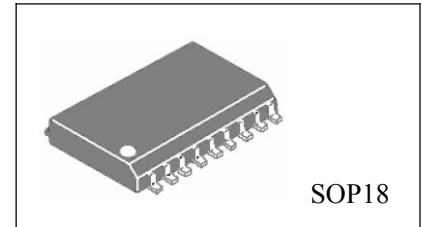


ULN2803F

Octal High Voltage, High Current Darlington Transistor Arrays

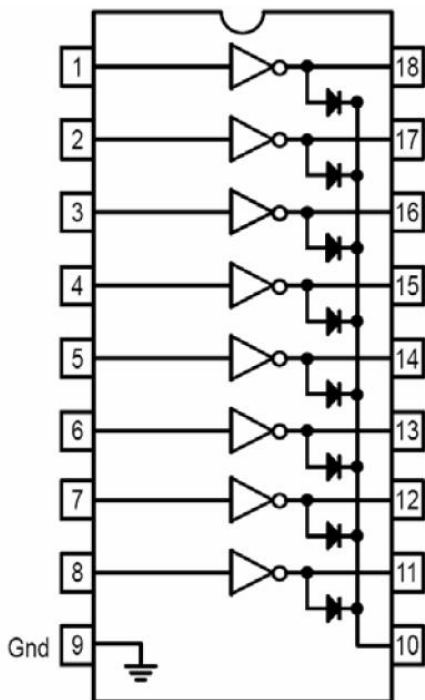
General Description

The eight NPN Darlington connected transistors in this family of arrays are ideally suited for interfacing between low logic level digital circuitry (such as TTL, CMOS or PMOS/NMOS) and the higher current/voltage requirements of lamps, relays, printer hammers or other similar loads for a broad range of computer, industrial, and consumer applications. All devices feature open-collector outputs and free wheeling clamp diodes for transient suppression.



The ULN2803F is designed to be compatible with standard TTL families while the ULN2804 is optimized for 6 to 15 volt high level CMOS or PMOS.

Pin Connection:



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ and rating apply to any one device in the package, unless otherwise noted.)

Characteristic	Symbol	Limit	Unit
Output voltage	V_O	50	V
Input voltage	V_I	30	V
Collector current-continuous	I_C	500	mA/ch
Base current-continuous	I_B	25	mA
Clamp diode reverse voltage	V_R	50	V
Clamp diode forward current	I_F	500	mA
Power Dissipation	P_D	0.92/1.31(Note)	W
Operating temperature	T_{opr}	-40 ~ +85	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 ~ +150	$^\circ\text{C}$
Junction temperature	T_J	125	$^\circ\text{C}$

- Note: 1. On Glass Epoxy PCB ($75 \times 114 \times 1.6$ mm Cu 20%)
 2. $R_{\theta JA} = 55^\circ\text{C/W}$
 3. Do not exceed maximum current limit per driver.

Electrical Characteristics ($T_A=25^\circ\text{C}$, unless otherwise noted)

characteristic	Symbol	Test condition	limit			Unit
			Min.	Typ.	Max.	
Output leakage current (Fig.1)	I_{CEX}	$V_O=50\text{V}, T_A=70^\circ\text{C}$			100	μA
		$V_O=50\text{V}, T_A=25^\circ\text{C}$			50	
Collector-Emitter saturation voltage(Fig.2)	$V_{CE(sat)}$	$I_C=350\text{mA}, I_B=500\mu\text{A}$		1.1	1.6	V
		$I_C=200\text{mA}, I_B=350\mu\text{A}$		0.95	1.3	
		$I_C=100\text{mA}, I_B=250\mu\text{A}$		0.85	1.1	
Input current-on condition (Fig.4)	$I_{I(on)}$	$V_I=3.85\text{V}$		1.1	1.35	mA
Input voltage-on condition (Fig.5)	$V_{I(on)}$	$V_{CE}=2.0\text{V}, I_C=200\text{mA}$		1.7	2.4	V
		$V_{CE}=2.0\text{V}, I_C=250\text{mA}$		1.75	2.7	
		$V_{CE}=2.0\text{V}, I_C=300\text{mA}$		1.8	3.0	
Input current-off Condition (Fig.3)	$I_{I(off)}$	$I_C=500\mu\text{A}, T_A=70^\circ\text{C}$	50	100		μA
Input capacitance	C_I			15	25	pF
Turn-on delay time (50% E_I to 50% E_O)	t_{on}			0.25	1.0	μs
Turn-off delay time (50% E_I to 50% E_O)	t_{off}			0.25	1.0	μs
Clamp diode leakage Current($V_R=50\text{V}$)(Fig.6)	I_R	$T_A=25^\circ\text{C}$			50	μA
		$T_A=70^\circ\text{C}$			100	
Clamp diode forward Voltage (Fig.7)	V_F	$I_F=350\text{mA}$		1.5	2.0	V

Test Circuit

Figure 1.

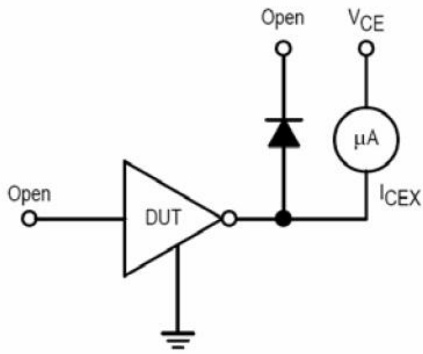


Figure 2.

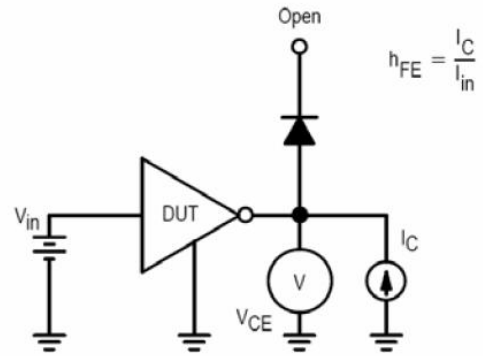


Figure 3.

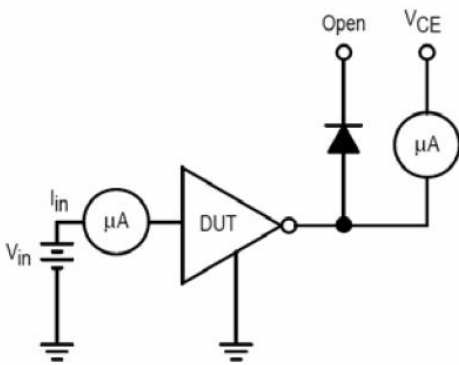


Figure 4.

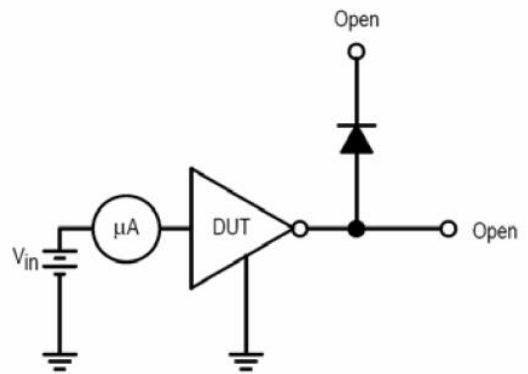


Figure 5.

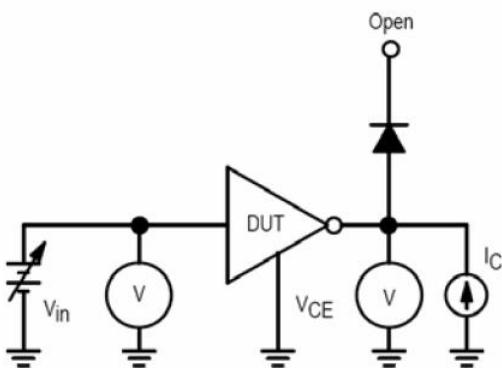


Figure 6.

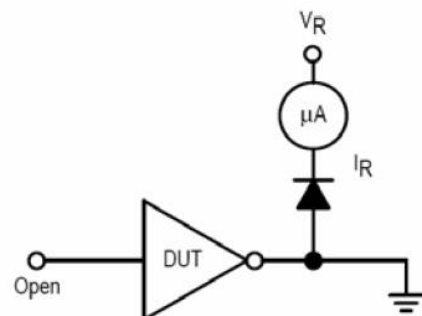
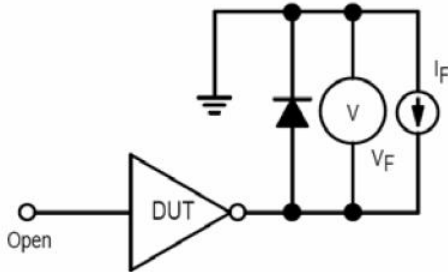


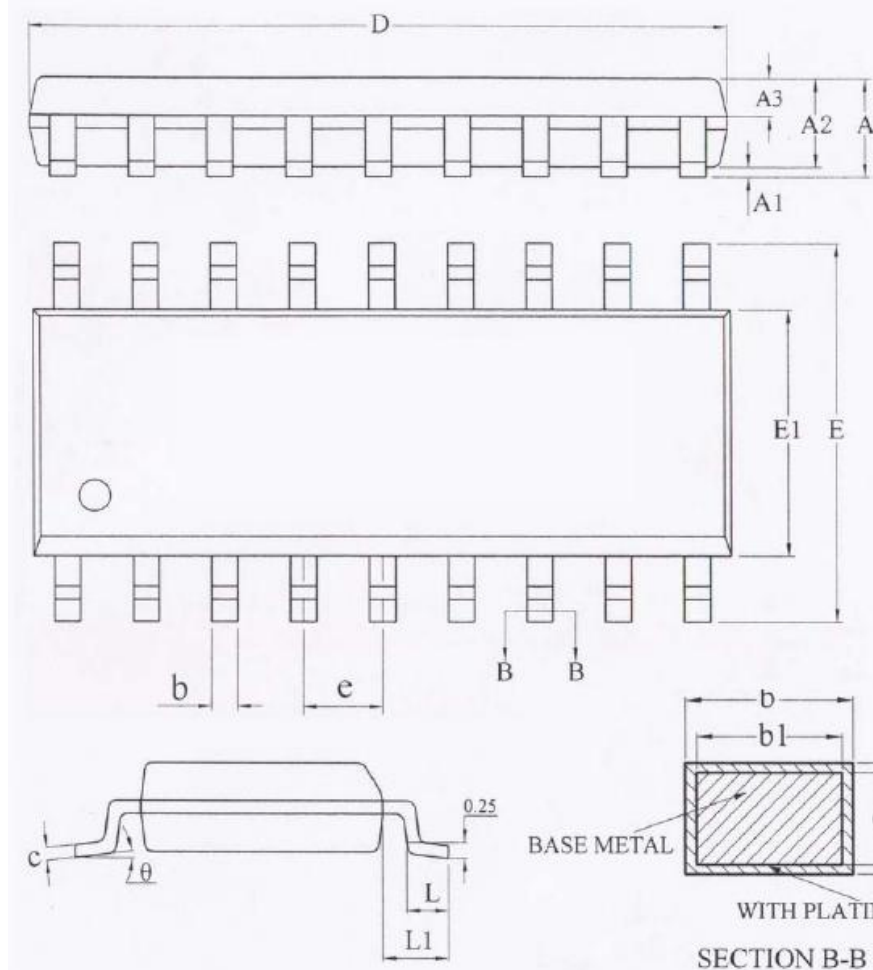
Figure 7.



Outline Drawing

SOP18

Unit: mm



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	2.65
A1	0.10	—	0.30
A2	2.25	2.30	2.35
A3	0.97	1.02	1.07
b	0.35	—	0.48
b1	0.34	0.37	0.39
c	0.26	—	0.31
c1	0.24	0.25	0.26
D	11.25	11.50	11.75
E	10.10	10.37	10.64
E1	7.30	7.50	7.70
e	1.27BSC		
L	0.70	—	1.00
L1	1.40BSC		
θ	0	—	8°
L/外形尺寸 (单位)	85*85		
	140*160		

Statements

- Silicore Technology reserves the right to make changes without further notice to any products or specifications herein. Before customers place an order, customers need to confirm whether datasheet obtained is the latest version, and to verify the integrity of the relevant information.
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