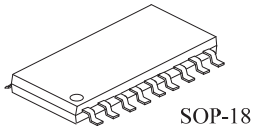
HIGH-VOLTAGE, HIGH-CURRENT DARLINGTON ARRAYS

LR2803L

DESCRIPTION

The LR2803L is high-voltage, high-current Darlington drivers comprised of eight NPN Darlington pairs.



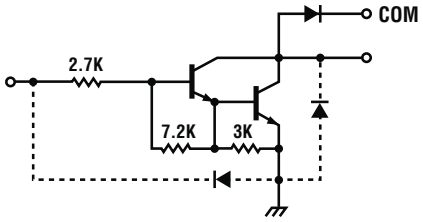
FEATURES

- 5V TTL, CMOS-Compatible Inputs
- Output Current to 500 mA
- Output Voltage to 50 V
- Transient-Protected Outputs
- Dual In-Line Plastic Package or Small-Outline IC Package

ORDERING INFORMATION

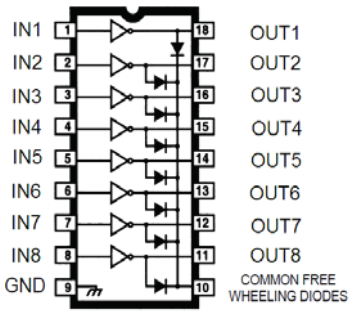
Device	Package
LR2803L	SOP18

PARTIAL SCHEMATICS



Note: The input and output parasitic diodes cannot be used as clamp diodes.

PIN CONFIGURATIONS



ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNIT
Input Voltage	V_{IN}	-0.5~30	V
Output Sustaining Voltage	VCE (SUS)	-0.5~50	V
Output Current	I_{OUT}	500	mA/ch
Clamp Diode Reverse Voltage	V_R	50	V
Clamp Diode Forward Current	I_F	500	mA
Thermal Resistance - Junction to Ambient	$R_{\theta JA}$	90	°C/W
Thermal Resistance - Junction to Case	$R_{\theta JC}$	50	°C/W
Power Dissipation	P_D	SOP:0.54/0.625(Note)	W
Operating Ambient Temperature Range	T_{opr}	-40 to +85	℃
Storage Temperature Range	T_{Stg}	-55 to +150	℃

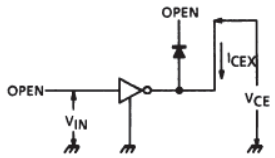
Note: On glass epoxy PCB (30x30x1.6mm Cu 50%)

ELECTRICAL CHARACTERISTICS (Ta = 25℃, Unless otherwise specified)

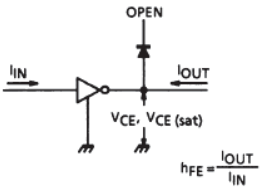
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	FIG
Output Leakage Current	I_{CEX}	V_{CE}=50V, T_A=25℃ V_{CE}=50V, T_A=85℃			50 100	μA	1
Collector-Emitter Saturation Voltage	$V_{CE(SAT)}$	I_{OUT}=350mA, I_{IN}=500μA I_{OUT}=200mA, I_{IN}=350μA I_{OUT}=100mA, I_{IN}=250μA		1.3 1.1 0.9	1.6 1.3 1.1	V	2
Input Current (output on)	$I_{IN(ON)}$	V_{IN} =3.85V, I_{OUT}=350mA		0.93	1.35	mA	3
Input Current (output off)	$I_{IN(OFF)}$	I_{OUT}=500μA, T_A=85℃	50	65		μA	4
Input Voltage (output on)	$V_{IN(ON)}$	V_{CE}=2.0V I_{OUT}=200mA I_{OUT}=250mA I_{OUT}=300mA			2.4 2.7 3.0	V	5
Clamp Diode Reverse Current	I_R	V_R=50V, T_A=25℃ V_R=50V, T_A=85℃			50 100	μA	6
Clamp Diode Forward Voltage	V_F	I_F=350mA			2.0	V	7
Input Capacitance	C_{IN}			15	25	pF	-
Turn-On Delay	t_{ON}	V_{OUT}=50V, R_L=125Ω, C_L=15pF		0.1	1	μS	8
Turn-Off Delay	t_{OFF}	V_{OUT}=50V, R_L=125Ω, C_L=15pF		0.2	1	μS	8

TEST CIRCUIT

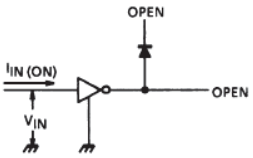
1. I_{CEX}



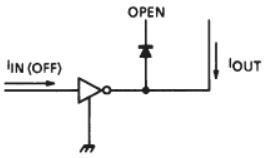
2. $V_{CE\ (sat)}$, h_{FE}



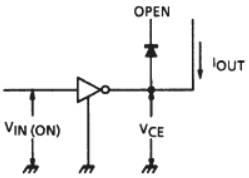
3. $I_{IN\ (ON)}$



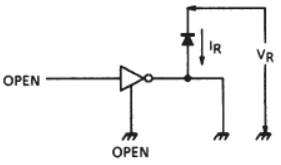
4. $I_{IN\ (OFF)}$



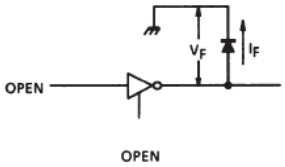
5. $V_{IN\ (ON)}$



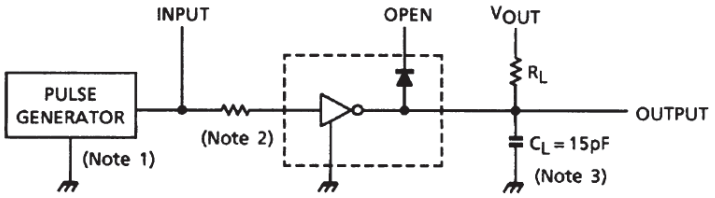
6. I_R

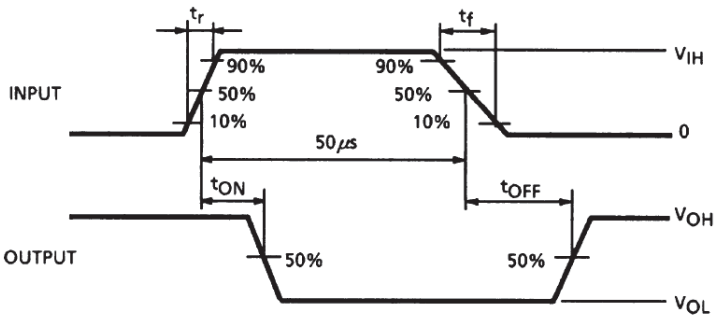


7. V_F



8. tON, tOFF





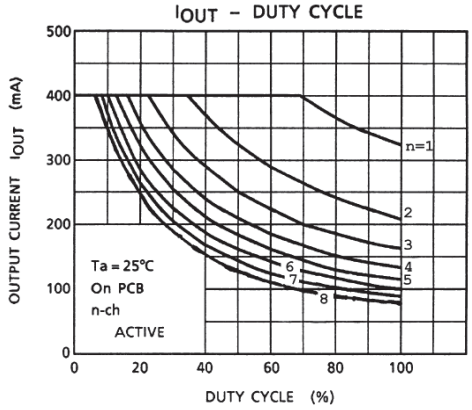
Note1: Pulse width 50μs, duty cycle 10%. Output impedance 50Ω, tr<=5ns, tf<=10ns

Note2: R1: 0, VIH : 3V

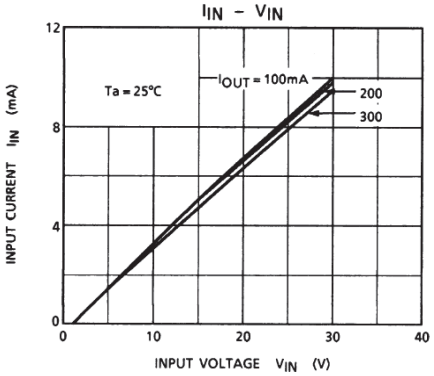
Note3: CL includes probe and jig capacitance.

TYPICAL PERFORMANCE CHARACTERISTICS

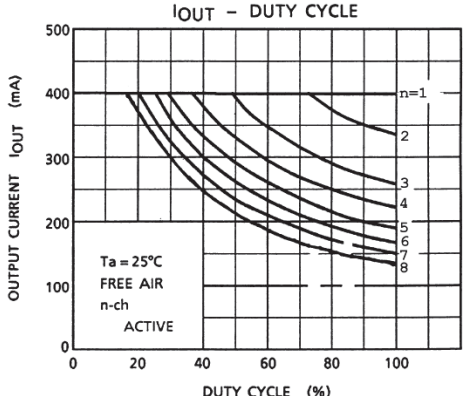
I_{OUT} – DUTY CYCLE



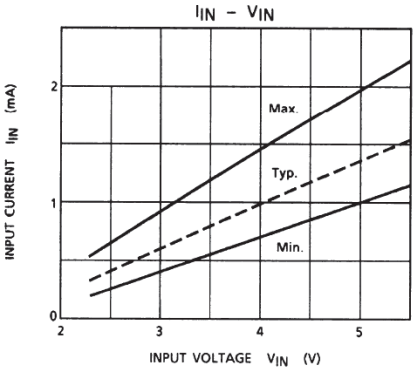
I_{IN} – V_{IN}



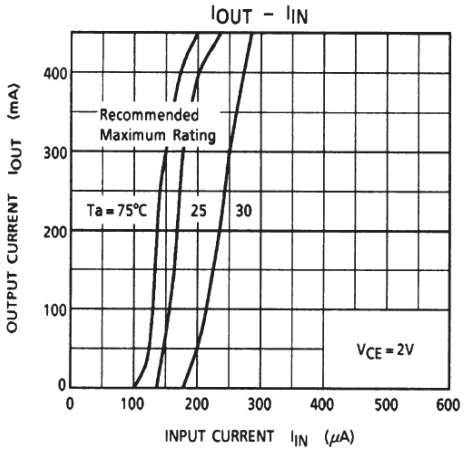
I_{OUT} – DUTY CYCLE



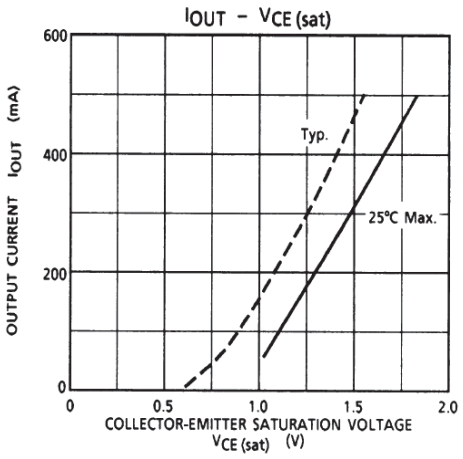
I_{IN} – V_{IN}

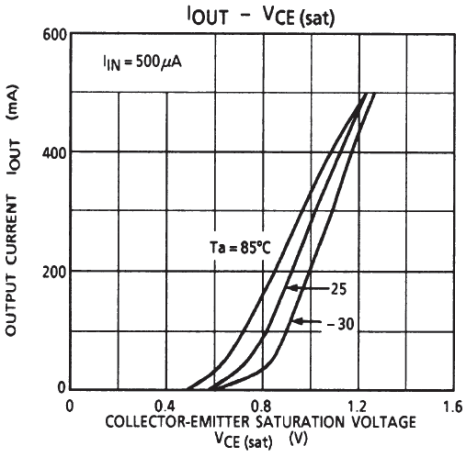


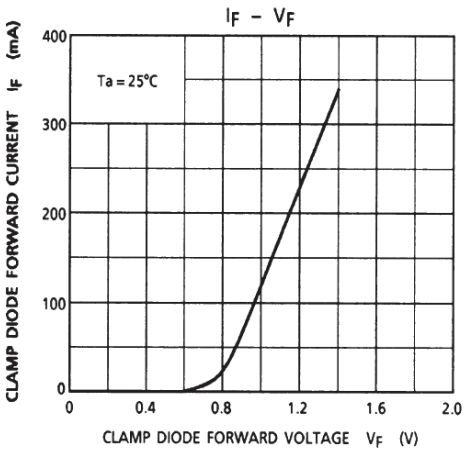
I_{OUT} – I_{IN}

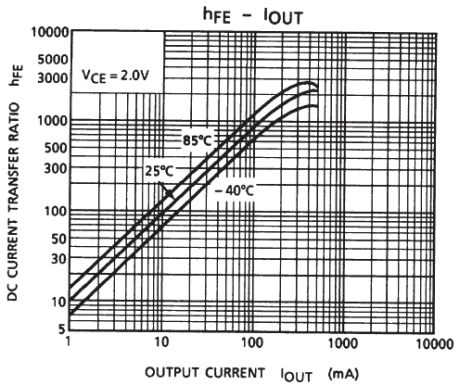


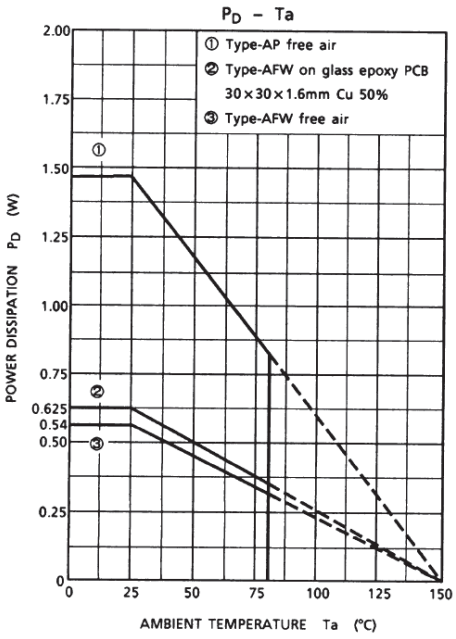
I_{OUT} – $V_{CE(sat)}$





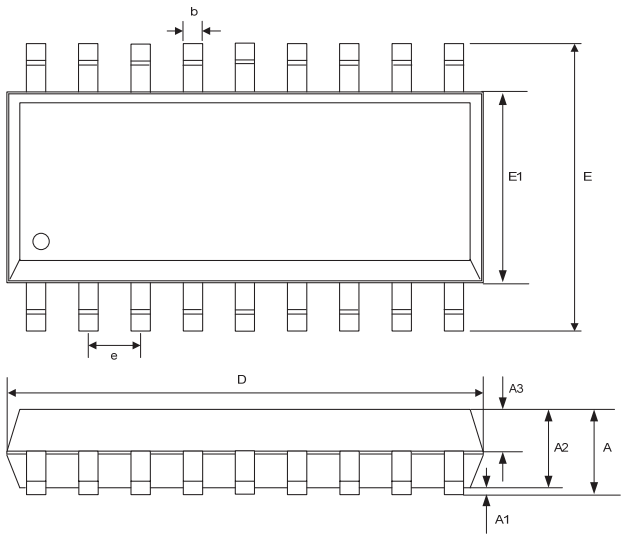


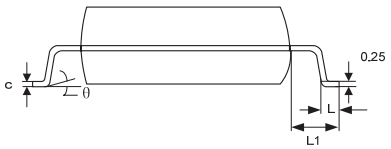




PACKAGE OUTLINE

SOP-18 UNIT: mm





SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	-	-	2.65
A1	0.10	-	0.30
A2	2.25	2.3	2.35
A3	0.97	1.02	1.07
b	0.35	-	0.44
c	0.26	-	0.31
D	11.25	11.45	11.65
E	10.10	10.30	10.50
E1	7.30	7.50	7.70
e	1.27BSC		
L	0.70	-	1.00
L1	1.40BSC		
θ	0	-	8°

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.

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