

36V High Side Over-Voltage Protector

DESCRIPTION

PT114 is a high voltage 36V over voltage protector (OVP) which has a very low 35mohm on resistance, by only change the external connecting. It can be used as an OVP device or a high voltage switch.

PT114 consists of a charge pump, a configurable power MOSFET, a voltage reference, a gate driver and some logics. HM4804 can react to an input surge very fast and shut off the switch in less than 0.1us and stand the voltage spike as high as 20V.

PT114 is in SOT23-6 package.

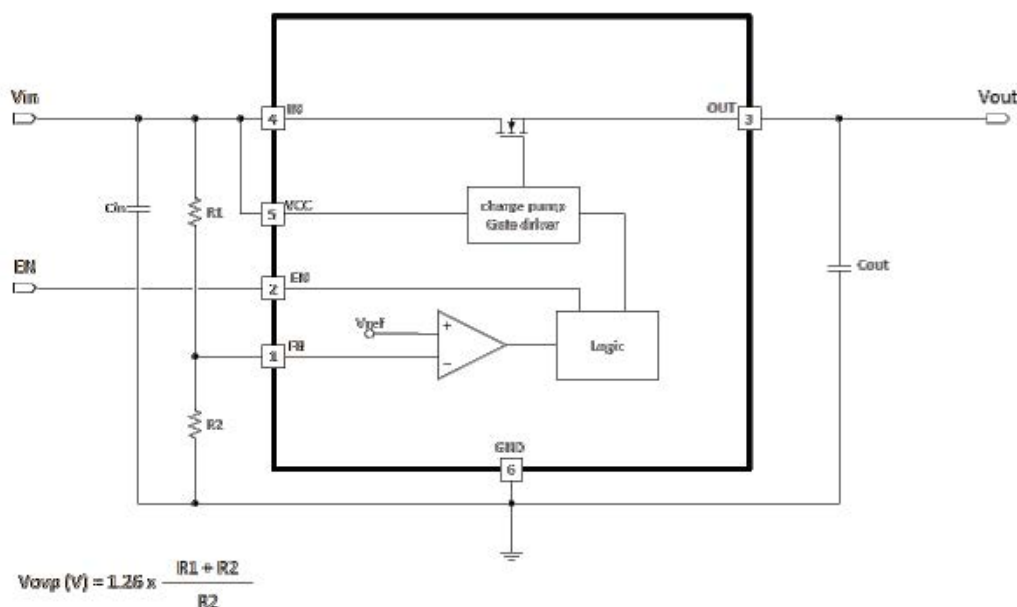
FEATURES

- 36V standoff voltage
- 35mohm on resistance
- Input OVP with 0.1us reaction time
- Protection voltage programmable by $V_{fb}=1.26V$
- SCP and OTP
- Enable pin available for switch on and off

APPLICATIONS

- All electronic devices with input DC power plug
- E-Cigarette
- Car Camera
- Cellphone

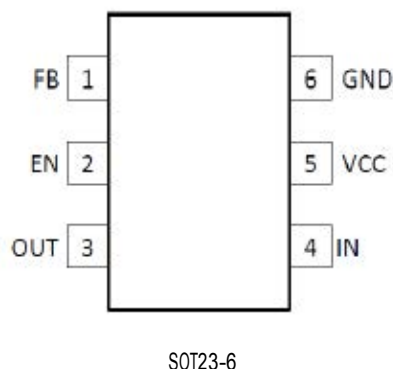
TYPICAL APPLICATION



ORDERING INFORMATION

PART	PACKAGE	TOP MARK	Pcs/Reel
PT114	SOT23-6	MA|YW (YW: date code)	3000

PIN CONFIGURATION



ABSOLUTE MAXIMUM RATINGS

(Note: Exceeding these limits may damage the device. Exposure to absolute maximum rating conditions for long periods may affect device reliability.)

FB Voltage	.....	-0.3V to 6V
IN,OUT,EN,IO,OVPIN Voltage	.....	-0.3V to 36V
Operating Temperature Range	.....	-40°C to 85°C
Storage Temperature Range	.....	-55°C to 150°C
Thermal Resistance	T_{JC} T_{JA}	
SOT23-6	50 100	°C/W
Lead Temperature (Soldering, 10ssec)	.....	260°C
ESD HBM (Human Body Mode)	.....	2KV
ESD MM (Machine Mode)	.....	200V

ELECTRICAL CHARACTERISTICS

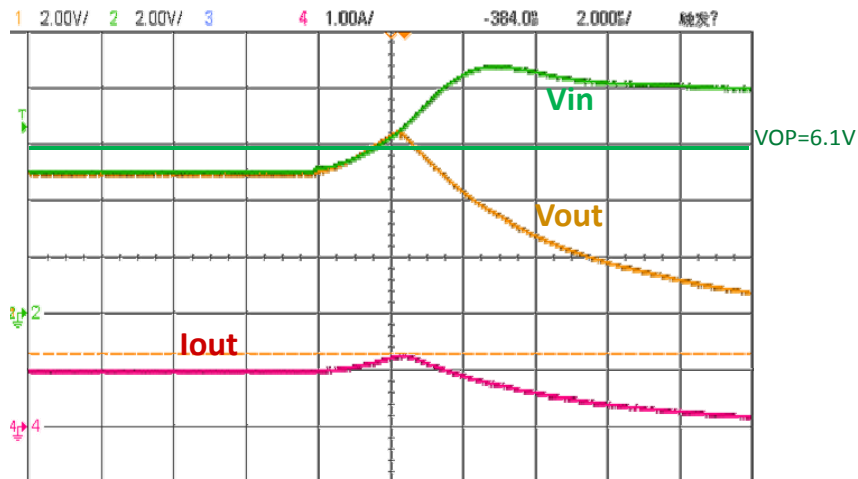
($V_{IN} = 5V$, unless otherwise specified. Typical values are at $T_A = 25°C$.)

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS
IN Range		3.35		36	V
UVLO	Hys=400mV		3.35		V
OVP	Default OVP=6.1V when floating fb,		6.1		V
OVP FB	Vin=5V	1.21	1.26	1.31	V
OVP Range		3.5		20	V
Ron	VCC=5V, Iout=2A		35		mΩ
Iout_max	The max Iout		5		A
Iq	Standby current, IN and Vcc < OVP voltage		150		μA
I _{sd}	Shutdown current		10		μA
Thermal Shutdown	Rising, Hys=50°C		135		°C

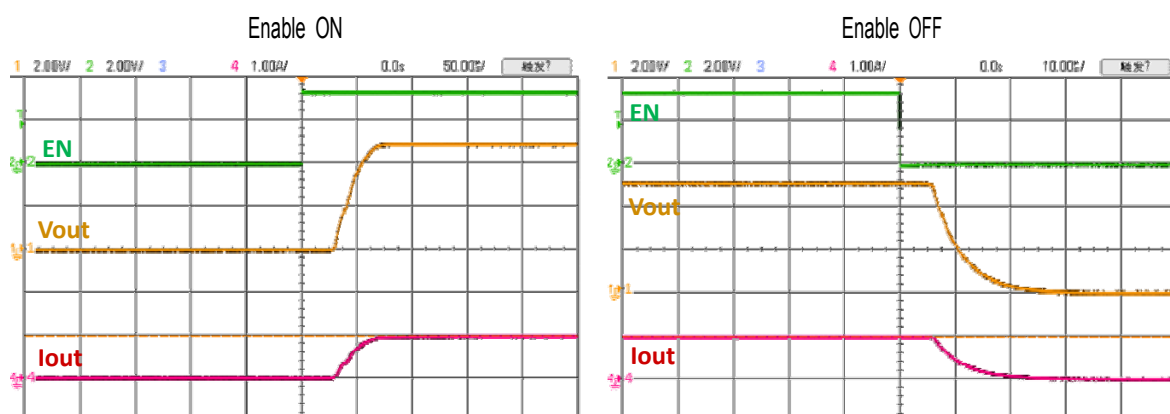
PIN DESCRIPTION

PIN #	NAME	DESCRIPTION
1	FB	OVP feedback input pin. A resistor divider from IN to AGND thru this pin. VFB=1.26V. When FB floating, default OVP=6.1V.
2	EN	Enable pin, pull high to turn on the chip and pull low to shut down the chip.
3	OUT	OUTPUT pin, Bypass with a 1μF capacitor from this pin to ground.
4	IN	A Bias voltage input pin. Bypass with a 1μF capacitor from this pin to ground.
5	VCC	The independent supply voltage for control logic and charge pump, tied to IN in normal application
6	GND	Ground

OVER VOLTAGE PORTECTION CHARACTERISTICS



Enable On and OFF Waveforms



APPLICATION NOTE

Default OVP level when FB Float

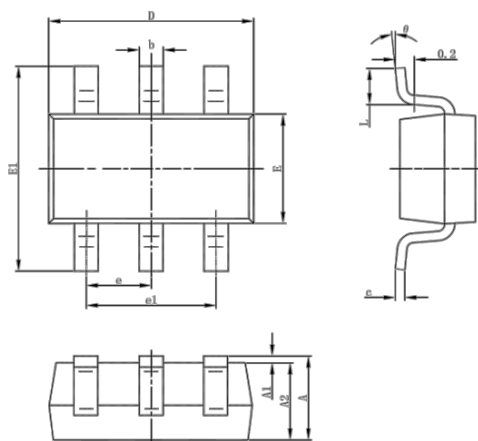
One can leave FB pin float if only want to set over voltage level at 6.1V.

Setting OVP level when connecting resistor divider on FB pin

$$V_{ovp} = 1.26 \times \frac{R1+R2}{R2} (V) \quad \text{where } V_{ovp} \text{ has to be within the range from 3.5 to 20V.}$$

Package Outline

Package: SOT23-G



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°