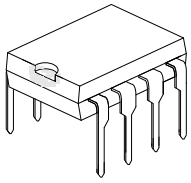
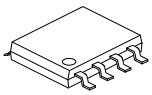
HIGH SIDE DRIVER



DIP-8



SOP-8

■ DESCRIPTION

The **UTR2117** are high voltage, high speed power MOSFET and IGBT driver. Proprietary HVIC and latch immune CMOS technologies enable ruggedized mono-lithic construction. The logic input is compatible with standard CMOS outputs. The output driver features a high pulse current buffer stage designed for minimum cross-conduction. The floating channel can be used to drive an N-channel power MOSFET or IGBT in the high-side or low-side configuration which operates up to 600V.

■ FEATURES

* Floating channel designed for bootstrap operation
* Fully operational to 600V
* Tolerant to negative transient voltage, dV/dt immune
* Gate drive supply range from 10 V to 20V
* Undervoltage lockout
* CMOS Schmitt-triggered inputs with pull-down
* Output in phase with input

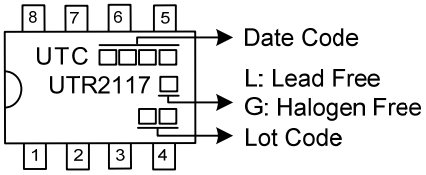
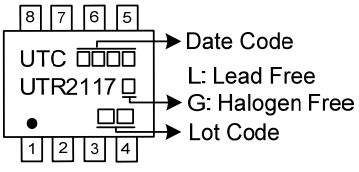
■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
UTR2117L-D08-T	UTR2117G-D08-T	DIP-8	Tube
UTR2117L-S08-R	UTR2117G-S08-R	SOP-8	Tape Reel

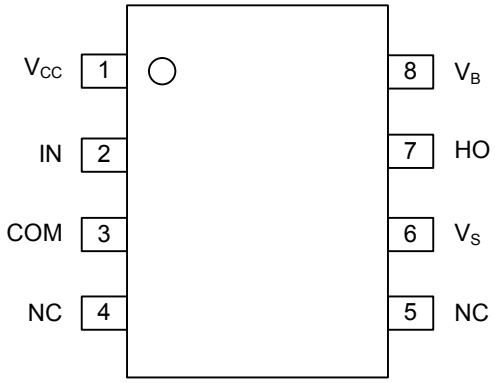
UTR2117G-D08-T
(1)Packing Type
(2)Package Type
(3)Green Package

(1) T: Tube, R: Tape Reel
(2) D08: DIP-8, S08: SOP-8
(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

DIP-8	SOP-8
	

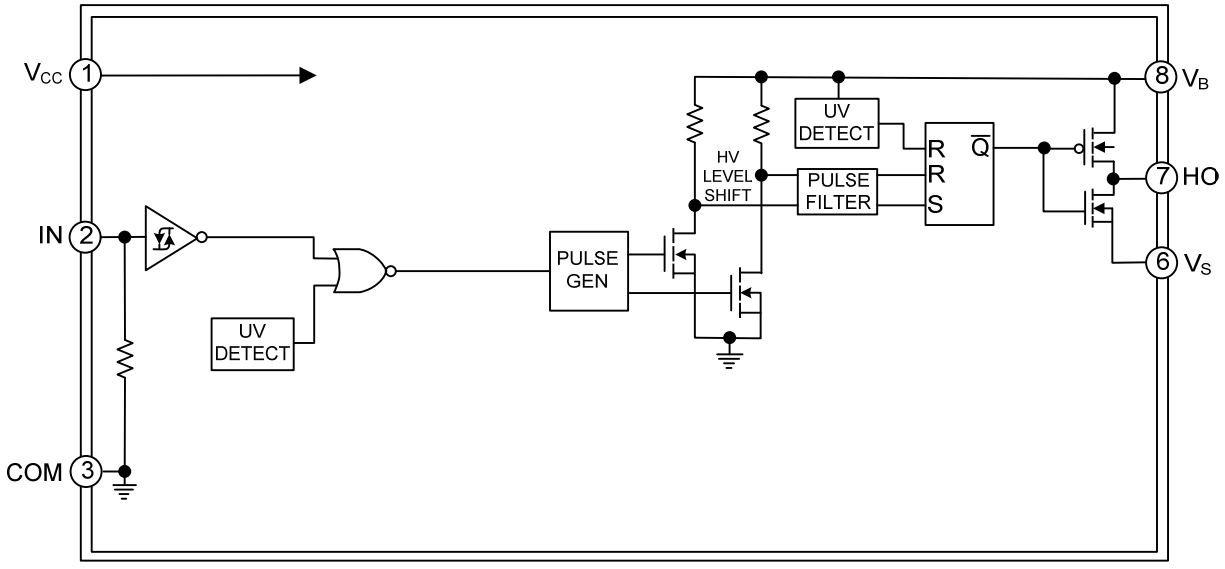
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	V_{CC}	Logic and gate drive supply
2	IN	Logic input for gate driver output (HO), in phase with HO
3	COM	Logic ground
4	NC	No Connect
5	NC	No Connect
6	V_S	High-side floating supply return
7	HO	High-side gate drive output
8	V_B	High-side floating supply

■ BLOCK DIAGRAM



■ ABSOLUTE MAXIMUM RATING (T_A=25°C, unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
High-Side Floating Absolute Voltage		V_B	-0.3 ~ 625	V
High-Side Floating Supply Offset Voltage		V_S	V_B-25 ~ V_B+0.3	V
High-Side Floating Output Voltage		V_{HO}	V_S-0.3 ~ V_S+0.3	V
Low-Side and logic Fixed Supply Voltage		V_{CC}	-0.3 ~ 25	V
Logic Input Voltage (HIN &LIN)		V_{IN}	-0.3 ~ V_{CC}+0.3	V
Allowable Offset Supply Voltage Transient		dVs/dt	50	V
Power Dissipation	DIP-8	P_D	1	W
	SOP-8		0.83	W
Maximum Junction Temperature		T_J	+150	°C
Maximum Storage Temperature Range		T_{STG}	-55 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. All voltage parameters are absolute voltages referenced to COM. The thermal resistance and power dissipation ratings are measured under board mounted and still air conditions.

■ RECOMMENDED OPERATING RATINGS

(For proper operation, the device should be used within the recommended conditions. The V_S offset ratings are tested with all supplies biased at 15V differential.)

PARAMETER	SYMBOL	RATINGS	UNIT
High-Side Floating Absolute Voltage	V_B	V_S+10 ~ V_S+20	V
High-Side Floating Supply Offset Voltage	V_S	600 (Note 1)	V
Transient High side floating supply offset voltage	V_{ST}	-50 (Note 2) ~ 600	V
High-Side Floating Output Voltage	V_{HO}	V_S ~ V_B	V
Low-Side and logic Fixed Supply Voltage	V_{CC}	10 ~ 20	V
Logic Input Voltage (HIN &LIN)	V_{IN}	0 ~ V_{CC}	V
Ambient Temperature	T_A	-40 ~ +125	°C

Notes: 1. Logic operational for V_S of -5V to +600V. Logic state held for V_S of -5V to -V_{BS}.

2. Operational for transient negative VS of COM - 50 V with a 50 ns pulse width. Guaranteed by design. Refer to the Application Information section of this datasheet for more details.

■ THERMAL DATA

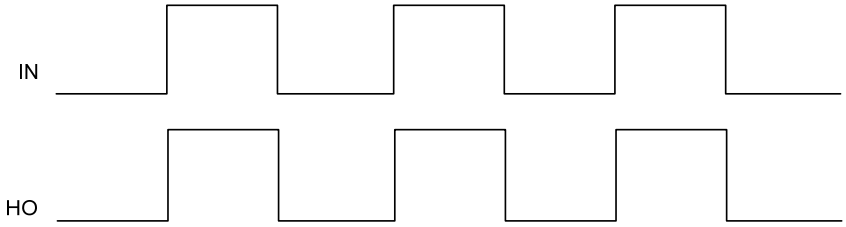
PARAMETER		SYMBOL	RATINGS	UNIT
Junction to Ambient	DIP-8	θ_{JA}	125	°C/W
	SOP-8		150	°C/W

■ ELECTRICAL CHARACTERISTICS

[V_{BIAS} (V_{CC}, V_{BS})=15V and T_A=25°C unless otherwise specified. The V_{IN}, V_{TH}, and IIN parameters are referenced to COM. The V_O and I_O parameters are referenced to COM and are applicable to the respective output leads: HO or LO.]

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Turn-ON Propagation Delay	t_{on}	V_S=0V, C_L=1000pF		125	200	ns
Turn-OFF Propagation Delay	t_{OFF}	V_S=600V, C_L=1000pF		105	180	ns
Turn-ON Rise Time	t_r	C_L=1000pF		75	130	ns
Turn-OFF Fall Time	t_f	C_L=1000pF		35	65	ns
Logic “1” (HIN) & Logic “0” (LIN) Input Voltage	V_{IH}	V_{CC}=10V~20V	9.5			V
Logic “0” (HIN) & Logic “1” (LIN) Input Voltage	V_{IL}				6	V
High level Output Voltage, V_{BIAS} - V_O	V_{OH}	I_O=2mA		0.05	0.2	V
Low Level Output Voltage, V_O	V_{OL}			0.02	0.1	V
Offset Supply Leakage Current	I_{LK}	V_B=V_S=600V			50	μA
Quiescent V_{BS} Supply Current	I_{QBS}	V_{IN}=0V or V_{CC}		50	240	μA
Quiescent V_{CC} Supply Current	I_{QCC}			70	340	μA
Logic “1” Input Bias Current	IIN_+	V_{IN}= V_{CC}		20	40	μA
Logic “0” Input Bias Current	IIN_-	V_{IN}=0V			5	μA
V_{BS} Supply Undervoltage Positive Going Threshold	V_{BSUV+}		7.6	8.6	9.6	V
V_{BS} Supply Undervoltage Negative Going Threshold	V_{BSUV-}		7.2	8.2	9.2	V
V_{CC} Supply Undervoltage Positive Going Threshold	V_{CCUV+}		7.6	8.6	9.6	V
V_{CC} Supply Undervoltage Negative Going Threshold	V_{CCUV-}		7.2	8.2	9.2	V
Output High Short Circuit Pulsed Current	I_{O+}	V_O=0V	200	290		mA
Output Low Short Circuit Pulsed Current	I_{O-}	V_O=15V	420	600		mA

■ TIMING DIAGRAM



■ TYPICAL APPLICATION CIRCUIT