UMW UCC27511DBVR

Single-Channel 4A Peak High-speed Low side Gate Driver

1.Description

The UMW UCC27511DBVR single-channel, high-speed, low side gate-driver device can effectively drive MOSFET and IGBT power switches.

The UMW UCC27511DBVR are capable of sourcing and sinking high peak-current pulses into capacitive loads offering rail to rail drive capability and extremely small propagation delay.

2.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

3.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
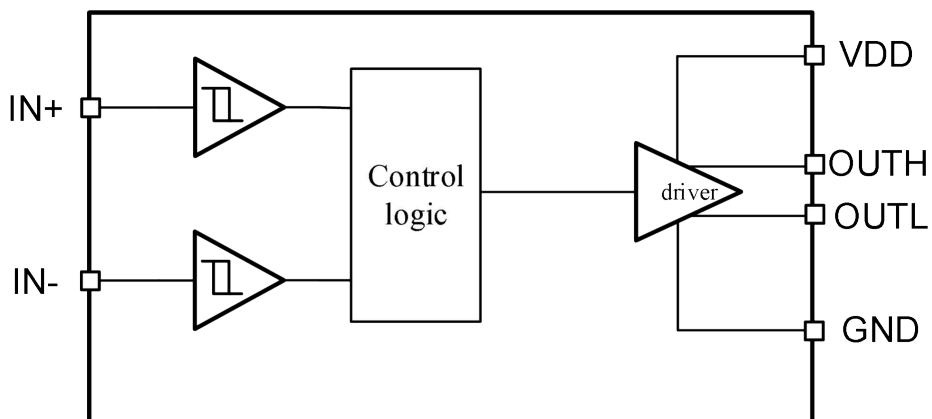- Operating Temperature Range of -40 to 125°C

- -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
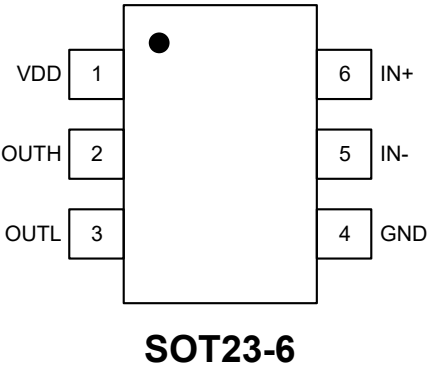 4-A Peak Source and Sink-Drive Current

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4.Pin Configuration

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Single-Channel 4A Peak High-speed Low side Gate Driver

5.Pinning Information

SOT23-6

Lead Definitions

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

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6.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°C.

Parameter	Symbol	Min	Max	Units
Supply voltage range	VDD	-0.3	25	V
INA, INB voltage	V_{IN}	0	20	V
Human body model (HBM)	ESD	-4000	4000	V
Charged device model (CDM)		-1000	1000	V
SOIC package power (T_A ≤70°C)	P_D		0.4	W
Operating junction temperature	T_J	-40	140	°C
Storage temperature	T_S	-65	150	°C

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7.Electrical Characteristics

VDD=15V, -40°C≤T_J≤140°C (unless otherwise noted)

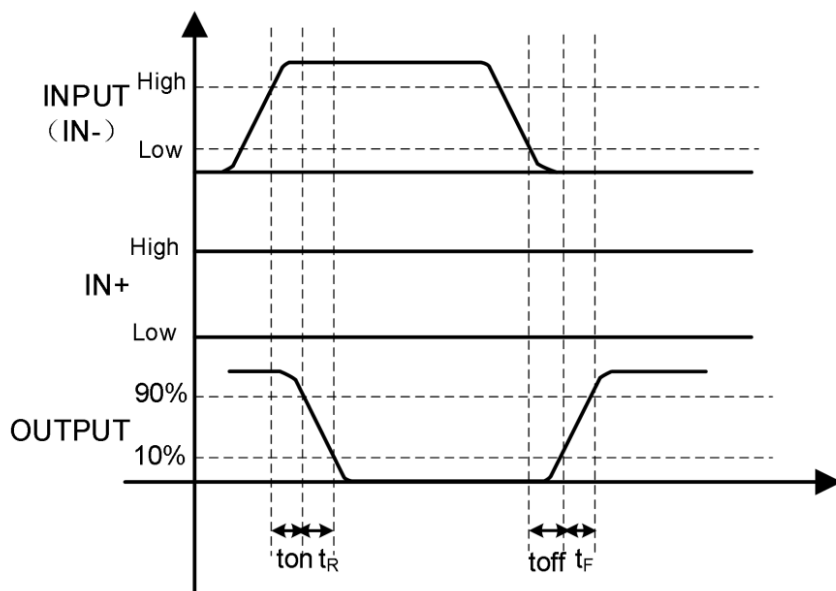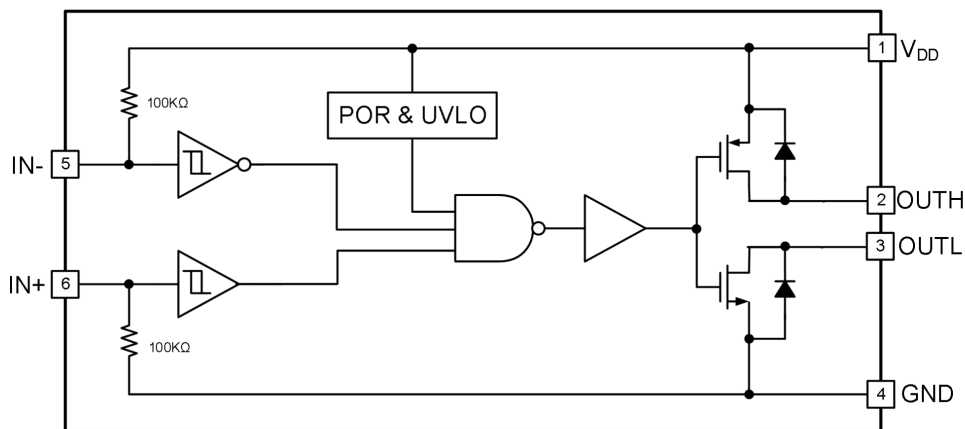| Parameter	Symbol	Condition	Min	Typ	Max	Units
Input signal high threshold	V_{IH}		2.4			V
Input signal low threshold	V_{IL}				0.8	V
Undervoltage Lockout (UVLO) turn-on threshold VDD	UVDDH			4.3		V
Undervoltage Lockout (UVLO) turn-off threshold VDD	UVDDL			4.1		V
Input current	I_{IN}	0V≤V_{IN}≤V_{CC}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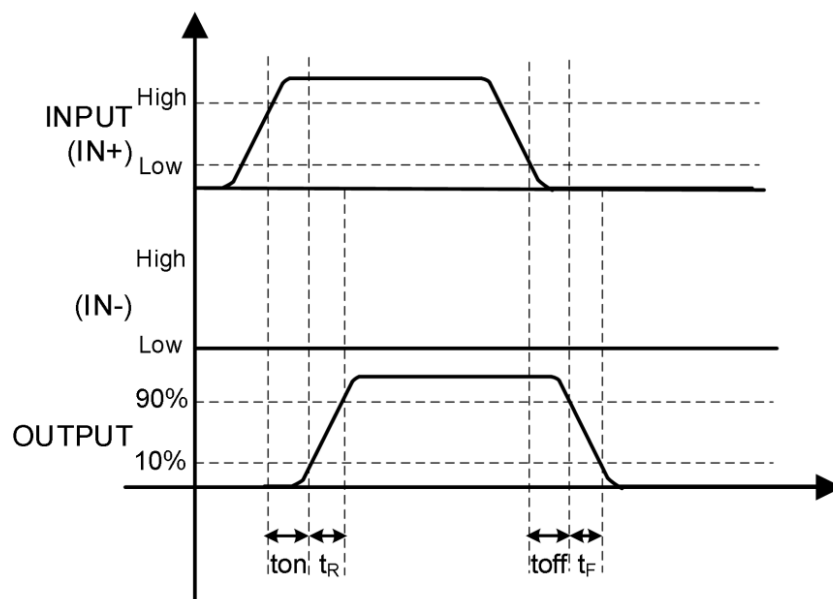
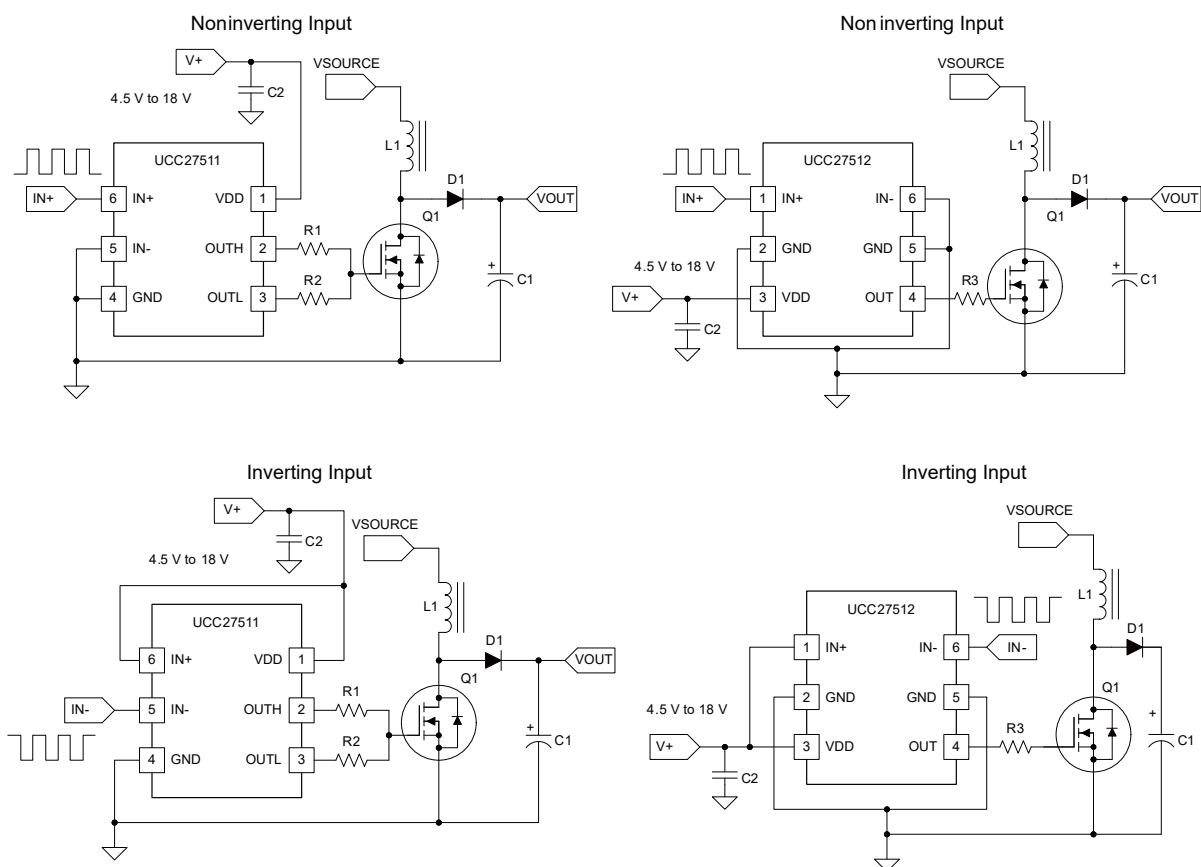Figure 1. Input-Output waveform (non-inverting)

Figure 2. Input-Output waveform (inverting)

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8.Detailed description

9.Typical Application

Noninverting Input

Non inverting Input

Inverting Input

Inverting Input

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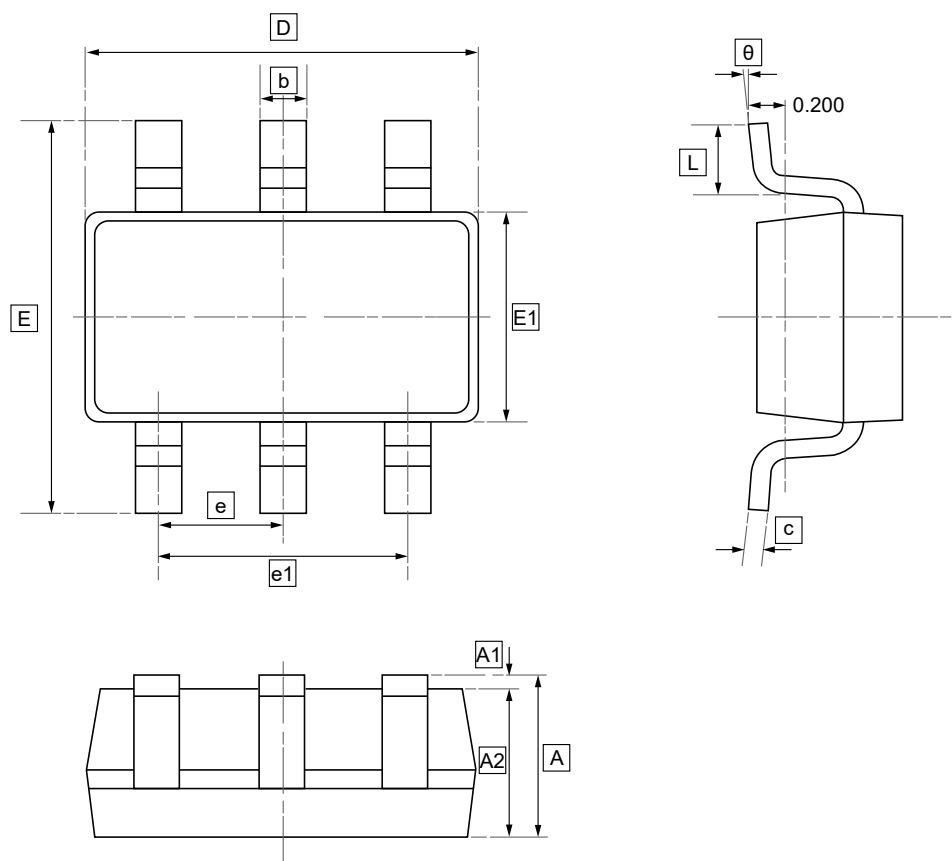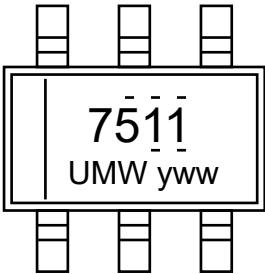## 10.SOT23-6 Package Outline Dimensions

DIMENSIONS (mm are the original dimensions)

Symbol	A	A1	A2	b	c	D	E1	E	e	e1	L	θ
Min	1.050	0.000	1.050	0.300	0.100	2.820	1.500	2.650	0.950	1.800	0.300	0°
Max	1.250	0.100	1.150	0.500	0.200	3.020	1.700	2.950	BSC	2.000	0.600	8°

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11.Ordering information

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         7511
        UMW yww
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yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW UCC27511DBVR	SOT23-6	3000	Tape and reel

12.Disclaimer

UMW reserves the right to make changes to all products, specifications. Customers should obtain the latest version of product documentation and verify the completeness and currency of the information before placing an order.

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