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Date : **5/31/2011**		**Cc:**	

Object:

GEDEC_IC1: Power Management system for input energy PV panel and Scavenging system interface

History:

Version	Date	Author	Description
1.0.0	11/03/09	GEDEC	First draft release

To obtain the datasheet in the correct form, please remove this page

GEDEC
Advanced Electronic Design and Consulting

GEDED IC1

Power Management system for input energy PV panel and Scavenging system interface

Features

- **Highly integrated solution**
- **Advanced interface for Photovoltaic (PV) panels and/or Scavenging System (SS)**
- **Input voltage source from 2.5V up to 20V**
- **Output driver for external Ultracapacitor energy tank**
- **Output driver for external rechargeable batteries**
- **Intergrated high efficiency DCDC converter with programmable output from 0.9V up to 5V with 1A capability**
- **Integrated smart battery charger for rechargeable batteries**
- **Safety charge timer during Preconditioning and Fast charger**
- **Accurate and programmable integrated temperature sensor for the device and the external battery**
- **Very low power functionality modes solution**
- **Power-down mode consumption less than 2μA**

Description

The GEDEC_IC1 is an advanced integrated circuit device mainly suited to manage the free alternative energy, such as the solar power, to be stored into a PbFree storage device. These storage device could be a rechargeable battery or a Super/Ultra capacitor.

A new frontier of energy generator such as the scavenging system (or harvesting system) can be also managed.

The GEDEC_IC1 is mainly suited for highly integrated and space limited applications. It integrates an high efficiency DCDC voltage converter and a most advanced CHARGER device.

The DCDC voltage converter is able to get the input power coming from the PV panel or Scavenging System and generates a user-defined programmable output power to be used for charging an external tank capacitor or supply directly an external device.

The CHARGER device can perform the most advanced procedures to be used in charging an external rechargeable battery, such as Pre-Conditioning, Constant-Current, Constant-Voltage charging modes.

A Pulsed-Width-Modulation (PWM) charging method can be also programmed and used.

The CHARGER integrates also: a user-programmable accurate temperature sensor for the device itself and the external battery, a battery detector and over/down voltage and current detector.

The CHARGER device can fit Lithium Ion (LiIon), Lithium Poly (LiPoly) and Nickel-Metal Hydrade (NiMH) battery types.
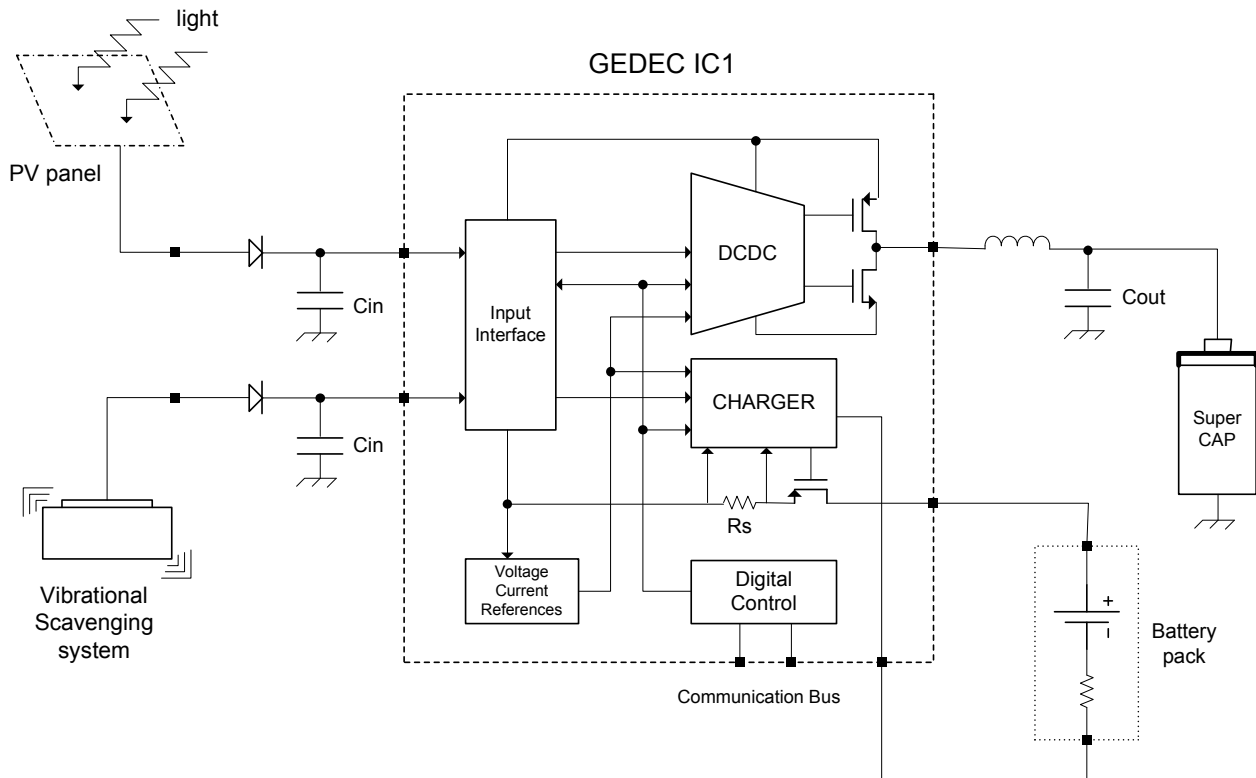
Applications

- Portable devices
- PDAs
- MP3 player
- Internet appliances

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Functional diagram

Electrical specifications

Parameter	Symbol	Limits			Unit	Notes
		Min	**Typ**	**Max**		
Temperature range	tj	-40		125	°C	Junction Temperature
Operating supply voltage	VDD	2.5		20	V	
Start-up time	Tsu			500	µs	
DCDC output voltage	Vodcdc	0.9		5	V	Fully programmable with 0.5V steps
DCDC output current	Iodcdc			1	A	
DCDC output current limitation level	Ilimdcdc			2	A	
CHARGER Pre-Charge current level	Ipch	2		20	mA	Fully programmable with 2mA steps
CHARGER Constant-Current level	Ichcc	10		100	mA	Fully programmable with 5mA steps
CHARGER Constant-Voltage stop threshold	Ichcv_th			5	mA	Fully programmable with 5mA steps
Start-up time	tr			200	µs	