



功率因子校正控制器

简介

M8128A 是一个简单但是高效的功率因子校正电路。此外还有特殊的防击穿电路。此电路适用于电子镇流器和所需体积小，功耗低，外围器件少的高密度电源。

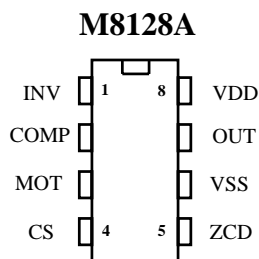
特色

- 内置启动定时器。
- 精确的过电压保护调整。
- 零电流检测器。
- 启动电流和工作电流低。
- 8 脚 DIP 或 SOP 封装。

应用

- 电子镇流器
- 开关电源

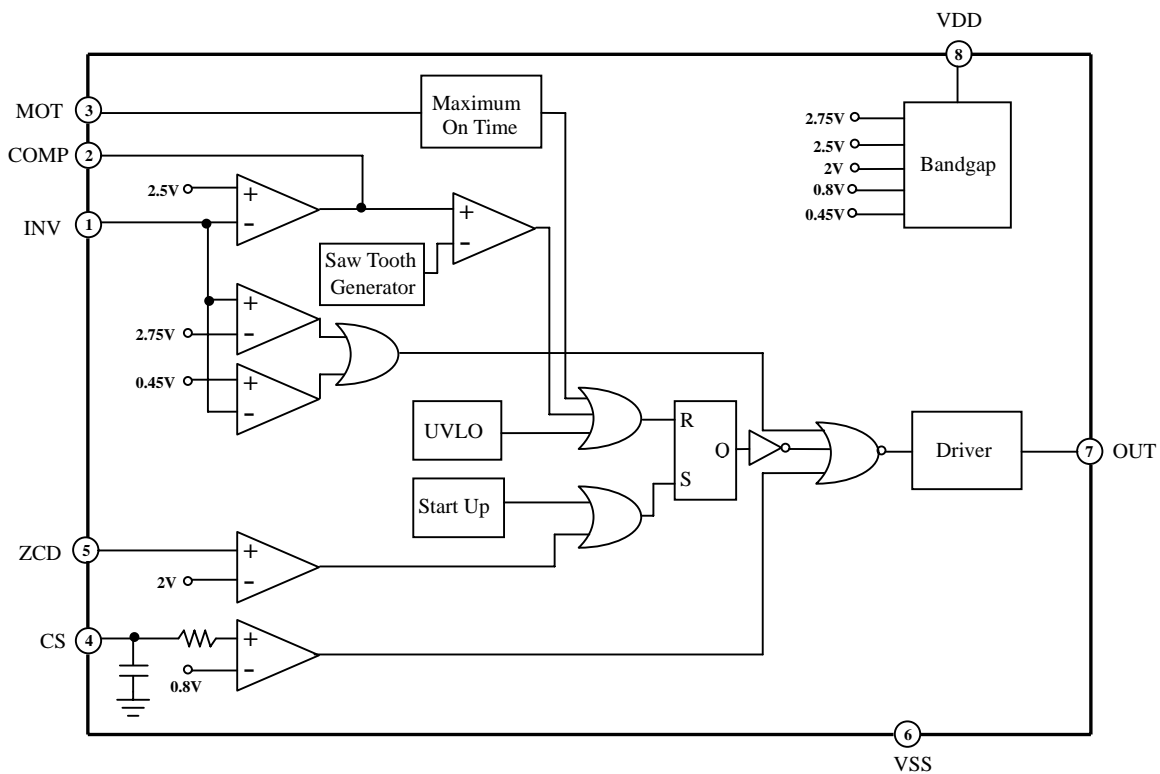
脚位图





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方块图



管脚描述

管脚号	管脚名称	功能描述
1	INV	误差放大器的倒相输入。推进转换器的输出应该分配 2.5V 给 INV 管脚
2	COMP	误差放大器的输出管脚。此管脚和 INV 管脚之间连接一个回馈补偿网络
3	MOT	MOT 经外部电阻对 VSS 计算 MOSFET 管的对大导通时间
4	CS	PWM 比较器输入管脚。MOSFET 管电流经过一个电阻后，转变为电压提供给 CS 管脚
5	ZCD	零电流检测输入管脚
6	VSS	接地
7	OUT	阈值驱动器输出管脚。这个推挽输出级的峰值电流 500mA 可以驱动功率 MOSFET 管
8	VDD	驱动器和控制电路的工作电压



POWER
M8128A

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极限参数

Parameter	Symbol	Test Condition	Value	Unit
Supply Voltage	VDD		15	V
OUT	VHIGH		-0.3 to 14	V
Others (INV, COMP, MOT, CS,)	VLOW		-0.3 to 7	V
Input Voltage to CS Pin	VCS		-0.3 to 14.7	V
Power Dissipation	PD	at TA < 50°C	800	mW
Storage Temperature Range	TSTG		-65 to +150	°C

* All voltage values, except differential voltages, are given with respect to VSS pin.

* Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device.

电气特性参数

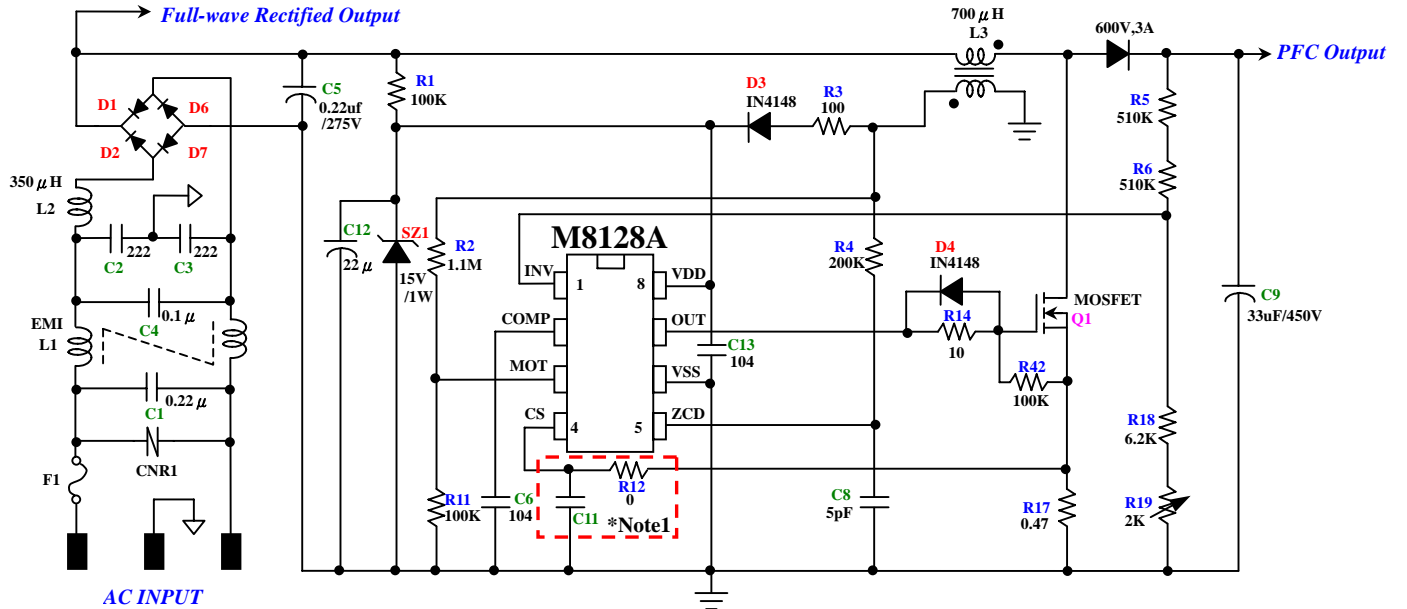
(VDD= 12V, TA = -20°C~125°C, unless noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Under Voltage Lockout Section						
Continuously Operating Voltage	VOP			15	18	V
Start Threshold Voltage	Vth (st)	VDD increasing	6.0	6.5	7.0	V
UVLO Hysteresis	HY (st)	--		1.5	2	V
Supply Current Section						
Start-Up Current	ICC-ST	VDD= VTH-ON -0.16V		180	200	uA
Operating Supply Current	ICC	Output not switching	--	3	6	mA
Dynamic Operating Supply Current	IDCC	50KHz, CI=1nF	--	4	8	mA
Error Amplifier Section						
Reference Voltage	VREF		2.46	2.5	2.57	V
Over Voltage Protection for INV Input	VINV-		2.7	2.75	2.8	V
Under Voltage Protection for INV Input	VINV-		0.4	0.45	0.5	V
Source Current	ICOMP	VINV=2.35V, Vcomp=1.5	7	20		uA
Sink Current	ICOMP	VINV=2.65V, Vcomp=5	10	20		uA
Current Sense Section						
Threshold Voltage for Peak Current Limit Cycle by Cycle Limit	VPK	Vcomp=6V	0.75	0.80	0.85	V
Propagation Delay	TPKD				200	nsec
Leading-Edge Blanking Time	TBNK	RMOT= 100K		400	500	nsec
Output Section						
Output Voltage Low	VOL	VDD= 12V, IO = 100mA			4	V
Output Voltage High	VOH	VDD= 12V, IO = 100mA	8			V
Rising Time	TR	VDD=12V, CL=2000pf	50	80	160	nsec
Falling Time	TF	VDD=12V, CL=2000pf	50	80	160	nsec
Zero Current Detection Section						
Input Threshold Voltage Rising Edge	VZVD		1.8	2.0	2.2	V
Maximum Delay from ZCD to Output Turn-On	TDEAD	Vcomp=6V, FSW=60KHz	100		400	nsec
Restart Time	TRESTART	Output Turned Off by IDET	100	120	150	usec
Inhibit Time (Max. Switching Frequency limit)	TINHIB	RMOT =100K	1.5	2.5	3	usec
Maximum On-Time Section						
MOT Voltage	VMOT		0.75	0.8	0.85	V
MOT Programming (resistor based)	TON-MAX	RMOT =100K , VCS=0, Comp= 6V	18	20	22	usec



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典型应用电路图



* Note1 : Compensation network between CS pin and VSS



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应用电路图组件列表

Designator	Value	Description	Quantity
C1, C5	0.22uF	BOX Capacitor, POLYPROPYLENE FILM Capacitor	2
C4	0.1uF	BOX Capacitor, POLYPROPYLENE FILM Capacitor	1
C2, C3	222	Y Capacitor	2
C6	104	Ceramic Capacitor	1
C8	5pF	Ceramic Capacitor	1
C9	33u/450V	Electrolytic Capacitor	1
C11	OPEN	Ceramic Capacitor	1
C12	22uF	Electrolytic Capacitor	1
C13	104	Ceramic Capacitor	1
CNR1	10D511K	Varistor	1
D1, D2, D6, D7	1N4007	Diode 1000V, 1A	4
D3, D4	1N4148	Diode 75V,1A	2
D5	HER306	Diode HIGH EFFICIENCY RECTIFIERS 600V, 3A	1
F1	3.15A/250V	Fuse	1
L1		EE19 Inductor	1
L2	350uH	DR1012 Inductor	1
L3	700uH	EE25 Inductor	1
Q1	2SK4086	Transistor, MOSFET 600V, 11A	1
R1,R11,R42	100K	Resistor 1/4W	3
R2	1.1MEG	Resistor 1/4W	1
R3	100	Resistor 1/4W	1
R4	200K	Resistor 1/4W	1
R5, R6	510K	Resistor 1/4W	2
R12	0	Resistor 1/4W	1
R14	10	Resistor 1/4W	1
R17	0.47/1W	Resistor 1W	1
R18	6.2K	Resistor 1/4W	1
R19	VR2K	VR Resistor	1
SZ1	15V/1W	Zener Diode 1W	1
U1	M8128A	IC, Power Factor Controller	1

* All specs and applications shown above subject to change without prior notice.
(以上电路及规格仅供参考,本公司得径行修正)