

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

DESCRIPTION

The MT8133 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. MT8133 consumes extremely low 18µA 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 MT8133 to achieve nearly constant switching frequency across load range. MT8133 has cycle-by-cycle current limit and hiccup mode to protect over-load or short circuit fault conditions.

MT8133 is available in low profile 8 leads DFN 2mm x 2mm and SOT23_5L/6L packages.

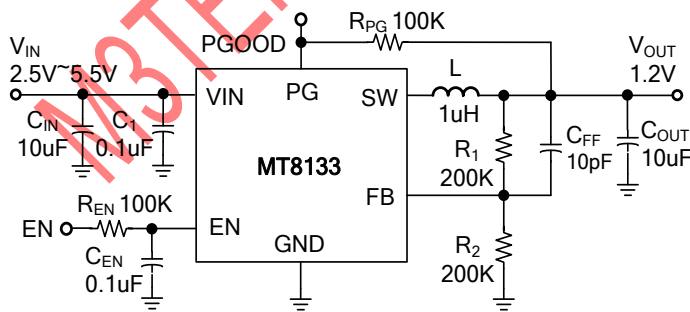
FEATURES

- Wide Input Range from 2.5V to 5.5V
- 3A Continuous Output Current
- Proprietary Fast Transient Constant On Time Architecture Stable with low ESR Ceramic Output Capacitors
- +/- 2% 0.6V Feedback Voltage
- 1.5MHz Switching Frequency
- 18µA Low Quiescent Current
- Up to 95% Efficiency
- 100% Duty Cycle Operation
- Built-in 85mΩ/52mΩ(DFN2X2) 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 DFN2x2_8L & SOT23_5L/6L
- Pb-Free RoHS Compliant

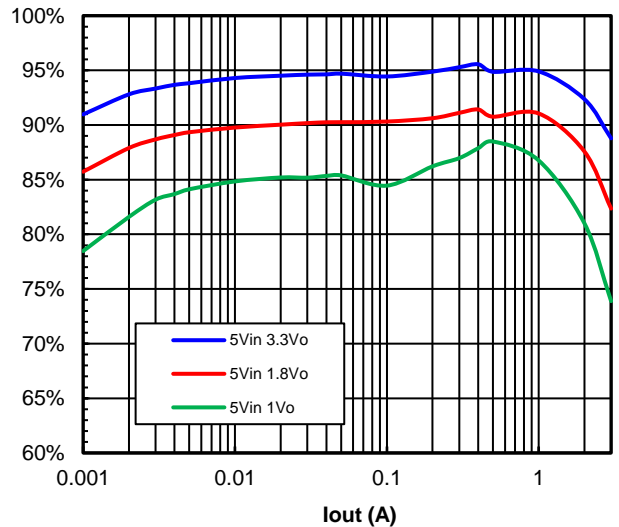
APPLICATIONS

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

Typical Applications



Efficiency



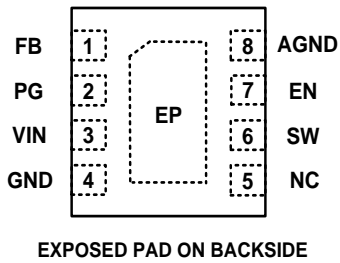
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Ordering Information

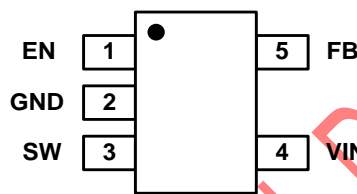
Part No.	Marking	Temp. Range	Remark	Package	MOQ
MT8133NDAR	8133 YWxx	-40°C ~+85°C	Adjustable Vout	DFN2x2_8L	3000/Tape & Reel
MT8133NSBR	8133 YWWxx	-40°C ~+85°C	Adjustable Vout	SOT23_5L	3000/Tape & Reel
MT8133NSCR	8133 YWWxx	-40°C ~+85°C	Adjustable Vout	SOT23_6L	3000/Tape & Reel

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

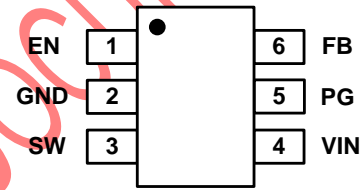
Pin Configuration



DFN2x2_8L



SOT23_5L



SOT23_6L

Pin Description

DFN2x2_8L Pin No.	SOT23_5L Pin No.	SOT23_6L Pin No.	Symbol	Description
1	5	6	FB	Voltage Feedback Input. Connect a resistor divider between output and FB to program the output voltage. VFB is regulated to 0.6V.
2	-	5	PG	Power Good Open-drain Output. Connect a 100kΩ pull-up resistor to VIN or VOUT.
3	4	4	VIN	Input Supply Voltage
4, EP	2	2	GND	Ground
5	-	-	NC	No connection
6	3	3	SW	Power Switch Node
7	1	1	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
8	-	-	AGND	Analog Ground