

YHM2010

Hybrid Switch for OVP/OCP and Communication

Features

- Input voltage range: 3.6V ~ 29V
- Both IN and ISNS may supply the chip
- Low on-resistance for IN-OUT: typical 27mΩ
- IN-COM for 10Mbps bit rate Communication
- Over voltage protection: Default 6V
- Super-fast OVP response time: typical 50ns
- Programmable Over Current Protection
- Short Circuit Protection
- Robust ESD and surge immunity capability
HBM > ±2KV
CDM > ±1kV
- Tiny 6-bumps WLCSP 1.17mm x 0.815mm

Applications

- Smart Phone, AR/VR Device, Tablet PC, Wearable etc.

General Description

YHM2010 over-voltage protection devices feature a low 27mΩ (TYP) on-resistance high current integrated MOSFET which actively protect low-voltage systems against voltage supply faults up to +29VDC. An input voltage exceeding the over-voltage threshold will cause the internal MOSFET to turn off, preventing excessive voltage from damaging downstream devices.

The over-voltage protection threshold is default 6V. There are other OTP versions for 11V/16V /22V OVP and no OVP. YHM2010 device enters hiccup mode when the output load exceeds the over current threshold. The over current threshold is programed by R_{SNS} .

YHM2010 has two outputs, OUT supports 2A current for power supply, COM supports 10Mbps digital signal communication when the chip is powered by ISNS pin.

YHM2010 is available in tiny 6-bumps WLCSP 1.17mm x 0.815mm, 0.4mm pitch, and operates over an ambient temperature range of -40°C to +85°C.

YHM2010

Hybrid Switch for OVP/OCP and Communication

Typical Application

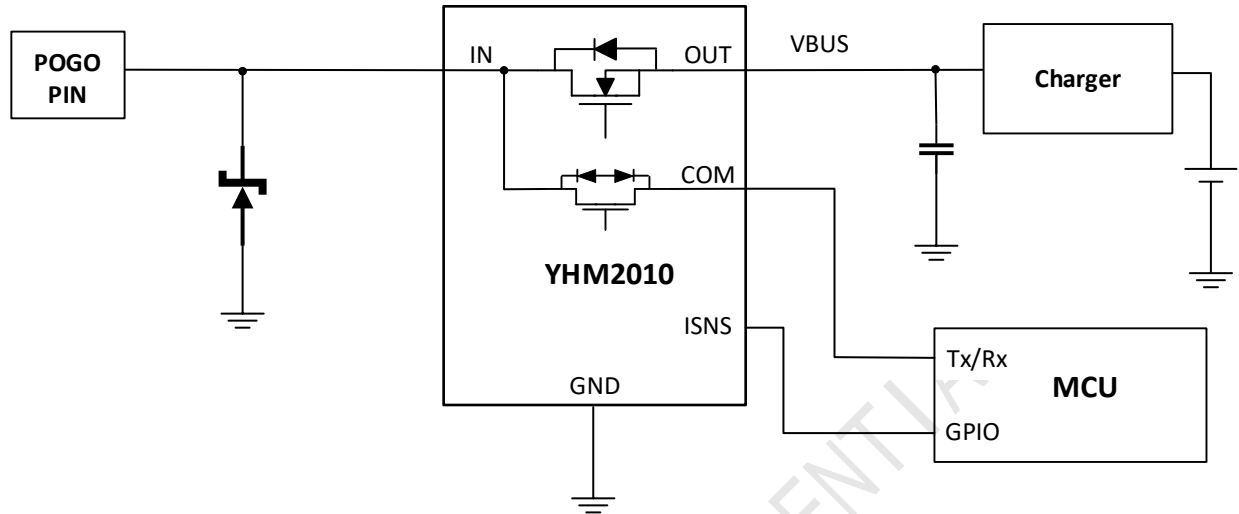


Fig 1. POGO Pin Communication and OVP Application Diagram

YHM2010

Hybrid Switch for OVP/OCP and Communication

Internal Block Diagram

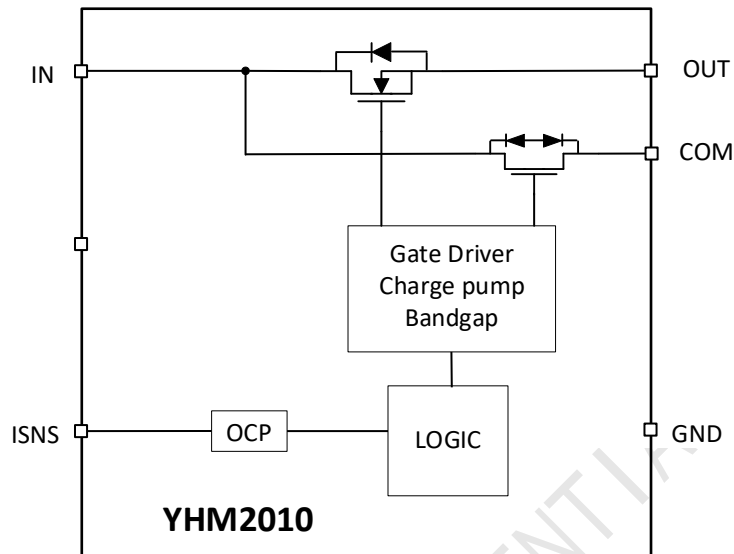


Fig 2. YHM2010 Functional Block Diagram

YHM2010

Hybrid Switch for OVP/OCP and Communication

YHM2010 Pin Configurations

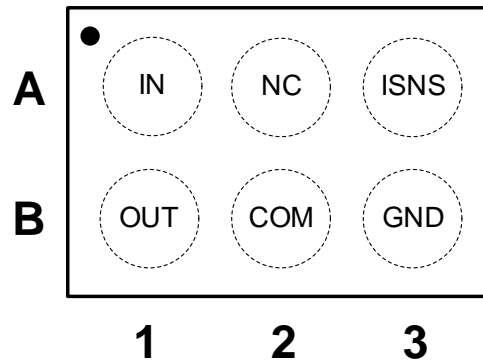


Fig 3. YHM2010 WLP-6 Pin Assignment (Top Through View)

YHM2010 WLP Pin Descriptions

Bump	Name	Description
A1	IN	Power Input.
A2	NC	Not Connected.
A3	ISNS	Connect to system GPIO for communication function.
B1	OUT	Power Output.
B2	COM	Communication Output.
B3	GND	Device Ground.

Hybrid Switch for OVP/OCP and Communication

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only.

Symbol	Parameter	Min.	Max.	Unit
V _{IN}	IN to GND	-0.3	31	V
V _{OUT}	OUT to GND	-0.3	V _{IN} +0.3	V
V _{ISNS}	ISNS to GND	-0.3	6.0	V
I _{IN}	Input Current (Continuous)		2.0	A
I _{OUT}	OUT Current		2.0	A
I _{COM}	COM Current		0.1	A
t _{PD}	Total Power Dissipation at T _A = 25°C		TBD	W
T _{STG}	Storage Temperature Range	-65	+150	°C
T _J	Maximum Junction Temperature		+150	°C
T _L	Lead Temperature (Soldering, 10 Seconds)		+260	°C
ESD	Human Body Model, ANSI/ESDA/JEDEC JS-001-2012	All Pins	2.0	kV
	Charged Device Model, JESD22-C101	All Pins	1.0	

Note 1. Refer to JEDEC JESD51-7, use a 4-layerboard

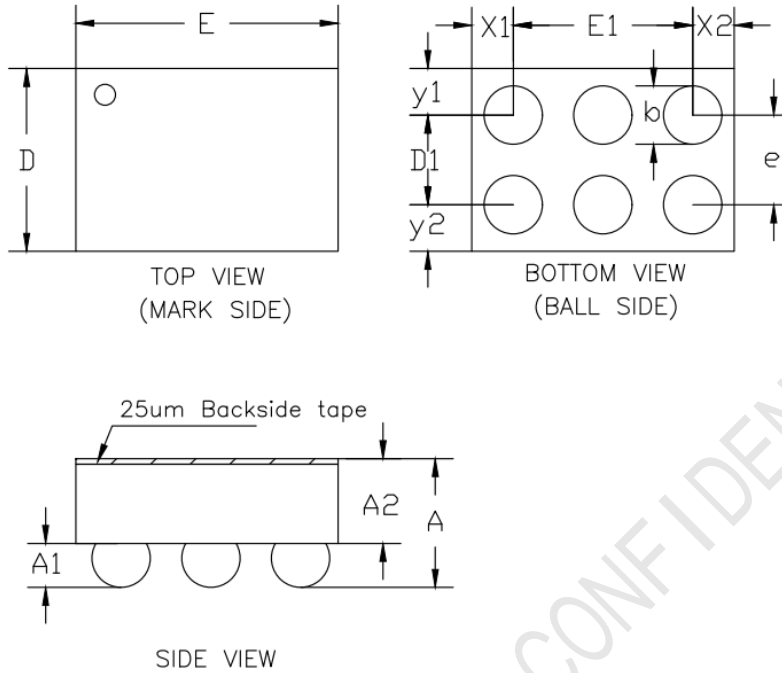
YHM2010

Hybrid Switch for OVP/OCP and Communication



Package Dimensions

WLCSP-6 1.17mm x 0.815mm x 0.574mm



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	0.534	0.574	0.614
A1	0.176	0.196	0.216
A2	0.358	0.378	0.398
D	0.795	0.815	0.835
D1	0.400BSC		
E	1.150	1.170	1.190
E1	0.800BSC		
b	0.240	0.260	0.280
e	0.400BSC		
x1	0.185 REF		
x2	0.185 REF		
y1	0.208 REF		
y2	0.208 REF		

YHM2010



Hybrid Switch for OVP/OCP and Communication

Ordering Information

Part Number	Temp Range	Pin Package	Top Mark	MOQ
YHM2010W6T	-40°C to 85°C	6 WLCSP	YWW LOT	3000

T = Tape and reel.

YWW: Date Code. Y = year, WW = week.

LOT: The last three number of LOTID.

YHMICROS CONFIDENTIAL