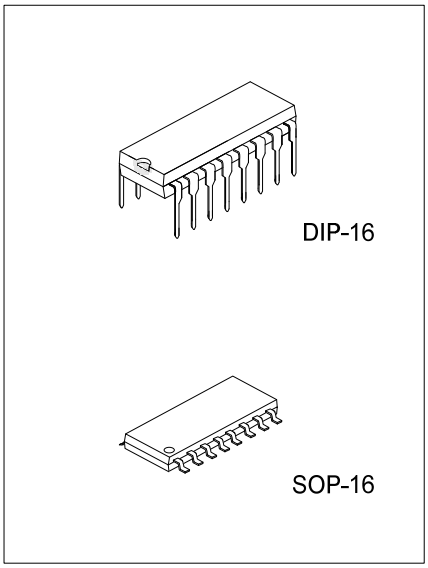
ULN62064

LINEAR INTEGRATED CIRCUIT

PRECISION MICROPOWER SHUNT VOLTAGE REFERENCE



■ DESCRIPTION

The UTC **ULN62064** is high-voltage, high-current darlington drivers comprised of four NPN darlington pairs.

All units feature integral clamp diodes for switching inductive loads.

For proper operation, the substrate (SUB) must be connected to the most negative voltage.

Applications include relay, hammer, lamp and stepping motor drivers.

■ FEATURES

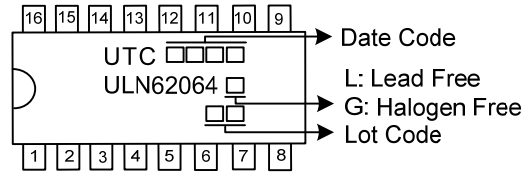
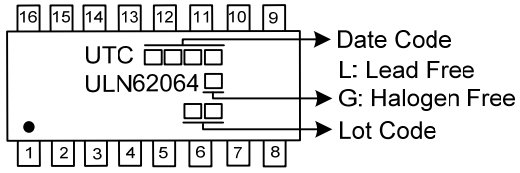
* Output current (single output): 1.5A (Max.)
* High sustaining voltage output: 50V (Min.)
* Output clamp diodes
* Input compatible with TTL and 5V CMOS

■ ORDERING INFORMATION

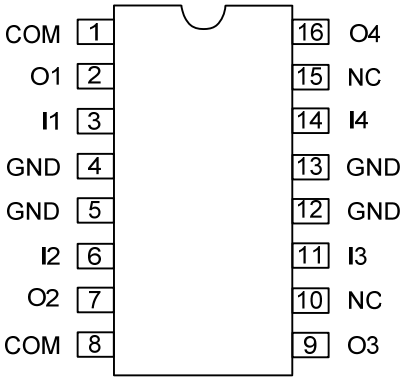
Ordering Number		Package	Packing
Lead Free	Halogen Free		
ULN62064L-D16-T	ULN62064G-D16-T	DIP-16	Tube
ULN62064L-S16-R	ULN62064G-S16-R	SOP-16	Tape Reel

ULN62064G-D16-T (1)Packing Type (2)Package Type (3)Green Package	(1) T: Tube, R: Tape Reel (2) D16: DIP-16, S16: SOP-16 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

DIP-16	SOP-16
	

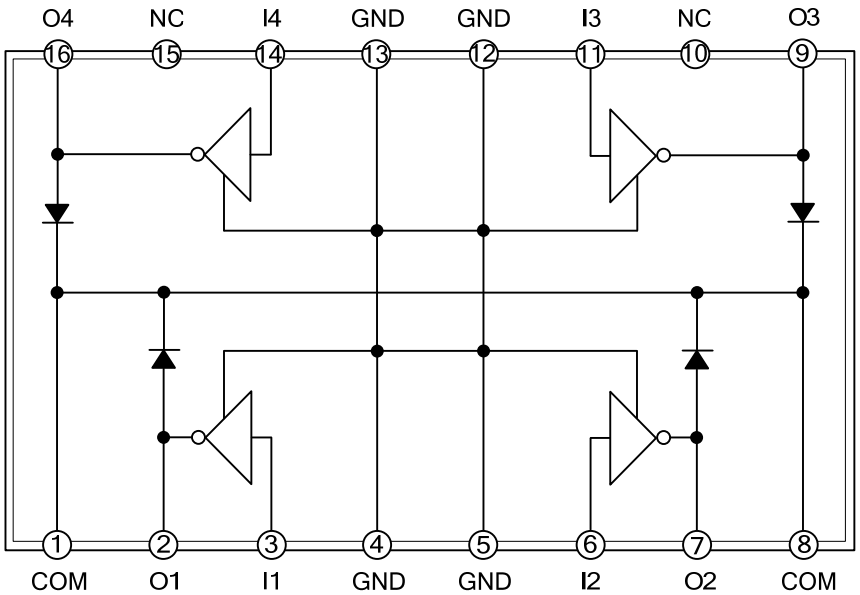
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	COM	Common pin
2	O1	Output pin 1
3	I1	Input pin 1
4	GND	GND pin
5	GND	GND pin
6	I2	Input pin 2
7	O2	Output pin 2
8	COM	Common pin
9	O3	Output pin 3
10	NC	Non-connection pin
11	I3	Input pin 3
12	GND	GND pin
13	GND	GND pin
14	I4	Input pin 4
15	NC	Non-connection pin
16	O4	Output pin 4

■ BLOCK DIAGRAM



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

PARAMETER		SYMBOL	RATINGS	UNIT
Output Sustaining Voltage		$V_{CE\ (SUS)}$	-0.5 ~ 50	V
Output Current		I_{OUT}	1.5	A/ch
Input Current		I_{IN}	50	mA
Input Voltage		V_{IN}	-0.5 ~ 17	V
Clamp Diode Reverse Voltage		V_R	50	V
Clamp Diode Forward Current		I_F	1.5	A
Power Dissipation	DIP-16	P_D	1.47 / 2.7 (Note 2)	W
	SOP-16		0.75	W
Operating Temperature		T_{OPR}	-40 ~ +85	°C
Storage Temperature		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. On Glass Epoxy PCB (50 × 50 × 1.6 mm Cu 50%).

■ OPERATING RANGES (T_A= -40 ~ +85°C, unless other specified)

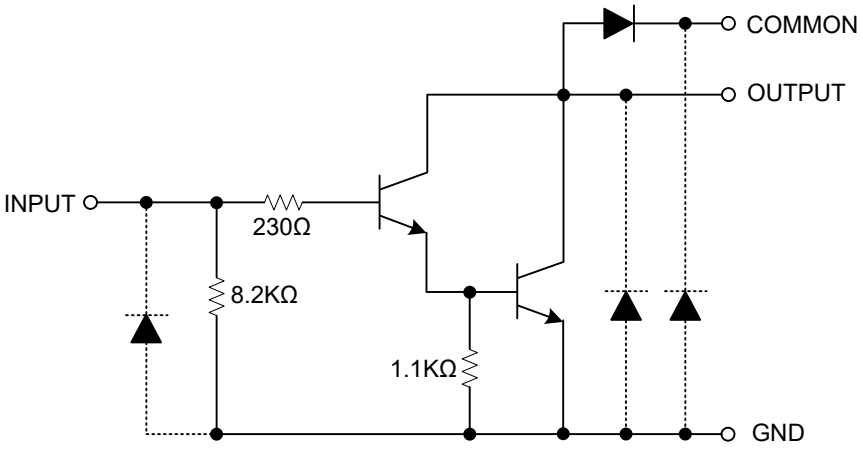
PARAMETER		SYMBOL	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Output Sustaining Voltage		$V_{CE\ (SUS)}$			0		50	V
Output Current (Note)		I_{OUT}	DC1 Circuit, T_A=25°C		0		1250	mA/ch
			t_{PW} = 25ms 4 Circuits T_A = 85°C T_J = 120°C	Duty = 10%	0		1250	mA/ch
				Duty = 50%	0		390	mA/ch
Input Voltage		V_{IN}			0		8	V
Input Voltage (Output On)		$V_{IN\ (ON)}$	I_{OUT} = 1.25A		2.5		8	V
Input Voltage (Output Off)		$V_{IN\ (OFF)}$			0		0.4	V
Input Current		I_{IN}			0		20	mA
Clamp Diode Reverse Voltage		V_R			0		50	V
Clamp Diode Forward Current		I_F					1.25	A
Power Dissipation	DIP-16	P_D	T_A = 85°C (Note 1)				1.4	W
	SOP-16		T_A = 85°C				0.39	W

Note: On Glass Epoxy PCB (50 × 50 × 1.6 mm Cu 50%).

■ ELECTRICAL CHARACTERISTICS (T_A=25°C, unless other specified)

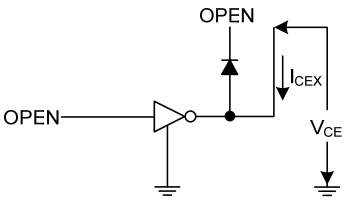
PARAMETER	SYMBOL	TEST CIRCUIT	TEST CONDITIONS		MIN	TYP	MAX	UNIT
Output Leakage Current	I_{CEX}	1	V_{CE}=50V, T_A=25°C				50	μA
			V_{CE}=50V, T_A=85°C				500	μA
Collector-Emitter Saturation Voltage	$V_{CE\ (sat)}$	2	I_{OUT}=1.25A, I_{IN}=2mA				1.6	V
			I_{OUT}=0.75A, I_{IN}=935μA				1.25	V
DC Current Transfer Ratio	h_{FE}	2	V_{CE}=2V	I_{OUT}=1.0A		2500		
				I_{OUT}=1.25A		3000		
Input Voltage (Output On)	$V_{IN\ (ON)}$	3	I_{OUT}=1.25A, I_{IN}=2mA				2.4	V
Clamp Diode Leakage Current	I_R	4	V_R=50V, T_A=25°C				50	μA
			V_R=50V, T_A=85°C				100	μA
Clamp Diode Forward Voltage	V_F	5	I_F=1.25A				2	V
Input Capacitance	C_{IN}	6				15		pF
Turn-On Delay	t_{ON}	7	C_L=15pF, V_{OUT}=50V,R_L=42Ω			0.1		μs
Turn-Off Delay	t_{OFF}	7	C_L=15pF, V_{OUT}=50V, R_L=42Ω			1.0		μs

■ SCHEMATICS (EACH DRIVER)

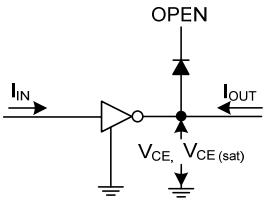


■ TEST CIRCUIT

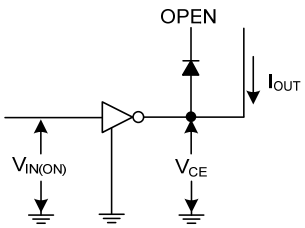
1. I_{CEX}



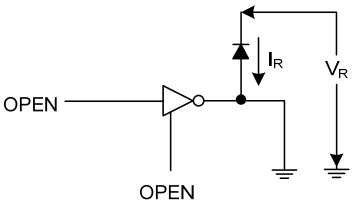
2. $V_{CE\ (sat)}$, h_{FE}



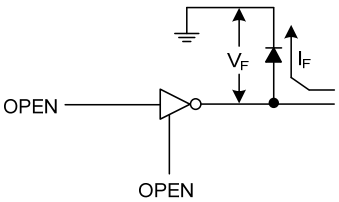
3. $V_{IN\ (ON)}$



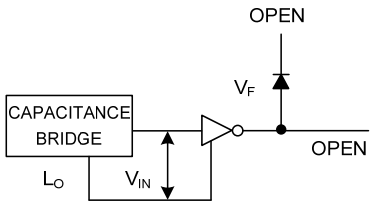
4. I_R



5. V_F

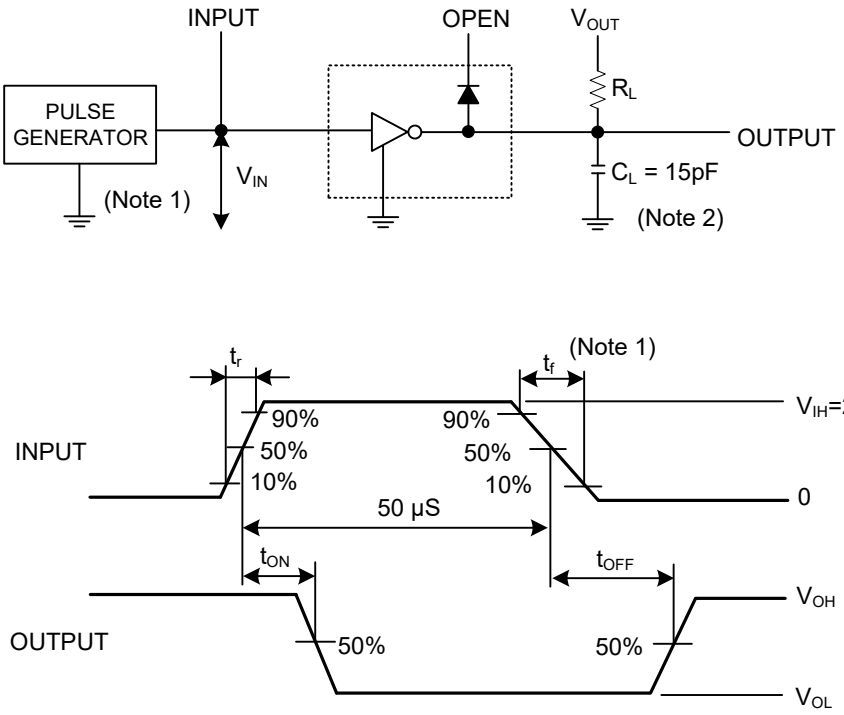


6. C_{IN}



■ TEST CIRCUIT

7. t_{ON}, t_{OFF}



Notes 1: Pulse Width 50µs, Duty Cycle 10%
Output Impedance 50Ω, $t_r \leq 5$ns, $t_f \leq 10$ns
2: C_L includes probe and jig capacitance.