



SY6288C7/D7

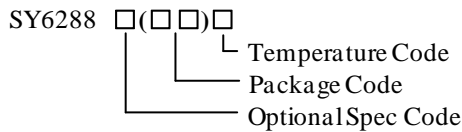
Low Loss Power Distribution Switch



General Description

SY6288C7/D7 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

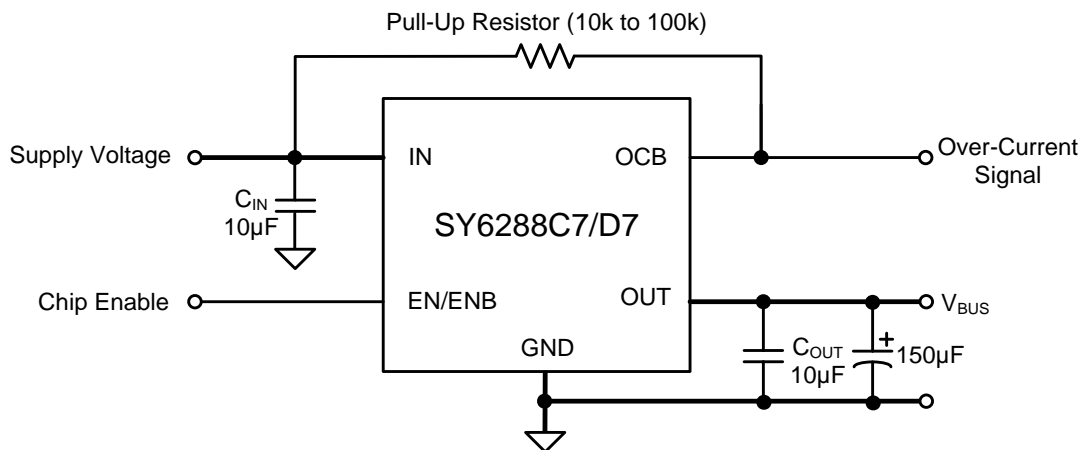


Ordering Number	Package Type
SY6288C7AAC	SOT23-5
SY6288D7AAC	SOT23-5

Features

- Distribution Voltages: 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 if Over Current, Thermal Shut Down, Reverse Blocking Happens
- Automatic Output Discharge at Shutdown
- Built-in Softstart
- 0.4ms Rise Time
- RoHS Compliant and Halogen Free
- Two Enable Polarities
 - SY6288C7: Active High/2.5A
 - SY6288D7: Active Low/2.5A
- Compact Packages Minimize Board Space: SOT23-5
- UL Certification NO. E491480

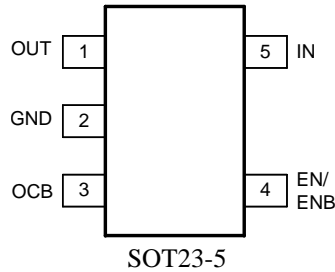
Typical Application Circuit



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

Note: A low-ESR 150µF aluminum electrolytic or tantalum between OUT and GND is strongly recommended.

Pinout(Top View)



Part Number	Package type	Top Mark ^①
SY6288C7AAC	SOT23-5	Pt .xyz
SY6288D7AAC	SOT23-5	Pw .xyz

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

Functional Pin Description

Pin Name	Pin Number (SOT23-5)	Pin Description
IN	5	Input pin.
GND	2	Ground pin.
OUT	1	Output pin.
EN- SY6288C7 ENB- SY6288D7	4	ON/OFF control. Do not leave it float. EN: high enable. ENB: low enable.
OCB	3	Open drain fault flag.

Absolute Maximum Ratings (Note 1)

IN, OUT, OCB	-0.3V to 6V
EN/ENB	-0.3V to $V_{IN}+0.3V$
Power Dissipation, P_d @ $T_A = 25^\circ C$ SOT23-5	0.6W
Package Thermal Resistance (Note 2)	
SOT23-5, θ_{JA}	100°C/W
SOT23-5, θ_{JC}	30°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	2.5V to 5.5V
EN/ENB	0V to V_{IN}
OUT, OCB	0 to 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)

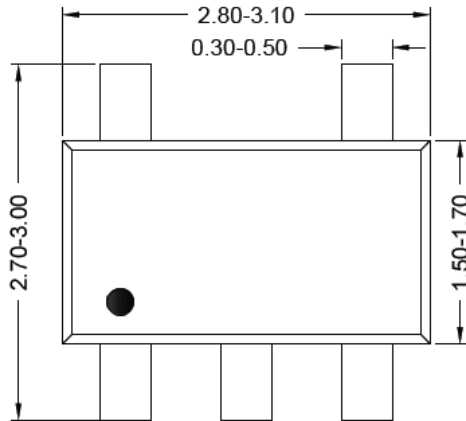
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Voltage Range	V_{IN}		2.5		5.5	V
Shutdown Input Current	I_{SHDN}	Open load, switch off		0.1	1	μA
		Output grounded, switch off		0.1	1	μA
Quiescent Supply Current	I_Q	Open load, switch on		32		μA
FET RON	$R_{DS(ON)}$		50	63	75	m Ω
Current Limit	I_{LIM}		2.7	3.55	4.4	A
Short Circuit Output Current	I_{OS}	SY6288C7/D7, OUT connected to GND device enabled	1.2	1.8	2.4	A
EN/ \overline{EN} Threshold	Logic-Low Voltage	V_{IL}			0.8	V
	Logic-High Voltage	V_{IH}	1.75			V
IN UVLO Threshold	$V_{IN,UVLO}$				2.4	V
IN UVLO Hysteresis	$V_{IN,HYS}$			0.1		V
Turn-ON Time	t_{ON}	$R_L = 5\ \Omega$, $C_L = 1\mu F$		400		μs
OCB Low Resistance	R_{OCB}			10		Ω
OCB Delay Time	t_{OCB_Delay}			10		ms
OUT Shutdown Discharge Resistance	R_{DIS}			10		Ω
Thermal Shutdown Temperature	T_{SD}			150		$^\circ C$
Thermal Shutdown Hysteresis				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.

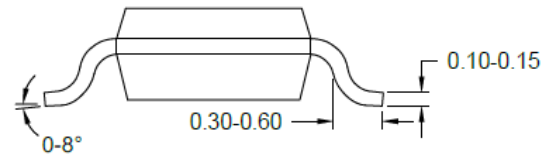
Note 2: θ_{JA} is measured in the natural convection at $T_A = 25^\circ C$ on Silergy evaluation board.

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

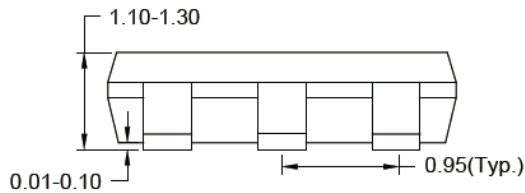
SOT23-5 Package Outline & PCB Layout



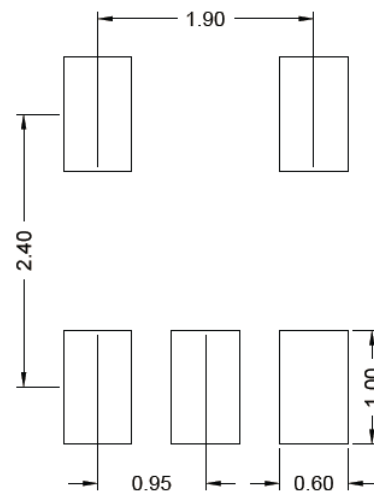
Top view



Side view



Front view



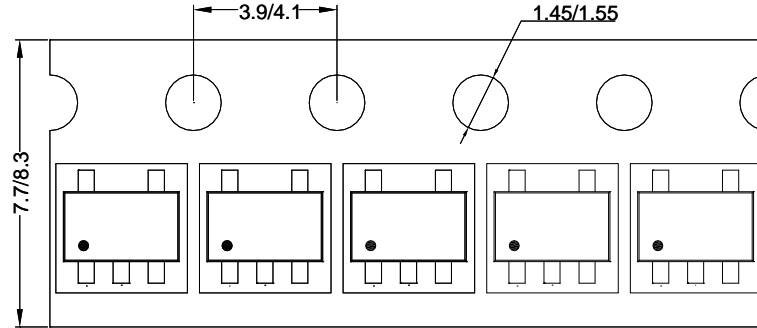
Recommended Pad Layout

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

Taping & Reel Specification

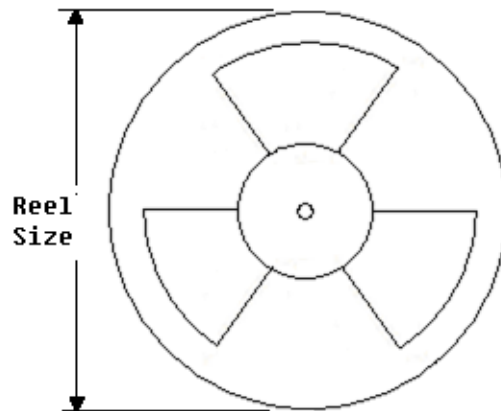
1. Taping Orientation

SOT23-5



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
SOT23-5	8	4	7"	280	160	3000

3. Others: NA