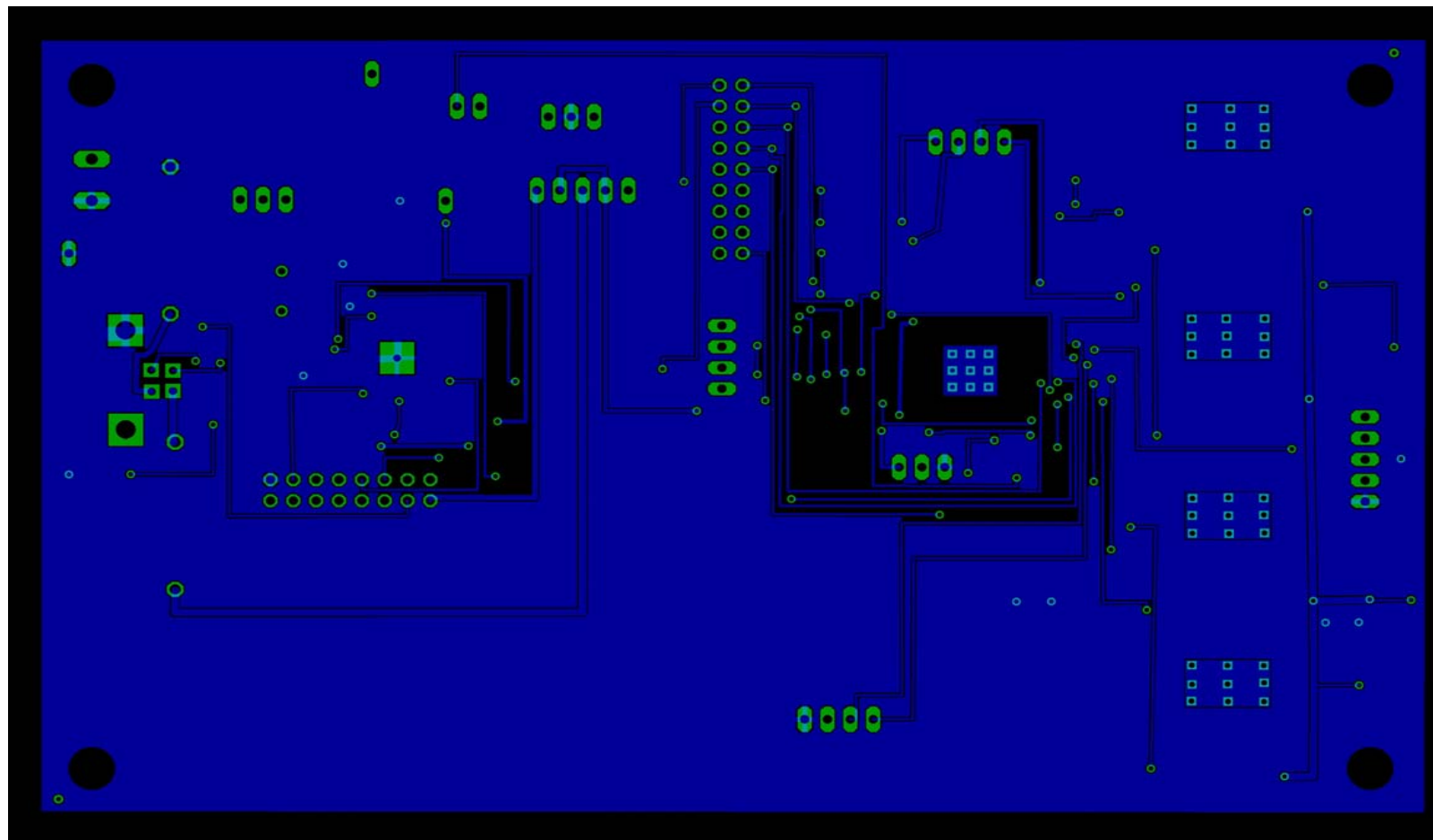
REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0	ORIGINAL	7/26/2006	RCJF
1	FINAL	7/18/2007	RCJF



REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0	ORIGINAL	7/26/2006	RCJF
1	FINAL	7/18/2007	RCJF

NOTES:

1. BOTTOM COPPER (AS SEEN THRU BOARD LOOKING FROM THE TOP)



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Schematic Designation	Device or Signal Name	Description	Mfr. Name	Mfr. Part Number
C1	VBAT	CAP ALEL 10UF 50V 20% -- CCE63X57 ROHS COMPLIANT	PANASONIC	ECEV1HA100SP
C2	OSC2	CAP CERAMIC 27PF 50V NP0 0805	KEMET	C0805C270J5GACTU
C3	OSC1	CAP CERAMIC 27PF 50V NP0 0805	KEMET	C0805C270J5GACTU
C4	VBAT	CAP CER 0.1UF 50VDC 10-% X7R CC0603	VENKEL COMPANY	C0603X7R500104KNE
C5	VDD	CAP TANT 10UF 10V 10% -- CASE_A ROHS	VISHAY INTERTECHNOLOGY	293D106X9010A2TE3
C6	VDD	CAP CER 0.1UF 50VDC 10-% X7R CC0603	VENKEL COMPANY	C0603X7R500104KNE
C7	VPWR	CAP CER 0.1UF 50V 10% X7R CC0603	VENKEL COMPANY	C0603X7R500104KNE
C8	CGMXFC	CAP CER 100PF 50V 10% COG 0603 ROHS	AVX	06035A101KAT2A
C9	CGMXFC	CAP CER 0.022UF 25V 10% X7R CC0603	AVX	06033C223KAT2A
C10	REG2.5V	CAP CER 0.1UF 50VDC 10-% X7R CC0603	VENKEL COMPANY	C0603X7R500104KNE
C11	REG3.3V	CAP CER 0.1UF 50VDC 10-% X7R CC0603	VENKEL COMPANY	C0603X7R500104KNE
C12	REG3.3V	CAP TANT 10UF 10V 10% -- CASE_A ROHS	VISHAY INTERTECHNOLOGY	293D106X9010A2TE3
C13	VDD PLL	CAP CER 0.1UF 50VDC 10-% X7R CC0603	VENKEL COMPANY	C0603X7R500104KNE
C14	VR_OUT	CAP TANT 10UF 10V 10% -- CASE_A ROHS	VISHAY INTERTECHNOLOGY	293D106X9010A2TE3
C15	VPWR	CAP CER 0.1UF 50VDC 10-% X7R CC0603	VENKEL COMPANY	C0603X7R500104KNE
C16	VDD	CAP CER 0.1UF 50VDC 10-% X7R CC0603	TDK	C1608X7R1H104K
C17	OUT_1	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C18	OUT_2	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C19	OUT_3	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C20	OUT_4	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C21	MAXI	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C22	NOMI	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C23	SPKDURB	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C24	DIN_1	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C25	DIN_2	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C26	DIN_3	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C27	GIN_0	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C28	GIN_1	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C29	GIN_2	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C30	GIN_3	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C31	DIN_0	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C32	OUT_ENB	CAP CER 0.01UF 50V 10% X7R 0805	SMEC	MCCE103K2NRTF
C33	ACROSS R12	CAP CER 100PF 50V 5% COG CC0805, ROHS COMPLIANT	AVX	08055A101JAT2A
C34	ACROSS R13	CAP CER 10PF 50V 5% COG CC0805	AVX	08055A100JAT2A
C35	ACROSS R14	CAP CER 10PF 50V 5% COG CC0805	AVX	08055A100JAT2A
C36	ACROSS R15	CAP CER 10PF 50V 5% COG CC0805	AVX	08055A100JAT2A
C37	ACROSS R16	CAP CER 10PF 50V 5% COG CC0805	AVX	08055A100JAT2A
R1	D-	RES TF 27 1/10W 1% RC0603 ROHS COMPLIANT	BOURNS	CR0402JW270GLF
R2	D+	RES TF 27 1/10W 1% RC0603 ROHS COMPLIANT	BOURNS	CR0402JW270GLF
R3	D-	RES TF 1.50K 1/10W 1% RC0603 ROHS COMPLIANT	BOURNS	CR0603FJ1501ELF
R4	OSC1 OSC2	RES TF 10M 1/8W 5% RC0805, ROHS COMPLIANT	BOURNS	CR0805JW106ELF
R5	CGMXFC	RES TF 2.2K 1/10W 5% RC0603 ROHS COMPLIANT	BOURNS	CR0603JW222ELF
R6	+5V	JUMPER WIRE WITH FERRITE BEAD 28L0138-40R-10	STEWART	28L0138-40R-10
R7	GND	JUMPER WIRE WITH FERRITE BEAD 28L0138-40R-10	STEWART	28L0138-40R-10
R8	LED1	RES TF 470 1/4W 5% RC1206 ROHS COMPLIANT	BOURNS	CR1206JW471ELF
R9	LED2	RES TF 470 1/4W 5% RC1206 ROHS COMPLIANT	BOURNS	CR1206JW471ELF
R10	LED3	RES TF 470 1/4W 5% RC1206 ROHS COMPLIANT	BOURNS	CR1206JW471ELF
R11	RSN ISO	RES 100 OHM 1/10W 5% 0603 SMD	YAGEO	RC0603JR-07100RL
R12	RSP/RSN	RESISTOR .020 OHM 1W 1% 2512	Panasonic ECG	ERJ-M1W5F20MU
R13	COIL0	RES 36.0K OHM 1W 1% 2512 SMD	Vishay/Dale	CRCW251236K0FKEG
R14	COIL1	RES 36.0K OHM 1W 1% 2512 SMD	Vishay/Dale	CRCW251236K0FKEG
R15	COIL2	RES 36.0K OHM 1W 1% 2512 SMD	Vishay/Dale	CRCW251236K0FKEG
R16	COIL3	RES 36.0K OHM 1W 1% 2512 SMD	Vishay/Dale	CRCW251236K0FKEG
R17	FB2	RES 4.02K OHM 1/4W 1% 1206 SMD	YAGEO	RC1206FR-074K02L
R18	FB3	RES 4.02K OHM 1/4W 1% 1206 SMD	YAGEO	RC1206FR-074K02L
R19	FB0	RES 4.02K OHM 1/4W 1% 1206 SMD	YAGEO	RC1206FR-074K02L
R20	FB1	RES 4.02K OHM 1/4W 1% 1206 SMD	YAGEO	RC1206FR-074K02L
R21	RSP ISO	RES 100 OHM 1/10W 5% 0603 SMD	YAGEO	RC0603JR-07100RL
X1	VBAT	MKDS 3 CONN TERM BLOCK 2POS 5MM PCB ROHS COMPLIANT	PHOENIX CONTACT	1711026
JP1	VR INPUT	2 pin HDR 1X10 100MIL CTR LOW PROFILE BREAKAWAY ROHS COMPLIANT	TYCO ELECTRONICS	87220-2
JP2	VDD SELECT	3 pin HDR 1X10 100MIL CTR LOW PROFILE BREAKAWAY ROHS COMPLIANT	TYCO ELECTRONICS	87220-3
J1	USB	USB B PC MOUNT FEMALE CONNECTOR ROHS COMPLIANT	MOLEX/WALDOM ELECTRONICS	67068-8000
J2	SPI	4 pin HDR 1X10 100MIL CTR LOW PROFILE BREAKAWAY ROHS COMPLIANT	TYCO ELECTRONICS	87220-4
J3	INPUT MATRIX	18 pin HDR 2X10 100MIL CTR LOW PROFILE BREAKAWAY ROHS COMPLIANT	TYCO ELECTRONICS	9-146261-0-09
J4	MON08 Header	16 pin HDR 2X10 100MIL CTR LOW PROFILE BREAKAWAY ROHS COMPLIANT	TYCO ELECTRONICS	9-146261-0-08
J5	VCC	1 pin HDR 1X10 100MIL CTR LOW PROFILE BREAKAWAY ROHS COMPLIANT	TYCO ELECTRONICS	87220-1
J6	VPWR	1 pin HDR 1X10 100MIL CTR LOW PROFILE BREAKAWAY ROHS COMPLIANT	TYCO ELECTRONICS	87220-1
J7	GND	1 pin HDR 1X10 100MIL CTR LOW PROFILE BREAKAWAY ROHS COMPLIANT	TYCO ELECTRONICS	87220-1
J10	COIL 0-3 OUT	5 pin HDR 1X10 100MIL CTR LOW PROFILE BREAKAWAY ROHS COMPLIANT	TYCO ELECTRONICS	87220-5
J11	OUT 0 - 3	4 pin HDR 1X10 100MIL CTR LOW PROFILE BREAKAWAY ROHS COMPLIANT	TYCO ELECTRONICS	87220-4
J12	NOMI, MAXI, SPKDURB	4 pin HDR 1X10 100MIL CTR LOW PROFILE BREAKAWAY ROHS COMPLIANT	TYCO ELECTRONICS	87220-4
JP1	INT. REG. DISC.	2 pin HDR 1X10 100MIL CTR LOW PROFILE BREAKAWAY ROHS COMPLIANT	TYCO ELECTRONICS	87220-2
JP2	VCC SELECT	5 pin HDR 1X10 100MIL CTR LOW PROFILE BREAKAWAY ROHS COMPLIANT	TYCO ELECTRONICS	87220-5
JP3	OSC SELECT	3 pin HDR 1X10 100MIL CTR LOW PROFILE BREAKAWAY ROHS COMPLIANT	TYCO ELECTRONICS	87220-3
JP4	VDD SELECT	3 pin HDR 1X10 100MIL CTR LOW PROFILE BREAKAWAY ROHS COMPLIANT	TYCO ELECTRONICS	87220-3
U1	VDD REG	IC REG LDO 100MA 5V TO92 LM2931AZ50R	ST MICROELECTRONICS	LM2931AZ50R
U2	MICRO	MCHC908JW32FC 8 bit USB/SPI microcontroller ROHS COMPLIANT	FREESCALE SEMICONDUCTOR	MCHC908JW32FC
U3	ID	MC33810 Engine Control IC	FREESCALE SEMICONDUCTOR	MC233810EK
Q1	IGBT	IRGS14C40L IGBTpBf 14 Amp 430 V TO-263AB package	INTERNATIONAL RECTIFIER	IRGS14C40L IGBTpBf
Q2	IGBT	IRGS14C40L IGBTpBf 14 Amp 430 V TO-263AB package	INTERNATIONAL RECTIFIER	IRGS14C40L IGBTpBf
Q3	IGBT	IRGS14C40L IGBTpBf 14 Amp 430 V TO-263AB package	INTERNATIONAL RECTIFIER	IRGS14C40L IGBTpBf
Q4	IGBT	IRGS14C40L IGBTpBf 14 Amp 430 V TO-263AB package	INTERNATIONAL RECTIFIER	IRGS14C40L IGBTpBf
MOV-1	SURGE PROTECTOR	MOV 50 VDC- ROHS COMPLIANT	LITTLEFUSE	V60MLA1210
D1	DIODE	DIODE PWR RECT 1A 200V-- RECOVERY SMB - ROHS COMPLIANT	ON SEMICONDUCTOR	MURS120T3G
LED1	LED	LED RED SMT 0603	LITE ON	LTST-C190KRKT
LED2	LED	LED RED SMT 0603	LITE ON	LTST-C190KRKT
LED3	LED	LED RED SMT 0603	LITE ON	LTST-C190KRKT
XTAL-1	OSC1 OSC2	XTAL 4.0MHZ RSN 50PPM TH CL=10PF ROHS	FOX ELECTRONICS	FOXSLF/040

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