



ZHEJIANG UNIU-NE Technology CO.,LTD

浙江宇力微新能源科技有限公司



U0512 Data Sheet

V 1.2

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Positive voltage regulators

Description

The U 0512 series of three terminal positive regulators employ internal current limiting and thermal shutdown, making them essentially indestructible. If adequate heat- sink is provided, they can deliver up to 100 mA output current. They are intended as fixed voltage regulators in a wide range of applications including local or on- card regulation for elimination of noise and distribution problems associated with single- point regulation. In addition, they can be used with power pass elements to make high- current voltage regulators. The U0512 series used as Zener diode/ resistor combination replacement, offers e improvement along with lower quiescent current and lower noise.

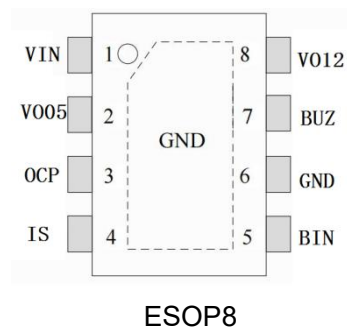
Typical application

- Twist the car controller
- Balancing car controller
- Power tool
- Electric vehicle controller
- Six Sound card and computer motherboard

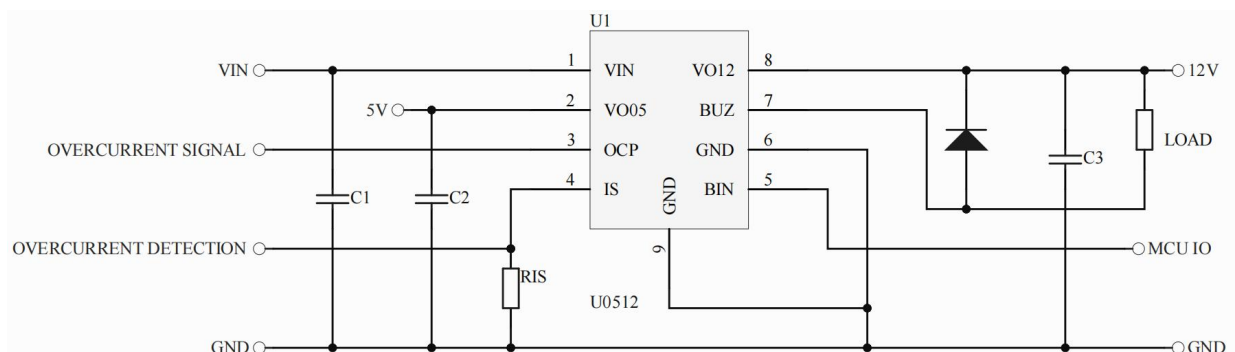
Features

- Maximum Output Current IO:0.1 A
- Output Voltage V_O : 5V /12V
- Continuous Total Dissipation PD:0.6 W ($T_a = 25^\circ\text{C}$)

Packages



Application Circuit



* Bypass capacitors are recommended for optimum stability and transient response and should be located as close as Possible to the regulators.

■ Pin configuration

Pin NO.	Symbol	Decription
1	VIN	Input Voltage
2	VO05	The output voltage is 5V
3	OCP	overcurrent protection
4	IS	Detection of overcurrent protection
5	BIN	Power transistor input port
6	GND	The ground reference for the IC
7	BUZ	Power transistor output
8	VO12	the output voltage is 12V
9	GND	The Exposed pad

■ Absolute Maximum Ratings

(Operating temperature range applies unless otherwise specified)

Parameter	Symbol	Min	Max	Unit
Input Voltage	VIN	-0.3	36	V
5V power output	VO05	-0.3	VIN+0.3	V
Overcurrent protection triode output port	OCP	-0.3	VO05+0.3	V
Overcurrent protection triode input port	IS	-0.3	36	V
Power triode input port	Bin	-0.3	36	V
Power triode collector output port	BUZ	-0.3	36	V
12V power output	VO12	-0.3	36	V
Operating Junction Temperature Range	T _{OPR}	-30	125	°C
Storage Temperature Range	T _{STR}	-55	150	°C
Leadtemperature(soldering,10seconds)	TL	-	300	°C
Environment temperature	TA	-45	125	°C
Electrostatic protection	ESD (HBM)	2	-	KV

■ Order Information

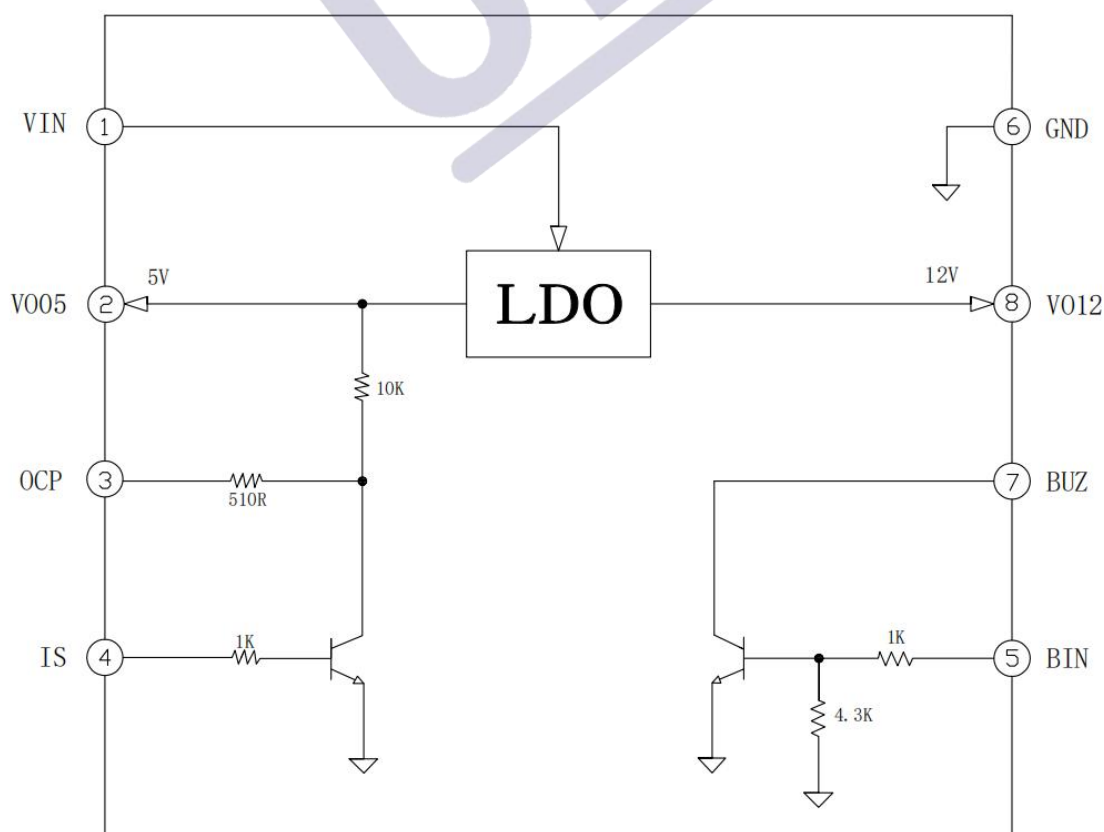
Part Number	Package	Decription
U0512	ESOP-8	halogen free , 4000Pcs/Reel

■ Electrical Characteristics

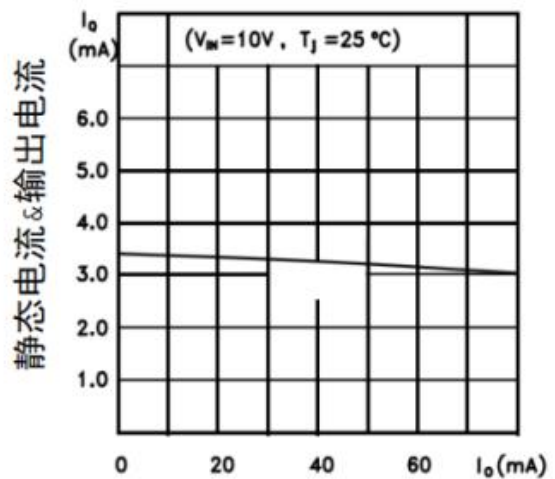
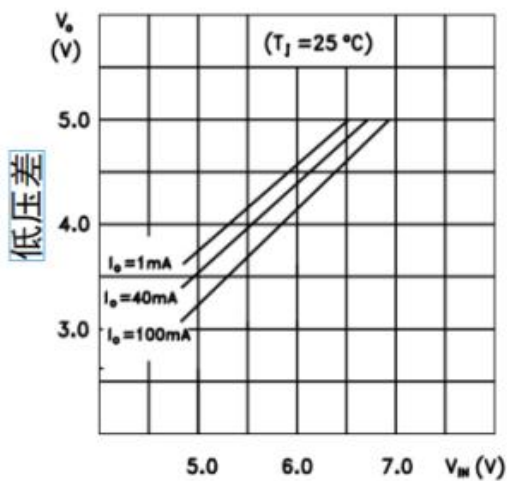
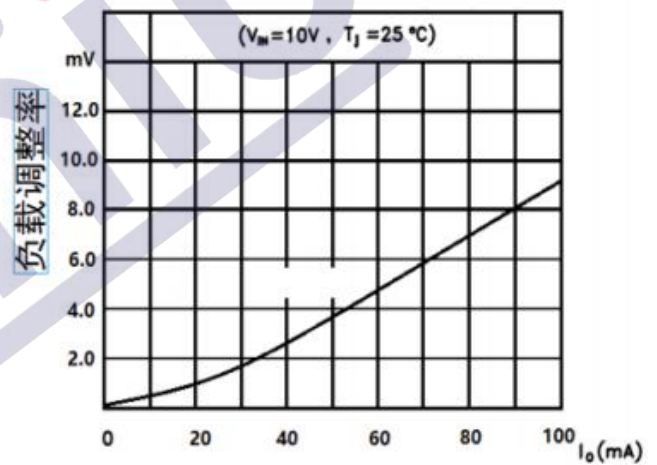
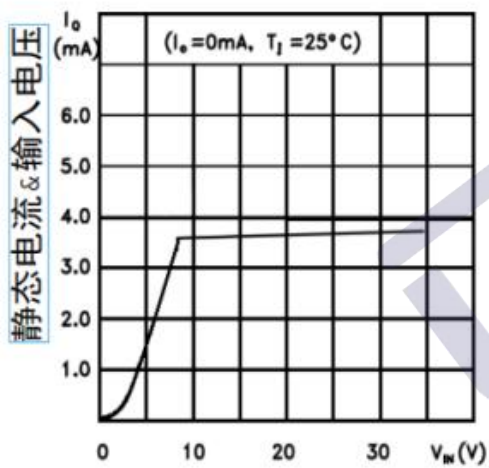
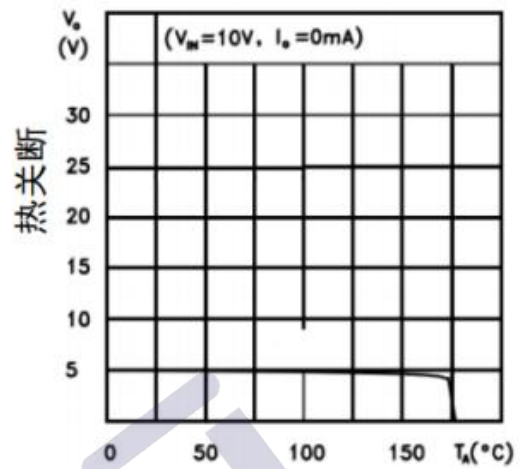
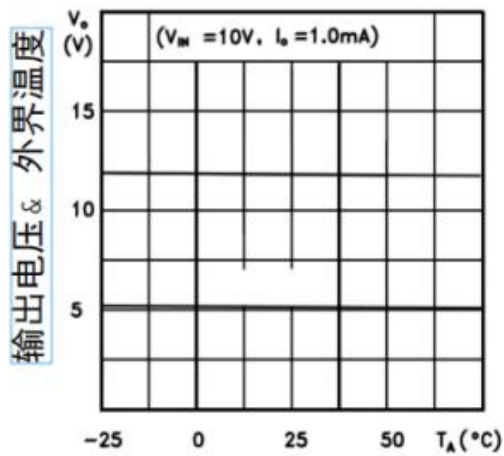
At specified virtual junction temperature ($V_i=18V$, $I_o=40mA$, $C_i=0.33\mu F$, $C_o=0.1\mu F$, unless otherwise specified)

Parameter	Symbol	Test conditions		Min	Typ	Max	Unit
Output voltage	VO	14V≤Vi≤20V, Io=10mA	Vout 12V	11.8	12	12.4	V
		7V≤Vi≤20V, Io=10mA	Vout 5V	4.85	5.0	5.15	V
Load regulation	ΔVO	Io=1mA~60mA	Vout 12V	—	15	50	mV
		Io=1mA~60mA	Vout 5V	—	10	40	mV
Line regulation	ΔVO	14V≤Vi≤20V	Vout 12V	—	32	80	mV
		7V≤Vi≤20V	Vout 5V	—	16	50	mV
Quiescent current	Iq	7V≤Vi≤20V		—	3.8	6	mA
Quiescent current chang	ΔIq	8V≤Vi≤20V		—	—	1.5	mA
	ΔIq	1mA≤Vi≤60mA		—	—	0.1	mA
Output noise voltage	VN	10Hz≤f≤100kHz		—	42	—	uV
Ripple rejection	RR	8V≤Vi≤20V,f=120Hz		10	48	—	dB
Dropout voltage	Vd	Io=80mA		—	1.4	—	V

■ Diagram

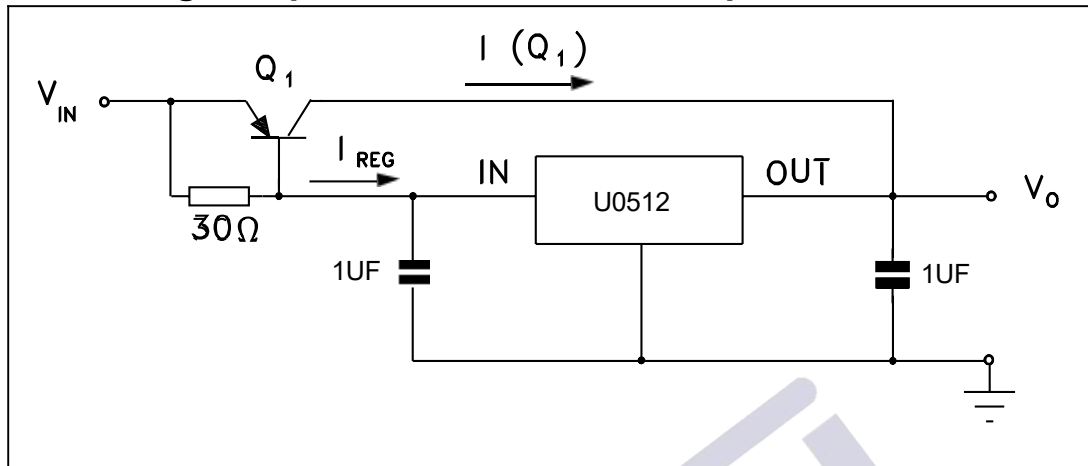


■ Typical performance

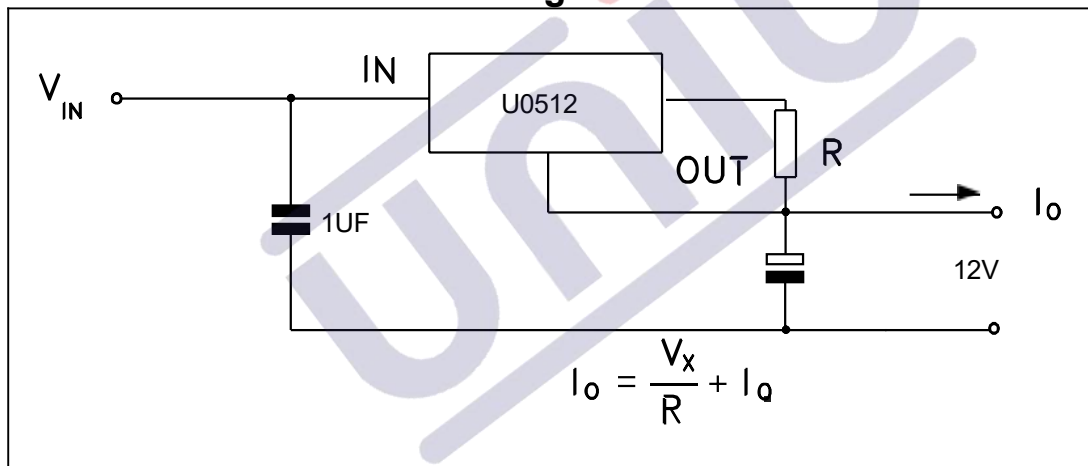


■ Typical application

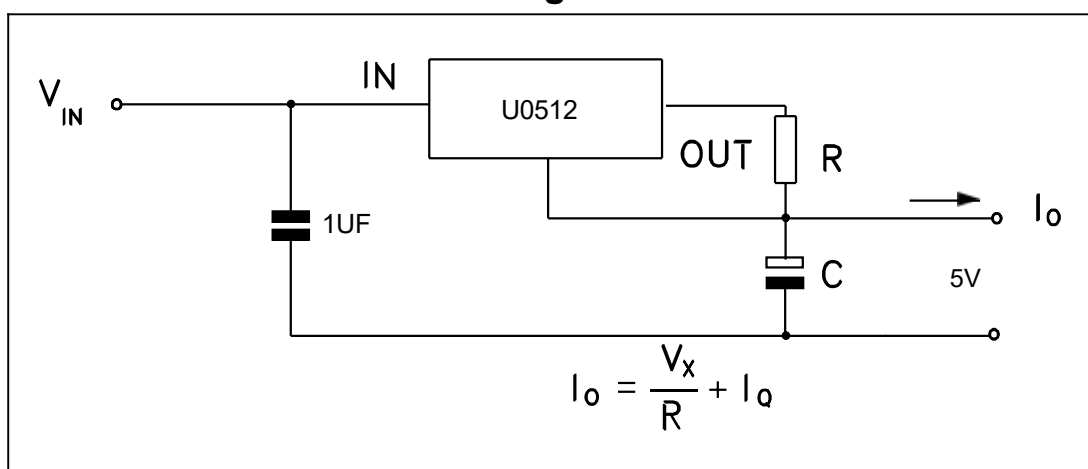
High output current short-circuit protected



Current regulator

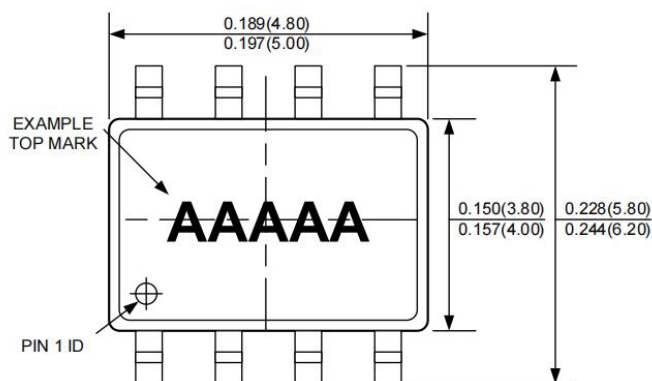


Current regulator

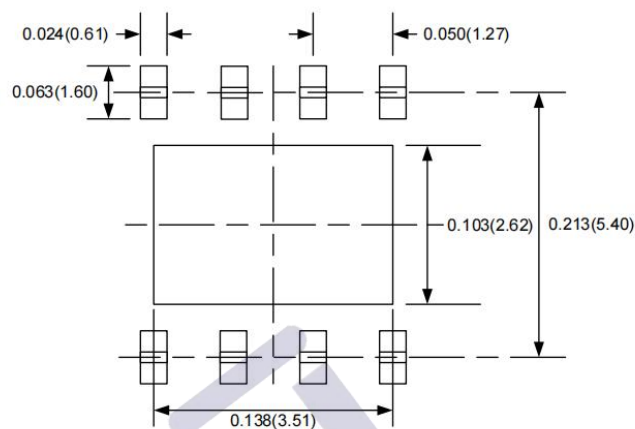


■ Package size

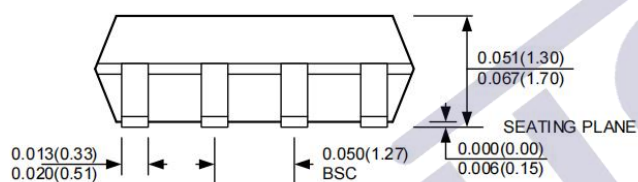
ESOP8 (EXPOSED PAD)



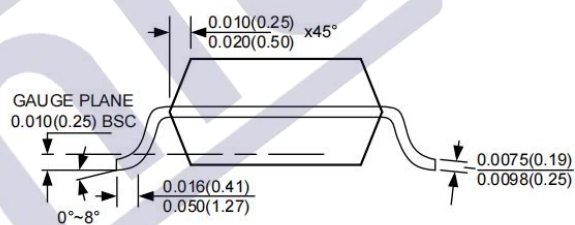
TOP VIEW



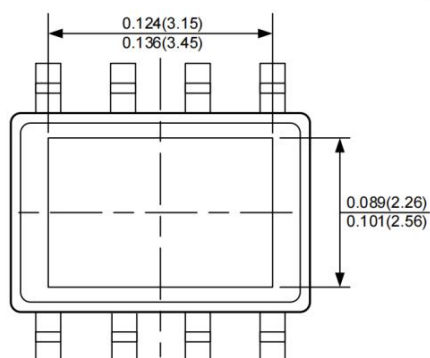
RECOMMENDED PAD LAYOUT



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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1、版本记录

DATE	REV.	DESCRIPTION
2018/11/15	1.0	首次发布
2020/09/18	1.1	调整布局
2022/5/10	1.2	优化驱动和电流检测电路

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3、联系我们

浙江宇力微新能源科技有限公司

总部地址：绍兴市越城区斗门街道袍渎路25号中节能科创园45幢4/5楼

电话：0575-85087896（研发部）

传真：0575-88125157

E-mail: htw@uni-semic.com

无锡地址:江苏省无锡市锡山区先锋中路6号中国电子(无锡)数字芯城1#综合楼503室

电 话：0510-85297939

E-mail: zh@uni-semic.com

深圳地址:深圳市宝安区西乡街道南昌社区宝源路泳辉国际商务大厦410

电 话：0755-84510976

E-mail: htw@uni-semic.com