

8-CH Darlington Sink Driver

CH-D3815PB

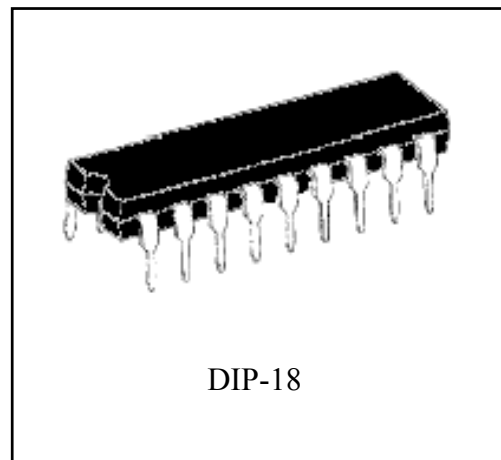
Description

The CH-D3815 is high-voltage, high current darlington drivers comprised of eight NPN darlington pairs.

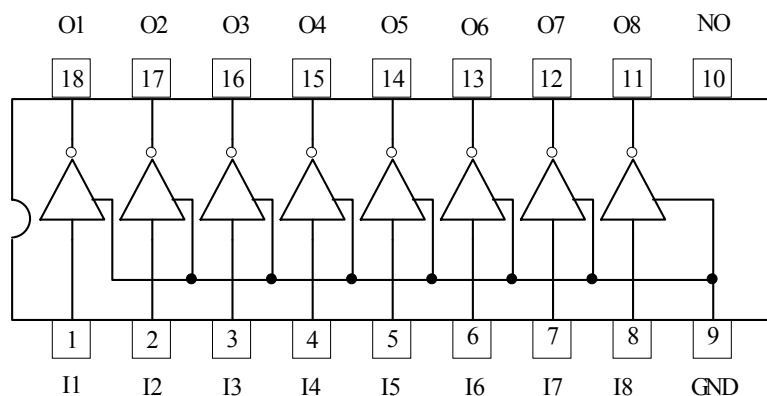
Applications include relay, hammer, lamp and display(LED).

Features

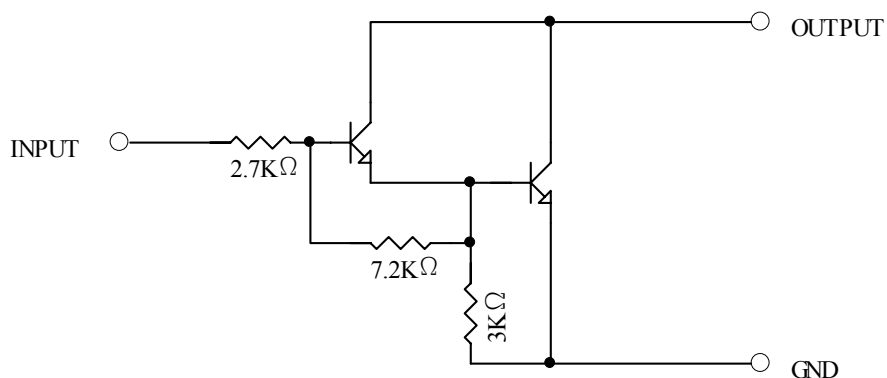
- Output current (single output) 200mA Max.
- High sustaining voltage output, 15V Min.
- Inputs compatible with various types of logic.



Pin Connection (top view)



Schematics (Each Driver)



**Maximum Ratings (Ta=25°C)**

Characteristic	Symbol	Rating	Unit
Output Sustaining Voltage	V _{CE(SUS)}	-0.5~15	V
Output Current	I _{OUT}	200	mA/CH
Input Voltage	V _{IN}	-0.5~12	V
Power Dissipation	P _D	1.47	W
Operating Temperature	Topr	-40~+85	°C
Storage Temperature	Tstg	-55~+150	°C

Recommended Operating Conditions (Ta=-40~+85°C)

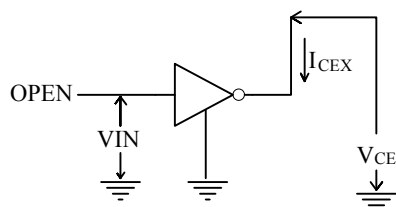
Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Output Sustaining Voltage	V _{CE(SUS)}		0	-	15	V
Output Current	I _{OUT}	TPW=25ms, 8 Circuits, Ta=85°C, Tj=120°C				mA/ch
		Duty=10%	-	-	150	
		Duty=50%	-	-	50	
Input Voltage	V _{IN}		0	-	12	V
Input Voltage(Output On)	V _{IN(ON)}	I _{OUT} =150mA, h _{FE} =800	2.8	-	12	V
Input Voltage(Output Off)	V _{IN(OFF)}		0	-	0.7	V
Power Dissipation	P _D	Ta=85°C	-	-	0.76	W

Electrical Characteristics (Ta=25°C, unless otherwise noted)

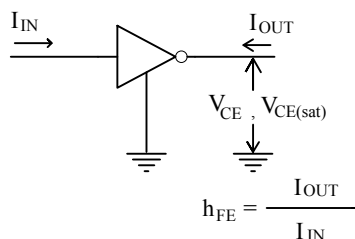
Characteristic	Symbol	Test Circuit	Test Conditions	Min	Typ	Max	Unit
Output Leakage Current	I _{CEX}	1	V _{CE} =10V, Ta=25°C	-	-	50	μA
			V _{CE} =10V, Ta=85°C	-	-	100	
Collector-Emitter Saturation Voltage	V _{CE(sat)}	2	I _{OUT} =100mA, I _{IN} =250μA	-	-	1.35	V
			I _{OUT} =150mA, I _{IN} =400μA	-	-	1.65	V
DC Current Transfer Ratio	h _{FE}	2	V _{CE} =2V, I _{OUT} =150mA	1000	-	-	-
Input Current (Output On)	I _{IN(ON)}	3	I _{IN} =2.4V, I _{OUT} =150mA		0.4	0.7	mA
Input Current (Output Off)	I _{IN(OFF)}	4	I _{OUT} =500μA, Ta=85°C	50	65		μA
Input Voltage (Output On)	V _{IN(ON)}	5	V _{CE} =2V, h _{FE} =800, I _{OUT} =150mA			2.4	V
Input Capacitance	C _{IN}	-		-	15	-	pF
Turn-On Delay	t _{ON}	6	V _{OUT} =10V, R _L =125Ω, C _L =15pF	-	0.1	-	μs
Turn-Off Delay	t _{OFF}	6	V _{OUT} =10V, R _L =125Ω, C _L =15pF	-	0.2	-	

Test Circuit

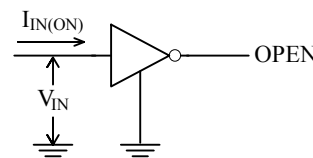
1. IC_{EX}



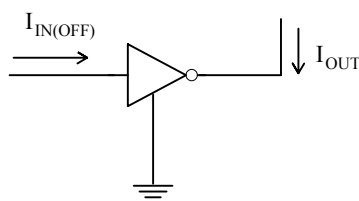
2. V_{CE(sat)}, h_{FE}



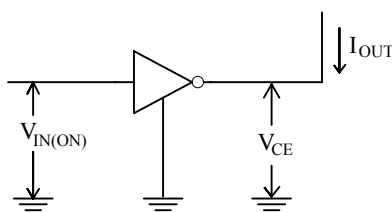
3. I_{IN(ON)}



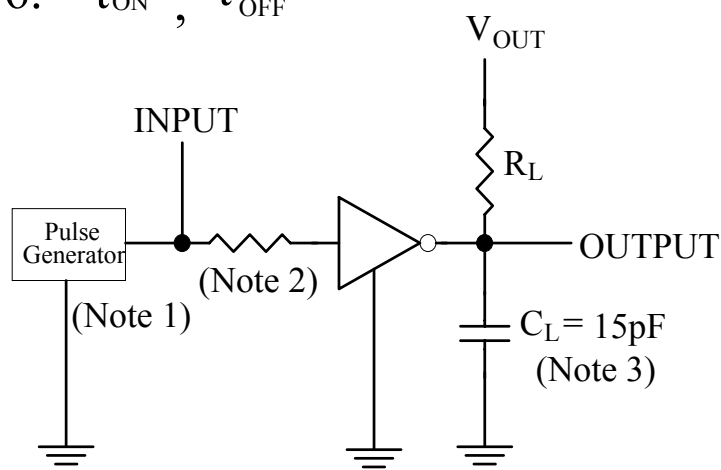
4. I_{IN(OFF)}



5. V_{IN(ON)}



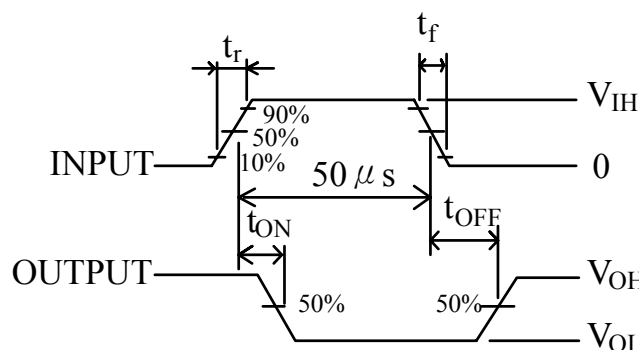
6. t_{ON}, t_{OFF}



Note 1: Pulse width 50 μ s, duty cycle 10%
Output impedance 50 Ω , $t_r \leq 5$ ns, $t_f \leq 10$ ns

Note 2: Input condition R1=0, V_{IH}=3V

Note 3: C_L includes probe and jig capacitance





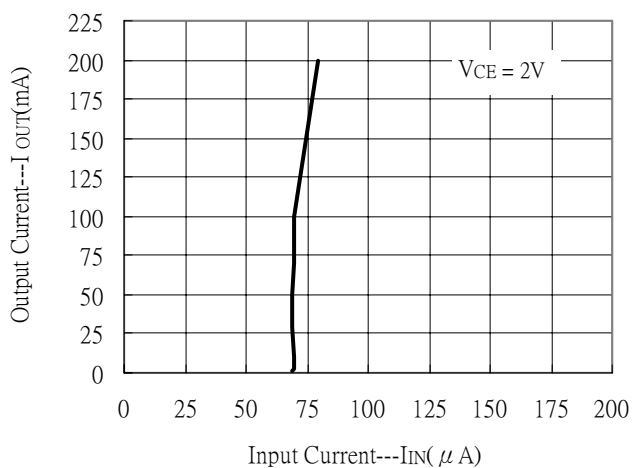
Precautions for Using

This IC does not include built-in protection circuits for excess current or overvoltage. If this IC is subjected to excess current or overvoltage, it may be destroyed. Hence, the utmost care must be taken when systems which incorporate this IC are designed. Utmost care is necessary in the design of the output line And GND line since IC may be destroyed due to short-circuit between outputs, air contamination fault, or fault by improper grounding.

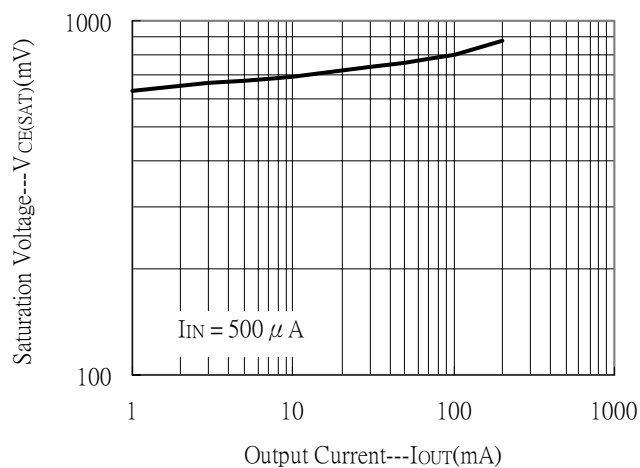


Characteristic Curves

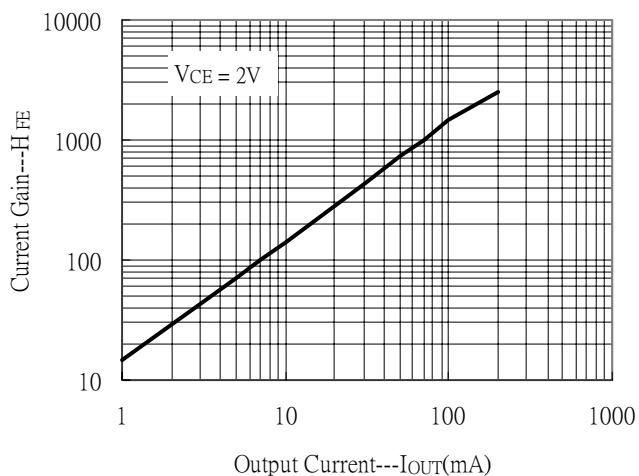
Output Current vs Input Current



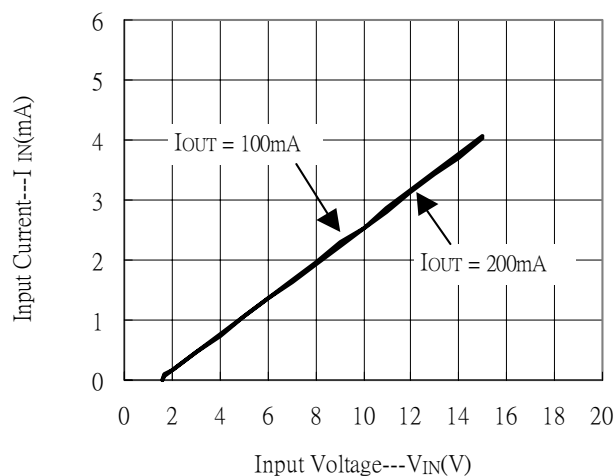
Saturation Voltage vs Output Current



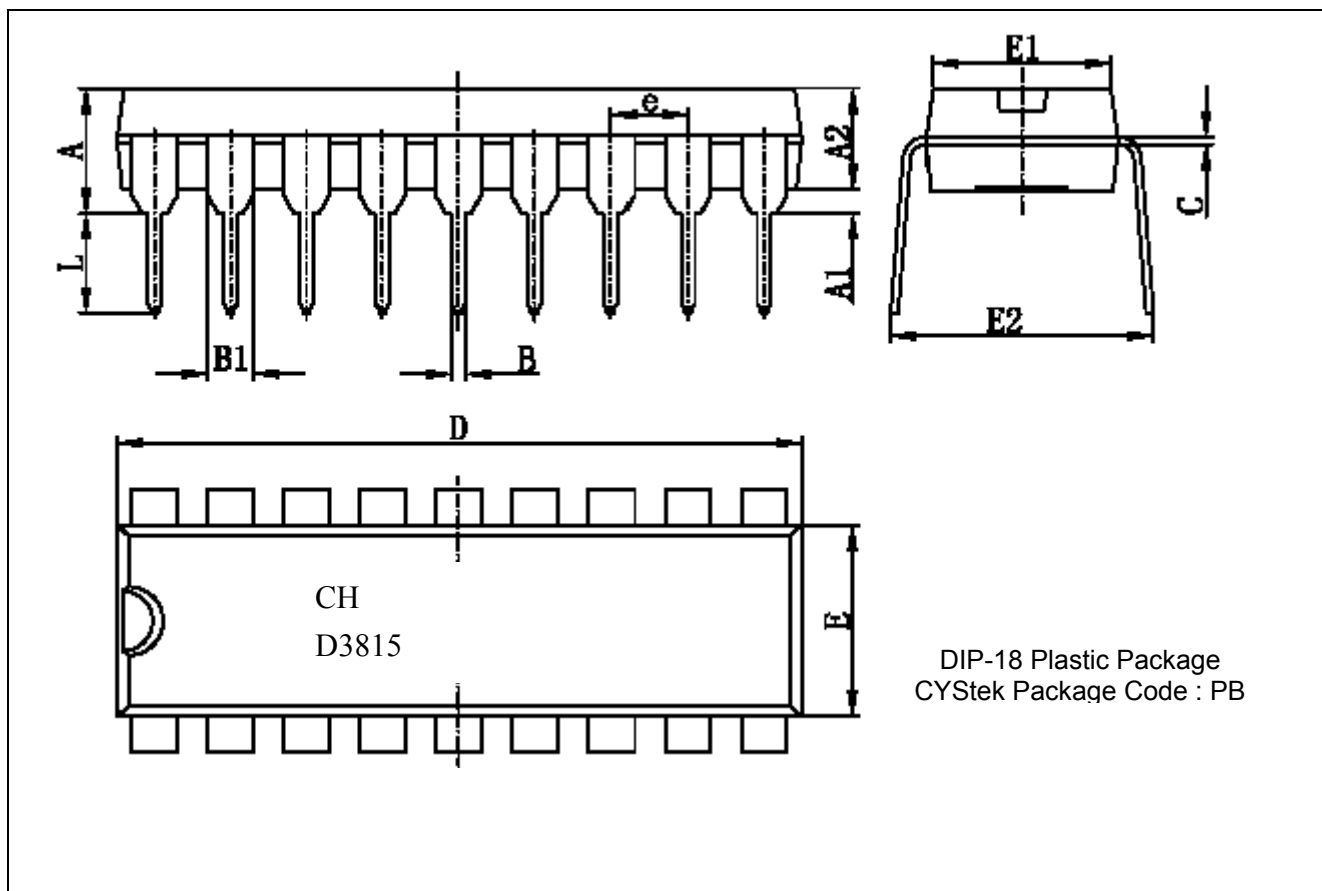
Current Gain vs Output Current



Input Current vs Input Voltage



DIP-18 Dimension



DIP-18 Plastic Package
 CYStek Package Code : PB

*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.146	0.170	3.710	4.310	D	0.891	0.907	22.640	23.040
A1	0.020	-	0.510	-	E	0.244	0.260	6.200	6.600
A2	0.126	0.142	3.200	3.600	E1	0.300(typ)		7.620(typ)	
B	0.014	0.022	0.360	0.560	e	0.100(typ)		2.540(typ)	
B1	0.060(typ)		1.524(typ)		L	0.118	0.142	3.000	3.600
C	0.008	0.014	0.204	0.360	E2	0.323	0.370	8.200	9.400

Notes : 1.Controlling dimension : millimeters.

2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.

3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material :

- Lead : 42 Alloy ; solder plating
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0

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