



UTR2117

Advance

LINEAR INTEGRATED CIRCUIT

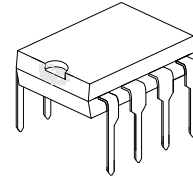
HIGH SIDE DRIVER

DESCRIPTION

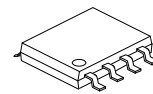
The **UTR2117** are high voltage, high speed power MOSFET and IGBT driver. Proprietary HVIC and latch immune CMOS technologies enable ruggedized mono-lithic construction. The logic input is compatible with standard CMOS outputs. The output driver features a high pulse current buffer stage designed for 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 10V to 20V
- * Undervoltage lockout
- * CMOS Schmitt-triggered inputs with pull-down
- * Output in phase with input



DIP-8

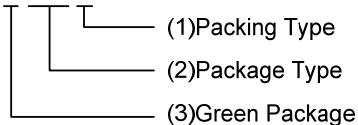


SOP-8

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

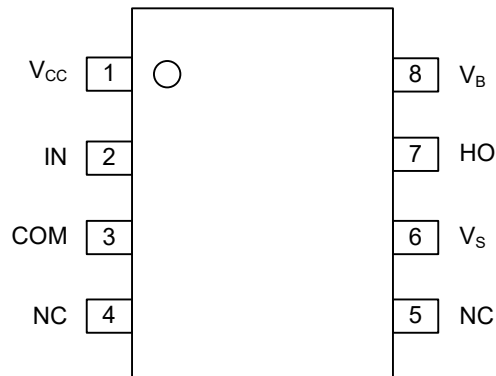


- (1) T: Tube, R: Tape Reel
(2) D08: DIP-8, S08: SOP-8
(3) G: Halogen Free and Lead Free, L: Lead Free

MARKING

DIP-8	SOP-8
<p>8 7 6 5 UTC UTR2117 1 2 3 4</p> <p>→ Date Code → L: Lead Free → G: Halogen Free → Lot Code</p>	<p>8 7 6 5 UTC UTR2117 1 2 3 4</p> <p>→ Date Code → L: Lead Free → G: Halogen Free → Lot Code</p>

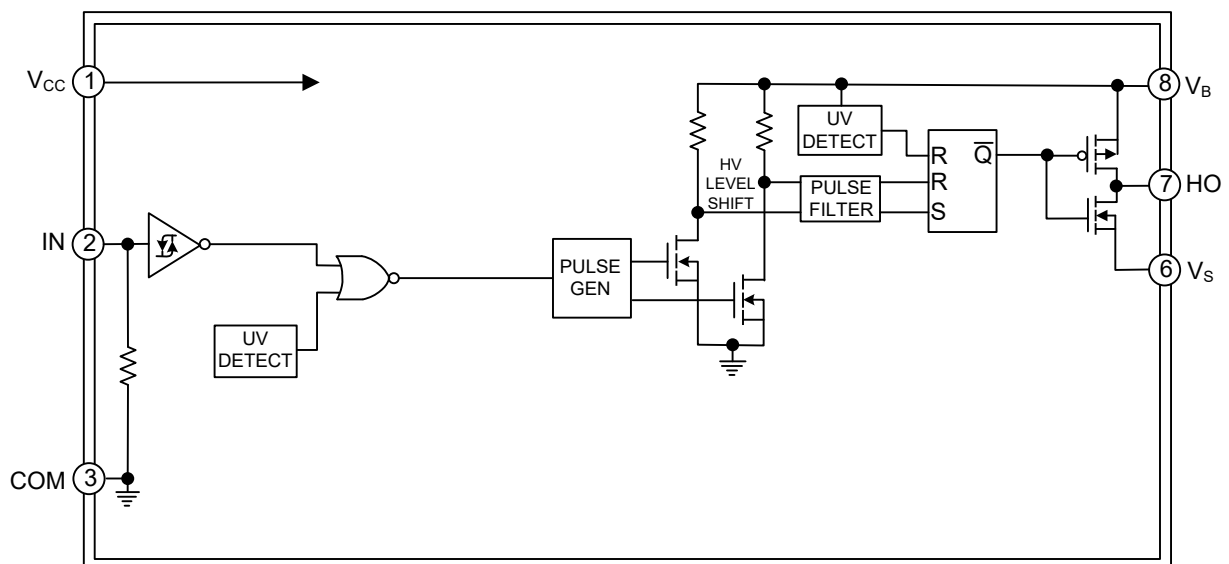
PIN CONFIGURATION



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 _B +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	dV _S /dt	50	V/ns
Power Dissipation	DIP-8	P _D	1
	SOP-8		0.625
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 V_S 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

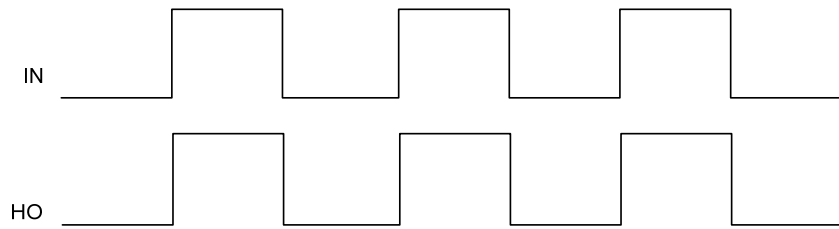
PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	DIP-8	θ _{JA}	125
	SOP-8		200

■ ELECTRICAL CHARACTERISTICS

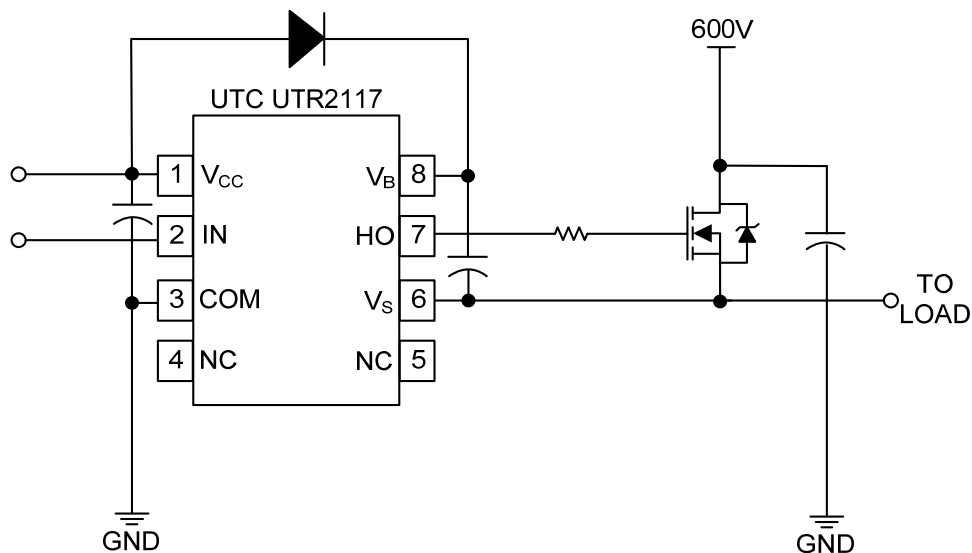
[V_{BIAS} (V_{CC} , V_{BS})=15V and $T_A=25^{\circ}C$ unless otherwise specified. The V_{IN} , V_{TH} , and I_{IN} parameters are referenced to COM. The V_O and I_O parameters are referenced to COM and are applicable to the respective output leads: HO or LO.]

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}	$V_{CC}=10V\sim 20V$	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	I_{IN+}	$V_{IN}=V_{CC}$		20	40	μA
Logic "0" Input Bias Current	I_{IN-}	$V_{IN}=0V$			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



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.