bq2040-D111 to bq2040-C408 Change List

PMP Portable Power

ABSTRACT

This document describes the design considerations required to change a bq2040SN-C408 design to a bq2040-D411 solution. This includes both hardware and firmware considerations. Find the latest ordering information and data sheet on the world wide web at: http://power.ti.com.

CHANGE	bq2040-D111	bq2040-C408	COMMENTS
HARDWARE			
SMBus communication	SMBus logic changed to abort communication if a *Repeated Start* is detected during a Master Mode broadcast.	There is a small possibility of data RAM corruption when used with a non-SMBus compliant host or charger.	No specification change The D111 resets the SMBus with a *Repeated Start* during a Master Mode to eliminate the possibility of RAM corruption with a non-SMBus compliant host or charger.
Voltage to frequency converter	Control lines moved to improve offset variability.		No specification change
SOFTWARE			
Master Mode broadcast enable / disable	Master Mode broadcasts are *permanently* disabled by setting bit 3 of FLAGS2=1 in EEPROM.	Broadcast can be enabled by writing bit 13 in batteryMode( ) to 0 even if bit 3 of FLAGS2=1 in EEPROM.	No specification change
Self-discharge estimation	The self-discharge variation with temperature is an exact multiple of 2 with each 10°C. Temperature is averaged over the entire self-discharge interval.	The self-discharge estimation varies slightly from an exact multiple of 2. The temperature used for the estimation is that which the C408 measures at the end of the self-discharge interval.	No specification change
Relearn cycle counter	The counter used to set the condition request flag bit 7 in BatteryMode() is cleared at reset.		No specification change The change eliminates the possibility of MaxError() changing from 100% until the first learning cycle completes after a reset.
EDVF charging current	The D111 sets ChargingCurrent() to the EDVF charging current level as long as Voltage() is below EDVF.	There are two conditions where the C408 sets ChargingCurrent() to values other than the EDVF level even if Voltage() is below the EDVF threshold.	No specification change

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