Description：

The ULN2803ADWR device is a 50 V, 500 mA Darlington transistor array. The device consists of eight NPN Darlington pairs that feature high-voltage outputs with common-cathode clamp diodes for switching inductive loads. The collector-current rating of each Darlington pair is 500 mA. The Darlington pairs may be connected in parallel for higher current capability.

Applications include relay drivers, hammer drivers, lamp drivers, display drivers (LED and gas discharge), line drivers, and logic buffers. The ULN2803ADWR device has a 2.7-kΩ series base resistor for each Darlington pair for operation directly with TTL or 5-V CMOS devices.



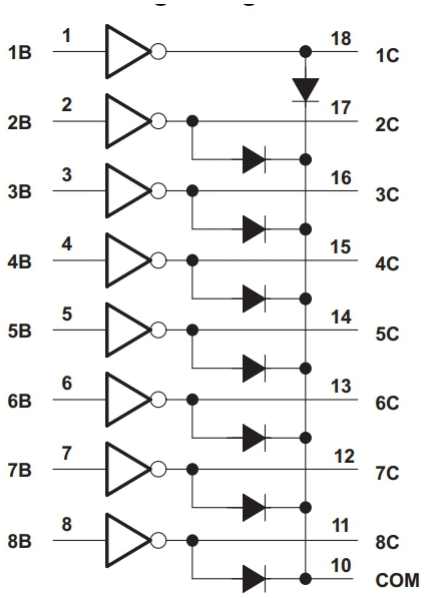
Pin 1

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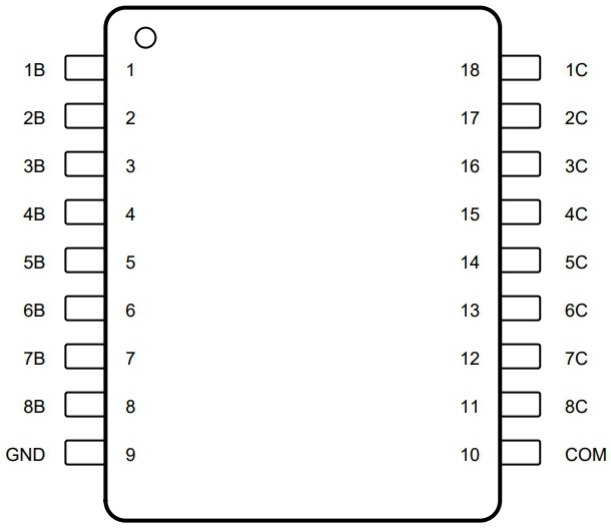
Features：

- 500-mA-Rated Collector Current (Single Output)
- High-Voltage Outputs: 50 V
- Output Clamp Diodes
- Inputs Compatible With Various Types of Logic

Logic Diagram



Pin Configuration and Functions



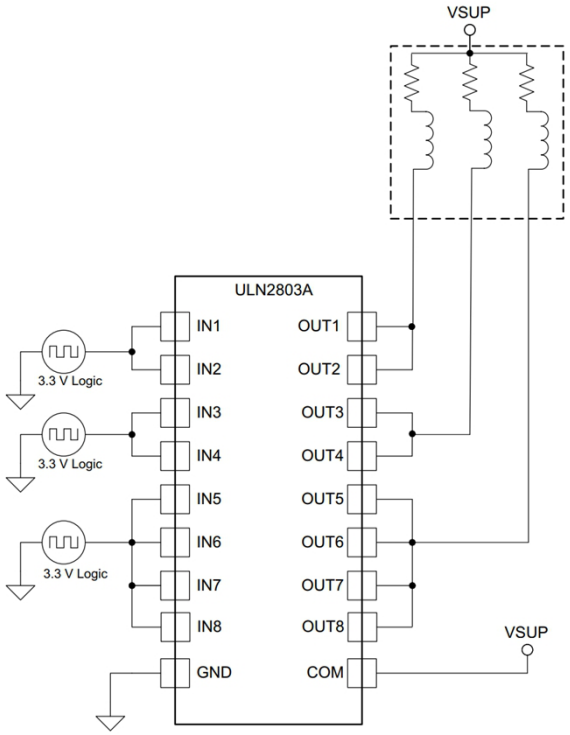
Absolute Maximum Ratings (T A = 25°C and rating apply to any one device in the package, unless otherwise noted.)

Characteristics	Symbol	Parameter		Unit
		Min	Max	
Collector-emitter voltage	VCE	-	50	V
Input voltage	Vi		30	V
Collector current- continuous	Ic	-	500	mA
Base current- continuous	IB		25	mA
Junction temperature	Tj		125	℃
Operating temperature	Tamb	-20	80	℃
Storage temperature	Tstg	-55	150	℃

Electrical Characteristics (unless otherwise specified: T A =25°C)

Characteristics	Test conditions	Symbol	Parameter			Unit
			Min	Typ	Max	
Output leakage current	Vo=50V，Tamb= +85℃	I_{CEX}			100	μA
	Vo=50V，Tamb= +25℃				50	μA
Collector-Emitter saturation voltage	Ic=350mA，I_B=500μA	V_{CES}		1.5	1.7	V
	Ic=200mA，I_B=350μA			1.15	1.3	V
	Ic=100mA，I_B=250μA			0.85	1.1	V
Input current - on condition	VI=3.85V	$I_{I(ON)}$		1.15	1.35	mA
Input voltage - on condition	VCE=2.0V，Ic=200mA	$V_{I(ON)}$			2.4	V
	VCE=2.0V，Ic=250mA				2.7	
	VCE=2.0V，Ic=300mA				3.0	
Input current - off condition	VCE=2.0V，Ic=300mA	$I_{I(OFF)}$	50	100		μA
Input capacitance		C_I		15	30	pF
Turn-on delay time (50% E_I to 50% E_O)	50%EI to 50%Eo	t_{ON}		0.25	1	μs
Turn-off delay time (50% E_I to 50% E_O)	50%EI to 50%Eo	t_{OFF}		0.25	1	μs
Clamp diode leakage current (V_R =50V)	V_R=50V, Tamb= +25℃	I_R			50	μA
	V_R=50V, Tamb= +85℃				100	
Clamp diode forward Voltage	I_F=350mA	V_F		1.5	2	V

Typical Application：



Typical Characteristics:

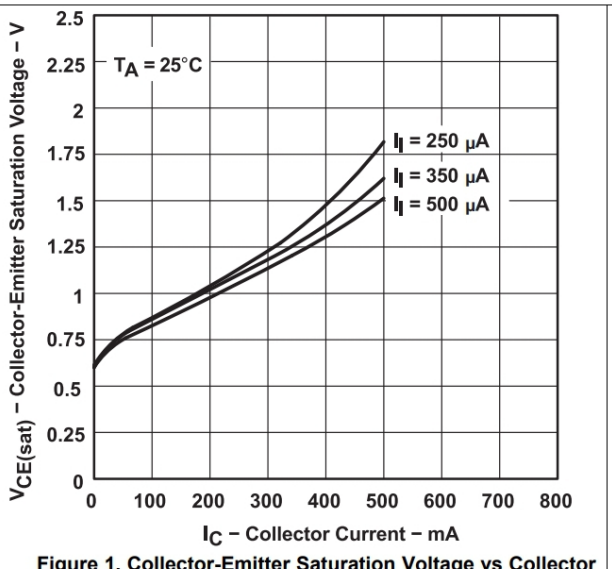


Figure 1. Collector-Emitter Saturation Voltage vs Collector Current (One Darlington)

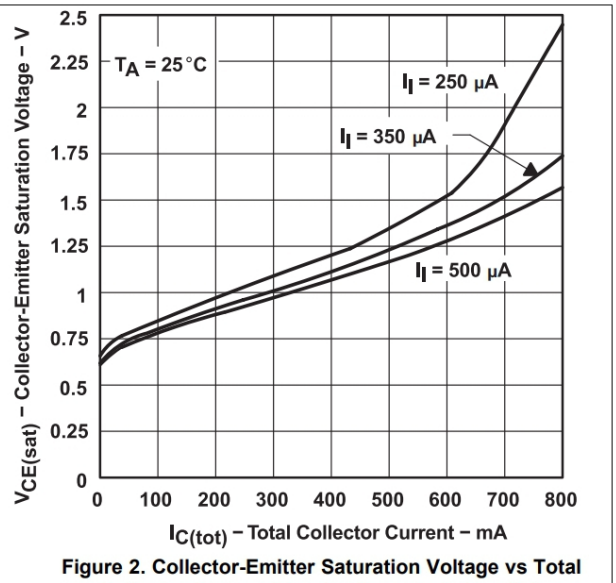
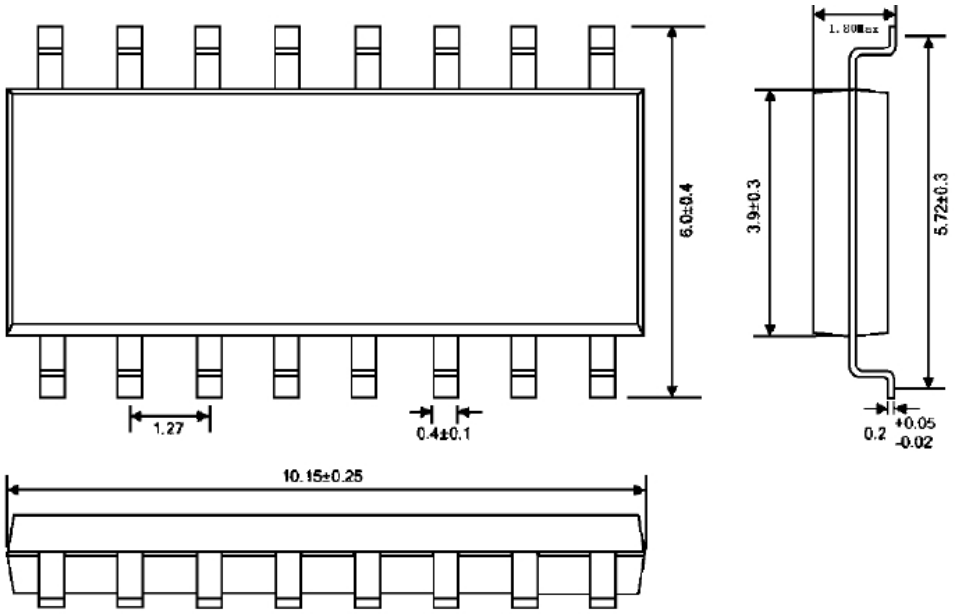


Figure 2. Collector-Emitter Saturation Voltage vs Total Collector Current (Two Darlingtons in Parallel)

Outline Drawing

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Unit:mm



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