



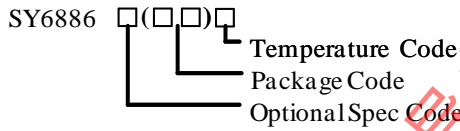
General Description

The SY6886 is an over voltage protection switch with 3A capability to prevent damage to the upstream system with low voltage rating. It achieves input voltage range from 3V to 18V. Programmable OVP is available with simple external resistor divider. Integrated reverse blocking FET prevents the leakage current from output side to input side when the input power supply is removed, but without output discharging. Extremely low on resistance $R_{DS(ON)}$ helps to reduce power loss during the normal operation. Enable control is available to cut off the energy path. High accuracy current indicator is employed internally. It integrates the over temperature protection shutdown and auto-recovery with hysteresis to protect against over current events.

Features

- Wide Input Voltage Range from 3V to 18V
- Up to 25V Voltage Rating for OUT Pin
- Extremely Low on Resistance $R_{DS(ON)}$
 - $R_{DS(ON)}=45m\Omega$ (typ.) at 12V V_{IN} condition
- Reverse Blocking Function
- 3A Output Current Capability
- Programmable Current Limit
- Short-circuit Protection
- Thermal Shutdown Protection & Auto Recovery
- RoHS Compliant and Halogen Free
- Compact Package: CSP1.50mm×1.64mm -12

Ordering Information



Ordering Number	Package	Note
SY6886UGC	CSP1.50×1.64-12	

Typical Applications:

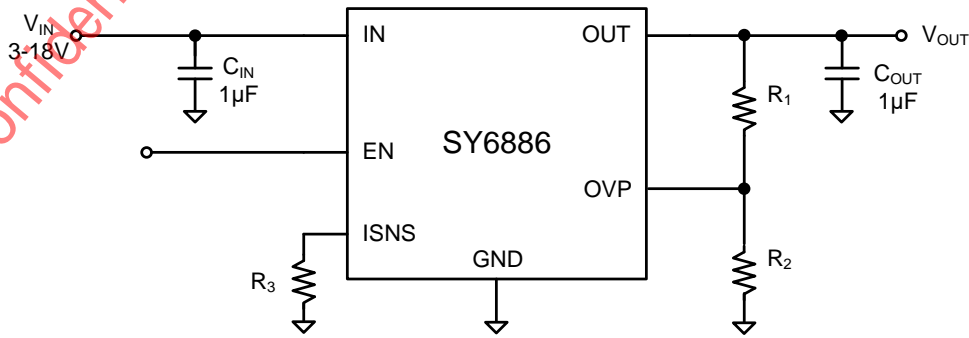
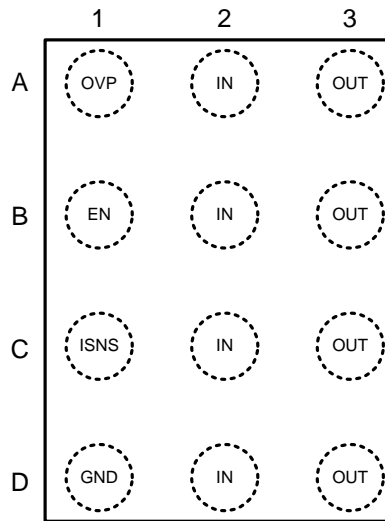


Figure 1. Schematic Diagram



Pinout (Top View)



Top Mark: tRxyz (device code: tR, x=year code, y=week code, z= lot number code)

Pin Name	Pin Number	Pin Description
IN	A2, B2, C2, D2	Power input pin. Decouple high frequency noise by connecting at least a 1μF MLCC to ground.
OUT	A3, B3, C3, D3	Output voltage pin. Connect a 1μF MLCC from this pin to ground.
EN	B1	Enable control, pull high to active the device. Do not leave it floating.
OVP	A1	Over voltage program pin. Connect resistor divider to this pin to program the OVP threshold. The internal reference is at 1.2V. Pull down this pin to GND to disable OVP function
ISNS	C1	Current sense pin. Internal current sense circuit would source a $I_L/2970$ A current to this pin. Connect a 1.8kΩ resistor to get 0.6V voltage at 1A load and Current limit at 2A.
GND	D1	Power ground pin.

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Block Diagram

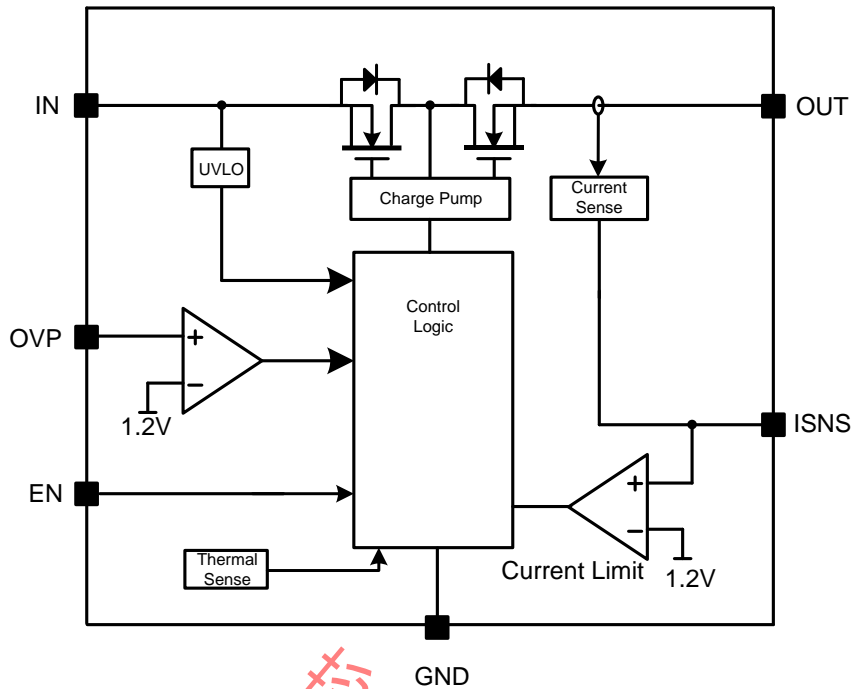


Figure2. Block Diagram

Absolute Maximum Ratings (Note 1)

IN	-----	-0.3V to 20V
OUT, EN, OVP	-----	-0.3V to 28V
ISNS	-----	-0.3V to 3.6V
Power Dissipation, PD @ T _A = 25°C	-----	1.5W
Package Thermal Resistance (Note 2)		
θ _{JA}	-----	65.6°C/W
θ _{JC}	-----	1.04°C/W
Junction Temperature Range	-----	-40°C to 150°C
Lead Temperature (Soldering, 10 sec.)	-----	260°C
Storage Temperature Range	-----	-65°C to 150°C

Recommended Operating Conditions (Note 3)

IN	-----	3V to 18V
OUT, EN, OVP	-----	0V to 25V
ISNS	-----	0V to 3.3V
Junction Temperature Range	-----	-40°C to 125°C
Ambient Temperature Range	-----	-40°C to 85°C



Electrical Characteristics

($V_{IN} = 3V$ to $18V$, $C_{IN} = 0.1\mu F$, $C_{OUT} = 10\mu F$, $T_A = 25^\circ C$, unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Voltage Range	V_{IN}		3		18	V
Output Voltage Range	V_{OUT}		0		25	V
Input UVLO Threshold	V_{UVLO}				2.9	V
UVLO Hysteresis	V_{HYS}			0.1		V
Quiescent Current	I_Q	$V_{IN} = 12V$, Null load		85		μA
Shutdown Current of IN	I_{SD_IN}	$V_{IN} = 12V$, $EN = 0V$, $V_{OUT} = 0V$		5		μA
Shutdown Current of OUT	I_{SD_OUT}	$V_{OUT} = 12V$, $EN = 0V$, $V_{IN} = 0V$		5		μA
Reverse Blocking Current	I_{RVB}	$V_{IN} = 0V$, $EN = 0V$, $V_{OUT} = 25V$		0.1		μA
EN Input High Threshold	V_{HI}		1			V
EN Input Low Threshold	V_{LO}				0.4	V
Switch on Resistance	$R_{DS(ON)}$	$V_{IN} = 12V$, $I_{OUT} = 500mA$, from IN to OUT		45	55	m Ω
IN OUT Reverse Blocking Threshold	V_{RVB}	$V_{IN} = 12V$		30		mV
Soft-start Time	t_{SST}	$V_{IN} = 12V$, $C_{OUT} = 10\mu F$, time from EN on to $V_{OUT} = V_{IN} \times 90\%$		2	5	ms
Current Limit Accuracy	I_{LIM}	$V_{IN} = 12V$, $V_{OUT} = 11V$, $R_{SENSE} = 1.8k\Omega$	1.8	2	2.2	A
Current Sense Ratio	K	I_L / I_{ISNS} , $V_{IN} = 12V$, $R_{SENSE} = 1.8k\Omega$, $0.8A \leq I_{LOAD} \leq 1.2A$	2821	2970	3119	A/A
		I_L / I_{ISNS} , $V_{IN} = 12V$, $R_{SENSE} = 1.8k\Omega$, $0.5A \leq I_{LOAD} \leq 0.8A$	2673	2970	3267	A/A
		I_L / I_{ISNS} , $V_{IN} = 12V$, $R_{SENSE} = 1.8k\Omega$, $0.2A \leq I_{LOAD} \leq 0.5A$	2376	2970	3564	A/A
ISENSE Output Range	V_{SENSE}	Note 4	0		1.32	V
Over Voltage Protection Reference Voltage	V_{REF}	$-40^\circ C$ to $85^\circ C$	1.17	1.2	1.23	V
		$-40^\circ C$ to $125^\circ C$	1.14	1.2	1.26	V
Over Voltage Protection Response Time	t_{OVP}	Note 4		100		ns
Thermal Shutdown Temperature	T_{SD}	Note 4		150		$^\circ C$
Thermal Shutdown Hysteresis	T_{HYS}	Note 4		20		$^\circ C$

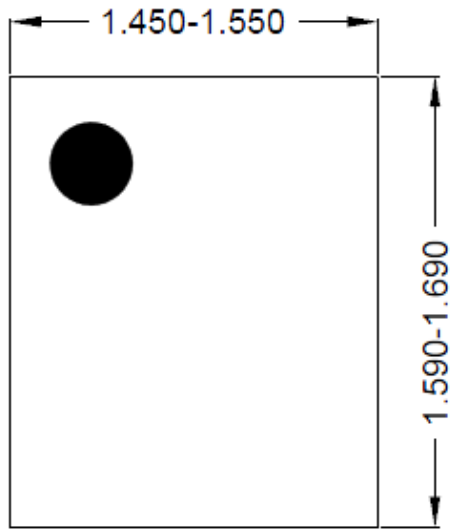
Note 1: Stresses beyond the “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only. Functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Note 2: θ_{JA} is measured in the natural convection at $T_A = 25^\circ C$ on Silergy EVB test board of JEDEC 51-3 thermal measurement standard.

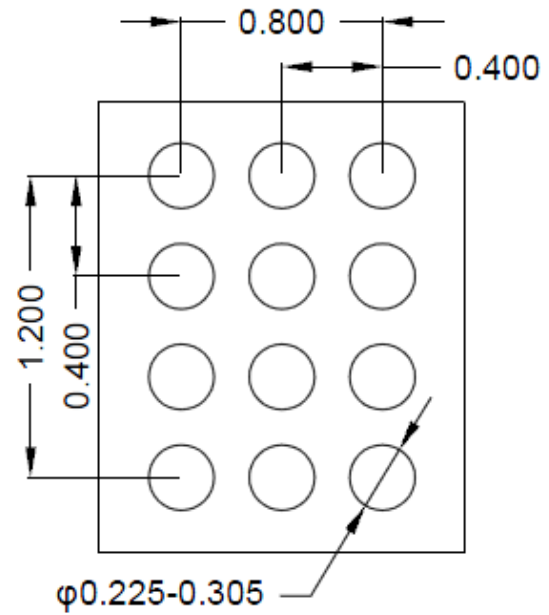
Note 3: The device is not guaranteed to function outside its operating conditions.

Note 4: Guaranteed by design, but not production test.

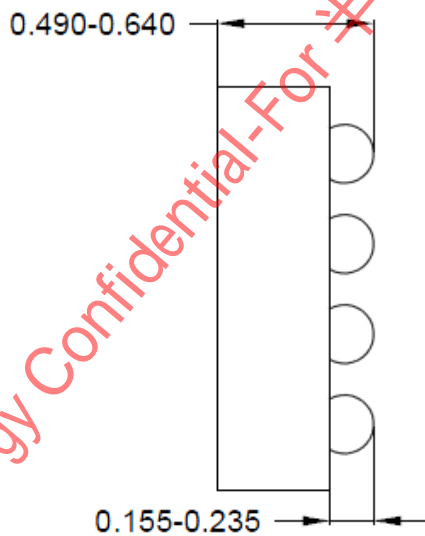
CSP1.50×1.64-12 Package Outline Drawing



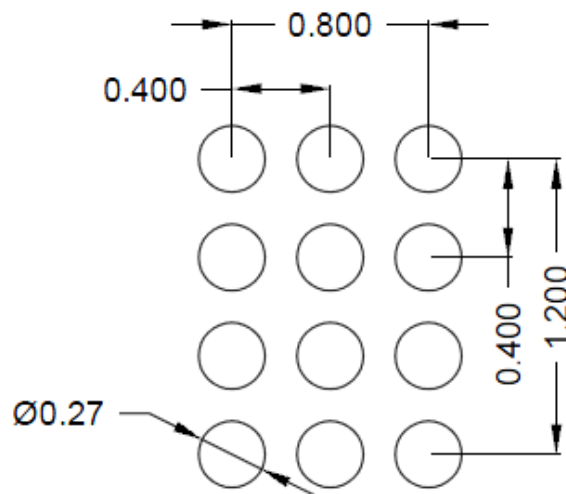
Top view



Bottom view



Side view



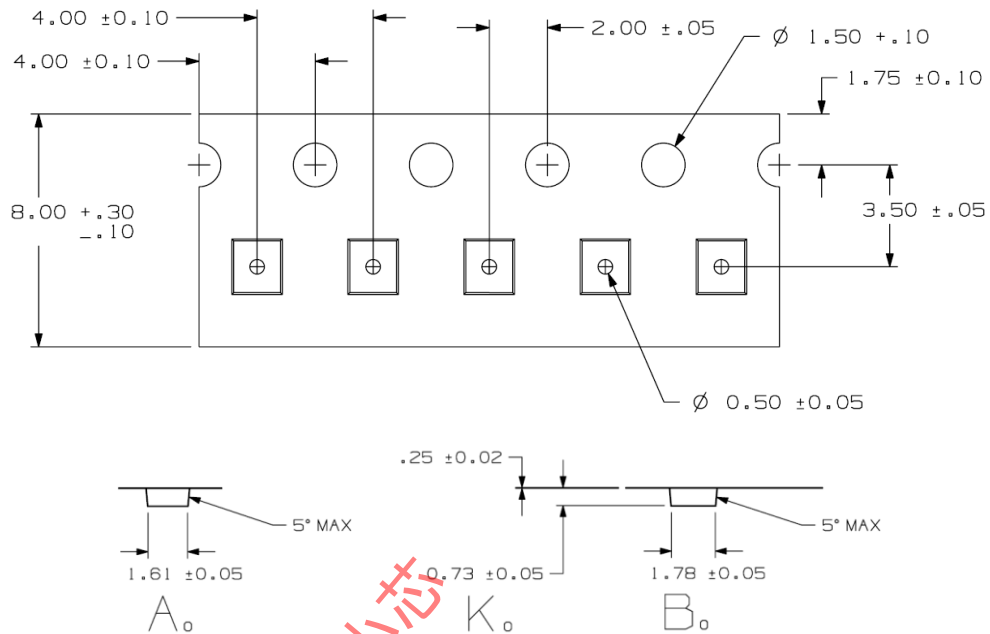
Recommended PCB layout
(Reference only)

Notes: All dimensions in millimeter and exclude mold flash & metal burr.

Taping & Reel Specification

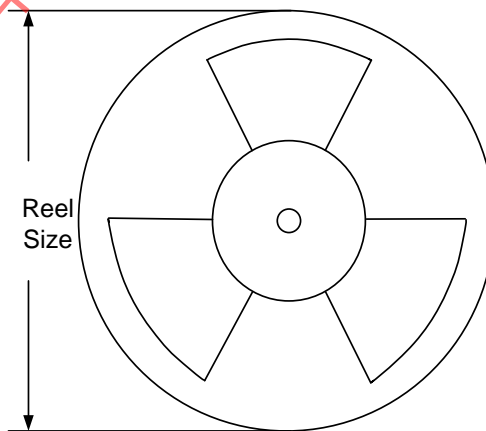
1. Taping Orientation

CSP1.50×1.64-12



Feeding Direction →

2. Carrier Tape & Reel specification for packages



Package types	Tape width (mm)	Pocket pitch(mm)	Reel size (Inch)	Trailer * length(mm)	Leader * length (mm)	Qty per reel (pcs)
CSP1.50×1.64-12	8	4	7"	800	800	3000

3. Others: NA

单击下面可查看定价，库存，交付和生命周期等信息

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