



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-k Ω series base resistor for each Darlington pair for operation directly with TTL or 5-V CMOS devices.



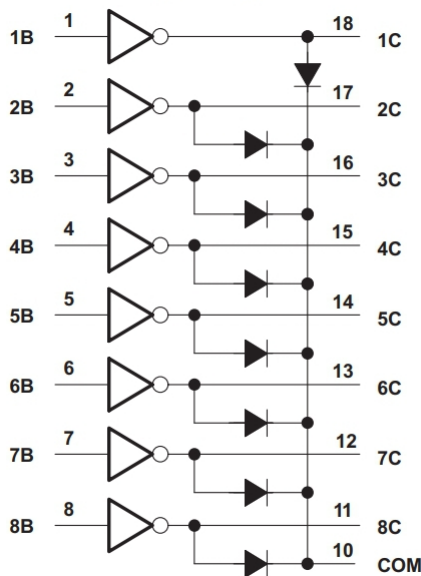
Pin 1

SOP-18

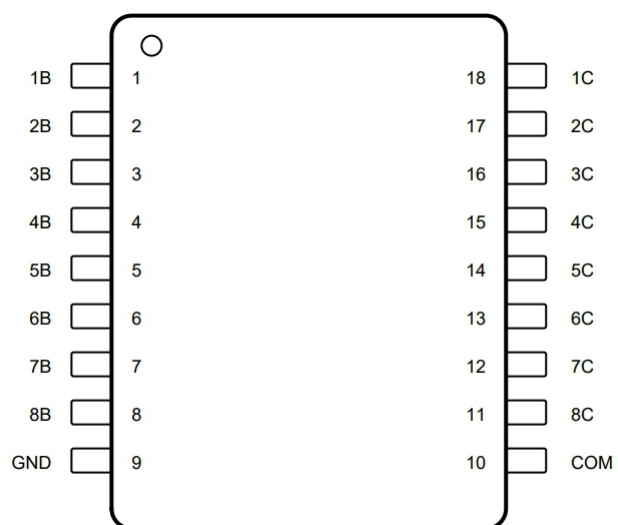
Features:

- 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.)

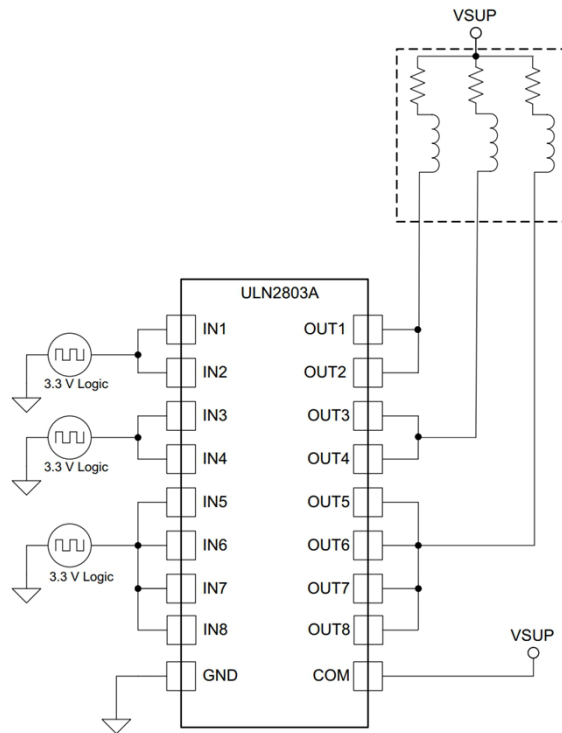
Characteristics	Symbol	Parameter		Unit
		Min	Max	
Collector-emitter voltage	V _{CE}	-	50	V
Input voltage	V _i		30	V
Collector current- continuous	I _c	-	500	mA
Base current- continuous	I _B		25	mA
Junction temperature	T _j		125	°C
Operating temperature	T _{amb}	-20	80	°C
Storage temperature	T _{stg}	-55	150	°C

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

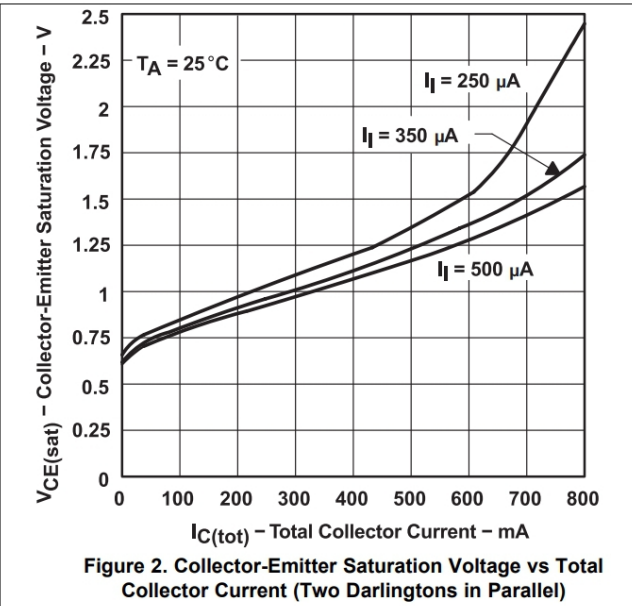
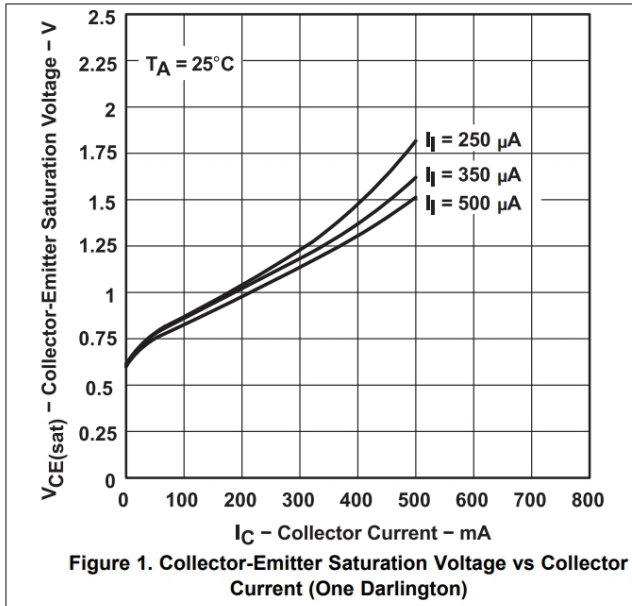
Characteristics	Test conditions	Symbol	Parameter			Unit	
			Min	Typ	Max		
Output leakage current	V _o =50V, T _{amb} = +85°C	I _{CEX}			100	μA	
	V _o =50V, T _{amb} = +25°C				50	μA	
Collector-Emitter saturation voltage	I _c =350mA, I _B =500μA	V _{CES}		1.5	1.7	V	
	I _c =200mA, I _B =350μA			1.15	1.3	V	
	I _c =100mA, I _B =250μA			0.85	1.1	V	
Input current - on condition	V _I =3.85V	I _{I (ON)}		1.15	1.35	mA	
Input voltage - on condition	V _{CE} =2.0V, I _c =200mA	V _{I (ON)}			2.4	V	
	V _{CE} =2.0V, I _c =250mA				2.7		
	V _{CE} =2.0V, I _c =300mA				3.0		
Input current - off condition	V _{CE} =2.0V, I _c =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%E _I to 50%E _O	t _{ON}		0.25	1	μs	
Turn-off delay time (50% E _I to 50% E _O)	50%E _I to 50%E _O	t _{OFF}		0.25	1	μs	
Clamp diode leakage current (V _R =50V)	V _R =50V	T _{amb} = +25°C	I _R			50	μA
		T _{amb} = +85°C				100	
Clamp diode forward Voltage	I _F =350mA	V _F		1.5	2	V	



Typical Application:



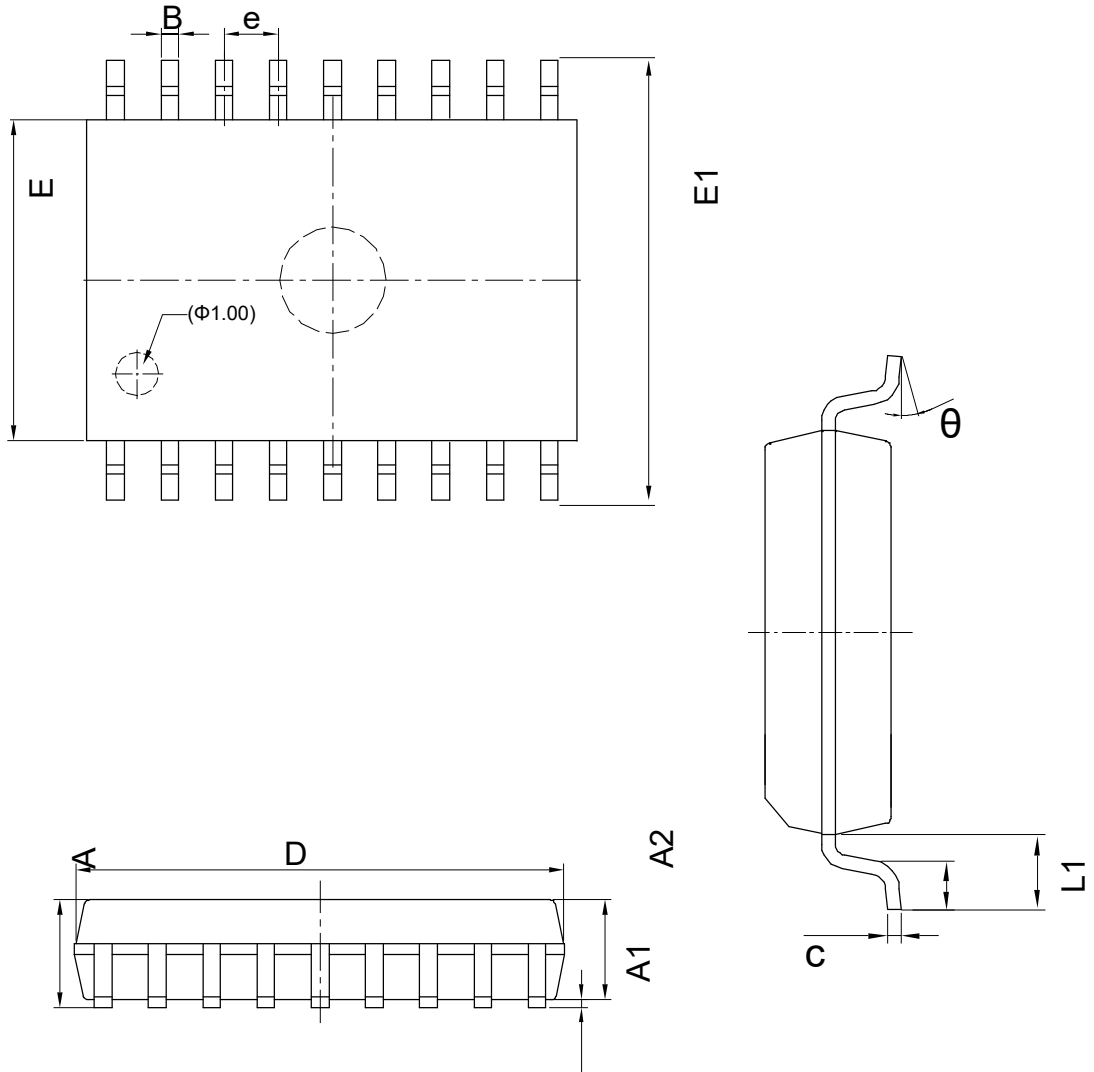
Typical Characteristics:





Outline Drawing

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Symbol	Dimensions In Millimeters			Symbol	Dimensions In Inches		
	Min(mm)	Nom(mm)	Max(mm)		Min(in)	Nom(in)	Max(in)
D	11.25	11.45	11.65	D	0.443	0.451	0.459
E	7.300	7.500	7.700	E	0.287	0.295	0.303
E1	10.10	10.30	10.50	E1	0.398	0.406	0.413
B	0.4(TYP)			B	0.016(TYP)		
e	1.27(TYP)			e	0.050(TYP)		
c	0.200	0.250	0.300	c	0.008	0.010	0.012
A2	2.240	2.340	2.440	A2	0.088	0.092	0.096
A1	0.100	0.150	0.250	A1	0.004	0.006	0.010
A	2.590			A	0.102		
L1	1.300	1.400	1.500	L1	0.051	0.055	0.059
L	0.700	0.800	1.000	L	0.028	0.031	0.039
θ	4°			θ	4°		
	8°				8°		



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