



钜地半导体
Tudi Semiconductor

Product Specification

TUDI-AMS1084CM-ADJ

5A LDO voltage regulator circuit

网址 www.sztdbdt.com Q

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**semiconductor device
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- research and development
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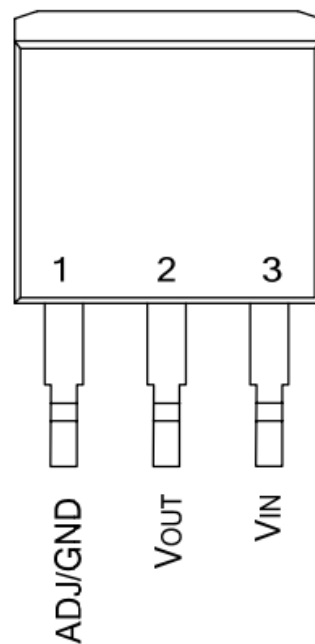


特点

- 固定输出电压为1.5V、1.8V、2.5V、3.3V、5.0V和可调版本的电压精度为1.5%
- 低压差电压：5A输出电流时仅为1.5V压差
- 限流电流：6.5A
- 过热保护功能*线性调整率：0.015%(可调版本：典型值)
- 负载调整率：0.1%(可调版本：典型值)
- 温度范围：0~125°C

应用

- 高效线性调整器
- 开关电源的后置稳压器
- 电池充电器
- 微处理器电源
- 台式电脑、RISC和内置处理器电源



T0263-3

概述

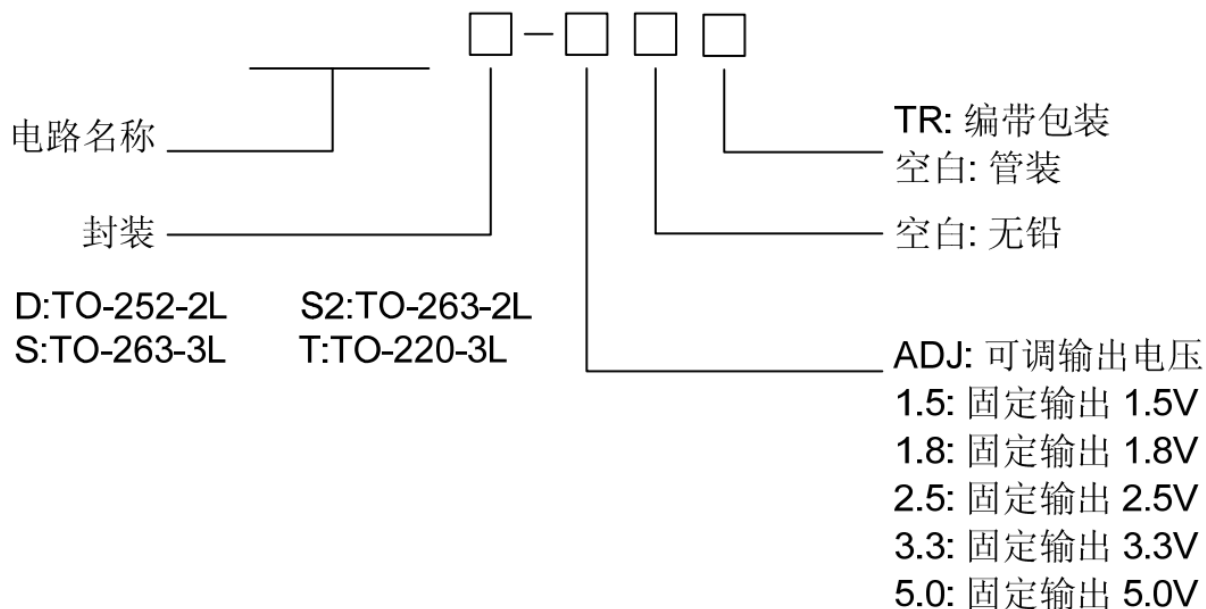
AMS1084是一款正电压输出的低压降三端线性稳压电路，在5A输出电流下压降为1.5V。

AMS 1084分为两个版本：固定电压输出版本和可调电压输出版本，固定输出电压为1.5V,1.8V,2.5V,3.3V和5.0V和可调版本的电压精度为1.5%。

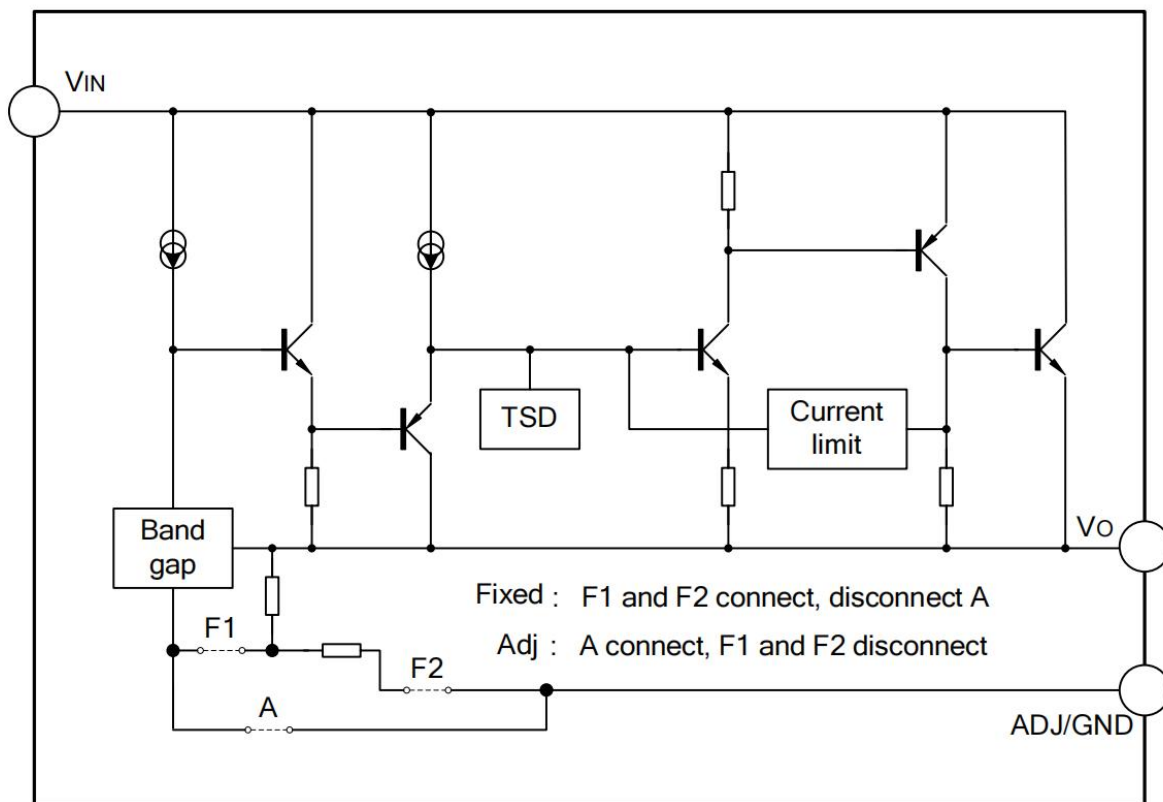
AMS 1084内部过热保护和限流电路，适用于各类电子产品。



产品规格分类(温度范围: 0~125°C)



内部框图





极限参数

参 数	符 号	范 围	单 位
输入工作电压	V _{IN}	20	V
引脚温度 (焊接5秒)	T _{LEAD}	260	°C
工作结温范围	T _J	150	°C
储存温度	T _S	-65 ~ +150	V
功耗	PD	内部限制 (注1)	mW
ESD能力 (最小值)	ESD	2000	V

注1: 最大允许功耗是最大工作结温T_J (max), 结对空热阻θ_{JA}, 和环境温度T_{amb}的函数。最大允许功耗在给定的环境温度下, 有: $PD (max) = (T_J (max) - T_{amb}) / \theta_{JA}$, 超过最大允许功耗会导致芯片温度过高, 因此调整器会进入到过热切断状态。不同封装类型的结对空热阻θ_{JA} 是不同的, 有封装技术决定。

推荐工作条件

参 数	符 号	范 围	单位
输入电压	V _{IN}	12	V
工作结温范围	T _J	0 ~ +125	°C



电气特性(除非特别指定, 否则 $T_{amb}=25^{\circ}\text{C}$, 正常工作结温范围 0°C to 125°C)

参 数	符 号	测 试 条 件	最小值	典型值	最大值	单位
基准电压	VREF	AMS 1084-ADJ, $I_{OUT}=10\text{mA}$, $V_{IN}-V_{OUT}=3\text{V}$, $10\text{mA}\leq I_{OUT}\leq 5\text{A}$, $1.5\text{V}\leq V_{IN}-V_{OUT}\leq 5\text{V}$	1.231 1.225	1.250 1.250	1.269 1.275	V
输出电压	VOUT	AMS 1084-1.5, $I_{OUT}=10\text{mA}$, $V_{IN}=4.5\text{V}$, $10\text{mA}\leq I_{OUT}\leq 5\text{A}$, $3.0\text{V}\leq V_{IN}\leq 6\text{V}$	1.478 1.47	1.5 1.5	1.523 1.53	V
		AMS 1084-1.8, $I_{OUT}=10\text{mA}$, $V_{IN}=4.8\text{V}$, $10\text{mA}\leq I_{OUT}\leq 5\text{A}$, $3.3\text{V}\leq V_{IN}\leq 6\text{V}$	1.773 1.764	1.8 1.8	1.827 1.836	V
		AMS 1084-2.5, $I_{OUT}=10\text{mA}$, $V_{IN}=5.5\text{V}$ $10\text{mA}\leq I_{OUT}\leq 5\text{A}$, $4.0\text{V}\leq V_{IN}\leq 7\text{V}$	2.462 2.45	2.5 2.5	2.537 2.55	V
		AMS 1084-3.3, $I_{OUT}=10\text{mA}$, $V_{IN}=6.3\text{V}$, $10\text{mA}\leq I_{OUT}\leq 5\text{A}$, $4.8\text{V}\leq V_{IN}\leq 8\text{V}$	3.225 3.234	3.3 3.3	3.350 3.366	V
		AMS 1084-5.0, $I_{OUT}=10\text{mA}$, $V_{IN}=8\text{V}$, $10\text{mA}\leq I_{OUT}\leq 5\text{A}$, $6.5\text{V}\leq V_{IN}\leq 10\text{V}$	4.925 4.9	5 5	5.075 5.1	V
线性调整	ΔV_{OUT}	AMS 1084-ADJ, $I_{OUT}=10\text{mA}$, $2.85\text{V}\leq V_{IN}\leq 10\text{V}$		0.015 0.035	0.2 0.2	%
		AMS 1084-1.5, $I_{OUT}=10\text{mA}$, $3.0\text{V}\leq V_{IN}\leq 10\text{V}$		0.5 1	6 6	mV
		AMS 1084-1.8, $I_{OUT}=10\text{mA}$, $3.3\text{V}\leq V_{IN}\leq 10\text{V}$		0.5 1	6 6	mV
		AMS 1084-2.5, $I_{OUT}=10\text{mA}$, $4.0\text{V}\leq V_{IN}\leq 10\text{V}$		0.5 1	6 6	mV
		AMS 1084-3.3, $I_{OUT}=10\text{mA}$, $4.8\text{V}\leq V_{IN}\leq 10\text{V}$		0.5 1	6 6	mV
		AMS 1084-5.0, $I_{OUT}=10\text{mA}$, $6.5\text{V}\leq V_{IN}\leq 10\text{V}$		0.5 1	10 10	mV



参 数	符 号	测 试 条 件	最小值	典型值	最大值	单位
负载调整	ΔV_{OUT}	AMS1084-ADJ, $0mA \leq I_{OUT} \leq 5A$, $V_{IN}-V_{OUT}=3V$		0.1 0.2	0.3 0.4	%
		AMS1084-1.5, $0mA \leq I_{OUT} \leq 5A$, $V_{IN}-V_{OUT}=3V$		3 7	15 20	mV
		AMS1084-1.8, $0mA \leq I_{OUT} \leq 5A$, $V_{IN}-V_{OUT}=3V$		3 7	15 20	mV
		AMS1084-2.5, $0mA \leq I_{OUT} \leq 5A$, $V_{IN}-V_{OUT}=3V$		3 7	15 20	mV
		AMS1084-3.3, $0mA \leq I_{OUT} \leq 5A$, $V_{IN}-V_{OUT}=3V$		3 7	15 20	mV
		AMS1084-5.0, $0mA \leq I_{OUT} \leq 5A$, $V_{IN}-V_{OUT}=3V$		5 10	20 35	mV
压差	V_{DROP}	$I_{OUT}=5A$, ΔV_{REF} , $\Delta V_{OUT}=1\%$		1.45	1.5	V
限流电流	I_{LIMIT}	$V_{IN}-V_{OUT}=3V$	5.5	6.5		A
最小负载电流	I_{LOAD} (MIN)	$V_{IN}=10V$ (AMS 1084-ADJ)		3	10	mA
静态电流	I_Q	$V_{IN}=10V$ (AMS 1084)		5	10	mA
纹波抑制比	PSRR	$f_{RIPPLE}=120Hz$, $C_{OUT}=25\mu F$ 钽电 容, $I_{OUT}=5A$, $V_{IN}-V_{OUT}=3V$	60	72		dB
可调管脚电流	I_{ADJ}	$V_{IN}=4.25V$, $I_{OUT}=10mA$		55	120	μA
可调管脚电流 变化	ΔI_{ADJ}	$10mA \leq I_{OUT} \leq 5A$, $1.5V \leq (V_{IN}-V_{OUT}) \leq 4.5V$		0.2	5	μA
温度稳定性		$I_{OUT}=10mA$, $V_{IN}-V_{OUT}=1.5V$		0.5		%
长期稳定性		$T_{amb}=125^{\circ}C$, 1000Hrs		0.5		%
RMS 噪声 (% of V_{OUT})		$10Hz \leq f \leq 10kHz$		0.003		%
热阻	θ_{JA}	TO-263-3L		60		$^{\circ}C/W$
		TO-263-2L		60		
		TO-220-3L		60		
		TO-252-2L		100		



管脚描述

管脚号	管脚名称	I/O	功能
1	GND/ADJ	G/O	地/ADJ
2	VOUT	O	输出电压
3	VIN	I	输入工作电压

功能描述

AMS1084是一个低压差调整器，它的稳压调整管是由一个PNP驱动的NPN管组成的，电压差定义为： $V_{DROP} = V_{BE} + V_{SAT}$ 。

AMS1084有固定和可调两个版本可用，输出电压可以是：1.5V、1.8V、2.5V、3.3V和5.0V。片内过热切断电路提供了过载和过热保护。

为了确保AMS1084的稳定性，需要一个至少22μF钽输出电容。电容值可以根据实际应用需要随输出负载和温度变化而改变。通常，线性调整器的稳定性随着输出电流增加而减少。



典型应用电路图

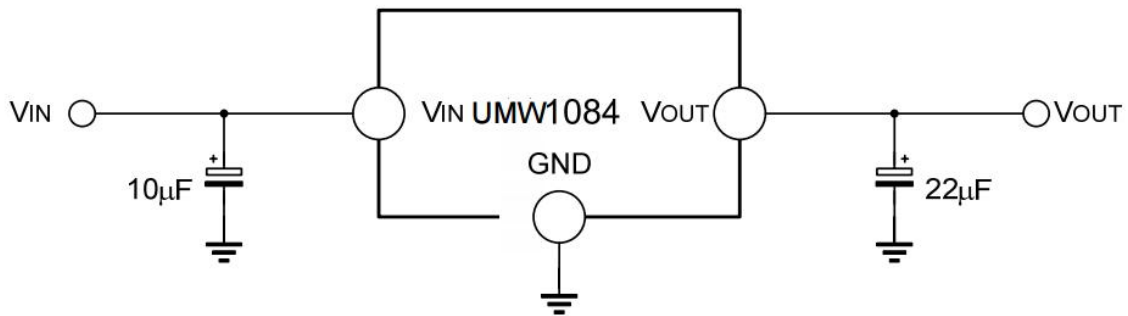


图 1. 典型固定输出电压

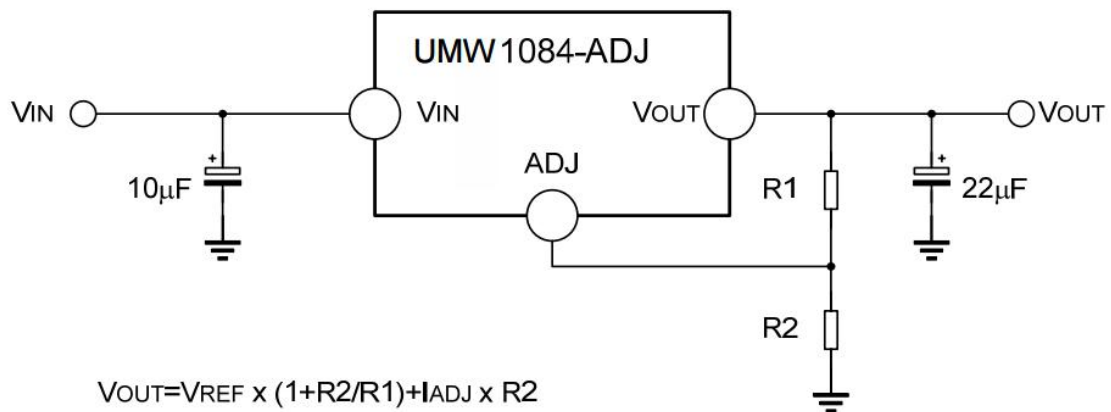


图 2. 典型可调输出电压

注：以上线路及参数仅供参考，实际的应用电路请在充分的实测基础上设定参数。

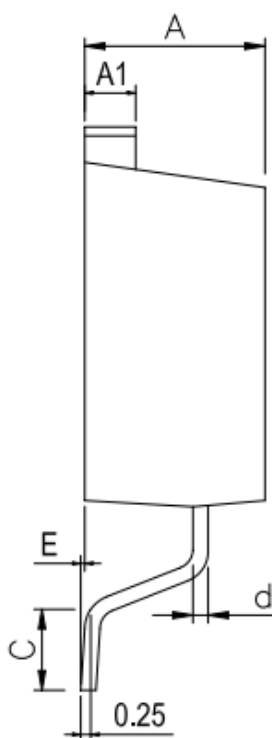
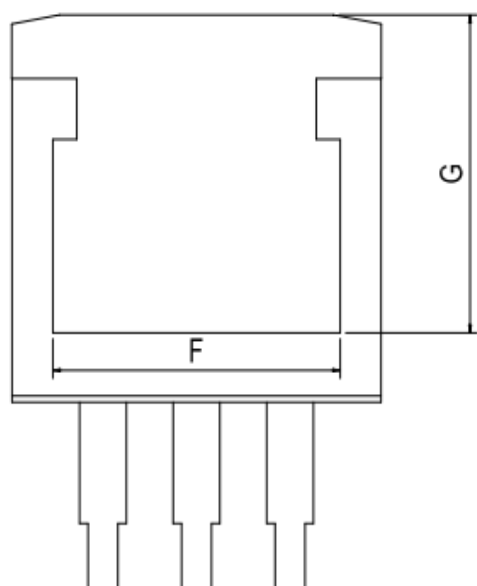
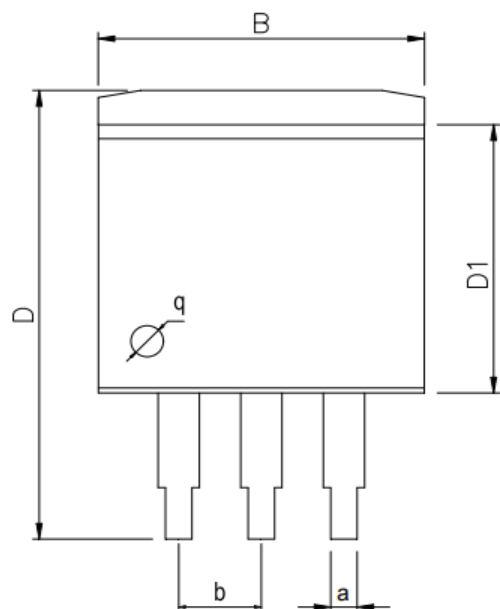


Order information

Order Number	Package	Package Quantity	Marking On The park
AMS1084CM-ADJ-TUDI	TO263	Tape,Reel,500	AMS1084CM-ADJ



Package TO263-3



Symbol:	Min:	Max:
A	4.45	4.62
A1	1.22	1.32
B	10	10.4
C	1.89	2.19
D	13.7	14.6
D1	8.38	8.89
E	0	0.305
F	8.332	8.552
G	7.7	8.1
a	0.71	0.97
b	2.54BSC	



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