MOTOROLA

Semiconductor Products Sector
Transportation and Standard Product Group
Analog Products Division

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KIT33880DWBEVB
Configurable Octal Serial Switch

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1	**33880 EVALUATION BOARD**	

IMPORTANT NOTICE

Motorola 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 input, output, 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 will 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 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 customers applications, adequate design and operating safeguards must be provided by the customer to minimize inherent or procedural hazards. For any safety concerns, contact Motorola sales and technical support services.

As a prototype, this product does not fall within the scope of the European Union directive on electromagnetic compatibility and therefore may not meet the technical requirements of the directive. Please be aware that the products received may not be regulatory compliant or agency certified (FCC, UL, CE, etc.).

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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INSTRUCTIONS

KIT33880DWBEVB
Configurable Octal Serial Switch

Installing SPIGen Freeware on your Computer

There are two different versions of SPIGen. One is designed to run on Windows 95/98/Me, and the other is designed to run on Windows NT/2000/XP. Be sure to choose the appropriate installation program for your computer.

Each version of SPIGen includes a README.txt file which describes the operating system that the software should be installed on. Before you install the program, refer to the SPIGen README.txt file to check the compatibility of the installation program and your computer operating system.

To install the software from the CD-ROM, insert the CD-ROM into your CD drive. Click the Start button, and then click “Run…”.

If you are running Windows 95, Windows 98, or Windows Me, type “D:\SPIGen_Win_95_98_Me\Setup.exe” in the box, and then click “OK”.

If you are running Windows NT, Windows 2000, or Windows XP, type “D:\SPIGen_Win_NT_2000_XP\Setup.exe” in the box, and then click “OK”.

Several temporary files will be copied to your computer, and then the Installation Wizard will guide you through the rest of the process.

To use SPIGen, Go to the Windows Start menu, then Programs, then SPIGen, and click on the SPIGen icon. The SPIGen "Generic SPI Generator" GUI will appear. Go to the File menu in the upper left hand corner of the GUI, and select Open, then browse the CD to find and select the SPIGen Configuration ".spi" file for the EVB you are using. Click Open, and SPIGen will open a specifically configured SPI command generator for your EVB.

INSTRUCTIONS

KIT33880DWBEVB
Configurable Octal Serial Switch

Using the EVB

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

1. Connect the desired loads (e.g. relay coils or panel lamps) to the SV1 or SV2 16 pin header. Pins are labeled as D1 to D8 (drain of mosfet) and S1 to S8 (source of mosfet)

For Low Side Drive configuration, connect one side of the load to battery supply and the other side of the load to pin D1-D8.
***Switches S1 to S8 must be CLOSED, switches D1 to D8 must be OPEN*.**

For High Side Drive configuration, connect one side of the load to ground and the other side of the load to pin S1-S8.
Switches S1 to S8 must be OPEN, switches D1 to D8 must be CLOSED.

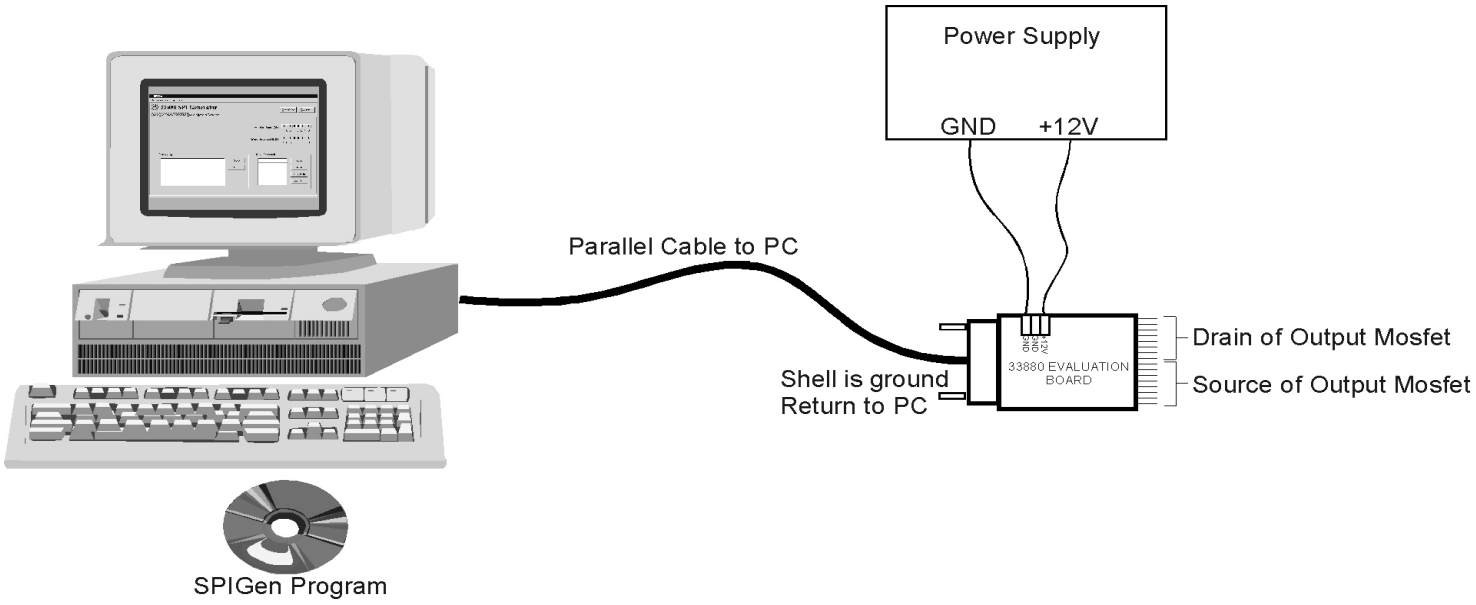
NOTE: Closing both switches D1 to D8 and S1 to S8 at the same time will place a direct short on the output driver. Significant heat will be generated on the IC and circuit board fuse trace may blow open. However no damage to the IC will occur.

2. Using a standard 25 pin Sub-D parallel port cable and the enclosed SPIGen SPI Driver software, you can use a personal computer to provide the Serial Peripheral Interface (SPI) communication with this EVB. Alternatively, you may control outputs 5 and 6 using a function generator (maximum frequency is 2 kHz) on IN5 and IN6 pins and the GND pin of SV3 header provided. Control may also be achieved by connecting directly to the SPI pins of the 33880 and using a microprocessor to generate the SPI commands.

3. Connect power supplies to the +12V and GND terminals on the EVB's power terminal block. Make sure the voltages provided are in accordance with the device data sheet and that the power supply can provide current sufficient to supply the attached loads. To enable the onboard 5.0 volt supply and the 33880 device, set the 5V_ON and EN_ON switches to the closed position. Both the 5.0_ON led and the EN_ON leds will illuminate.

4. Loads may now be activated via the Motorola SPIGen software program. Standard on/off commands and SPI configuration is provided in the 33880_EVB_CONFIGURATION_FILE.spi file located on the CD-ROM. Refer to the device data sheet for detailed information on I/O communication and device operation.

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
0	ORIGINAL	9/4/2002	PJB



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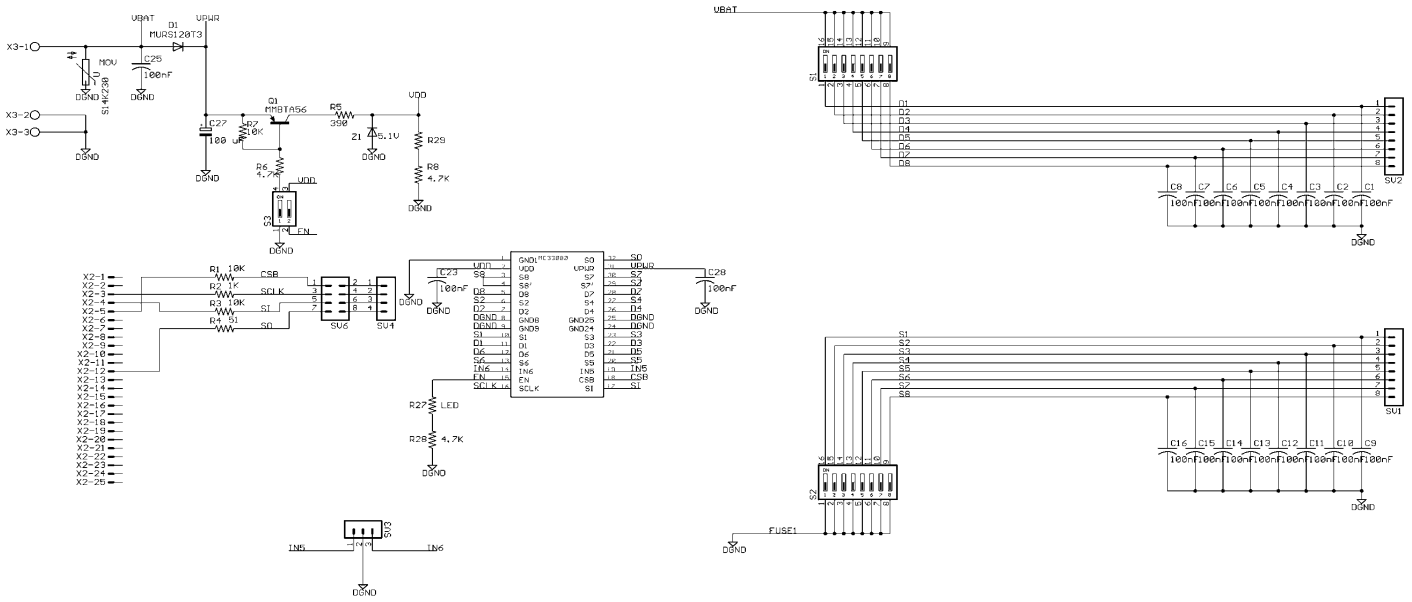

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TITLE

SCH33880DWBEVB
PCB SCHEMATIC DWG

REV

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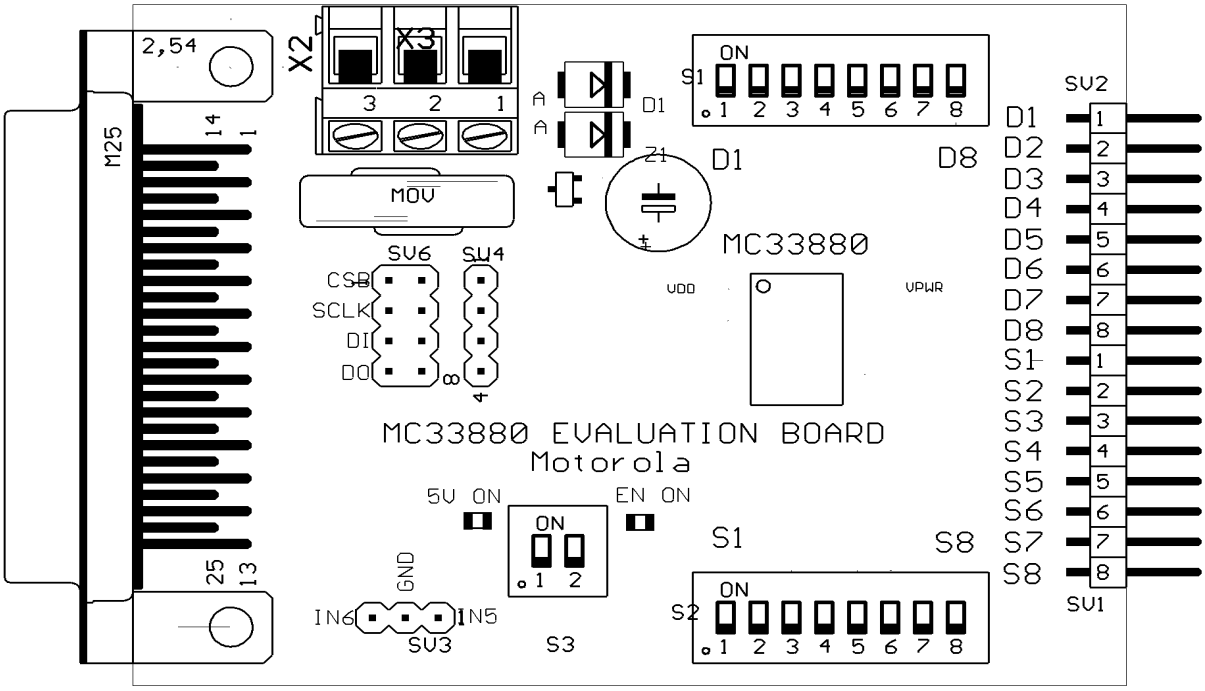

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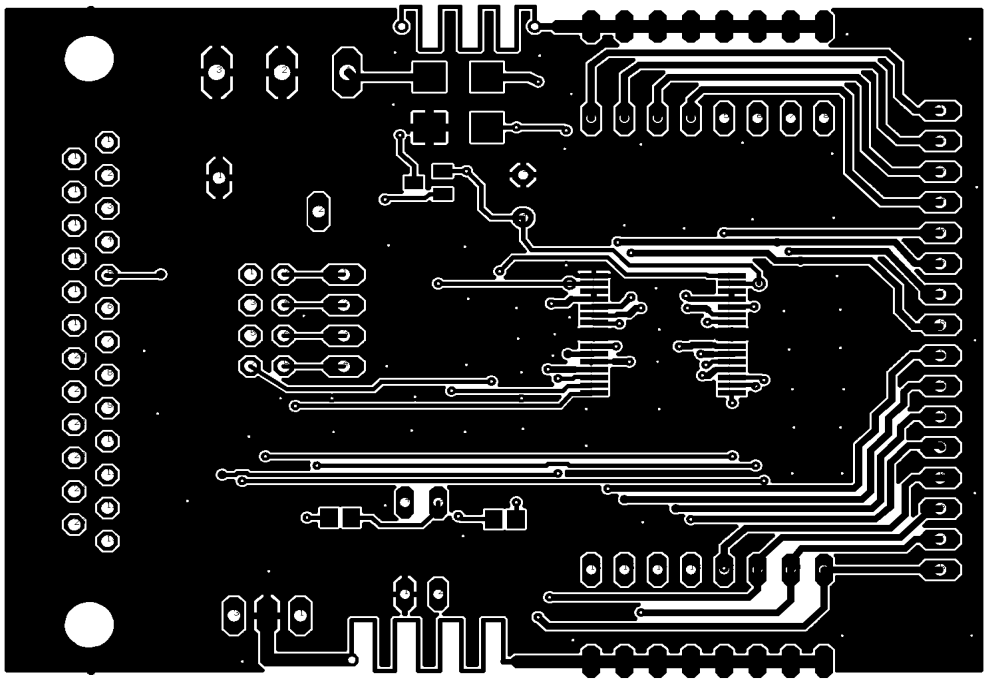
NOTES:
1. TOP COPPER



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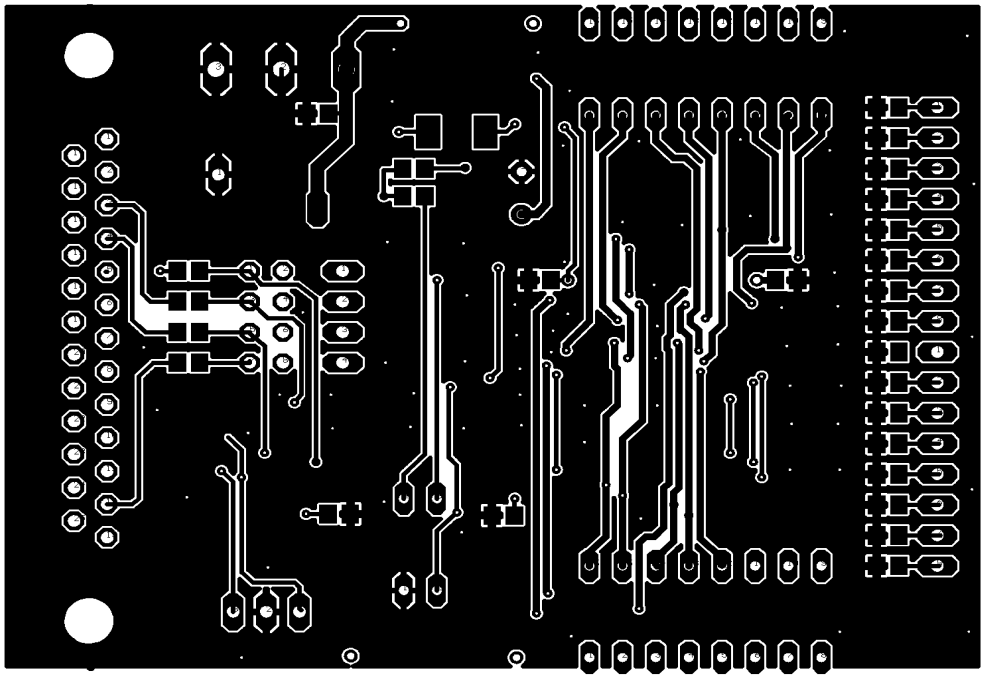
REV	DESCRIPTION	DATE	APPROVED
0	ORIGINAL	9/4/2002	PJB

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



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BILL OF MATERIAL

BOM33880DWBEVB

REVISION 0

Configurable Octal Serial Switch

QTY	PART NUMBER	REF. DES	PACKAGE	DESCRIPTION	MANUFACTURER
1	**MC33880DWB**	**MC33880**	**SO-32WB**	**Configurable Octal Serial Switch POWER IC**	**MOTOROLA SPS**
19	C0805C104M5RAC7800	C1-C16, C23,C25, C28	C0805	100nF,50V,0805 X7R CAP	Kemet
1	ECA1HM101	C27	8mm x 11.5mm	100uF 50V CAP	Panasonic
1	10BQ060	D1	SMB	Schottky Diode 1 amp	International Rectifier
1	1SMB5918BT3	Z1	SMB	5.1V SMB ZENER DIODE	ON Semiconductor
2	CMD17-21VGC/TR8	5V_ON, EN_ON	LED0805	Surface Mount 0805 LED.	Chicago Miniature Lamp Inc.
1	MMBTA56	Q1	SOT23	SOT23 PNP Transistor	Fairchild Semiconductor
1	ERJ6GEYJ0R051	R4	R0805	51 OHM 5% 0805 Resistor	Panasonic
1	ERJ12ZYJ0R390	R5	R2010	390 Ohm 5% 2010 Resistor	Panasonic
3	ERJ6GEYJ4R7	R6,R8,R28	R0805	4.7K 5% 0805 Resistor	Panasonic
1	ERJ6GEYJ1R0	R2	R0805	1K 5% 0805 Resistor	Panasonic
3	ERJ6GEYJ10R0	R1,R3,R7	R0805	10K 5% 0805 Resistor	Panasonic
2	76SB08S	S1,S2	8 Pin DIP	Grayhill 8 position Dip Switch (sealed)	Grayhill
1	76SB02S	S3	2 Pin DIP	Grayhill 2 position Dip Switch (sealed)	Grayhill
1	PCBKIT33880DWBEVB		2.3" X 3.0" X 0.062"	EVB Circuit Board 2 oz. Copper	D.S.ELECTRONICS
1	1 x 3	SV3	1 x 3 pin header	1 x 3 Pin Header Straight	**
2	1 x 8	SV1,SV2	1 x 8 pin header	1 x 8 Pin Header 90 Degree	**
1	182 025-112-531	X2	M25H	CONN DB25 Male RT ANG 0.318PCB	NorComp
1	2SV-03	X3		3 Terminal Power Connector	Augat RDI#732403200

** No recommendation

SPIGen SOFTWARE

SDK33880DWBEVB

Configurable Octal Serial Switch **REVISION 0**

SPIGen is a freeware software program that runs on a standard PC running Microsoft Windows 95/98/Me or Windows NT/2000/XP. Once installed and connected the user can send Serial Peripheral Interface (SPI) commands to the KIT33880DWBEVB via an easy to use GUI interface. This eliminates the need to write embedded MCU code an a development platform in order to evaluate the 33880 device. SPIGen is a configurable program that can be tailored to work with any SPI slave device. Please see the software Help facility for additional details on the operation of the SPIGen program.

SPIGen uses the parallel port (LPT port) of your computer to interface with the EVB through a standard DB25 port. SPIGen uses pins 2, 3, 4, 5, 6, 7, 8, and 9 as outputs and pins 12, 13, and 15 as inputs. Pins 1, 14, 16, and 17 are optional outputs that can be commanded via the SPIGen software. Refer to your computer's parallel port specification for information on voltage and current limitations at these pins. The assumption has been made here that these pins can source/sink at least 1 mA.

NOTE: There is a comprehensive Help facility built into the software which also functions as a tutorial-style user's manual. The user is encouraged to read through the Help files using the Contents Tab as a guide.