



FEATURES

- 输入电压范围为4.5V~40V
- 输出电压可调：1.25V~39V
- 输出电流采样电压：0.11V
- 输出电压基准电压：1.25V
- 最小输出压差0.3V
- 开关频率为150KHz
- 最大开关电流3A
- 具有输出恒流回路
- 良好的负载和线电压调节功能
- 内置输入过压保护功能
- 内置高压功率MOSFET开关管
- 具有软启动、频率补偿、过热保护、限流功能
- 封装型式：ESOP-8

APPLICATIONS

- 降压型开关电源、LED恒流驱动电源
- 车载充电器、电池充电器

GENERAL DESCRIPTION

MT2593 是一款输入耐压可达 40V 的降压式 DC/DC 驱动电路，能够实现精确的恒流以及恒压功能。

MT2593 内置 75mohm 的功率 MOSFET，可持续输出 5V/3A 的负载能力。具有极好的线性调整率和负载调整率。

MT2593 以 150KHz 固定频率工作，无需外部补偿，可以依靠内部的稳定环路实现恒压和恒流控制。MT2593 只需要很少的外部器件就可以工作，应用线路非常简单。

MT2593 占空比可以通过 PWM 控制电路实现 0~100%范围内的调节。MT2593 具有输入过压和过流保护功能，具有转换效率高，系统元件少，可靠性高，安全性高等优点。

TYPICAL APPLICATION

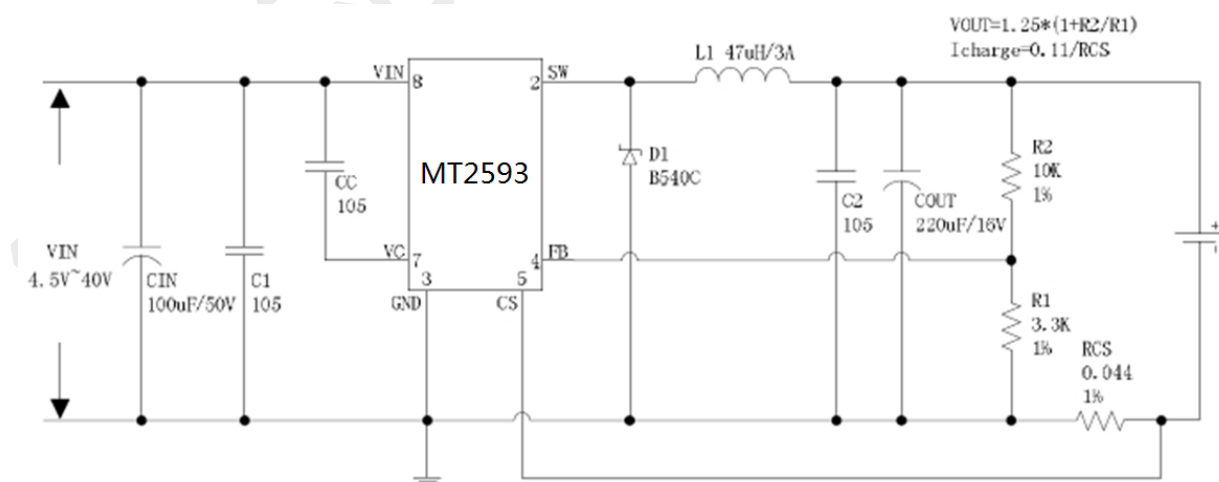


Figure 1. 车充典型应用图

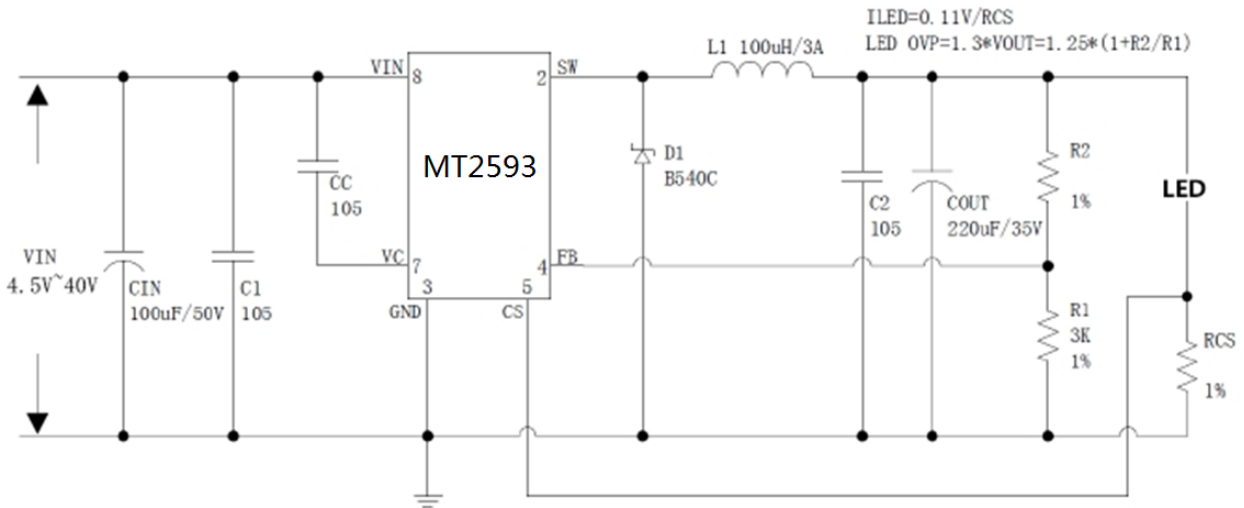


Figure 2. LED典型应用图

ABSOLUTE MAXIMUM RATINGS

Symbol	Name	Value	Units
V_{IN}	电源	-0.3~40	V
V_{FB}	反馈端电压	-0.3~ V_{in}	V
V_{SW}	SW 脚电压	-0.3~ V_{in}	V
P_D	最大耗散功率	内部限制	mW
R_{JA}	热阻	60	$^{\circ}C/W$
T_J	工作温度	-40~150	$^{\circ}C$
T_{stg}	存储温度	-40~125	$^{\circ}C$
T_{solder}	焊接温度	260 $^{\circ}C$, 10s	
ESD	人体模式	2000	V

注：超过额定参数所规定的范围将对芯片造成损害，无法预料芯片在额定参数范围外的工作状态，而且若长时间工作在额定参数范围外，可能影响芯片的可靠性。

PACKAGE/ORDER INFORMATION

	Order Part Number	Package	Top Marking
		MT2593	ESOP-8

PIN DESCRIPTION

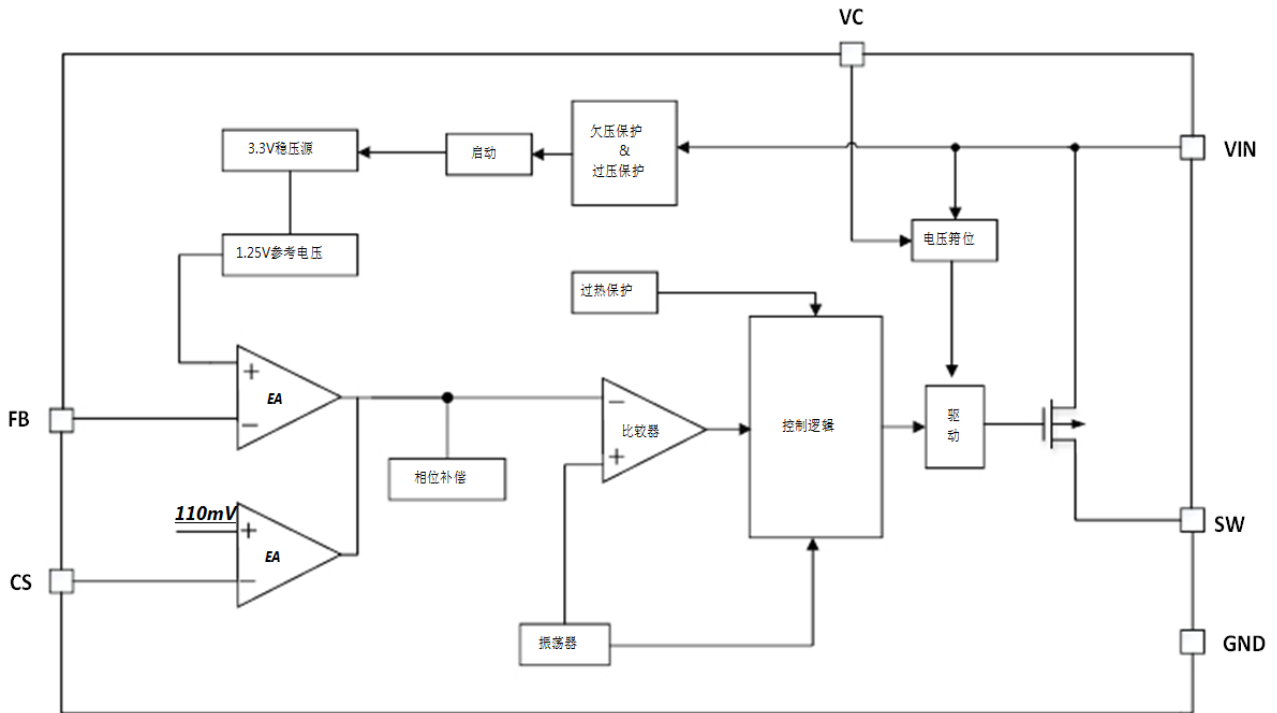
PIN	Symbol	Description
1, 6	NC	悬空
2	SW	开关功率管输出端, 芯片背部的PAD是SW脚
3	GND	地
4	FB	反馈端, 反馈端电压为1.25V
5	CS	输出电流采样端, 采样电压0.11V
7	VC	电源旁路电容端, 与VIN间接1uF电容
8	VIN	电源输入端, 范围为4.5~40V, 对地接100uF电容滤波

ELECTRICAL CHARACTERISTICS

(若无其它说明, $V_{in} = 12V$, $T_A = 25^{\circ}C$, V_{in} 对 GND 接 100uf/50V 电容, 输出电流 $I_{out} = 500mA$)

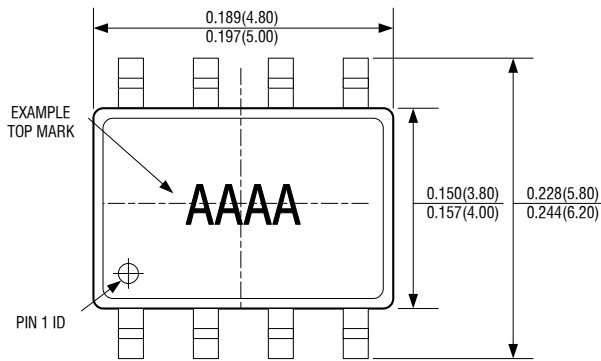
Parameter	Symbol	Conditions	Min	Typ	Max	Units
电源	V_{in}		4.5	12	40	V
静态电流	I_{CC}	$V_{CC} = 12V, V_{FB} = V_{in}$		2	5	mA
欠压关断阈值	V_{uvlo}			4.1		V
过压保护阈值	V_{ovp}			43		V
工作频率	F_{osc}		127	150	172	KHZ
功率管峰值限流	I_L	$V_{FB} = 0$		3.5		A
输出功率管内阻	I_{dson}	$V_{in} = 12V, I_{sw} = 2A, V_{FB} = 0$		75	100	mohm
恒流采样电压	V_{cs}		104.5	110	115.5	mV
反馈端电压	V_{FB}	$V_{in} = 8V \text{ to } 40V, V_{out} = 5V$ $I_{load} = 0.2A \text{ to } 2A$	1.231	1.25	1.269	V

FUNCTIONAL BLOCK DIAGRAM

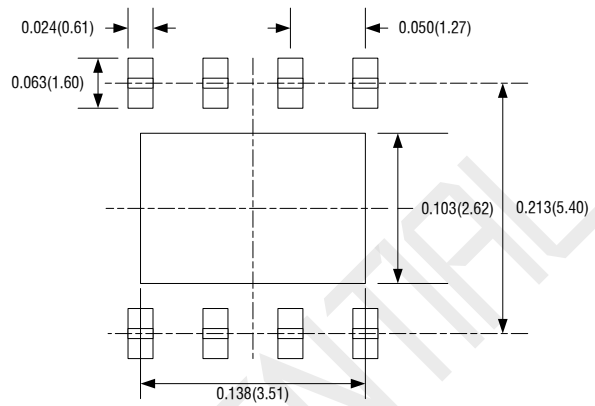


PACKAGE DESCRIPTION

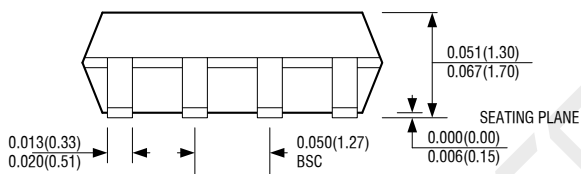
SOP8(EXPOSED PAD)



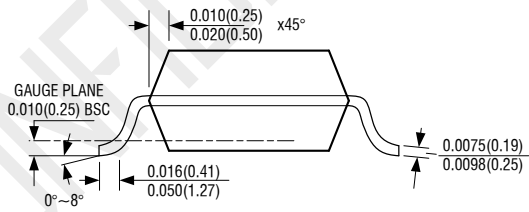
TOP VIEW



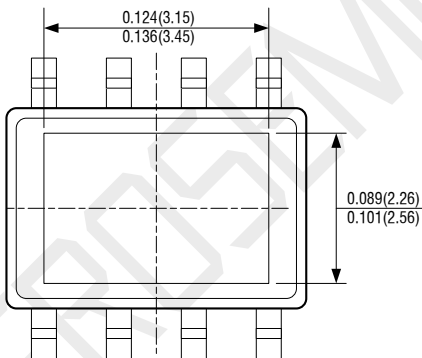
RECOMMENDED SOLDER PAD LAYOUT



FRONT VIEW



SIDE VIEW



BOTTOM VIEW

NOTE:

- 1) CONTROL DIMENSION IS IN INCHES. DIMENSION IN BRACKET IS IN MILLIMETERS.
- 2) PACKAGE LENGTH DOES NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
- 3) PACKAGE WIDTH DOES NOT INCLUDE INTERLEAD FLASH OR PROTRUSIONS.
- 4) LEAD COPLANARITY (BOTTOM OF LEADS AFTER FORMING) SHALL BE 0.004" INCHES MAX.
- 5) DRAWING CONFORMS TO JEDEC MS-012, VARIATION BA.
- 6) DRAWING IS NOT TO SCALE.

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