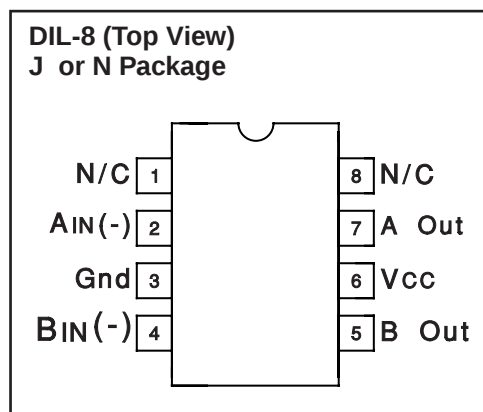


Dual Ultra High-Speed FET Driver

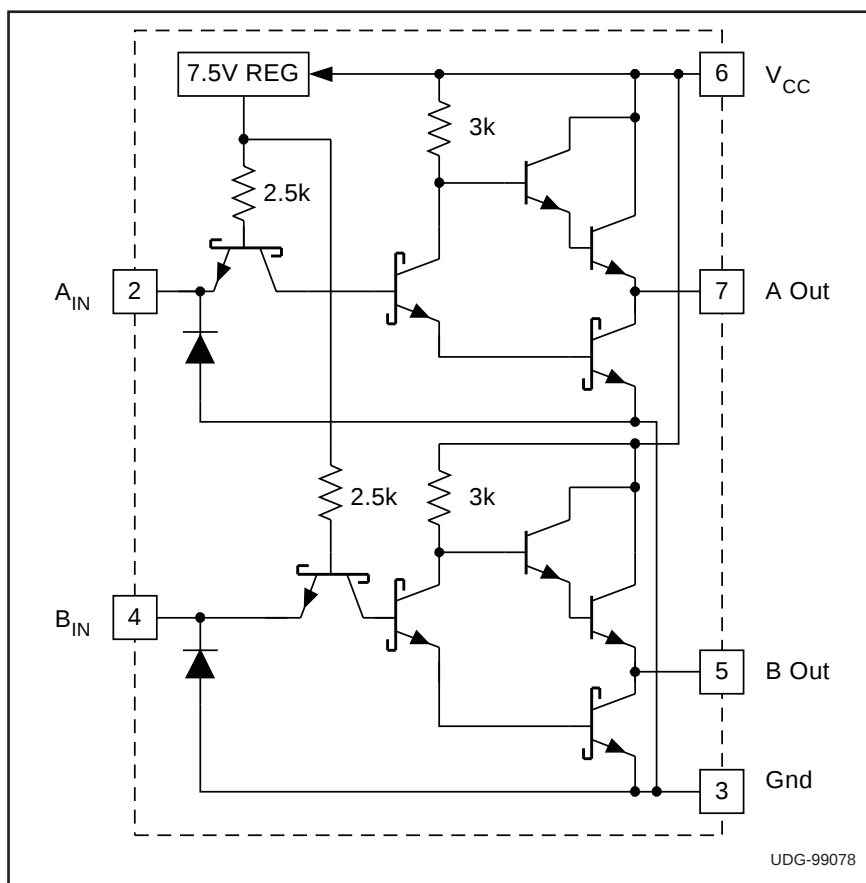
FEATURES

- 25ns Rise and Fall into 1000pF
- 15ns Propagation Delay
- 1.5A Source or Sink Output Drive
- Operation with 5V to 35V Supply
- High-Speed Schottky NPN Process
- 8-PIN MINIDIP Package

CONNECTION DIAGRAM



BLOCK DIAGRAM



DESCRIPTION

The UC1711 family of FET drivers are made with an all-NPN Schottky process in order to optimize switching speed, temperature stability, and radiation resistance. The cost for these benefits is a quiescent supply current which varies with both output state and supply voltage. For lower power requirements, refer to the the UC1709 family which is both pin compatible with, and functionally equivalent to the UC1711.

These devices implement inverting logic with TTL compatible inputs, and output stages which will either source, or sink in excess of 1.5A of load current with minimal cross-conduction charge. Due to their monolithic construction, the channels are well matched and can be paralleled for doubled output current capability.

ABSOLUTE MAXIMUM RATINGS

Input Supply Voltage, V_{CC}	40V
Output Current (Source or Sink)	
Steady State	$\pm 500\text{mA}$
Peak Transient	$\pm 1.5\text{A}$
Maximum Forced Voltage	-0.3V to 7V
Maximum Forced Current	$\pm 10\text{mA}$
Power Dissipation	1W
Operating Junction Temperature	-55°C to +150°C
Storage Temperature	-65°C to +150°C

Note 1: Unless otherwise indicated, voltages are reference to ground and currents are positive into, negative out of, the specified terminals. All reliability information for this device has been gathered at an ambient air temperature of 125°C, and a supply voltage of 25V.

Note 2: Consult Unitrode databook for information regarding thermal specifications and limitations of packages.

ORDERING INFORMATION

	TEMPERATURE RANGE	PACKAGE
UC1711J	-55°C to +125°C	Ceramic DIP
UC3711J	0°C to +70°C	Ceramic DIP
UC3711N	0°C to +70°C	Plastic DIP

ELECTRICAL CHARACTERISTICS: Unless otherwise stated, $V_{CC} = 15V$. $T_A = T_J$.

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Input Supply					
Supply Current (Note 3)	Both inputs = 0V; $V_{CC} = 15V$		11	15	mA
	Both inputs = 5V; $V_{CC} = 15V$		20	27	mA
	Both inputs = 0V; $V_{CC} = 35V$		15	20	mA
	Both inputs = 5V; $V_{CC} = 35V$		41	56	mA
Logic Inputs					
Logic 0 Input Voltage				0.8	V
Logic 1 Input Voltage		2.2			V
Input Current	$V_{IN} = 0V$	-5.0	-2.7		mA
	$V_{IN} = 5V$		0.5	2.0	mA
Output Stages					
Output High Level	$I_{SOURCE} = 20mA$, below V_{CC}		1.5	2.0	V
	$I_{SOURCE} = 200mA$, below V_{CC}		2.0	3.0	V
Output Low Level	$I_{SINK} = 20mA$		.25	0.4	V
	$I_{SINK} = 200mA$		0.4	1.0	V
Switching Characteristics (Note 4)					
Rise Time Delay, TPLH	$C_{LOAD} = 0$		10	40	ns
	$C_{LOAD} = 1000pF$, (Note 5)		15	50	ns
	$C_{LOAD} = 2200pF$		20	55	ns
Fall Time Delay, TPLH	$C_{LOAD} = 0$		3	20	ns
	$C_{LOAD} = 1000pF$, (Note 5)		5	20	ns
	$C_{LOAD} = 2200pF$		5	20	ns
Rise Time, TLH	$C_{LOAD} = 0$, (Note 5)		12	25	ns
	$C_{LOAD} = 1000pF$, (Note 5)		25	40	ns
	$C_{LOAD} = 2200pF$		40	55	ns
Fall Time, THL	$C_{LOAD} = 0$, (Note 5)		7	15	ns
	$C_{LOAD} = 1000pF$, (Note 5)		25	40	ns
	$C_{LOAD} = 2200pF$		40	55	ns
Total Supply Current	Freq = 200kHz, 50% Duty-cycle Both Channels Switching				
	$C_{LOAD} = 0$		17	23	mA
	$C_{LOAD} = 2200pF$		29	35	mA

Note 3: Supply currents at other input supply votages can be calculated by extrapolating the 15V and 35V supply currents. The impedance of the chip at the V_{CC} pin is linear for supply voltages from 8V to 35V, the approximate value of this impedance is 4.3k for both inputs low, 0.94k for both inputs high, and 1.54k for one input high and one low.

Note 4: Switching test conditions are, $V_{CC} = 15V$, Input voltage waveform levels are 0V and 5V, with transition times of <3ns. The timing terms are defined as : TPLH Propagation delay 50% V_{IN} to 90% V_{OUT} ; TPLH Propogation delay 50% V_{IN} to 10% V_{OUT} ; THL 90% V_{OUT} to 10% V_{OUT} ; TLH 10% V_{OUT} to 90% V_{OUT} .

Note 5: This specification not tested in production. Unless otherwise stated specifications hold for $T_A = 0$ to $70^{\circ}C$ for the UC3711, and $T_A = -55$ to $125^{\circ}C$ for the UC1711, $V_{CC} = 15V$. $T_A = T_J$.

PACKAGING INFORMATION

Orderable Device	Status ⁽¹⁾	Package Type	Package Drawing	Pins	Package Qty	Eco Plan ⁽²⁾	Lead/ Ball Finish	MSL Peak Temp ⁽³⁾	Samples (Requires Login)
UC1711J	OBSOLETE	CDIP	J	8		TBD	Call TI	Call TI	Add to cart
UC1711J883B	OBSOLETE	CDIP	J	8		TBD	Call TI	Call TI	Add to cart
UC1711JE	OBSOLETE	CDIP	J	16		TBD	Call TI	Call TI	Add to cart
UC1711JE883B	OBSOLETE	CDIP	J	16		TBD	Call TI	Call TI	Add to cart
UC1711L883B	OBSOLETE	TO/SOT	L	20		TBD	Call TI	Call TI	Add to cart
UC3711N	OBSOLETE	PDIP	P	8		TBD	Call TI	Call TI	Add to cart
UC3711Q	OBSOLETE	PLCC	FN	20		TBD	Call TI	Call TI	Add to cart
UC3711QTR	OBSOLETE	PLCC	FN	20		TBD	Call TI	Call TI	Add to cart

⁽¹⁾ The marketing status values are defined as follows:

ACTIVE: Product device recommended for new designs.

LIFEBUY: TI has announced that the device will be discontinued, and a lifetime-buy period is in effect.

NRND: Not recommended for new designs. Device is in production to support existing customers, but TI does not recommend using this part in a new design.

PREVIEW: Device has been announced but is not in production. Samples may or may not be available.

OBSOLETE: TI has discontinued the production of the device.

⁽²⁾ Eco Plan - The planned eco-friendly classification: Pb-Free (RoHS), Pb-Free (RoHS Exempt), or Green (RoHS & no Sb/Br) - please check <http://www.ti.com/productcontent> for the latest availability information and additional product content details.

TBD: The Pb-Free/Green conversion plan has not been defined.

Pb-Free (RoHS): TI's terms "Lead-Free" or "Pb-Free" mean semiconductor products that are compatible with the current RoHS requirements for all 6 substances, including the requirement that lead not exceed 0.1% by weight in homogeneous materials. Where designed to be soldered at high temperatures, TI Pb-Free products are suitable for use in specified lead-free processes.

Pb-Free (RoHS Exempt): This component has a RoHS exemption for either 1) lead-based flip-chip solder bumps used between the die and package, or 2) lead-based die adhesive used between the die and leadframe. The component is otherwise considered Pb-Free (RoHS compatible) as defined above.

Green (RoHS & no Sb/Br): TI defines "Green" to mean Pb-Free (RoHS compatible), and free of Bromine (Br) and Antimony (Sb) based flame retardants (Br or Sb do not exceed 0.1% by weight in homogeneous material)

⁽³⁾ MSL, Peak Temp. -- The Moisture Sensitivity Level rating according to the JEDEC industry standard classifications, and peak solder temperature.

Important Information and Disclaimer: The information provided on this page represents TI's knowledge and belief as of the date that it is provided. TI bases its knowledge and belief on information provided by third parties, and makes no representation or warranty as to the accuracy of such information. Efforts are underway to better integrate information from third parties. TI has taken and continues to take reasonable steps to provide representative and accurate information but may not have conducted destructive testing or chemical analysis on incoming materials and chemicals. TI and TI suppliers consider certain information to be proprietary, and thus CAS numbers and other limited information may not be available for release.

In no event shall TI's liability arising out of such information exceed the total purchase price of the TI part(s) at issue in this document sold by TI to Customer on an annual basis.

OTHER QUALIFIED VERSIONS OF UC1711, UC3711 :

- Catalog: [UC3711](#)
- Military: [UC1711](#)

NOTE: Qualified Version Definitions:

- Catalog - TI's standard catalog product
- Military - QML certified for Military and Defense Applications

IMPORTANT NOTICE

Texas Instruments Incorporated and its subsidiaries (TI) reserve the right to make corrections, modifications, enhancements, improvements, and other changes to its products and services at any time and to discontinue any product or service without notice. Customers should obtain the latest relevant information before placing orders and should verify that such information is current and complete. All products are sold subject to TI's terms and conditions of sale supplied at the time of order acknowledgment.

TI warrants performance of its hardware products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are used to the extent TI deems necessary to support this warranty. Except where mandated by government requirements, testing of all parameters of each product is not necessarily performed.

TI assumes no liability for applications assistance or customer product design. Customers are responsible for their products and applications using TI components. To minimize the risks associated with customer products and applications, customers should provide adequate design and operating safeguards.

TI does not warrant or represent that any license, either express or implied, is granted under any TI patent right, copyright, mask work right, or other TI intellectual property right relating to any combination, machine, or process in which TI products or services are used. Information published by TI regarding third-party products or services does not constitute a license from TI to use such products or services or a warranty or endorsement thereof. Use of such information may require a license from a third party under the patents or other intellectual property of the third party, or a license from TI under the patents or other intellectual property of TI.

Reproduction of TI information in TI data books or data sheets is permissible only if reproduction is without alteration and is accompanied by all associated warranties, conditions, limitations, and notices. Reproduction of this information with alteration is an unfair and deceptive business practice. TI is not responsible or liable for such altered documentation. Information of third parties may be subject to additional restrictions.

Resale of TI products or services with statements different from or beyond the parameters stated by TI for that product or service voids all express and any implied warranties for the associated TI product or service and is an unfair and deceptive business practice. TI is not responsible or liable for any such statements.

TI products are not authorized for use in safety-critical applications (such as life support) where a failure of the TI product would reasonably be expected to cause severe personal injury or death, unless officers of the parties have executed an agreement specifically governing such use. Buyers represent that they have all necessary expertise in the safety and regulatory ramifications of their applications, and acknowledge and agree that they are solely responsible for all legal, regulatory and safety-related requirements concerning their products and any use of TI products in such safety-critical applications, notwithstanding any applications-related information or support that may be provided by TI. Further, Buyers must fully indemnify TI and its representatives against any damages arising out of the use of TI products in such safety-critical applications.

TI products are neither designed nor intended for use in military/aerospace applications or environments unless the TI products are specifically designated by TI as military-grade or "enhanced plastic." Only products designated by TI as military-grade meet military specifications. Buyers acknowledge and agree that any such use of TI products which TI has not designated as military-grade is solely at the Buyer's risk, and that they are solely responsible for compliance with all legal and regulatory requirements in connection with such use.

TI products are neither designed nor intended for use in automotive applications or environments unless the specific TI products are designated by TI as compliant with ISO/TS 16949 requirements. Buyers acknowledge and agree that, if they use any non-designated products in automotive applications, TI will not be responsible for any failure to meet such requirements.

Following are URLs where you can obtain information on other Texas Instruments products and application solutions:

Products

Audio	www.ti.com/audio
Amplifiers	amplifier.ti.com
Data Converters	dataconverter.ti.com
DLP® Products	www.dlp.com
DSP	dsp.ti.com
Clocks and Timers	www.ti.com/clocks
Interface	interface.ti.com
Logic	logic.ti.com
Power Mgmt	power.ti.com
Microcontrollers	microcontroller.ti.com
RFID	www.ti-rfid.com
OMAP Mobile Processors	www.ti.com/omap
Wireless Connectivity	www.ti.com/wirelessconnectivity

Applications

Automotive and Transportation	www.ti.com/automotive
Communications and Telecom	www.ti.com/communications
Computers and Peripherals	www.ti.com/computers
Consumer Electronics	www.ti.com/consumer-apps
Energy and Lighting	www.ti.com/energy
Industrial	www.ti.com/industrial
Medical	www.ti.com/medical
Security	www.ti.com/security
Space, Avionics and Defense	www.ti.com/space-avionics-defense
Video and Imaging	www.ti.com/video

TI E2E Community Home Page

e2e.ti.com

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2012, Texas Instruments Incorporated