UMW UCC27519DBVR

4A Single-Channel, Low-Side, Non-Inverting Gate Driver

1.Description

The UMW UCC27519 device is a low voltage power MOSFET and IGBT in phase gate driver. Proprietary latch-immune of CMOS technology enables single-chip integrated architectures with high robustness. The UMW UCC27519 logic input level is compatible with CMOS or TTL logic output levels down to 3.3V. The output driver has Internal Undervoltage Lockout (UVLO) circuitry with hysteresis and buffer stage of output current . The UMW UCC27519 is designed to operate over a wide VCC range of -10 V to 25 V and wide temperature range of –40°C to 125°C.

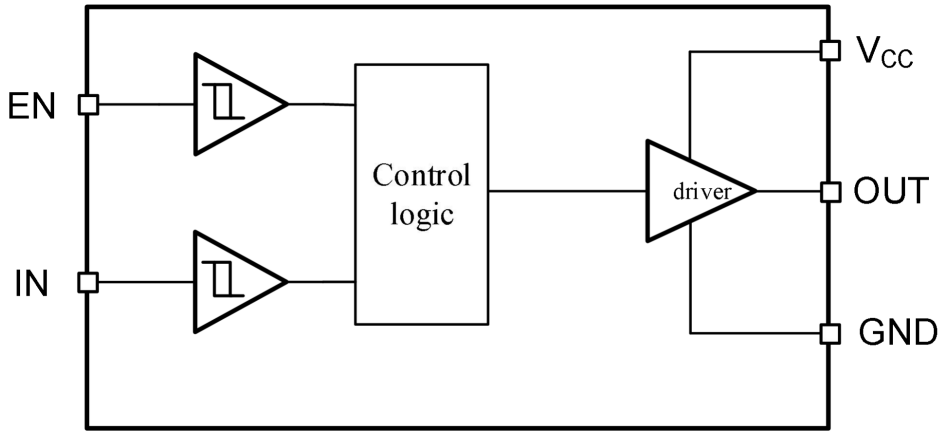
2.Applications

- Switch-Mode Power Supplies
- General Gate Driver
- Driving MOSFETs and IGBTs

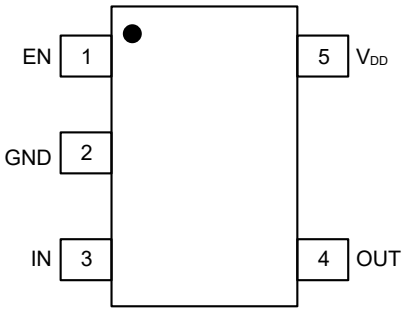
3.Features

- Input output in phase / out of phase
- Compatible with 3.3V, 5V, 15V input logic
- -10 to 25V Single-Supply Range
- High capacitance load driving capability
- Operating Temperature Range of -40 to 125°C
- 4-A Peak Source and Sink-Drive Current
- Undervoltage Lockout
  -- Undervoltage Lockout turn-on threshold 4.5V
  -- Undervoltage Lockout turn-off threshold 4.2V
- Turn on/Turn off Delays:
  -- Ton/Toff =25ns/25ns

4.Pin Configuration



5.Pinning Information



SOT23-5

Pin Functions

Number	Symbol	Description
1	EN	Enable input
2	GND	Ground: All signals are referenced to this pin
3	IN	Logic input
4	OUT	Gate drive output
5	V_{DD}	Bias supply input

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 COM 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	V_{DD}	-0.3	25	V
OUT voltage range	V_O	-0.3	V_{DD}+0.3	V
IN voltage	V_{IN}	0	25	V

7.Thermal Information

Parameter	Symbol	Min	Max	Units
Thermal Resistance	Rth_{JA}		151	°C/W
Storage Temperature	T_S	-55	150	°C
Operating Junction Temperature	T_J		150	°C
Lead Temperature	T_L		300	°C

8.Recommended Operating Conditions

To properly operate, device should be used in the following recommended conditions. All voltages are with respect to COM 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	V_{CC}	5	20	V
OUT voltage range	V_O	0	V_{DD}	V
IN voltage	V_{IN}	0	20	V
Ambient temperature	T_A	-40	125	°C

9.Electrical Characteristics

T_A=25°C, V_{DD}=15V, CL=1nF (unless otherwise noted)

Parameter	Symbol	Min	Typ	Max	Units
Input signal high threshold	V_{IH}	2.7			V
Input signal low threshold	V_{IL}			0.8	V
EN input rising threshold	V_{EN+}	2.5			V
EN input drop threshold	V_{EN-}			0.8	V
Undervoltage Lockout (UVLO) turn-on threshold V_{DD}	V_{DDUV+}		4.5	5	V
Undervoltage Lockout (UVLO) turn-off threshold V_{DD}	V_{DDUV-}		4.2		V
UVLO threshold hysteresis V_{DD}	V_{DDUVHY}		0.3		V
Input current (IN=5V)	I_{IN+}		50	100	μA
Input current (IN= 0V)	I_{IN-}			5	μA
High output voltage	V_{OH}		V_{DD}-0.35		V
Low output voltage	V_{OL}			0.35	V
V_{DD} quiescent supply current	I_Q		280	400	μA
Output high short-circuit pulse current	I_{O+}		4		A
Output low short-circuit pulse current	I_{O-}		4		A
Rise time	t_R		5		ns
Fall time	t_F		4		ns
Turn-on propagation delay	t_{ON}		25		ns
Turn-off propagation delay	t_{OFF}		25		ns

10.Function Description

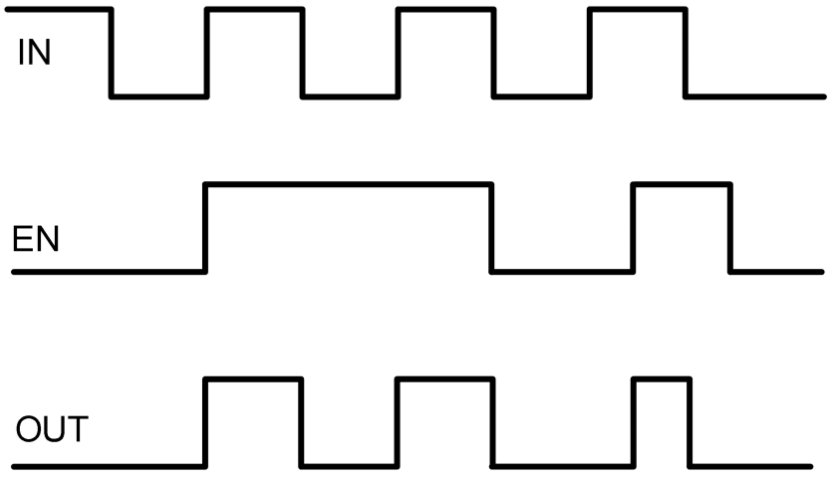


Figure 1. Input-Output waveform

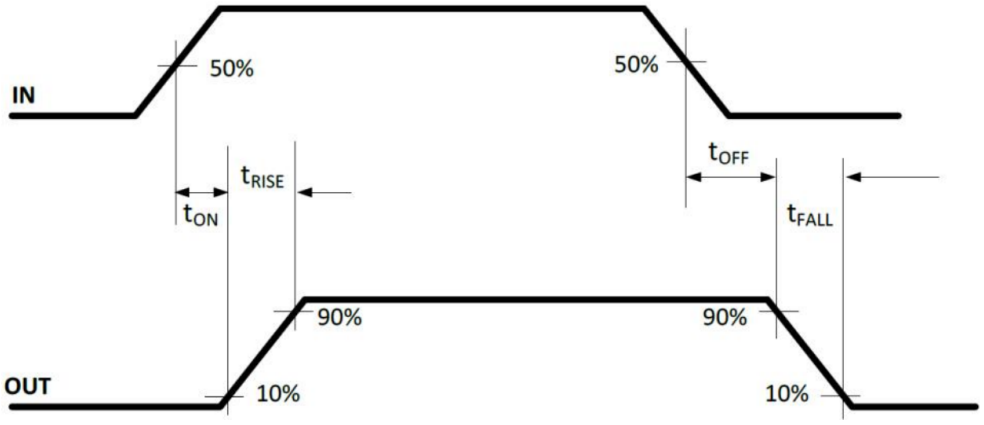


Figure 2. Propagation Time Waveform Definition

11.Function Block Diagram

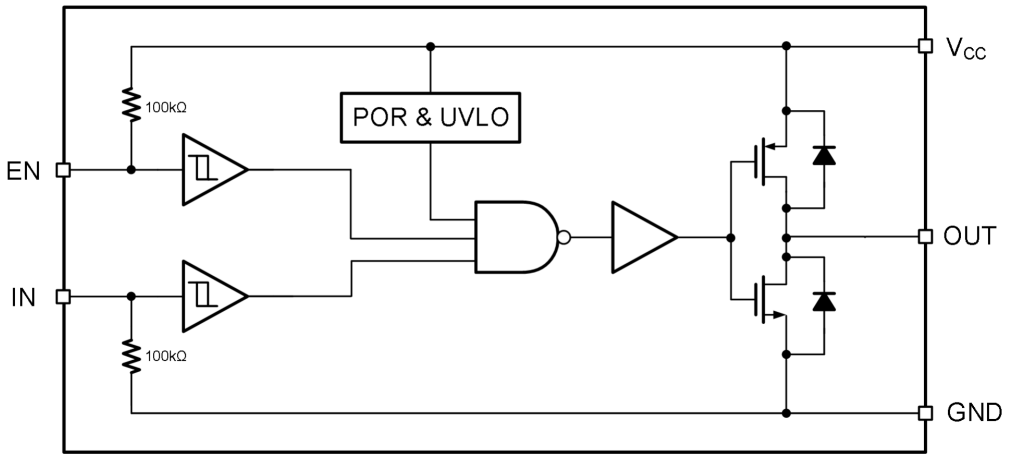


Figure 3. Function Block Diagram of UMW UCC27519DBVR

12.Application Message

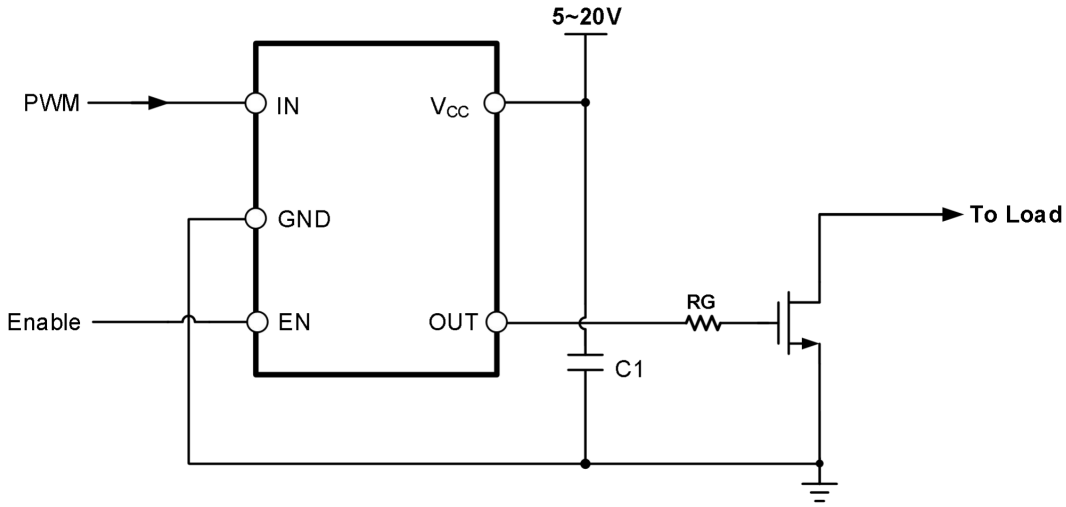
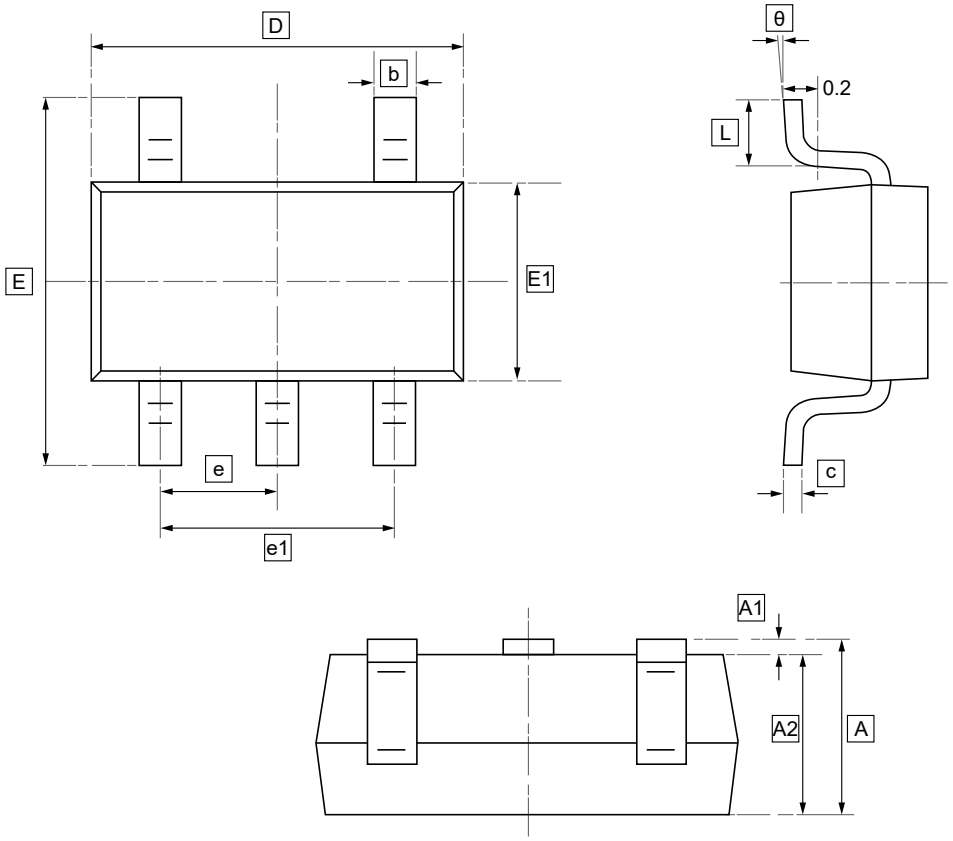


Figure 4. Typical application circuit of UMW UCC27519DBVR

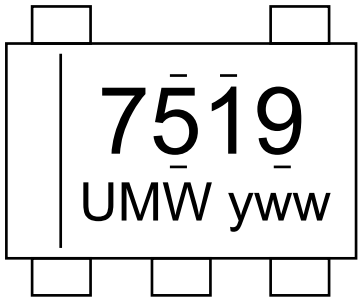
13.SOT23-5 Package Outline Dimensions



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°

14.Ordering information



yww: Batch Code

Order Code	Package	Base QTY	Delivery Mode
UMW UCC27519DBVR	SOT23-5	3000	Tape and reel

15.Disclaimer

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