

Over voltage and over current protection IC

Description

HM4805 is an Over-Voltage-Protection (OVP) IC. The device will switch off internal MOSFET to disconnect VIN to OUT to protect load when any of input voltage, input current over the threshold. The Over temperature protection (OTP) function monitors chip temperature to protect the device.

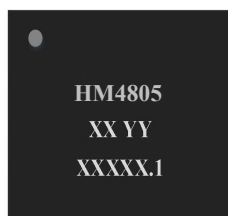
Application

- PND
- Tablet
- HD Player
- OTT
- Digital Cameras
- Digital Videos

Features

- High voltage technology
- Maximum input voltage :40V
- Output power ON time :8ms(Typ)
- OVP threshold :6.1V
- OVP response time :<1us
- Output auto discharge
- Small Package :DFN2*2-6L

Ordering information



XX YY : Product code

XXXXX.1 : Wafer batch

Fig.1 Top view

Table 1

Package	DFN2*2-6L
MOQ	3000 pcs

Typical Application

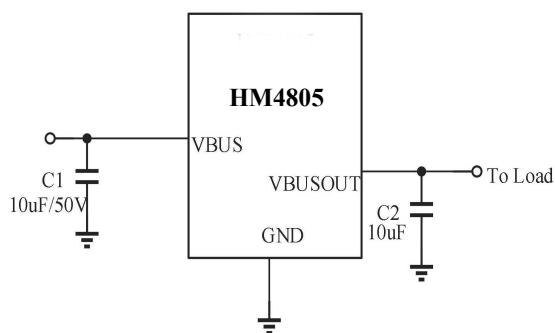
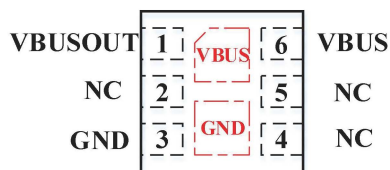


Fig.2

Pin Configuration and Function



HM4805

Fig.3 Pin configuration (Top view)

Table 2

NO.	Symbol	Type	Description
1	VBUSOUT	OUTPUT	Output pin, Connect to load.
2	NC		
3	GND	GROUND	Ground
4	NC		
5	NC		
6	VBUS	POWER	Input pin. A 10uF low ESR ceramic capacitor or larger must be connected as close as to this pin. It is recommended to use 50V capacitor or according to application.

Functional Block Diagram

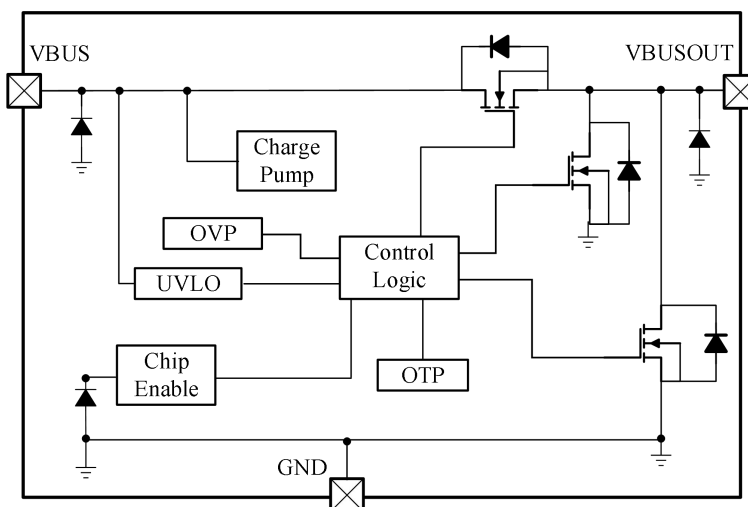


Fig.4

Absolute Maximum Ratings

Table 3

Parameter	Symbol	Value	Unit
Input voltage (IN pin)	V_{IN}	-0.3 ~ 40	V
Output voltage (OUT pin)	V_{OUT}	-0.3 ~ 35	V
Junction temperature	T_J	150	°C
Storage temperature	T_{stg}	-55 ~ 150	°C
ESD Ratings	HBM	±4000	V
	MM	±200	V

Note: These are stress ratings only. Stresses exceeding the range specified under “Absolute Maximum Ratings” may cause substantial damage to the device. Functional operation of this device at other conditions beyond those listed in the specification is not implied and prolonged exposure to extreme conditions may affect device reliability.

Recommend Operating Conditions

Table 4($T_a=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Value	Unit
Input voltage	V_{IN}	3.5 ~ 40	V
Output current	I_{OUT}	3	A
Ambient operating temperature	T_{opr}	-40 ~ 85	°C

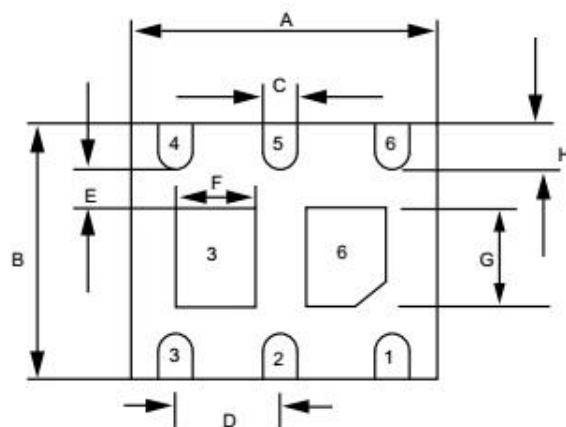
Electrical Characteristics

Table 5

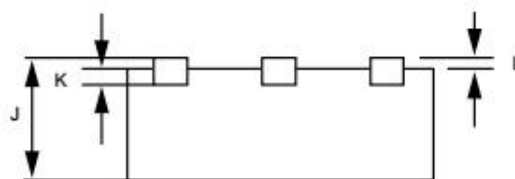
Parameter	Symbo	Test conditions	Min	Typ	Max	Unit
DC characteristics and Power-ON-Reset						
Input quiescent current	IQ	Vin=5v,Iout=0A		170	260	uA
IN-to-OUT ON resistance	RON	Vin=5v,Iout=3A		40		mΩ
Output auto discharge resistance	RDISCHARGE			500		Ω
Under voltage lock out threshold	UVLO	Vin increasing from 0~3V		3.2		V
Under voltage lock out hysteresis	VHYS-UVLO	Vin decreasing from 3~0V		300		mV
Output power-on time	TON	Vin=0 -> 5V to output ON	6	8	10	ms
Input Over-Voltage-Protection (OVP)						
OVP voltage	V _{OVP}			6.1		V
OVP active time	T _{OVP}	VIN= 5 -> 10V			1	us
OVP recovery time	T _{ON(OVP)}	VIN=10 -> 5V to output ON	6	8	10	ms
Over-Temperature-Protection (OTP)						
OTP threshold				155		℃
OTP hysteresis				40		℃
Power Switch Body Diode						
Forward peak surge current	I _{FSM}	Pulse Width=10ms			15	A
		Pulse Width=20us			50	A

Package Outline

DFN2*2-6L



Bottom view



Side view

Symbol	Min	Max
A	1.924	2.076
B	1.924	2.076
C	0.25	0.40
D	0.65 (typ.)	
E	0.2 (min.)	
F	0.52	0.72
G	0.75	1.1
H	0.174	0.38
J	0.55	0.8
L	0	0.05
K	0.18	0.2

Fig. 5