Programmable Multi-Channel PMIC with Distributed Power Source Controller and SVID

IDTP9145

Features

- **7 programmable step-down switching regulators**
  - **Programmable mode selection:**
    - **Automatic PWM/PFM transition for high light load efficiency or,**
    - **PWM mode only for low noise applications**
  - **Three synchronous step down converters with 5A output current each and optional scalability using IDTP9147**
  - **Two synchronous step down converters with 2.5A output current each**
  - **Two IDTP9147 controllers**
- **7 general purpose linear regulators (LDOs)**
- **SVID interface supporting IMVP7 protocol**
- **10-bit ADC**
  - **Monitors internal and external voltages, temperature, currents**
- **Host interface and system management**
  - **Interrupt controller with mask-able interrupts,**
  - **Reset function**
  - **Power control state machine**
  - **OTP-programmable sequencing of output rails and voltages**
  - **High speed I²C interface (3.4Mbit/s)**
- **12 Enable outputs for external switches or regulators**
- **16 programmable GPIOs**
- **-40°C to +85°C operating temperature range**
- **Available in thermally enhanced 100-ld, 8 x 8 x 0.7mm dual row QFN**

Applications

- **Clam Shell Computer**
- **Tablets**
- **General Embedded Applications**
- **Print Imaging & Multi-Function Printers**
- **µServers**

Description

The IDTP9145 is a programmable, multiple channel power management IC (PMIC) designed for the Intel® Atom™ SoC to meet high performance requirements and provide high-feature integration to minimize system board area and BOM cost.

The PMIC includes subsystems for voltage regulation, power sequencing management, A/D conversion, GPIOs, PWMs and others. The IDTP9145 device is controlled and programmed by using an I2C that operates in-conjunction with the SoC. There is also a serial voltage ID (SVID) interface between the SoC and PMIC for handling VCC, VNN & VDDQ voltage rail settings and system control signals.

The output current capability of the IDTP9145 solution can be increased by adding IDT's intelligent, scalable, distributed power sources (IDTP9147). These compact, external devices provide up to 6 A of additional peak current each. The IDTP9145 supports the connection of up to eight external power sources, for 48 A of total scalability.

Also included are 7 LDOs that are programmable over a wide output voltage range and offer output currents up to 300mA. The LDOs are low noise, high PSRR and low dropout regulators.

The default output voltages of all regulators as well as device sequencing can be programmed by OTP (fuse cells) for non-standard configurations, or can be programmed on-the-fly in the application. The PMIC operates from a single 4.5V to 5.5V supply.

The IDTP9145 utilizes an 8 x 8mm, 100-ld, dual row QFN package and is guaranteed to operate over the commercial temperature range of -40°C to +85°C.

ORDERING GUIDE

Table 1. Ordering Summary

PART NUMBER	MARKING	PACKAGE	AMBIENT TEMP. RANGE
IDTP9145-00NQGI	IDTP9145-00NQGI	8 x 8 x 0.7mm 100 lead QFN	-40 to +85 ℃
IDTP9145-xxNQGI	IDTP9145-xxNQGI	8 x 8 x 0.7mm 100 lead QFN	-40 to +85 ℃

Note: The "-xx" part number suffix will be assigned based on device OTP configuration ("-00" is the part number for the un-configured sample version)

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