



Application Notes: AN_SY8208A

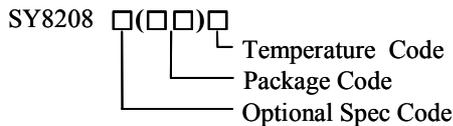
High Efficiency Fast Response 8A Continuous, 16A Peak, 28V Input Synchronous Step Down Regulator

General Description

The SY8208A develops a high efficiency synchronous step-down DC-DC regulator capable of delivering 8A continuous, 16A peak current. The SY8208A operates over a wide input voltage range from 4V to 28V and integrates main switch and synchronous switch with very low $R_{DS(ON)}$ to minimize the conduction loss.

The SY8208A adopts the instant PWM architecture to achieve fast transient responses for high step down applications and high efficiency at light loads. In addition, it operates at pseudo-constant frequency of 800kHz under continuous conduction mode to minimize the size of inductor and capacitor.

Ordering Information



Temperature Range: -40°C to 85°C

Ordering Number	Package type	Note
SY8208AQNC	QFN3x3-10	--

Features

- Low $R_{DS(ON)}$ for internal switches (top/bottom): 20/10 mΩ
- Wide input voltage range: 4-28V
- Instant PWM architecture to achieve fast transient responses
- Internal 400uS softstart limits the inrush current
- Pseudo-constant frequency: 800kHz.
- 8A continuous/16A peak output current capability
- $\pm 1.5\%$ 0.6V reference
- Programmable peak current limit
- Power good indicator
- Output discharge function
- Short circuit latch off protection
- Over voltage latch off protection
- Input UVLO
- Over temperature protection
- RoHS Compliant and Halogen Free
- Compact package: QFN3x3-10

Applications

- LCD-TV/Net-TV/3DTV
- Set Top Box
- Notebook
- High Power AP

Typical Applications

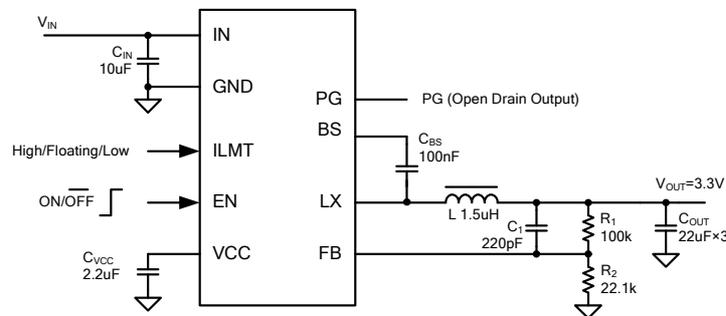


Figure 1 Schematic

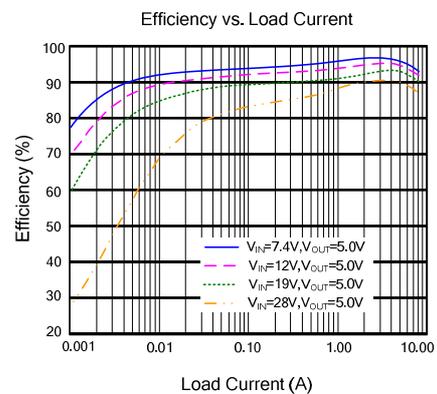
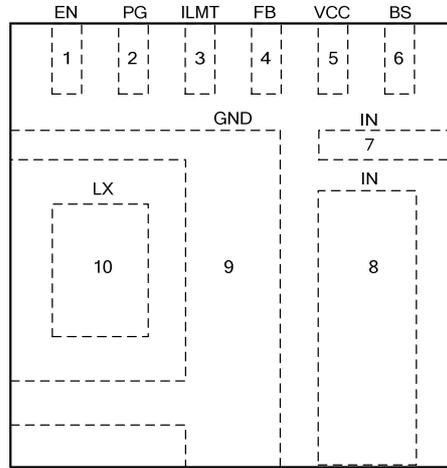


Figure 2. Efficiency



AN_SY8208A

Pinout (top view)



(QFN3x3-10)

Top Mark: MR_{xyz}, (Device code: MR, *x*=year code, *y*=week code, *z*=lot number code)

Pin Name	Pin Number	Pin Description
EN	1	Enable control. Pull this pin high to turn on the IC. Do not leave this pin floating.
PG	2	Power good Indicator. Open drain output when the output voltage is within 90% to 120% of regulation point.
ILMT	3	Current limit setting pin. The current limit is set to 8A, 12A or 16A when this pin is pull low, floating or pull high respectively.
FB	4	Output Feedback Pin. Connect this pin to the center point of the output resistor divider (as shown in Figure 1) to program the output voltage: $V_{out}=0.6*(1+R1/R2)$
VCC	5	Internal 3.3V LDO output. Power supply for internal analog circuits and driving circuit. Bypass a capacitor to GND.
BS	6	Boot-Strap Pin. Supply high side gate driver. Decouple this pin to LX pin with 0.1uF ceramic cap.
IN	7,8	Input pin. Decouple this pin to GND pin with at least 10uF ceramic cap
GND	9	Ground pin
LX	10	Inductor pin. Connect this pin to the switching node of inductor