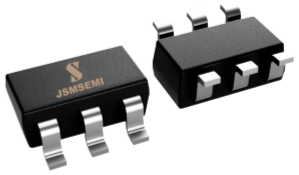
1 Description

The JSM27511 single-channel, high-speed, low side gate-driver device can effectively drive MOSFET and IGBT power switches.

The JSM27511 are capable of sourcing and sinking high peak-current pulses into capacitive loads offering rail to rail drive capability and extremely small propagation delay.It can workin the temperature range of -40°C to 125°C .



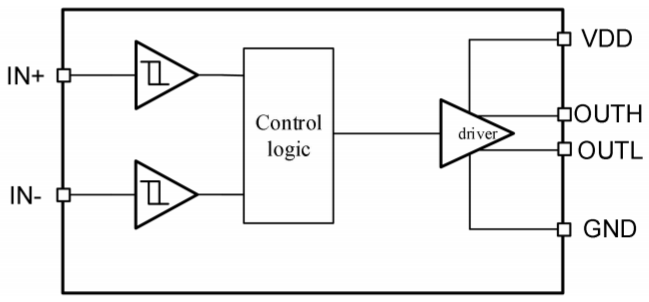
2 Features

- Dual Input Design (Choice of an Inverting (IN- pin) or Non-inverting (IN+ pin) Driver Configuration)
  – Unused Input Pin Can Be Used for Enable or Disable Function
- TTL and CMOS Compatible Input-Logic Threshold
- 4.5 to 25-V Single-Supply Range
- Operating Temperature Range of -40 to 125ºC
- -10 to 25-V Input Voltage Range
- Undervoltage Lockout
  -- Undervoltage Lockout turn-on threshold 4.3V
  -- Undervoltage Lockout turn-off threshold 4.1V
- Turn on/Turn off Delays:
  -- Ton/Toff =30ns/30ns
- 4-A Peak Source and Sink-Drive Current
- SOT23-6 Package

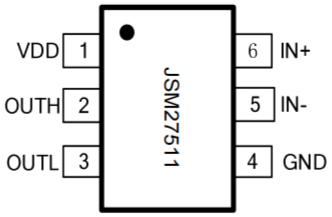
3 Applications

- Switch-Mode Power Supplies
- DC-to-DC Converters
- Companion Gate-Driver Devices for Digital Power Controllers
- Solar Power, Motor Control, UPS
- GaN Gate Driver

Pin Configuration



4 Pin Configuration and Functions



6-Pin SOT23 Package Top View

Pin Functions

1	VDD	Bias supply input
2	OUTH	Sourcing current output of driver
3	OUTL	Sinking current output of driver
4	GND	Ground: All signals are referenced to this pin.
5	IN-	Inverting Input
6	IN+	Non-inverting Input

5 Specifications

5.1 Absolute Maximum Ratings

Stresses beyond those listed under Absolute Maximum Ratings may cause permanent damage to the device. All voltages are with respect to GND unless otherwise noted, Currents are positive into, negative out of the specified terminal, environment temperature is 25 ℃.

Symbol	Definition	MIN	MAX	UNIT
VDD	Supply voltage range	-0.3	25	V
V_{IN}	INA, INB voltage	-10	20	

5.2 ESD Ratings

Symbol	Definition	MIN	MAX	UNIT
ESD	Human body model (HBM)	-4000	4000	V
	Charged device model (CDM)	-1000	1000	V

5.3 Power Ratings

Symbol	Definition	MIN	MAX	UNIT
P_D	SOT23 package power(TA≤70°C)	—	0.4	W

5.4 Thermal Information

Symbol	Definition	MIN	MAX	UNIT
T_J	Operating junction temperature	-40	+140	°C
T_S	Storage temperature	-65	+150	

5.5 Recommended Operating Conditions

To properly operate, device should be used in the following recommended conditions. All voltages are with respect to GND unless otherwise noted, Currents are positive into, negative out of the specified terminal, environment temperature is 25 ℃.

Symbol	Definition	MIN	MAX	UNIT
VDD	Supply voltage range	4.5	20	V
T_C	ambient temperature	-40	125	°C

5.6 Electrical Characteristics

VDD= 15V, -40℃≤TJ≤140℃ (unless otherwise noted)

Symbol	Definition	MIN	TYP	MAX	UNIT
V_{IH}	Input signal high threshold	2.4	—	—	V
V_{IL}	Input signal low threshold	—	—	0.8	V
UVDDH	Undervoltage Lockout (UVLO) turn-on threshold VDD	—	4.3	—	V
UVDDL	Undervoltage Lockout (UVLO) turn-off threshold VDD	—	4.1	—	V
I_{IN}	Input current(0V≤V_{IN}≤V_{CC})	—	—	200	μA
V_{OH}	High output voltage	V_{CC}–0.025	—	—	V
V_{OL}	Low output voltage	—	—	0.025	V
I_{PK+}	Peak output source current	—	4	—	A
I_{PK-}	Peak output sink current	—	4	—	A
t_R	Rise time(C_{LOAD}=1nF)	—	10	15	ns
t_F	Fall time(C_{LOAD}=1nF)	—	8	13	ns
t_{ON}	Turn-on propagation delay(C_{LOAD}=1nF)	—	30	50	ns
t_{OFF}	Turn-off propagation delay(C_{LOAD}=1nF)	—	30	50	ns
I_{Q1}	VDD quiescent supply current(V_{IN+}=0V，V_{IN-}=5V)	—	300	500	μA
I_{Q0}	VDD quiescent supply current(V_{IN+}=5V，V_{IN-}=0V)	—	300	500	μA

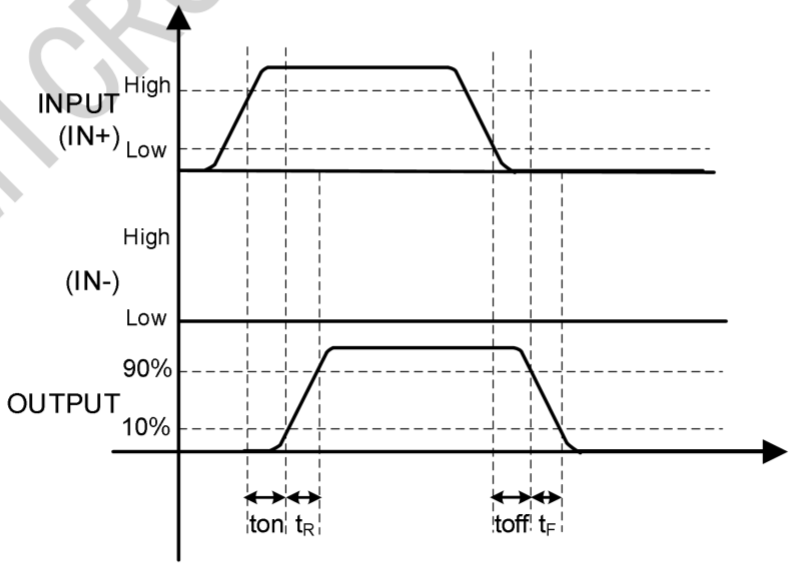


Figure 1 Input-Output waveform(non-inverting)

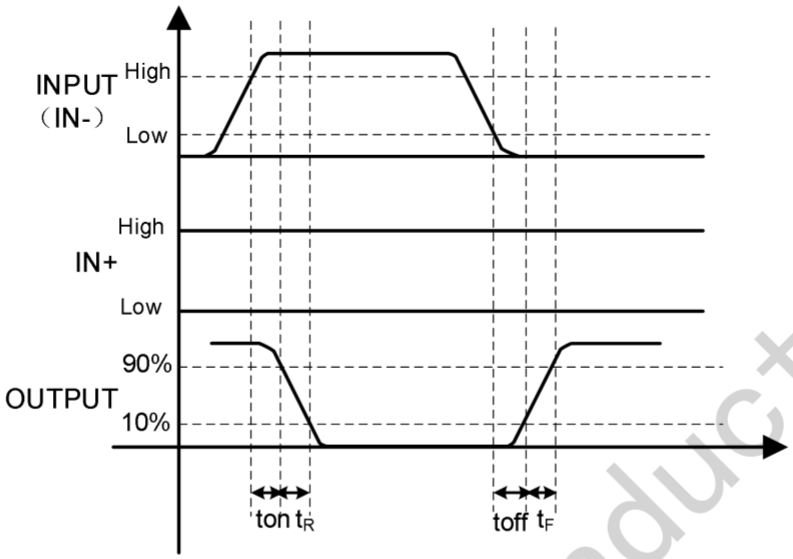
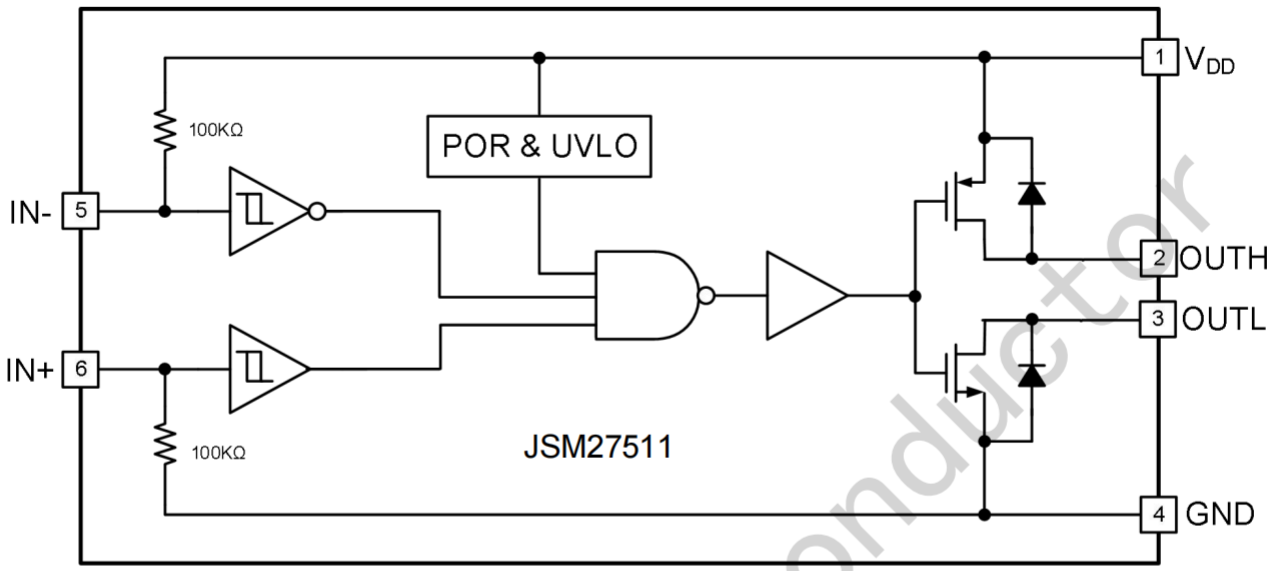


Figure 2 Input-Output waveform(inverting)

6 Detailed description

6.1 Functional Block Diagram



6.2 Typical Application

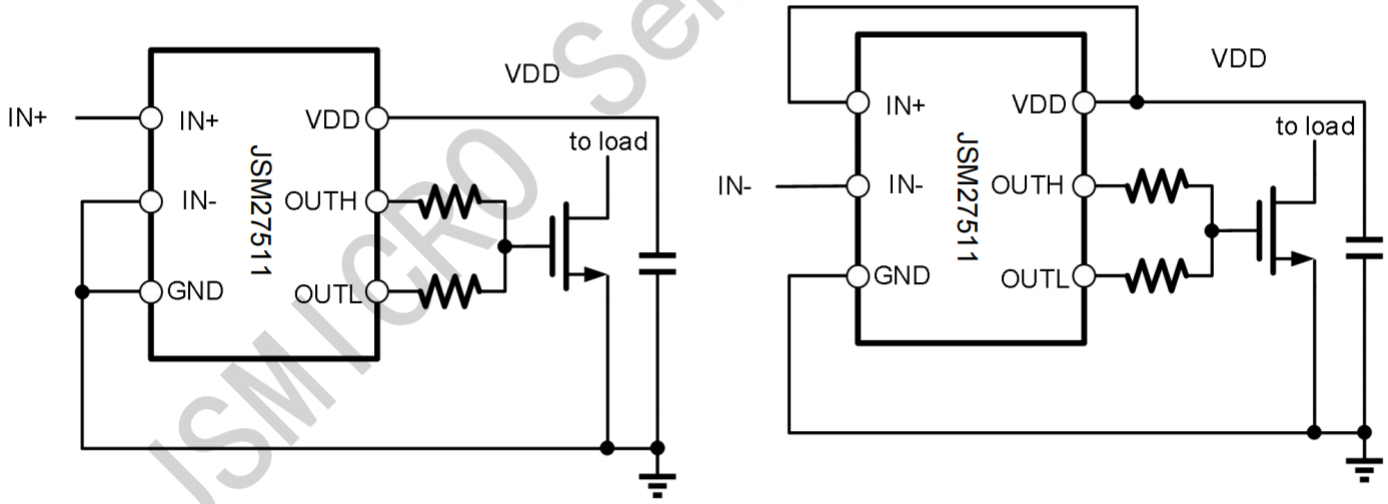
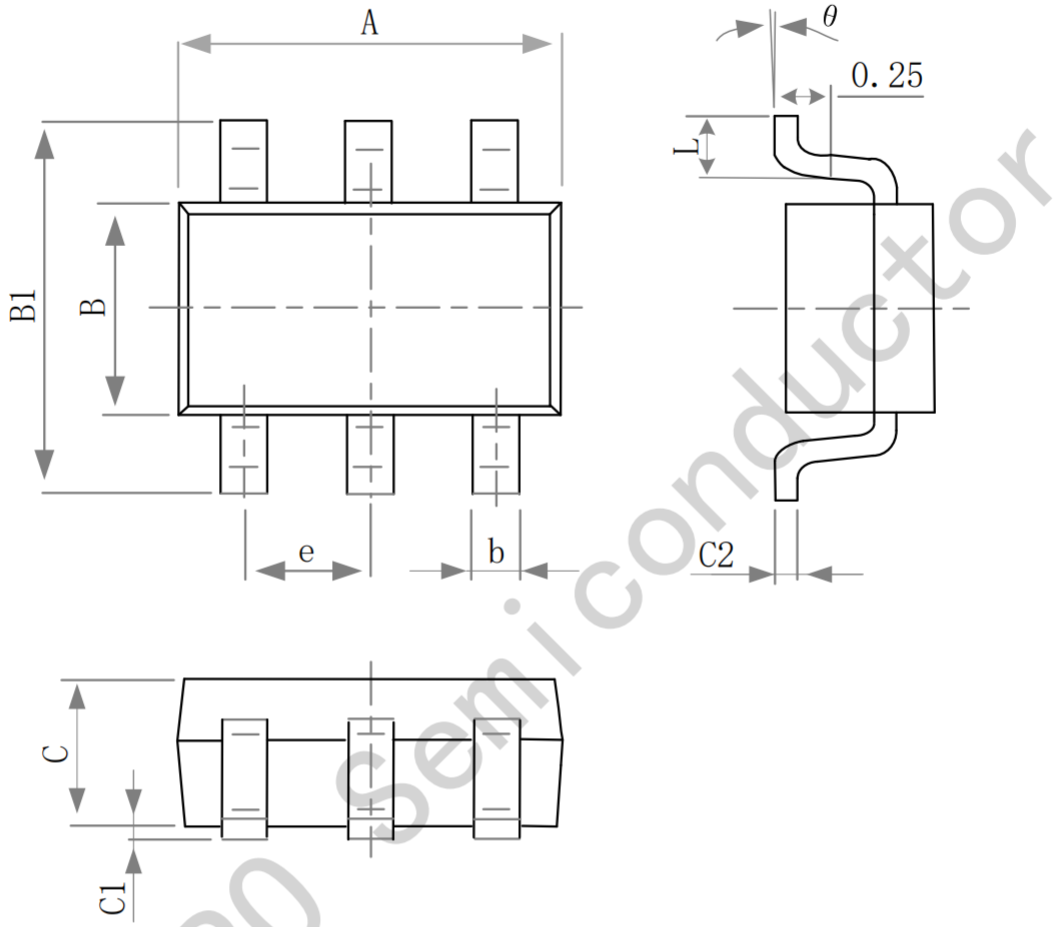


Figure 3 Typical Application Diagram of JSM27511

7 PACKAGING INFORMATION

SOT23-6 Package Outlines



SOT23-6 Package Dimensions

尺寸 / 标注	最小(mm)	最大(mm)	尺寸 / 标注	最小(mm)	最大(mm)
A	2.82	3.02	C	1.05	1.15
e	0.95（BSC）		C1	0.03	0.15
b	0.28	0.45	C2	0.12	0.23
B	1.50	1.70	L	0.35	0.55
B1	2.60	3.00	θ	0°	8°