

5V Input 3A 1.5MHz Synchronous Step-Down DC/DC Converter

DESCRIPTION

The MT7803 is a 1.5MHz, 3A constant on-time (COT) controlled synchronous step-down converter. It can operate with input voltage from 2.5V to 5.5V and provide output range from 0.6V to input level, thanks to its 100% duty cycle operation. The constant on-time control scheme simplifies loop compensation and offers excellent load transient response. MT7803 consumes extremely low 15µA quiescent current hence achieves superior light load efficiency. The high gain error amplifier in the control loop provides excellent load and line regulation. Proprietary adaptive on-time helps MT7803 to achieve nearly constant switching frequency across load range. MT7803 has cycle-by-cycle current limit and hiccup mode to protect over-load or short circuit fault conditions.

MT7803 is available in low profile 10 leads DFN 3mm x 3mm packages and SOP8_EP.

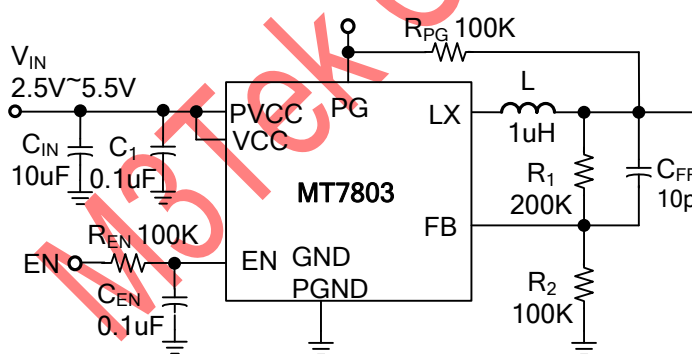
FEATURES

- Wide Input Range from 2.5V to 6V
- Proprietary Fast Transient Constant On Time Architecture Stable with low ESR Ceramic Output Capacitors
- +/- 2% 0.6V Feedback Voltage
- 1.5MHz Switching Frequency
- 15µA Low Quiescent Current
- 3A Output Current –
- Up to 95% Efficiency
- 100% Duty Cycle Operation
- Built-in 80mΩ/50mΩ Power Switches
- Internal 1msec Soft-Start
- Cycle-by-cycle Current Limit Protection
- Over-Load and Short Circuit Hiccup Mode
- Open Drain Power Good Indication
- Output Discharge
- Thermal Shutdown Protection
- Available in Small DFN3X3_10L and SOP8_EP
- Pb-Free RoHS Compliant

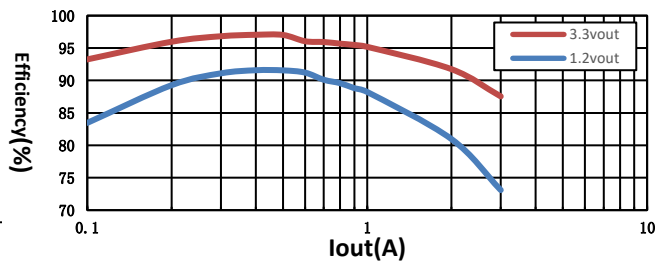
APPLICATIONS

- Solid-State and Hard Disk Drives
- WiFi RF Modules
- Smart Phone and Tablets
- DC/DC Micro Modules

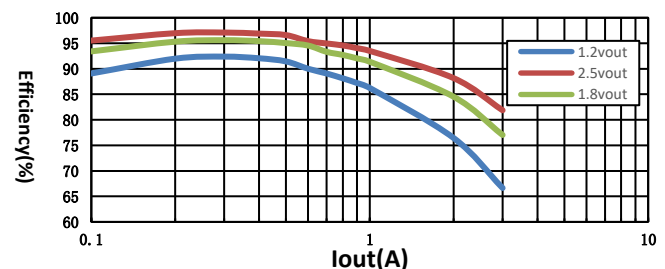
Typical Applications



Efficiency vs. Output Current at VIN=5V



Efficiency vs. Output Current at VIN=3.3V



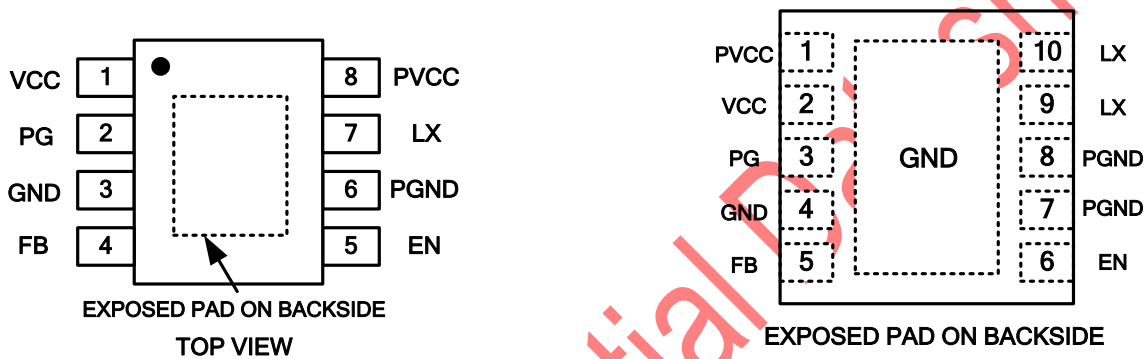
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Ordering Information

Part No.	Marking	Temp. Range	Package	MOQ
MT7803ASPR	MT7803A YWWxx	-40°C ~+85°C	SOP8_EP	2500/Tape & Reel
MT7803ADCR	7803A YWWxx	-40°C ~+85°C	DFN3X3_10L	5000/Tape & Reel

Note: Y: Year, W: Week, xx: Manufacture Code

Pin Configuration



Top View

Pin Description

Pin No. DFN3x3_10L	Pin No. SOP8_EP	Symbol	Description
1	8	PVCC	Power Switch Supply Voltage Input
2	1	VCC	Supply Voltage Input
3	2	PG	Power Good Open-drain Output. Connect a 100kΩ pull-up resistor to V _{IN} or V _{OUT} .
4, EP	3, EP	GND	Power ground
5	4	FB	Voltage Feedback Input. Connect a resistor divider between output and FB to program the output voltage. VFB is regulated to 0.6V.
6	5	EN	Don't float this pin. This pin has a pull-down resistor of typically 1MΩ to GND. <ul style="list-style-type: none"> • Drive EN above 1.05V to turn on the converter • Drive EN below 0.4V to turn off the converter and discharge output
7, 8	6	PGND	Power Switch ground
9, 10	7	LX	Power Switch Node