Application Note

BQ78350-R1 TRM Addendum for the BQ78350-R3 Device

ABSTRACT

This document is an addendum to the *BQ78350-R1 Technical Reference Manual* and discusses modifications relating to the BQ78350-R3 device. Items not discussed in this addendum have not changed.

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1 General Description

The BQ78350-R3 device is a modified version of the catalog BQ78350-R1 device that has modified selected functionality, as well as new features. This document details the changes regarding the BQ78350-R3 device with respect to the BQ78350-R1 device.

2 Production Plans

To use the BQ78350-R3 device, order the catalog BQ78350-R1 device from TI.com and program the device with the TI provided BQ78350-R3 firmware. The package and pinout remain the same as the BQ78350-R1 device, with the exception of some modified functionality associated with the GPIO_B pin.

3 Added Features

3.1 Cell Balancing DF Bits

The ***[CB_R]*** bit is added to the BQ78350-R3 in the following data flash location. When cell balance is enabled by ***[CB]*** = '1', this bit is used to activate or deactivate the cell balance at rest/relax feature by default.

Class	Subclass	Name	Format	Size in Bytes	Min	Max	Default	Unit
Settings	Configuration	Balancing Configuration	Hex	1	0x00	0xFF	0x01	Hex

7	6	5	4	3	2	1	0
RSVD	RSVD	RSVD	RSVD	RSVD	RSVD	CB_R	CB

RSVD (Bits 7–2): Reserved. Do not use.

CB_R (Bit 1): Cell balancing operates at rest/relax (without charge current detection) when cell balancing is enabled.

1 = Enabled

0 = Disabled (default)

CB (Bit 0): Cell balancing

1 = Enabled (default)

0 = Disabled in all cases

3.2 ManufacturerAccess() 0x0057 ManufacturingStatus

This command returns the *ManufacturingStatus()* flags on *ManufacturerBlockAccess()* or *ManufacturerData()*. The new *[CB_R_TEST]* bit is added for the BQ78350-R3 device.

	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
High byte	CAL_EN	LT_TEST	CB_TEST	AFE_DD _TEST	CB_R_TEST	RSVD	LED_EN	SAFE_EN
Low Byte	BBR_EN	PF_EN	LF_EN	FET_EN	PDSG _TEST	DSG_TEST	CHG_TEST	PCHG _TEST

CB_R_TEST (Bit 3): Cell balancing is enabled and operates at rest/relax

0 = Disabled

1 = Enabled

3.3 ManufacturerAccess() 0x0019 Cell Balance at Rest/Relax

A new command is added to this device to allow the cell balance operation when the device is at rest or relax. When the cell balancing is enabled, this command can be used to activate or deactivate the cell balancing operation without charge current detection.

When cell balancing is enabled and 0x0019 is written to *ManufacturerAccess()*, it sets the *ManufacturingStatus() [CB_R_TEST]* = 1. The charge current detection condition is not required for the cell balance operation. If 0x0019 is written to *ManufacturerAccess()* once again, then the cell balance is allowed only when charging current is detected, and *ManufacturingStatus()[CB_R_TEST]* is cleared to 0. This command is not functional when cell balancing is disabled.

4 Revision History

NOTE: Page numbers for previous revisions may differ from page numbers in the current version.

DATE	REVISION	NOTES
February 2022	*	Initial Release

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