Proven PCB Layout

Data-Logging Software

Complete Evaluation System

Fully Assembled and Tested

Convenient On-Board Test Points

Lead(Pb)-Free and RoHS Compliant

General Description

The MAX11008 evaluation kit (EV kit) is an assembled and tested circuit board that demonstrates the MAX11008 dual RF LDMOS CODEC smart regulator for LDMOS FET bias control. Windows[®] 98/2000/XP software provides a handy user interface to exercise the features of the MAX11008.

Windows is a registered trademark of Microsoft Corp.

_Component List

MAX11008EVC16 System Component List

PART	QTY	DESCRIPTION
MAX11008EVKIT+	1	MAX11008 EV kit
HSI2CMOD	1	High-speed I ² C interface module
68HC16MODULE-DIP	1	68HC16 µC module

Ordering Information

Features

PART	TYPE	INTERFACE REQUIREMENTS
MAX11008EVKIT+	EV Kit	User-provided I ² C interface
MAX11008EVC16	EV Sys	Windows PC with RS-232 serial port

+Denotes lead(Pb)-free and RoHS compliant.

DESIGNATION	QTY	DESCRIPTION
C4, C8, C10, C12, C16, C18, C26, C27	8	1µF ±20%, 25V X5R ceramic capacitors (0603) TDK C1608X5R1E105M
C5, C9, C11, C13, C14, C15, C24, C25, C28, C29	10	0.1µF ±20%, 16V X7R ceramic capacitors (0603) TDK C1608X7R1C104M
C6, C7	0	Not installed, ceramic capacitors (0603)
C17	1	10μF ±20%, 25V X7R ceramic capacitor (1210) TDK C3225X7R1E106M
C19	1	4.7μF ±20%, 6.3V X5R ceramic capacitor (0603) TDK C1608X5R0J475M
C20–C23	4	100pF ±10%, 50V C0G ceramic capacitors (0603) TDK C1608C0G1H101K

_Component List (continued)

MAX11008EVKIT Component List

DESIGNATION	QTY	DESCRIPTION
D1, D2	2	npn transistors (3 SOT23) Fairchild MMBT3904 Top mark: 1A
FB1	1	70Ω, 4A ferrite bead (0603) Murata BLM1856700N1
J1	1	20-pin, 2 x 10 right-angle female receptacle
JU0–JU4	5	3-pin jumpers
JU5–JU20	16	2-pin jumpers
M1, M2	2	FETs, n-channel (TO-220AB) $V_{DS} = 55V$ (High V_{DS} > Low gm) $R_{DSON} = 0.024\Omega$ at $V_{DS} = 10V$ $I_D = 29A$ at +100°C International Rectifier IRFZ44N
R1, R2	2	$1.00k\Omega \pm 1\%$ resistors (1206)
R3, R9	2	4.99 k $\Omega \pm 1\%$ resistors (1206)

Evaluate: MAX11008

Maxim Integrated Products 1

For pricing, delivery, and ordering information, please contact Maxim Direct at 1-888-629-4642, or visit Maxim's website at www.maxim-ic.com.

Evaluate: MAX11008

DESIGNATION	QTY	DESCRIPTION
R4	1	0Ω resistor (0603)
R5, R6	2	$100\Omega \pm 5\%$ resistors (1206)
R7, R8	2	$1.00\Omega \pm 1\%$ sense resistors (2010) Vishay (Dale) CRCW20101R00FNEF
R10, R11	2	0Ω resistors (1206)
R12, R13	2	$10k\Omega \pm 5\%$ resistors (1206)
R14, R15	2	$47\Omega \pm 5\%$ resistors (1206)
U1	1	Dual RF LDMOS CODEC (48 TQFN-EP*) Maxim 11008BETM+

_Component List (continued)

MAX11008EVKIT Component List (continued)

DESIGNATION	QTY	DESCRIPTION
U2	1	2.5V voltage reference (8 SO) Maxim MAX6126AASA25+
U3	1	28V input linear regulator (5 SOT23) Maxim MAX1615EUK+T (Top Mark: ABZD)
	21	Shunts
	1	PCB: MAX11008 Evaluation Kit+

*EP = Exposed pad.

Component Suppliers

SUPPLIER	PHONE	WEBSITE
Fairchild Semiconductor	888-522-5372	www.fairchildsemi.com
International Rectifier	310-322-3331	www.irf.com
TDK Corp.	847-803-6100	www.component.tdk.com
Vishay	402-563-6866	www.vishay.com

Note: Indicate you are using the MAX11008 when contacting these component suppliers.

_Quick Start

Required Equipment

- Maxim MAX11008EVC16 (contains MAX11008EVKIT+ board, HSI2CMOD, and 68HC16MODULE-DIP)
- DC power supply, 8V at 500mA
- DC power supply, 10V at 1000mA
- Windows 98/2000/XP computer with a spare serial (COM) port
- 9-pin I/O extension cable

Note: In the following sections, software-related items are identified by bolding. Text in **bold** refers to items directly from the EV kit software. Text in **bold and under-lined** refers to items from the Windows operating system.

Procedure

The MAX11008 EV kit is fully assembled and tested. Follow the steps below to verify board operation. **Caution: Do not turn on the power until all connections are completed.**

1) Ensure that the MAX11008EVKIT jumpers are set in accordance with Table 1.

- 2) Carefully connect the boards by aligning the 40-pin header of the HSI2CMOD with the 40-pin connector of the 68HC16MODULE-DIP module. Gently press them together. The two boards should be flush against one another. Next, connect the MAX11008 EVKIT 20-pin connector to the HSI2CMOD board.
- Connect the 8V DC power source to the 68HC16MODULE at the terminal block located next to the on/off switch, along the top edge of the module. Observe the polarity marked on the board.
- 4) Connect a cable from the computer's serial port to the 68HC16MODULE. If using a 9-pin serial port, use a straight-through, 9-pin female-to-male cable. If the only available serial port uses a 25-pin connector, a standard 25-pin to 9-pin adapter is required. The EV kit software checks the modem status lines (CTS, DSR, DCD) to confirm that the correct port has been selected.
- 5) Install the evaluation software on your computer by launching MAX11008.msi. (The latest software can be found at <u>www.maxim-ic.com/evkitsoftware</u>.) The program files are copied and icons are created for them in the Windows <u>Start</u> menu.



- 6) Turn on the 8V DC power supply.
- 7) Start the MAX11008EVKIT program by opening its icon in the **Start** menu.
- 8) Click the **Connect** button to establish communications with the 68HC16MODULE and HSI2CMOD boards. The program prompts you to connect the μC module and turn its power on. Slide SW1 to the ON position. Select the correct serial port, and click OK. The program automatically downloads its software to the module. (During connection, you will be asked to move the HSI2CMOD rev A board's jumper JU5 shunt.)
- 9) After successful connection, you will be prompted to read the EEPROM and perform a full reset. Answer YES to ensure that the software graphical user interface (GUI) and the working registers match the initial values stored in the MAX11008's nonvolatile EEPROM.
- 10) Bring up the ADC / Control tab.
- 11) Connect the 10V DC power supply to the MAX11008EVKIT's DRAIN1 (+) and SOURCE1 (-), leaving DRAIN2 and SOURCE2 unconnected. Note: The power-supply grounds are connected through resistor R10.
- 12) Turn on the 10V DC power supply. FET M1 may begin drawing current. Adjust the channel 1 VGS OFFSET control until the drain current is 125mA. Keep a note of this board calibration value in case factory defaults must be restored.
- 13) Check Force GATE1 off, and FET M1 stops drawing current.
- 14) Connect the 10V DC power supply to DRAIN2 (+) and SOURCE2 (-). FET M2 may begin drawing current. Adjust the channel 2 VGS OFFSET control until the drain current is 125mA. Keep a note of this board calibration value in case factory defaults must be restored.
- Uncheck Force GATE1 off. Both M1 and M2 should draw 125mA each, compensating for temperature rise.

Detailed Description of Software

The MAX11008 EV kit software GUI is organized into several tabs.

Hardware Connection Tab (Figure 1)

Individual working registers may be read or written from this tab. When the software first starts, click the **Connect** button to establish communications with the 68HC16MODULE and HSI2CMOD boards. During connection, you will be asked to move the HSI2CMOD rev A board's jumper JU5 shunt. After successful connection, you will be prompted to read the EEPROM and perform a full reset. Answering NO to this prompt allows complete control of all read and write operations. Answering YES to the prompt initializes the GUI by bringing up the **EEPROM** tab, clicking **Refresh**, then bringing up the **ADC / Control** tab and clicking **Full Reset**, and finally in **Working Registers** clicking **Refresh**.

Warning: Writing the UMSG or STRM registers while the ADC is continuously converting overwrites the contents of the EEPROM with ADC conversion data. The GUI hides these detailed operations. Refer to source code files drv11008.cpp and kit11008.asm for implementation details.

EEPROM Tab (Figure 2)

Clicking the **Refresh** button reads the entire MAX11008 nonvolatile memory into the GUI.

To write a new value to an EEPROM cell, edit its hexadecimal value in the grid, either by clicking with the mouse or by using the arrow keys and function key F2. A prompt dialog box confirms writing the value and the register.

The EV kit software uses BUSY hardware handshaking when performing UMSG (EEPROM block read). The EV kit does not perform any handshaking when performing STRM (EEPROM block write), since the communications data link to the PC is too slow to overflow the MAX11008's FIFO.

Restoring Factory Configuration

The MAX11008 EV kit can be restored to its factorydefault EEPROM image by clicking **Load from File** and choosing file MAX11008EVKIT-EEPROM.txt.

Working Registers Tab (Figure 3)

The GUI remembers the working register values read from or written to the hardware. Some of the working registers are write-only, so the GUI cannot always determine the value.

Clicking the **Refresh** button reads all readable MAX11008 working registers into the GUI.

To write a new value to a register, edit either its hexadecimal value or the individual bits, either by clicking with the mouse or by using the arrow keys and function key F2. A prompt dialog box confirms writing the value and the register.

Working register values are read from the EEPROM at device power-up, and after performing a full reset. The **Full Reset** button is located on the **ADC / Control** tab.



Tables Tab (Figure 4)

There are four look-up tables (LUTs) that can be loaded: TLUT1 and TLUT2 for temperature compensation, and ALUT1 and ALUT2 for optional additional compensation. The EV kit software includes an MS-Excel spreadsheet file MAX11008_LUT_Example.xls, which models how physical temperature and voltage parameters can be mapped into the MAX11008's EEPROM memory. Refer to the *Temperature/APC Configuration Registers* section in the MAX11008 IC data sheet for detailed operation of the look-up tables.

A set of radio buttons selects one of the four LUT configuration registers. After clicking the appropriate radio button for TLUT1, ALUT1, TLUT2, or ALUT2, the software displays configuration values (pointer offset, linear interpolation, pointer size, table size, and start of table). After modifying any of these configuration values, click the **Apply Changes** button to write the new configuration value for the selected table.

To initialize a table, click the radio button selecting the desired table. Enter the value 0 into the edit field next to the **Fill with constant** button, then click to fill the table with zeros. Enter the known correction values into the table from the **EEPROM** tab, or click **Load from file** to load the table points from a text file. Finally, click **Interpolate entries that contain zero** to perform linear interpolation on all zero value table entries. (This operation is not the same as the MAX11008's linear interpolation *between* table entries. The GUI software interpolation fills in *missing* table entries.)

The memory map display shows which address range is assigned to each enabled look-up table. Two or more look-up tables may be assigned to the same address range; however, they will contain identical data. Overlapping table ranges are not recommended.

Alarms Tab (Figure 5)

The **Alarms** tab configures the ALARM output pin, temperature and current alarm limits, hysteresis, and alarm behavior.

ADC / Control Tab (Figure 6)

The **ADC / Control** tab configures the system parameters, reads ADC data, and controls the gate-driver outputs.

Keyboard Navigation

When you type on the keyboard, the system must know which control should receive the keys. Press the Tab key to move the keyboard's focus from one control to the next. The focused control is indicated by a dotted outline. Shift+Tab moves the focus to the previously focused control. Buttons respond to the keyboard's SPACE bar. Some controls respond to the keyboard's UP and DOWN arrow keys. Activate the program's menu bar by pressing the F10 key, then press the letter of the menu item you want. Most menu items have one letter underlined, indicating their shortcut key.

_Detailed Description of Hardware

For the purpose of "table-top" demonstration, two MOSFETS (M1 and M2) are provided on-board, taking the place of the LDMOS FETs that would be used in a real application. Diode-connected BJT transistors D1 and D2 sense the temperature of each FET while remaining electrically isolated by different PCB copper layers. Capacitors C20 and C21 filter the external temperature measurements. Gate drive is lowpass filtered by R14/C28 and R15/C29. Drain current is measured by Kelvin-connected precision resistors R7 and R8, filtered by R5/C22 and R6/C23. Drain voltage is sensed by 6:1 resistor-dividers R9/R1 and R3/R3.

Power is provided from the HSI2CMOD board connected to J1. The digital supply connects directly to 5V through jumper JU8. On-board MAX1615 regulator U3 provides the 5V analog supply through jumper JU12. On-board MAX6126 voltage reference U2 drives both REFADC and REFDAC through jumpers JU5 and JU6. The MAX11008 power is bypassed by C4, C5, and C24–C27.

The complete evaluation system is a three-board set, with the 68HC16 microcontroller driving the HSI2CMOD board's high-speed I²C interface core. Refer to the HSI2CMOD online documentation for details.

Table 1. Jumper Settings

JUMPER	SHUNT POSITION	DESCRIPTION
11.10	Closed*	DVDD is powered from connector J1
JU8	Open	DVDD must be provided by user
JU12	Closed*	AVDD is powered by on-board regulator U3
JUIZ	Open	AVDD must be provided by user
JU5	Closed*	REFDAC = 2.500V from U2
105	Open	REFDAC = internal 2.5V from U1
JU6	Closed*	REFADC = 2.500V from U2
100	Open	REFADC = internal 2.5V from U1
JU7	Closed*	Demo circuit RCS1+ connection
307	Open	Use external user-provided current-sense connection
JU9	Closed*	Demo circuit RCS1- connection
109	Open	Use external user-provided current-sense connection
JU10	Closed*	Demo circuit ADCIN1 sense M1 V _{DRAIN} /4
3010	Open	Use external user-provided ADCIN1 connection
JU11	Closed*	Demo circuit M1 gate connection
3011	Open	Connect to external user-provided FET gate
JU13	Closed*	Demo circuit D1 temperature sensor connection
3013	Open	Connect external user current-sense diode
JU15	Closed*	Demo circuit RCS2+ connection
0010	Open	Use external user-provided current-sense connection
JU14	Closed*	Demo circuit RCS2- connection
3014	Open	Use external user-provided current-sense connection
JU16	Closed*	Demo circuit ADCIN2 sense M2 V _{DRAIN} /4
3010	Open	Use external user-provided ADCIN2 connection
JU17	Closed*	Demo circuit M2 gate connection
3017	Open	Connect to external user-provided FET gate
JU18	Closed*	Demo circuit D2 temperature sensor connection
0010	Open	Connect external user current-sense diode
JU19	Closed*	Force OPSAFE1 pin to DGND, normal operation
2019	Open	OPSAFE1 must be driven by a user-provided source
JU20	Closed*	Force OPSAFE2 pin to DGND, normal operation
JUZU	Open	OPSAFE2 must be driven by a user-provided source

*Default position.

Table 1. Jumper Settings (continued)

JUMPER	SHUNT POSITION	DESCRIPTION
	1-2*	A0 = DVDD (I ² C address selection)
JU0	2-3	A0 = DGND (I ² C address selection)
	Open	A0 must be driven by user
	1-2*	A1 = DVDD (I ² C address selection)
JU1	2-3	A1 = DGND (I ² C address selection)
	Open	A1 must be driven by user
	1-2*	A2 = DVDD (I ² C address selection)
JU2	2-3	A2 = DGND (I ² C address selection)
	Open	A2 must be driven by user
	1-2*	CNVST = DVDD (inactive)
JU3	2-3	CNVST = DGND (active)
	Open	CNVST can be driven by user
JU4	1-2	DGND3 = DVDD (selecting SPI™ interface)
504	2-3*	DGND3 = DGND (selecting (I ² C interface)

*Default position.

SPI is a trademark of Motorola, Inc.



Figure 1. Hardware Connection Tab After Successful Connection

0x00 User 0x1234 0x5678 0x9ABC 0x00AB	0 User 0x1234 0x5678 0x9ABC 0x00AB	Non-volatile configuration memory and look-up table storage	
Andrew Stress AndrewStress Andrew Stress	No.01E0 0x01E0 0x0000 0x00F6 0x0000 0x01E0 0x0000 0x00F6 0x0000 0x00F6 0x0000 0x00F6 0x0000 0x0FF6 0xFFF6 0xFFF7 0xAFFF7 0xAFF77 0xAFF77 0xAFF77 0xAFF77 0xAFF77 0xFF75 0xFF60 0xFF75 0xFF60 0xFF60 0xF602 0xFF75 0xFF61 0x4064 0x0062 0 11 0x0A44 0x002 0x0033 0x0088 0x0078 0x0073<	Look-Up Table 0x00 0x01 0x02 0x03 0x04 0x05 0x06 0x07 0x0	0,
Ox20 reserved OxFFFF OxFFFF<	Normal Normal<	User 0x1234 0x5678 0x9ABC 0x00AB 0x00AB 0x00AB 0x00AB 0x00AB 0x4D55 0x13	34 O x
Andrew Matrix Andrew M	Normal Science Normal	Registers 0x01E0 0x0000 0x00F6 0x0000 0x01E0 0x0000 0x00F6 0x0000 0xF5	40 O>
0x40 T1 0x0044 0x0092 0x0093 0x0088 0x0083 0x0078 0x0077 0x006A 0x06FF 0xFFF 0xFFF 0xFFF 0xFFF 0xFF6A 0xFF6A 0xFF6A 0xFF6A 0xFFFA 0xFFFA 0xFFFA 0xFEFA 0x073 0x006A	0 T1 0x00A4 0x009C 0x0093 0x0088 0x0088 0x0073 0x0073 0x006A 0x0062 0 T1 0x0021 0x0010 0x0008 0x0008 0x0073 0x0073 0x066A 0x062 0 T1 0x0021 0x0010 0x0008 0x0000 0xFFF8 0xFFF0 0xFF27 0xFF27 0xFF27 0xFF26 0xFF50 0 T1 0xFF18 0xFF12 0xFF80 0xFF27 0xFF75 0xFF64 0xFF20 0 T1 0x00A4 0x009C 0x093 0x0088 0x0683 0x073 0x06A 0x062 0 T2 0x00A4 0x09C 0x093 0x0088 0x0083 0x0073 0x006A 0x0662 0 T2 0x00A4 0x09C 0x093 0x0088 0x0083 0x0073 0x006A 0x0062 Itect EEPROM location by name: MAGICNUMBER MAGICNUMBER Image is ignored unless this register contains 0xAA55 <td>reserved 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFF</td> <td>FF 0x</td>	reserved 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xFFF	FF 0x
Oxfor T1 Oxfor Ox	Image: Normal and the second	Registers 0x0000 0x80B7 0x8000 0x0000 0xFFFF 0xFFFF 0xFFFF 0xFFFF 0xAA55 0xFI	FF 0x
Ox60 T1 OxFF9E OxFF9E OxFF8D OxFF8D OxFF7D OxFF7D OxFF7D OxFF6D OxFF64 OxFF2D 0x80 T1 0xF1B 0xF12 0xF64 0xF7D 0xFF7D 0xFF7D 0xFF6D 0xFF64 0xFF2D 0x80 T2 0x00A4 0x009C 0x0033 0x008B 0x007B 0x0073 0x006A 0x0062 Image: State EEPROM location by name: Image: State EEPROM location by name: <td>0 T1 0xFF9E 0xFF9E 0xFF8D 0xFF8D 0xFF75 0xFF75 0xFF6D 0xFF6D 0xFF6D 0 T1 0xFF1B 0xFF1E 0xFF1D 0xFF75 0xFF75 0xFF6D 0xFF6D 0xFF2D 0 T2 0x0044 0x009C 0x003 0x008B 0x0083 0x007B 0x006A 0x006A 0x0062 Iect EEPROM location by name: MAGICNUMBER Image is ignored unless this register contains 0xAA55</td> <td>T1 0x00A4 0x009C 0x0093 0x008B 0x0083 0x007B 0x0073 0x006A 0x0</td> <td>62 O></td>	0 T1 0xFF9E 0xFF9E 0xFF8D 0xFF8D 0xFF75 0xFF75 0xFF6D 0xFF6D 0xFF6D 0 T1 0xFF1B 0xFF1E 0xFF1D 0xFF75 0xFF75 0xFF6D 0xFF6D 0xFF2D 0 T2 0x0044 0x009C 0x003 0x008B 0x0083 0x007B 0x006A 0x006A 0x0062 Iect EEPROM location by name: MAGICNUMBER Image is ignored unless this register contains 0xAA55	T1 0x00A4 0x009C 0x0093 0x008B 0x0083 0x007B 0x0073 0x006A 0x0	62 O>
Ox70 T1 Ox7F1B OxFF1B OxFF12 OxFF0A OxFF02 OxFEFA OxFEF2 OxFEE1 OxFED1 OxFED2 0x80 T2 0x00A4 0x009C 0x0093 0x008B 0x007B 0x0073 0x006A 0x0062 Image: Select EEPROM location by name: MAGICNUMBER Image: Signored unless this register contains 0xA455 Image: Select Selec	0 T1 0xFF1B 0xFF12 0xFF02 0xFF02 0xFEF2 0xFEF2 0xFEE1 0xFED3 0 T2 0x0044 0x009C 0x0093 0x008B 0x0083 0x007B 0x0073 0x006A 0x0062 Ident EEPROM location by name: MAGICNUMBER T 37: ee_MAGICNUMBER The entire EEPROM image is ignored unless this register contains 0xAA55	T1 0x0021 0x0019 0x0010 0x0008 0x0000 0xFFF8 0xFFF0 0xFFE7 0xF	DF 0>
0x80 T2 0x00A4 0x009C 0x0093 0x008B 0x0083 0x007B 0x0073 0x006A 0x0062 Image: Select EEPROM location by name: Image: Image	0 T2 0x00A4 0x009C 0x0093 0x008B 0x0083 0x007B 0x006A 0x006A lect EEPROM location by name: MAGICNUMBER Image is ignored unless this register contains 0xAA55	T1 0xFF9E 0xFF96 0xFF8D 0xFF85 0xFF7D 0xFF75 0xFF6D 0xFF64 0xF	5C 0>
Select EEPROM location by name: MAGICNUMBER 0x37: ee_MAGICNUMBER The entire EEPROM image is ignored unless this register contains 0xAA55	Lect EEPROM location by name: MAGICNUMBER 37: ee_MAGICNUMBER The entire EEPROM image is ignored unless this register contains 0xAA55	T1 0xFF1B 0xFF12 0xFF0A 0xFF02 0xFEFA 0xFEF2 0xFEE9 0xFEE1 0xF	D9 0>
Select EEPROM location by name: MAGICNUMBER 💽 0x37: ee_MAGICNUMBER The entire EEPROM image is ignored unless this register contains 0xAA55	lect EEPROM location by name: MAGICNUMBER	T2 0x00A4 0x009C 0x0093 0x008B 0x0083 0x007B 0x0073 0x006A 0x0	62 Ox
0x37: ee_MAGICNUMBER The entire EEPROM image is ignored unless this register contains 0xAA55	37: ee_MAGICNUMBER The entire EEPROM image is ignored unless this register contains 0xAA55		
		PROM location by name: MAGICNUMBER	
		MAGIONUMBER The entire EEPBOM image is ignored unless this register contains 0xAA55	
Load from File Save to File Copy EEPROM to Registers Refresh			

Figure 2. EEPROM Tab Showing a Typical Configuration

Evaluate: MAX11008

Evaluate: MAX11008

Write Read Name 0x22 0x42 rd_TL1 0x24 0x44 rd IH1	Low-level register values Description	15	-					
		- T.	5 14	13	12	11	10 9	8
0x24 0xA4 rd IH1	Temperature Low Threshold for Channel 1	1	1	1	1	0	0 0	1 0
	Current High Threshold for Channel 1	1	1	1	1	0	0 0	0
0x26 0xA6 rd_IL1	Current Low Threshold for Channel 1	1	1	1	1	0	0 0	0
0x28 0xA8 rd_TH2	Temperature High Threshold for Channel 2	1	1	1	1	0	0 0	1
0x2A 0xAA rd_TL2	Temperature Low Threshold for Channel 2	1	1	1	1	0	0 0	0
0x2C 0xAC rd_IH2	Current High Threshold for Channel 2	1	1	1	1	0	0 0	0
0x2E 0xAE rd_IL2	Current Low Threshold for Channel 2	1	1	1	1	0	0 0	0
0x30 0xB0 rd_HCFG	Hardware Configuration	1	1	1	1	0	1 0	1
		-1.				~		P
Search Registers by name:	Search Bit Fields by na	ne:	Ad	cMor			-	_
	ite 0x30) (eeprom 0x18) Hardware Configuration 1CFG_AdcMon: Send ADC conversion results to FIFO register							
Load from File Save to	File Re-Load from EEPROM Commit to EEPROM		Re	fresh				

Figure 3. Working Registers Tab Showing a Bit Field Search



Figure 4. Tables Tab Showing a Typical Configuration

MAX11009 Global Configuration ALARM output pin FAIL=High, DK=Low Alarm Comparator / Interrupt Mode 1: Release as soon as condition clears Built-in hysteresis (window mode alarm limits) 16 LSB Parameters are valid, click Apply to write to hard	MAX11008 CH1 Alarm Configuration 10 clamp during alarm condition, clear automatically ▼ Temperature window/hysteresis mode 11 window with builtin hysteresis ▼ Low Limit 0.0 °C High Limit 60.0 °C Current window/hysteresis mode 11 window with builtin hysteresis ▼ Low Limit 0.000 A High Limit 0.150 A MAX11008 CH2 Alarm Configuration 10 clamp during alarm condition, clear automatically ▼ Temperature window/hysteresis mode 11 window with builtin hysteresis ▼ Low Limit 0.00 °C High Limit 60.0 °C Current window/hysteresis mode 11 window with builtin hysteresis ▼ Low Limit 0.0 °C High Limit 60.0 °C Current window/hysteresis mode 11 window with builtin hysteresis ▼ Low Limit 0.000 A High Limit 0.150 A
	Refresh Apply

Figure 5. Alarms Tab Showing a Typical Configuration

	ADD Community Charl Triange	ADCMON=1 monitor raw data
Power Up	ADC Conversion <u>Start Trigger</u> 00: Conv reg write	Internal Temperature 23.250 °C
Shut Down	ADC Reference Voltage Source	Temp Ch1 39.125 °C Current Ch1 0.1483 A
Full Reset	00: External	ADCIN1 0.1483 A
Fuil Reset	DAC Reference Voltage Source	Temp Ch2 41.125 °C
Clear Alarms	00: External 💌	Current Ch2 0.1013 A ADCIN2 2.2227 V
	CH1 FET parameters	ADCINZ ELECTRY AVGMON=1 monitor average data
Force GATE1 off	Target Drain Current (IDq) 0.125 A	Avg Temp Ch1 ??.??? °C
Vgs Offset 1231	CH1 Current Sense Resistor (Rcs) 0.100 ohm	Avg APC1 ?.???? V
Coarse Fine Auto	PGA setting 01: 10 V/V ▼ Vcs = 0.01250 V	Avg Temp Ch2 ??.??? *C Avg APC2 ?.???? V
IDq error 20.0 %	Vpgaout = 0.02500 ∨	
Force GATE2 off	CH2 FET parameters	Update Write ADCCON
Vgs Offset -1256	Target Drain Current (IDq) 0.125 A	Update rate: 500 msec
Coarse Fine Auto	CH2 Current Sense Resistor (Rcs) 0.100 ohm	0x20F3: CH2=243
IDqerror -18.6 %	PGA setting 01: 10 V/V 💌 Vcs = 0.01250 V	0x50A6: CH5=166
VgsAutoConvergeDiverge	Vpgaout = 0.02500 V	
		Refresh Apply

Figure 6. ADC / Control Tab Showing a Typical Configuration

9

Evaluate: MAX11008



Figure 7. MAX11008 EV Kit Schematic



Figure 8. MAX11008 EV Kit Component Placement Guide—Component Side





Figure 9. MAX11008 EV Kit PCB Layout—Component Side



Figure 10. MAX11008 EV Kit PCB Layout—Ground Layer 2



Figure 11. MAX11008 EV Kit PCB Layout—Power Layer 3

$\left[\right]$ U 8 8 . 8 Ξ • 0 0 8 ί Ο 0 0 \mathbf{O} \mathbf{O} 0 0 ίΠ Ο **[1** • 0 \mathbf{O} 0 1.0

MAX11008 Evaluation Kit/ Evaluation System

Figure 12. MAX11008 EV Kit PCB Layout—Solder Side

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