



# 74ACT8244

## RELAY DRIVER IC

### PRELIMINARY DATA

- OPERATE 4 LATCHING RELAIS, 1 SINGLE SIDE STABLE RELAY AND 1 LED
- VERY LOW POWER CONSUMPTION
- TTL COMPATIBLE INPUT THRESHOLDS
- IMPROVED LATCH-UP IMMUNITY UP TO 300mA
- TSSOP-20 PACKAGE

### DESCRIPTION

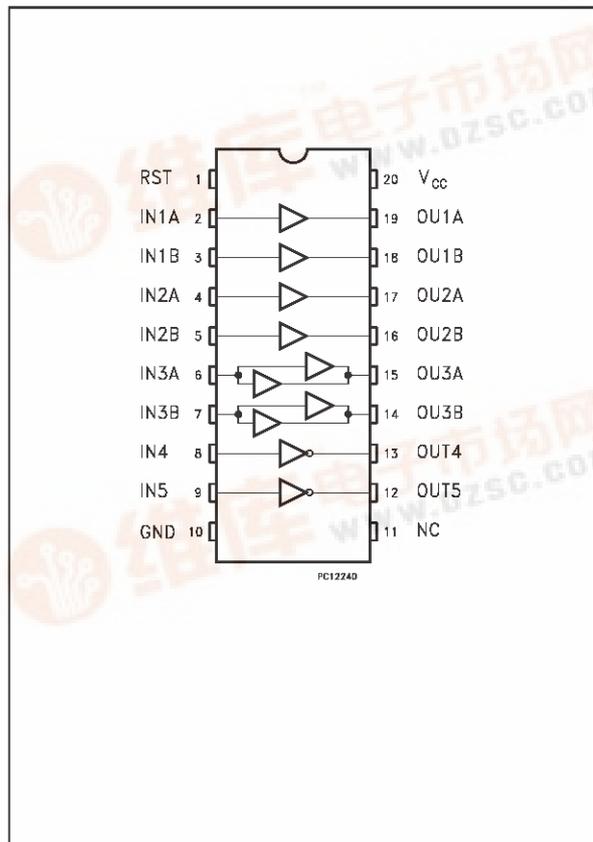
The device is a relais driver for line card application. It is able to operate four latching relais, one single side stable relay an one LED connected either to GND or VCC. All the outputs can be set to LOW with the RST input as shown in the true table.



### PIN DESCRIPTION

PIN No	SYMBOL	NAME AND FUNCTION
1	RST	Master Reset
2	IN1A	Input of 1st latched relay drv
3	IN1B	Input of 1st latched relay drv
4	IN2A	Input of 2nd latched relay drv
5	IN2B	Input of 2nd latched relay drv
6	IN3A	Input of 3rd latched relay drv
7	IN3B	Input of 3rd latched relay drv
8	IN4	Input of 1st relay driver
9	IN5	Input LED driver
10	GND	Ground
11	NC	Not Connected
12	OUT5	Output of LED driver
13	OUT4	Output of 1st relay driver
14	OU3B	Output 3rd latched relay drv
15	OU3A	Output 3rd latched relay drv
16	OU2B	Output 2nd latched relay drv
17	OU2A	Output 2nd latched relay drv
18	OU1B	Output 1st latched relay drv
19	OU1A	Output 1st latched relay drv
20	V <sub>CC</sub>	Supply Voltage

### LOGIC DIAGRAM



## ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
$V_{CC}$	Supply Voltage	-0.5 to +7	V
$V_I$	DC Input Voltage	-0.5 to $V_{CC} + 0.5$	V
$V_O$	DC Output Voltage	-0.5 to $V_{CC} + 0.5$	V
$I_{IK}$	DC Input Diode Current	$\pm 50$	mA
$I_{OK}$	DC Output Diode Current	$\pm 50$	mA
$I_O$	DC Output Current	$\pm 100$	mA
$I_{CC}$ or $I_{GND}$	DC $V_{CC}$ or Ground Current	$\pm 250$	mA
$T_{stg}$	Storage Temperature	-65 to +150	$^{\circ}C$

Absolute Maximum Ratings are those values beyond which damage to the device may occur. Functional operation under these condition is not implied.

## RECOMMENDED OPERATING CONDITIONS

Symbol	Parameter	Value	Unit
$V_{CC}$	Supply Voltage	4.75 to 5.25	V
$V_I$	Input Voltage	0 to $V_{CC}$	V
$V_O$	Output Voltage	0 to $V_{CC}$	V
$T_{op}$	Operating Temperature:	-30 to +80	$^{\circ}C$
dt/dv	Input Rise and Fall Time $V_{CC} = 4.5$ to $5.5$ V (note1)	10	ns/V

1)  $V_{IN}$  from 0.8V to 2.0V

## DC SPECIFICATIONS

Symbol	Parameter	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
$V_{IH}$	High Level Input Threshold	$V_O = 0.1$ V or $V_{CC} - 0.1$ V	2.0	1.4		V
$V_{IL}$	Low Level Input Threshold	$V_O = 0.1$ V or $V_{CC} - 0.1$ V		1.4	0.8	V
$V_{OH}$	High Level Output Voltage for Single Driver	$I_{OUT} = -35$ mA	$V_{CC} - 0.68$	$V_{CC} - 0.3$		V
$V_{OL}$	Low Level Output Voltage for Single Driver	$I_{OUT} = 35$ mA		0.25	0.68	V
$V_{OH}$	High Level Output Voltage for Double Relay Driver	$I_{OUT} = -70$ mA	$V_{CC} - 0.68$	$V_{CC} - 0.3$		V
$V_{OL}$	Low Level Output Voltage for Double Relay Driver	$I_{OUT} = 70$ mA		0.25	0.68	V
$V_{OH}$	High Level Output Voltage for Single Side Relay or LED	$I_{OUT} = -50$ mA	$V_{CC} - 0.8$	$V_{CC} - 0.4$		V
$V_{OL}$	Low Level Output Voltage for Single Side Relay or LED	$I_{OUT} = 50$ mA		0.3	0.8	V
$I_I$	Input Leakage Current	$V_I = V_{CC}$ or GND			$\pm 1$	$\mu A$
$I_{CCT}$	Max $I_{CC}$ /Input	$V_I = V_{CC} - 2.1$ V		0.6	1.5	mA
$I_{CC}$	Quiescent Supply Current	$V_I = V_{CC}$ or GND		4	40	$\mu A$

**AC ELECTRICAL CHARACTERISTICS** ( $C_L = 50 \text{ pF}$ ,  $R_L = 500 \text{ } \Omega$ , Input  $t_r = t_f = 3 \text{ ns}$ )

Symbol	Parameter	Test Condition	Value			Unit
			Min.	Typ.	Max.	
$t_{PLH}$ $t_{PHL}$	Propagation Delay Time			7.0	11.0	ns

(\*) Voltage range is  $5V \pm 0.5V$

**TRUTH TABLE FOR LATCHING RELAY DRIVER**

RST	INPUT		OUTPUT		Condition
	INnA	INnB	OUnA	OUnB	
H	X	X	L	L	Storage
L	L	L	L	L	Storage
L	L	H	L	H	Operate
L	H	L	H	L	Release
L	H	H	H	H	Storage

Z = High Impedance  
X = Don't Care  
n = 1,2,3

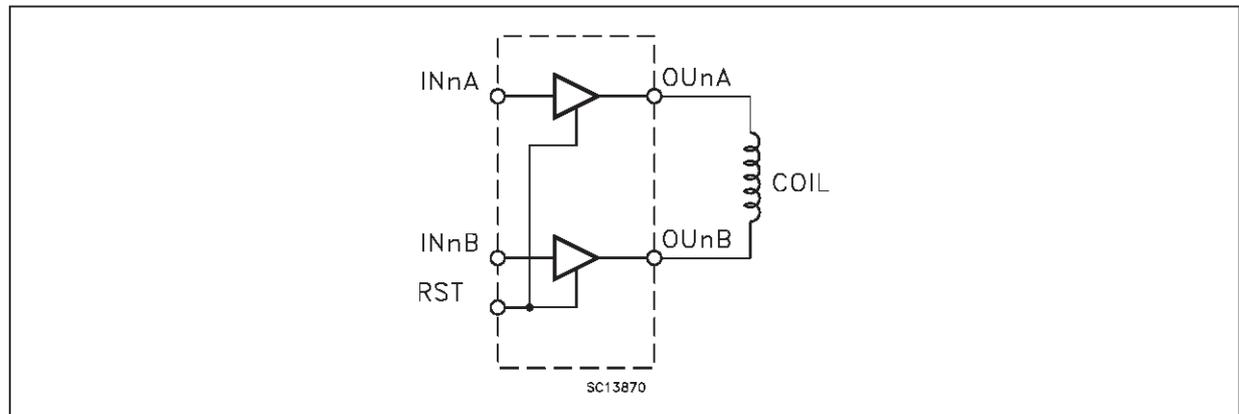
**TRUTH TABLE FOR SINGLE SIDE RELAY**

INPUT	OUTPUT
IN4	OUT4
L	H
H	L

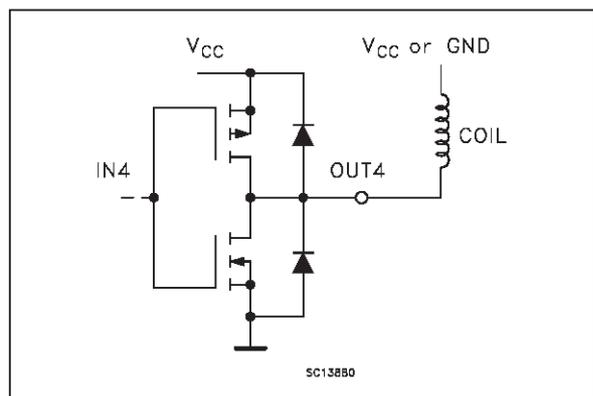
**TRUTH TABLE FOR LED DRIVER**

INPUT	OUTPUT
IN5	OUT5
L	H
H	L

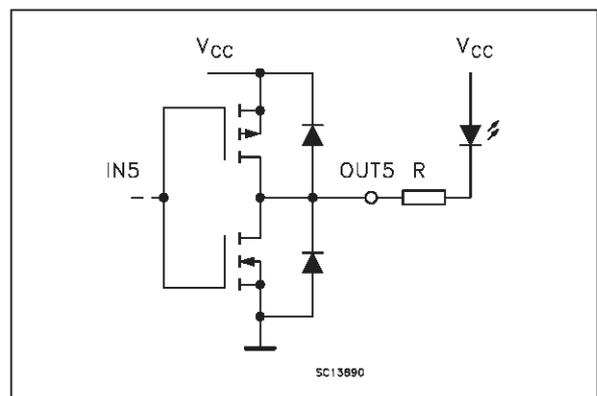
**OUTPUT CIRCUIT FOR LATCHING RELAY DRIVER**



**OUTPUT CIRCUIT FOR SINGLE SIDE RELAY**

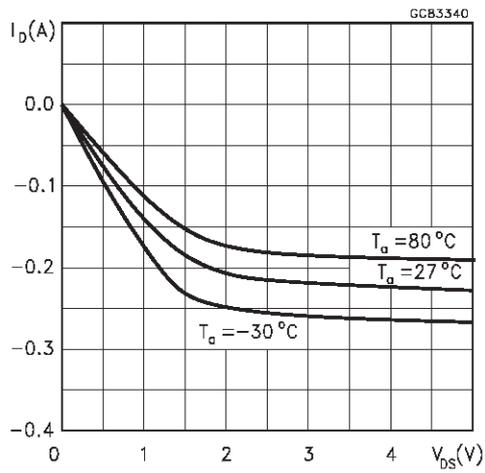


**OUTPUT CIRCUIT FOR LED DRIVER**

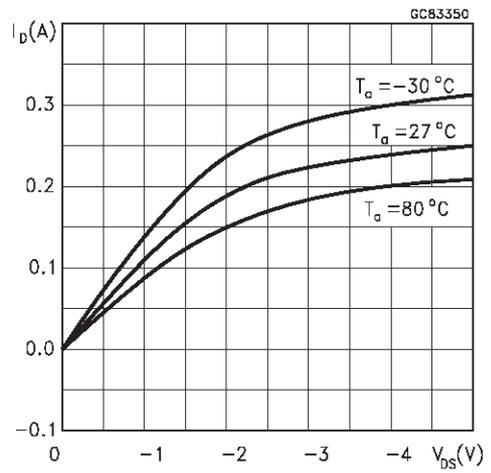


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### Output Characteristics of a Single Driver N-Channel

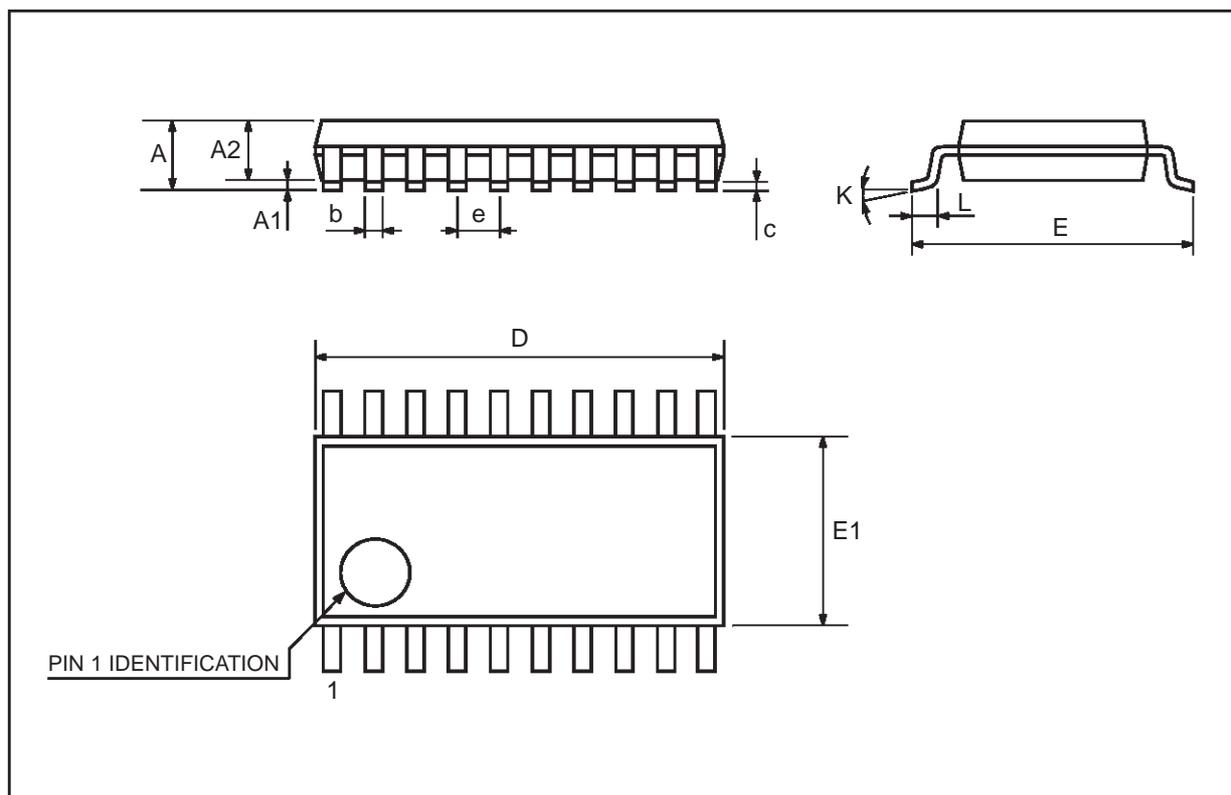


### Output Characteristics of a Single Driver P-Channel



## TSSOP20 MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			1.1			0.433
A1	0.05	0.10	0.15	0.002	0.004	0.006
A2	0.85	0.9	0.95	0.335	0.354	0.374
b	0.19		0.30	0.0075		0.0118
c	0.09		0.2	0.0035		0.0079
D	6.4	6.5	6.6	0.252	0.256	0.260
E	6.25	6.4	6.5	0.246	0.252	0.256
E1	4.3	4.4	4.48	0.169	0.173	0.176
e		0.65 BSC			0.0256 BSC	
K	0°	4°	8°	0°	4°	8°
L	0.50	0.60	0.70	0.020	0.024	0.028



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