

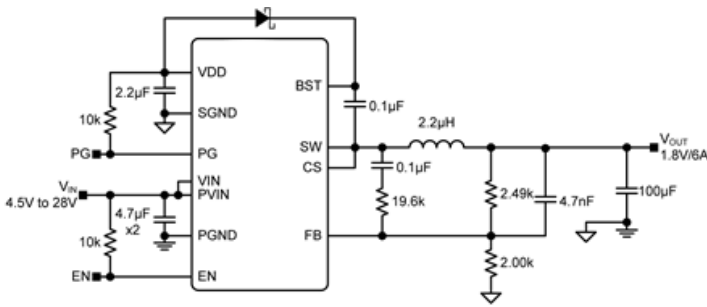
### Brief Description

The ZSPM4023-06 is a constant-frequency, synchronous DC/DC buck regulator featuring adaptive on-time control architecture. The ZSPM4023-06 operates over a 4.5V to 28V supply range (24V typical). It has an internal linear regulator that provides a regulated 5V to power the internal control circuitry. The ZSPM4023-06 operates at a constant 600kHz (typical) switching frequency in continuous-conduction mode and can be used to provide up to 6A of output current. The output voltage is adjustable from 5.5V down to 0.8V.

Under medium to heavy loads, the ZSPM4023-06 provides high efficiency and ultra-fast transient response via its rapid-control architecture. Under light load conditions, it maintains high efficiency and a superior transient response by transitioning to variable-frequency, discontinuous mode operation with its ultra-light-load architecture.

The ZSPM4023-06 offers a full suite of protection features to ensure protection of the IC during fault conditions. These include under-voltage lockout to ensure proper operation under power-sag conditions; thermal shutdown; internal soft-start to reduce inrush current; foldback current limiting; and “hiccup” mode short-circuit protection. The ZSPM4023-06 includes a power good (PG) output to allow simple sequencing.

### ZSPM4023-06 Typical Application



### Benefits

- Ultra-light load efficiency – up to 80% at 10mA
- Up to 95% efficiency
- Feedback reference accuracy as high as  $\pm 1\%$

### Features

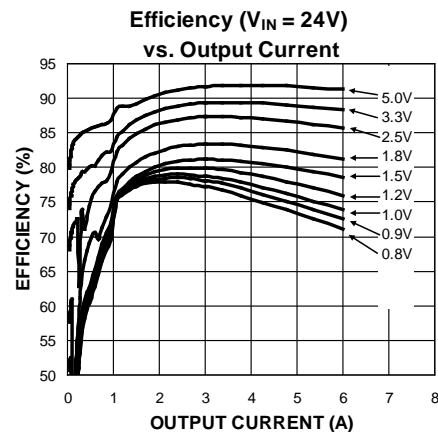
- Rapid-control architecture enables operation with a high input/output voltage ratio (e.g.,  $V_{IN} = 28V$  and  $V_{OUT} = 0.8V$ ) and small output capacitance
- Adjustable output voltage from 0.8V to 5.5V
- Universally compatible with most output capacitors—stable with zero to high ESR
- Power good (PG) output
- Foldback current limiting and “hiccup” mode short-circuit protection
- Safe start-up into pre-biased loads

### Available Support

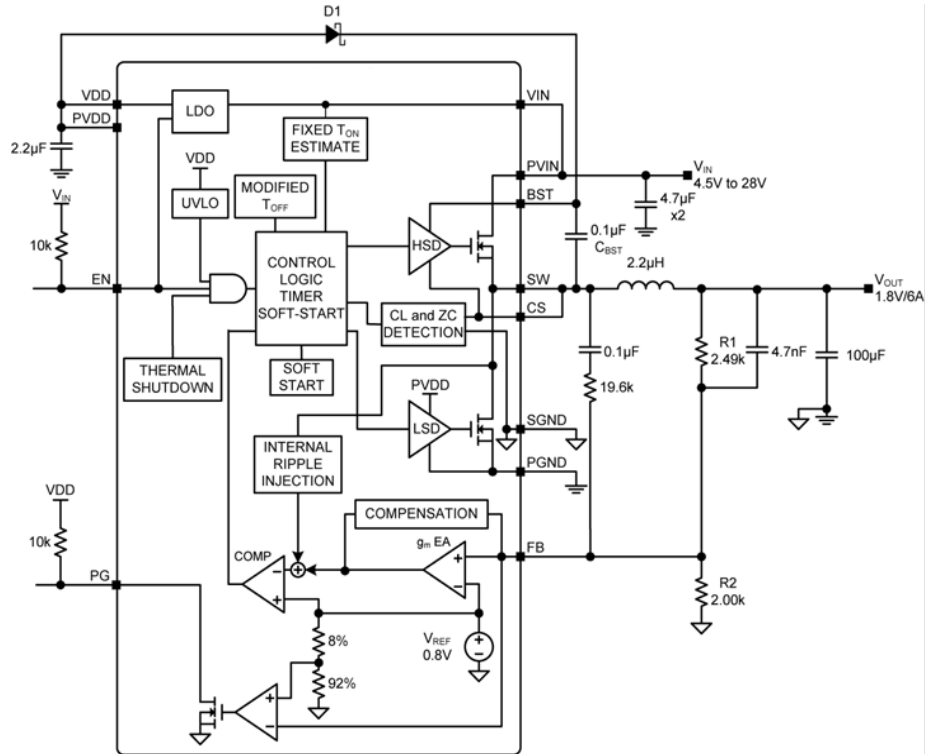
- Evaluation Kit
- Support documentation

### Physical Characteristics

- Input voltage range: 4.5V to 28V
- Output current: up to 6A
- Switching frequency: 600kHz
- Junction temperature:  $-40^{\circ}C$  to  $+125^{\circ}C$
- 28-pin 5mm  $\times$  6mm QFN package



## ZSPM4023-06 Functional Diagram



### Typical Applications

- ❖ Servers, work stations
- ❖ Routers, switches, and telecom equipment
- ❖ Base stations

## Ordering Information

Product Sales Code	Description	Package
ZSPM4023AA1W06	ZSPM4023-06 QFN28 5mmx6mm — Temperature range: -40°C to +125°C	7" reel with 1000 ICs
ZSPM4023-06-KIT	Evaluation Kit for ZSPM4023-06, including ZSPM4023-06 Evaluation Board.	Kit



Corporate Headquarters  
6024 Silver Creek Valley Road  
San Jose, CA 95138  
[www.IDT.com](http://www.IDT.com)

Sales  
1-800-345-7015 or 408-284-8200  
Fax: 408-284-2775  
[www.IDT.com/go/sales](http://www.IDT.com/go/sales)

Tech Support  
[www.IDT.com/go/support](http://www.IDT.com/go/support)

DISCLAIMER Integrated Device Technology, Inc. (IDT) reserves the right to modify the products and/or specifications described herein at any time, without notice, at IDT's sole discretion. Performance specifications and operating parameters of the described products are determined in an independent state and are not guaranteed to perform the same way when installed in customer products. The information contained herein is provided without representation or warranty of any kind, whether express or implied, including, but not limited to, the suitability of IDT's products for any particular purpose, an implied warranty of merchantability, or non-infringement of the intellectual property rights of others. This document is presented only as a guide and does not convey any license under intellectual property rights of IDT or any third parties.

IDT's products are not intended for use in applications involving extreme environmental conditions or in life support systems or similar devices where the failure or malfunction of an IDT product can be reasonably expected to significantly affect the health or safety of users. Anyone using an IDT product in such a manner does so at their own risk, absent an express, written agreement by IDT.

Integrated Device Technology, IDT and the IDT logo are trademarks or registered trademarks of IDT and its subsidiaries in the United States and other countries. Other trademarks used herein are the property of IDT or their respective third party owners. For datasheet type definitions and a glossary of common terms, visit [www.idt.com/go/glossary](http://www.idt.com/go/glossary). All contents of this document are copyright of Integrated Device Technology, Inc. All rights reserved.