High Efficiency 2A, 1.0MHZ Synchronous Step-Up DC/DC Converter

General Description

The ME2185 is synchronous，2A，1.0MHZ step–up DC-DC Converter， which mainly consists of a reference voltage source, an oscillation circuit, an error amplifier, a phase compensation circuit, a PWM / PFM switching control circuit and an adjustable output current limit circuit. With an internal low-ON-resistance N-ch Power MOS and P-ch Power MOS. This product is ideal for applications requiring high efficiency and a high output current.

Features

●High efficiency.(up to 94%)

●Up to 92.5% Efficiency at I_{OUT}=2A V_{OUT} = 5V from 3.3V Input.

●Guaranteed 2.5A Output Current at V_{OUT} = 5V from 3.3V Input

●Synchronous and internal P-ch Power MOSFET and N-ch power MOSFET, No Schottky Diode Required

●Oscillator frequency：1.0MHz

●Reference voltage : 1.25V（±2%）

●Input voltage range: 2.9 V to 4.4 V

● Continuous output current: 2.0A typ. (V_{IN}=3V, V_{OUT}=5.0V)

●Soft start function

●Shutdown function:1.0 μA max.

●UVLO (under-voltage lockout) function

●Current Limit: adjustable by the Rcs using different valve

●Thermal Shutdown Preotection:156℃

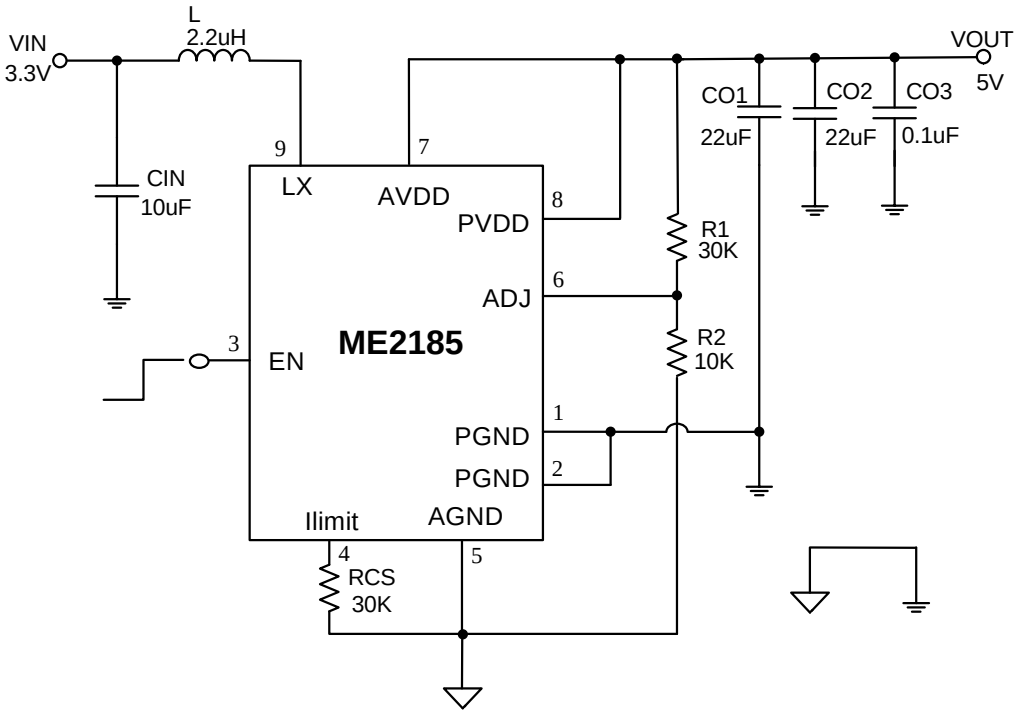
Typical Application

- Portable charger, mobile power.
- Digital cameras, GPS, wireless transceiver
- IPad-like computers, smart phones and portable handheld devices

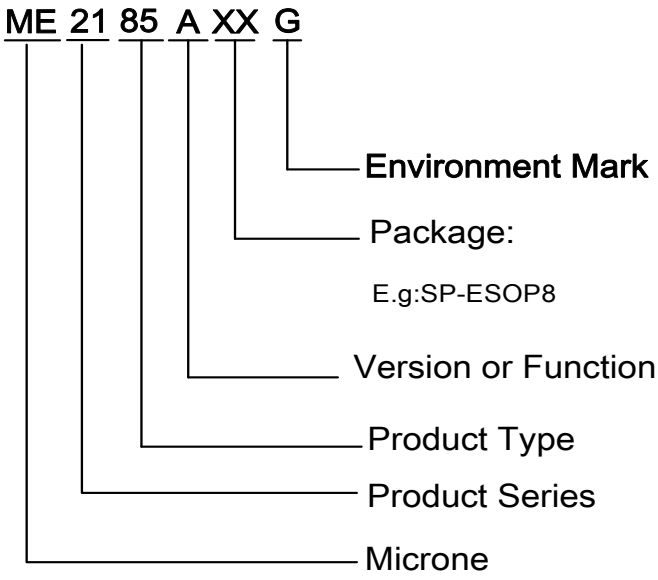
Package

- 8-pin ESOP8

Typical Application Circuit



Selection Guide



product series	product description
M2185ASPG	V_{ADJ} =1.25V；Package：ESOP8

NOTE: If you need other voltage and package, please contact our sales staff。

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
VDD Pin Voltage	AVDD,PVDD	-0.3～6.0	V
LX Pin Voltage	V_{LX}	-0.3～VDD+0.3	V
ADJ Pin Voltage	V_{ADJ}	-0.3～VDD+0.3	V
EN Pin Voltage	V_{EN}	-0.3～VDD+0.3	V
Power Dissipation (ESOP8)	Pd	2000	mW
Operating Temperature Range	T_{Opr}	-40~+85	℃
Storage Temperature Range	T_{stg}	-40~+125	℃

External Parts List When Measuring Electrical Characteristics

Element Name	Symbol	Value	Unit
Inductor	L	≤2.2	uH
Input capacitor	CIN	10	uF
Output capacitor	Co1, Co2	22	uF
Output capacitor	Co3	0.1	uF
ADJ Resistance	R1,R2	30K,10K	Ω

Electrical Characteristics

Measuring conditions：V_{IN}=V_{EN}= 3.3V, V_{OUT}=5.0V,Ta=25℃。Unless otherwise specified。

Parameter	Symbol	Condition	Min	Typ.	Max	Unit
Feedback voltage	V_{ADJ}	-	1.225	1.25	1.275	V
Input voltage	V_{IN}	-	2.9	-	4.4	V
Current consumption 1	I_{SS1}	At switching operation, no external components ,AVDD=PVDD=V_{EN}=3.3V,V_{ADJ}=V_{ADJ}(S)× 0.95,	-	4	6	mA
Current consumption 2	I_{SS2}	At switching stop, no external components, AVDD=PVDD=V_{EN}=3.3V V_{ADJ}=V_{ADJ}(S)+ 0.5V,	-	150	300	μA
Current consumption during shutdown	I_{SSS}	AVDD=PVDD= 3.3V, V_{EN}=0V, no external components	-	-	1.0	μA
Oscillation frequency	Fosc	-	0.8	1.0	1.2	MHz
Max. duty ratio	MAXDUTY	V_{IN}=V_{EN}= 0.9V, no load		81		%
PWM/PFM switching duty ratio	PFMDUTY	V_{IN}=V_{EN}= 3.3V,no load		18		%
High level input voltage	V_{SH}	V_{IN}= 2.9 V to4.4V, EN pin	0.9	-	-	V
Low level input voltage	V_{SL}	V_{IN}= 2.9 V to 4.4 V, EN pin	-	-	0.2	V
UVLO release voltage	V_{UVLO+}	可提供样品测试 技术支持 完整规格书	-0.1	0	0.1	μA
UVLO hysteresis width	$V_{UVLOHYS}$	V:runzexin-18			2.4	V
ADJ pin input current	I_{ADJ}	AVDD= PVDD= V_{EN} =2.9 V to4.4V, ADJ pin		0.4		V
Soft start time	t_{ss}	-		3		mS