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APPLICATION NOTE 6821

FACTORY-PROGRAMMABLE PARAMETERS OF THE MAX77812

Abstract: The MAX77812 is a quad-phase, high-current, step-down (buck) converter for high-end gaming consoles, VR/AR headsets, DSLR cameras, drones, network switches and routers, and FPGA systems that use multicore processors. This document introduces the factory-programmable OTP (one-time programmable) options that the MAX77812 provides.

Introduction

The [MAX77812](#)'s flexible architecture enables users to have full control of the multiphase buck converter operation through the I²C/SPI interface, such as control of output voltages, startup and shutdown sequences, ramp-up/down slew rates. (For details, see the PMIC Registers section of the data sheet.)

Factory Default Settings

When valid input supply voltages are applied to the SYS, VIO, and CE pins, a host processor in the system can read and write the functional registers of the MAX77812 and it can override the factory default setting values, even before the converter output is enabled. This feature allows the MAX77812 to support many applications that require different operating conditions.

However, in case the MAX77812 is the main supply to the host processor in the system and the host processor requires unique supply voltages and a power-up sequence, a new factory default option may be needed. In order to address this, the MAX77812 offers multiple factory default settings. (See the *Ordering Information* section in the MAX77812 data sheet). If your applications require a specific combination of default output voltages and startup sequence that is not available in the ordering information, contact your Maxim's sales representative.

Table 1 shows the factory-programmable operating parameters.

Table 1. Factory-Programmable Parameters

Address	Bit Name	Description
Default Output Voltage		
0x23	M1_VOUT[7:0]	Master 1 Output Voltage
0x24	M2_VOUT[7:0]	Master 2 Output Voltage
0x25	M3_VOUT[7:0]	Master 3 Output Voltage
0x26	M4_VOUT[7:0]	Master 4 Output Voltage
Default Startup Delay		
0x07	DLY_STEP	Delay Time Step Selection
0x07	M2_STUP_DLY[4:0]	Master 2 Startup Delay Time
0x08	M3_STUP_DLY[4:0]	Master 3 Startup Delay Time
0x09	M4_STUP_DLY[4:0]	Master 4 Startup Delay Time

Default Output Voltage

The output voltage of the MAX77812 is programmable from 0.25V to 1.525V in 5mV steps. Mx_VOUT[7:0] is the output voltage control register for normal operation, and its default value is OTP-programmable.

Default Startup Delay

The startup delay times between the master phases are programmable from 0ms to 62ms with a step size of 1ms or 2ms. They are determined by STUP_DLYx registers, and the default startup delay can be programmed at the factory.

Related Parts

[MAX77812](#)

20A User-Configurable Quad-Phase Buck Converter

[Samples](#)

More Information

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