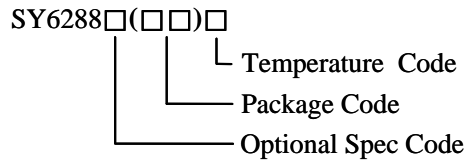


General Description

The SY6288C20/D20 is an ultra-low $R_{DS(ON)}$ switch with current limiting function to protect the power source from over current and short circuit conditions.

Ordering Information

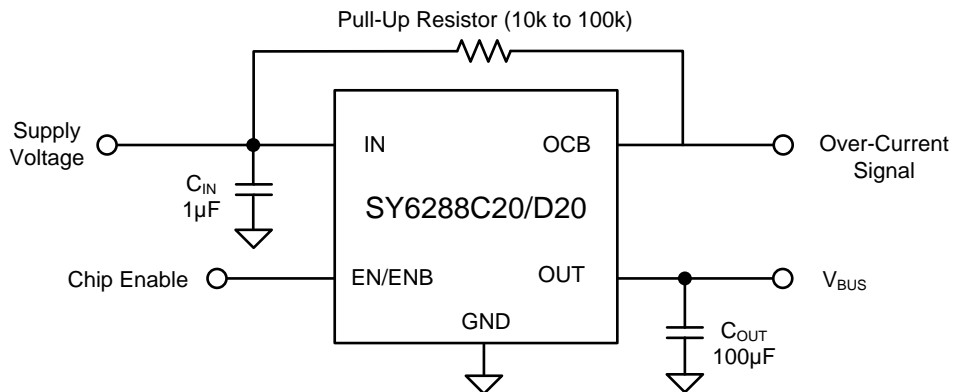


Ordering Number	Package type	Note
SY6288C20AAC	SOT23-5	2A/Active High
SY6288D20AAC	SOT23-5	2A/Active Low

Features

- Distribution Voltage: 2.5V to 5.5V
- Over Temperature Shutdown and Automatic Retry
- Reverse Blocking (No Body Diode)
- At Shutdown, OUT can be Forced Higher than IN
- Fault Flag (OCB) Output for Over Current and Fault Conditions
- Automatic Output Discharge at Shutdown
- Built-in Soft-start
- 1.6ms Rise Time at 3.3V_{IN} Condition
- RoHS Compliant and Halogen Free
- Compact Package Minimizes Board Space: SOT23-5
- TUV Certification NO. R50188769
- UL Certification NO. E491480
- CB Certification by IEC 62368-1

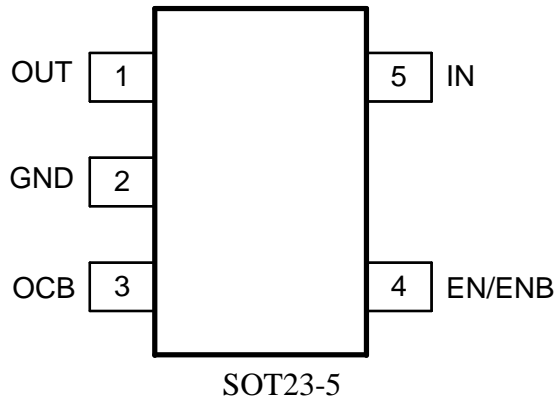
Typical Application Circuit



Note: If 1uF input cap will lead to large Vin voltage spike, it is strongly recommended to add additional 10uF ceramic cap.

Figure 1. Schematic Diagram

Pinout (Top View)

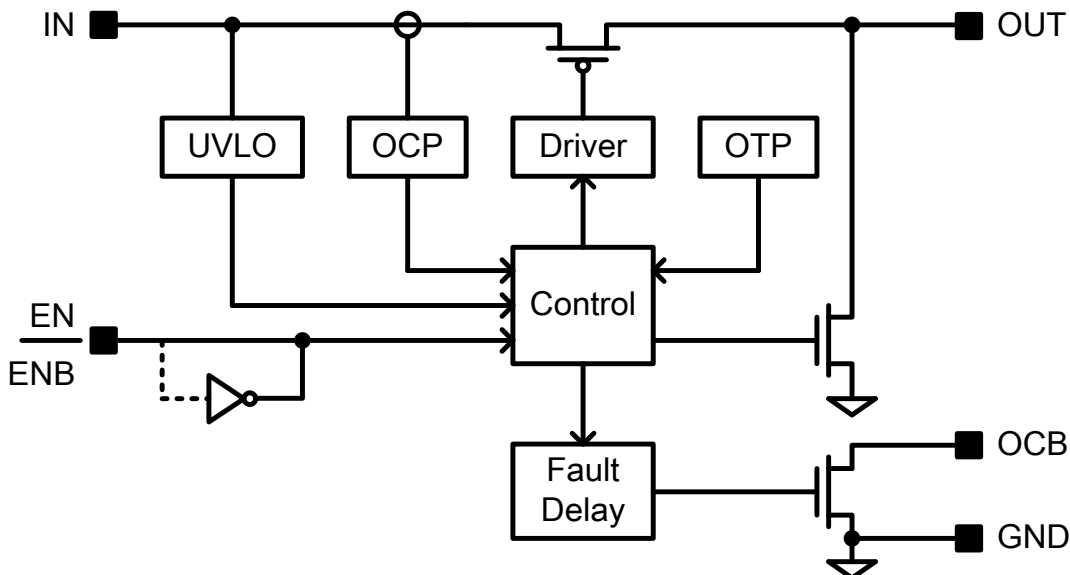


Part Number	Package type	Top Mark ^①
SY6288C20AAC	SOT23-5	RTxyz
SY6288D20AAC	SOT23-5	RExyz

Note ①: x=year code, y=week code, z=lot number code

Pin Name	Pin Number (SOT23-5)	Pin Description
IN	5	Input pin.
GND	2	Ground pin.
OUT	1	Output pin.
EN-SY6288C20 ENB-SY6288D20	4	ON/OFF control. Do not leave it floating. EN: Active high; ENB: Active low.
OCB	3	Open Drain Fault Flag.

Block diagram





Absolute Maximum Ratings (Note 1)

All pins-----	6V
Power Dissipation, P_D @ $T_A = 25^\circ\text{C}$, SOT23-5 -----	1W
Package Thermal Resistance (Note 2)	
SOT23-5, θ_{JA} -----	100°C/W
SOT23-5, θ_{JC} -----	30°C/W
Junction Temperature Range -----	150°C
Lead Temperature (Soldering, 10 sec.) -----	260°C
Storage Temperature Range -----	-65°C to 150°C
ESD Susceptibility (Note 2)	
HBM (Human Body Mode) -----	2kV
MM (Machine Mode) -----	200V

Recommended Operating Conditions (Note 3)

IN-----	2.5V to 5.5V
All other pins -----	0-5.5V
Junction Temperature Range -----	-40°C to 125°C
Ambient Temperature Range -----	-40°C to 85°C



Electrical Characteristics

($V_{IN} = 5V$, $C_L = 1\mu F$, per channel, $T_A = 25^\circ C$ unless otherwise specified)

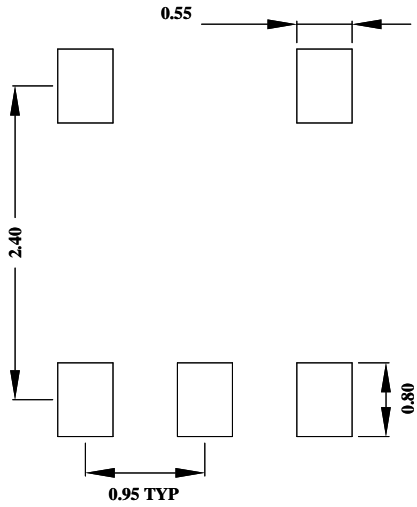
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Voltage Range	V_{IN}		2.5		5.5	V
Shutdown Input Current	I_{SHDN}	Open load, switch off		0.1	1	μA
		Output grounded, switch off		0.1	1	μA
Quiescent Supply Current	I_Q	Open load, switch on		35		μA
FET $R_{DS(ON)}$	$R_{DS(ON)}$	SOT23-5, $V_{IN} = 5V$ $I_{OUT} = 0.5A$	60	65	75	$m\Omega$
Current Limit	I_{LIM}	SY6288C20/D20	2.2	3.0	3.8	A
Fold back Current	I_{FBC}	$V_{IN} > 3.5V$, $V_{OUT} < 1V$		2.1	2.8	A
EN/ \overline{EN} Threshold	Logic-Low Voltage	V_{IL}			0.5	V
	Logic-High Voltage	V_{IH}	$V_{IN} = 5V$, $T_A = 25^\circ C$	1.5		
$V_{IN} = 3.3V$, $T_A = 25^\circ C$			1.35			V
IN UVLO Threshold	$V_{IN,UVLO}$				2.45	V
IN UVLO Hysteresis	$V_{IN,HYS}$			0.1		V
Rise Time	T_{RISE}	$V_{IN} = 3.3V$, $R_L = 3\Omega$, $C_L = 1\mu F$	1.4	1.9	2.5	ms
		$V_{IN} = 5.0V$, $R_L = 5\Omega$, $C_L = 1\mu F$	2.2	3.0	3.8	ms
OCB Low Resistance	R_{OCB}			10		Ω
OCB Delay Time	T_{OCB_Delay}			15		ms
OUT Shutdown Discharge Resistance	R_{DIS}		80	90	100	Ω
Thermal Shutdown Temperature	T_{SD}			150		$^\circ C$
Thermal Shutdown Hysteresis	T_{HYS}			20		$^\circ C$
Short Circuit Response Time	T_{SC}			2		us

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.

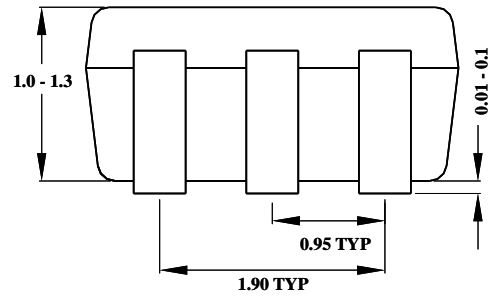
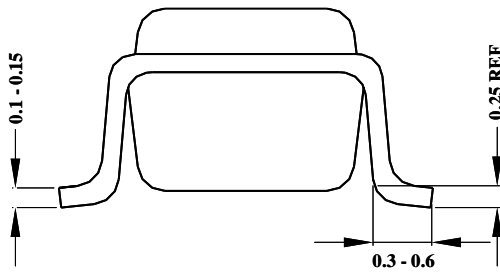
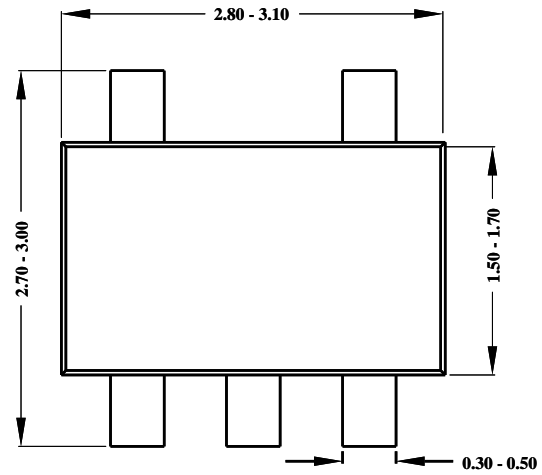
Note 2: θ_{JA} is measured in the natural convection at $T_A = 25^\circ C$ on Silergy Evaluation Board.

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

SOT23-5 Package outline & PCB layout design



Recommended Pad Layout

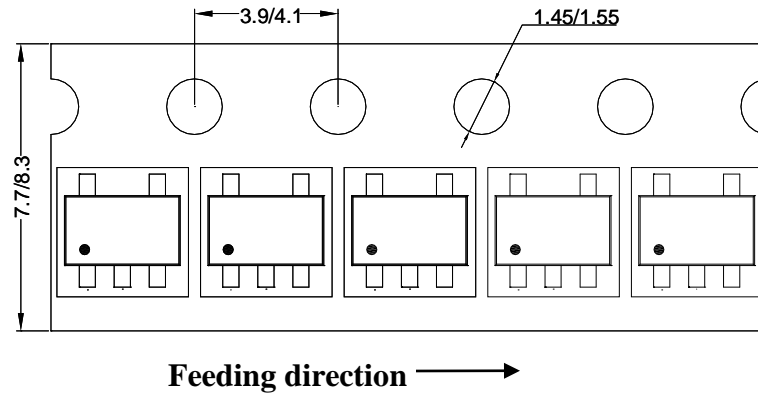


**Notes: All dimensions are in millimeters.
All dimensions don't include mold flash & metal burr.**

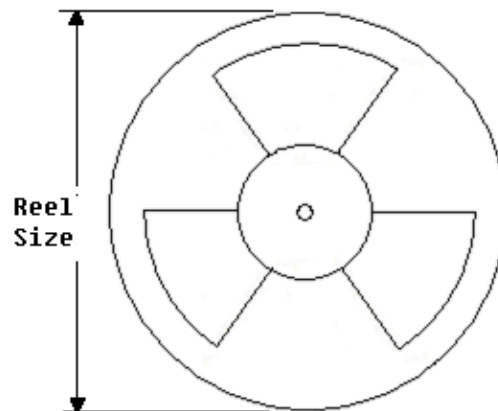
Taping & Reel Specification

1. Taping orientation

SOT23-5



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
SOT23-5	8	4	7"	280	160	3000

3. Others: NA