

5V Input 2A/2.5A(Peak) 2.5MHz Synchronous Step-Down Converter

DESCRIPTION

The MT8102 is a 2.5MHz, 2.5A Peak constant on-time (COT) controlled synchronous step-down converter. It can operate with input voltage from 2.7V to 6V 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. MT8102 consumes extremely low 25µA 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 MT8102 to achieve nearly constant switching frequency across load range. MT8102 has cycle-by-cycle current limit and hiccup mode to protect over-load or short circuit fault conditions. MT8102 is available in (T)SOT23_5L and SOT23_6L and DFN2x2_6L package.

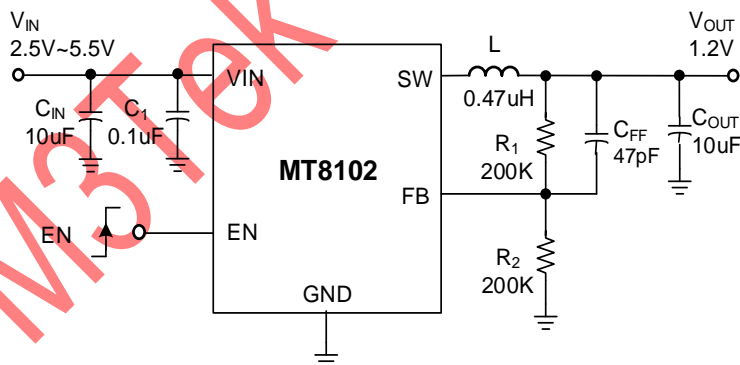
FEATURES

- Wide Input Range from 2.7V to 6V
- Proprietary Fast Transient Constant On Time Architecture Stable with low ESR Ceramic Output Capacitors
- +/- 1.5% 0.6V Feedback Voltage
- 2.5MHz Switching Frequency
- 28µA Low Quiescent Current
- 2A Continuous and 2.5A Peak Output Current
- 100% Duty Cycle Operation
- Built-in 135mΩ/95mΩ Power Switches
- Internal 0.8 msec (TYP) Soft-Start
- Cycle-by-cycle Current Limit Protection
- Over-Load and Short Circuit Hiccup Mode
- Input Under/Over Voltage Lockout
- Output Discharging Function in Shutdown
- Thermal Shutdown Protection
- Hiccup Mode for Short Circuit and Over-Load Protection
- Available in (T)SOT23_5L and SOT23_6L and DFN2x2_6L Package
- Pb-Free RoHS Compliant

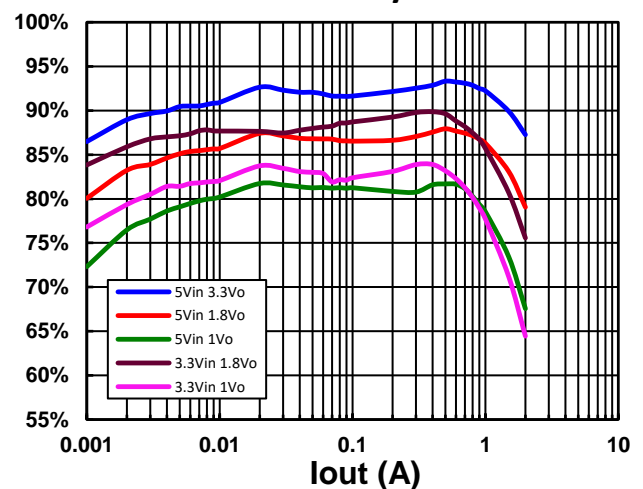
APPLICATIONS

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

TYPICAL APPLICATION



Efficiency



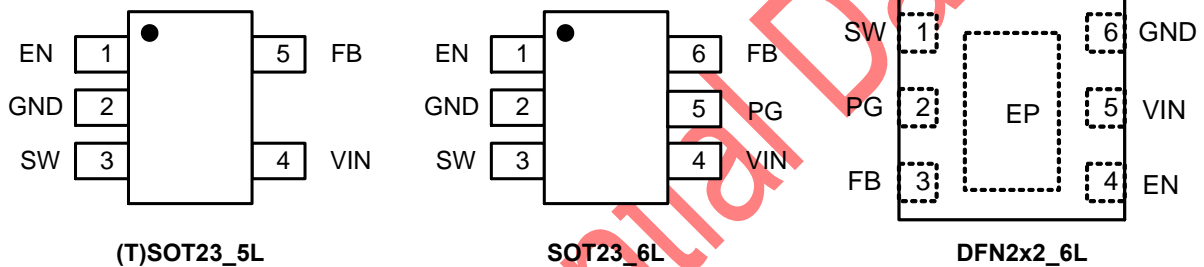
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Ordering Information

Part No.	Marking	Temp. Range	Remark	Package	MOQ
MT8102NSBR	8102 YWWxx	-40°C ~+85°C	Adjustable Vout COT PFM mode	SOT23_5L	3000/Tape & Reel
MT8102NTAR	8102 YWWxx	-40°C ~+85°C	Adjustable Vout COT PFM mode	TSOT23_5L	3000/Tape & Reel
MT8102NSCR	8102 YWWxx	-40°C ~+85°C	Adjustable Vout COT PFM mode	SOT23_6L	3000/Tape & Reel
MT8102NDER	8102 YWxx	-40°C ~+85°C	Adjustable Vout COT PFM mode	DFN2x2_6L	3000/Tape & Reel

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

Pin Configuration



Pin Description

(T)SOT23_5L Pin No.	SOT23_6L Pin No.	DFN2x2_6L Pin No.	Symbol	Description
1	1	4	EN	<ul style="list-style-type: none"> • Drive EN above 1V to turn on the converter • Drive EN below 0.4V to turn off the converter and discharge output
2	2	6, EP	GND	Ground.
3	3	1	SW	Power Switch Node
4	4	5	VIN	Input Supply Voltage.
-	5	2	PG	Power Good Open-drain Output. Connect a 100k Ω pull-up resistor to V _{IN} or V _{OUT}
5	6	3	FB	Voltage Feedback Input. Connect a resistor divider between output And FB to program the output voltage. VFB is regulated to 0.6V.