74ACT8244

RELAY DRIVER IC

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

TSSOP

DESCRIPTION

The device is a relais driver for line card application. It is able to operate four latching relais, one single side stable relay and 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.

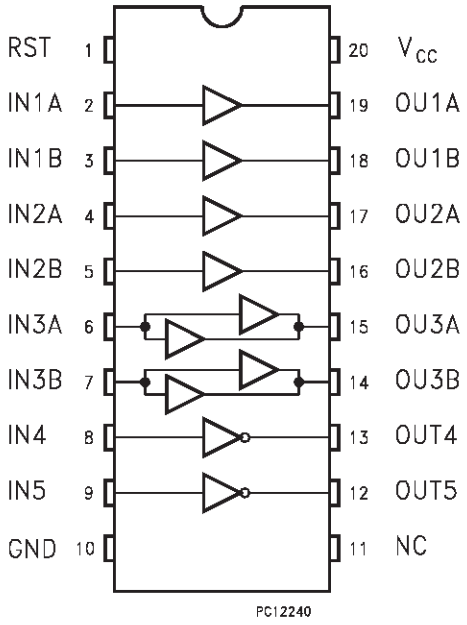
ORDER CODES

PACKAGE	TUBE	T & R
TSSOP		74ACT8244TTR

PIN DESCRIPTION

PIN No	SYMBOL	NAME QND 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 (0V)
11	NC	Not Connected
12	OUT5	Output LED driver
13	OUT4	Output of 1st relay driver
14	OU3B	Output of 3rd latched relay drv
15	OU3A	Output of 3rd latched relay drv
16	OU2B	Output of 2nd latched relay drv
17	OU2A	Output of 2nd latched relay drv
18	OU1B	Output of 1st latched relay drv
19	OU1A	Output of 1st latched relay drv
20	V_{CC}	Positive Supply Voltage

PIN CONNECTION



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	± 50	mA
I_{OK}	DC Output Diode Current	± 50	mA
I_O	DC Output Current	± 100	mA
I_{CC} or I_{GND}	DC V_{CC} or Ground Current	± 400	mA
T_{stg}	Storage Temperature	-65 to +150	°C

Absolute Maximum Ratings are those values beyond which damage to the device may occur. Functional operation under these conditions 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	°C
dt/dv	Input Rise and Fall Time V_{CC} = 4.5 to 5.5V (note 1)	10	ns/V

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

DC SPECIFICATIONS

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

AC ELECTRICAL CHARACTERISTICS (C_L = 50 pF, R_L = 500 Ω, Input t_r = t_f = 3ns)

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

TRUTH TABLE FOR LATCHING RELAY DRIVER

INPUT			OUTPUT		Condition
RST	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

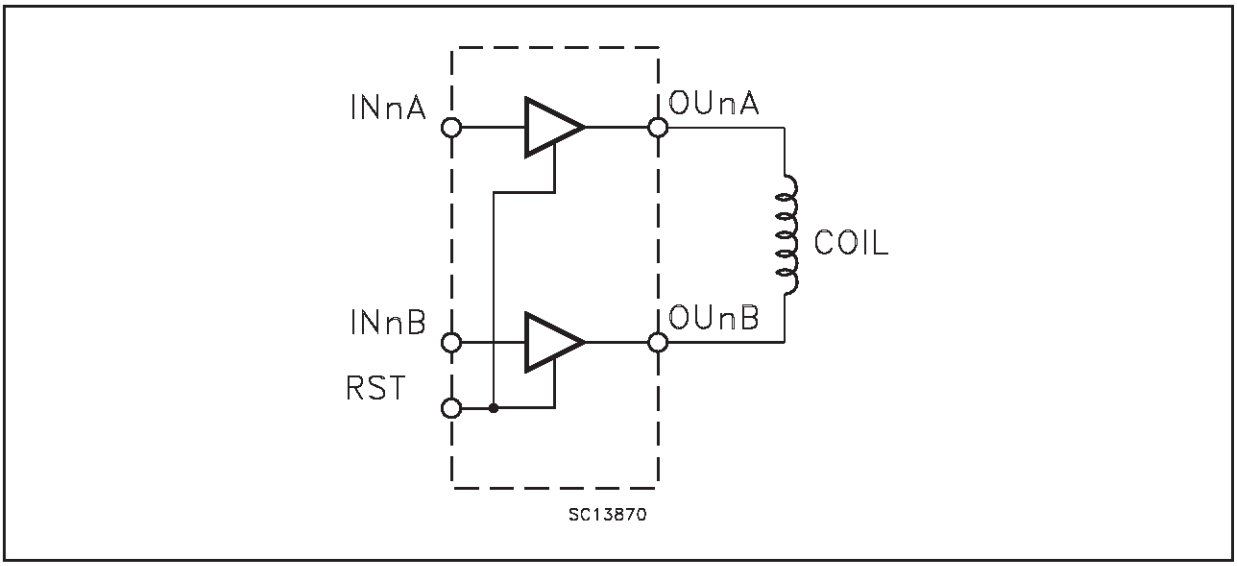
TRUTH TABLE FOR SINGLE SIDE RELAY

INPUT	OUTPUT
IN4	OUT4
L	H
H	L

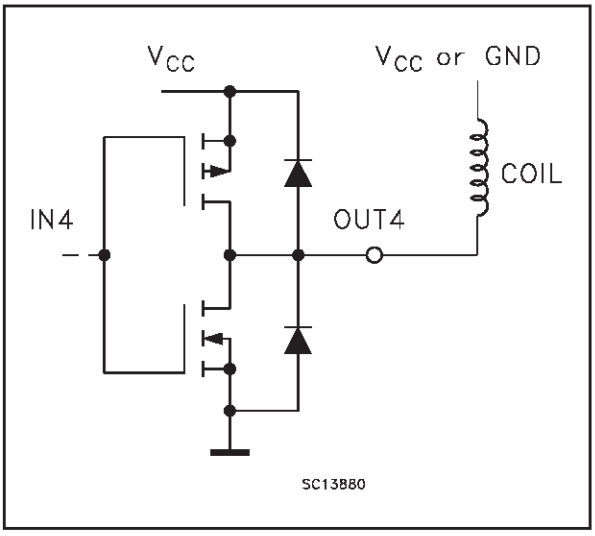
TRUTH TABLE FOR LED DRIVER

INPUT	OUTPUT
IN5	OUT5
L	H
H	L

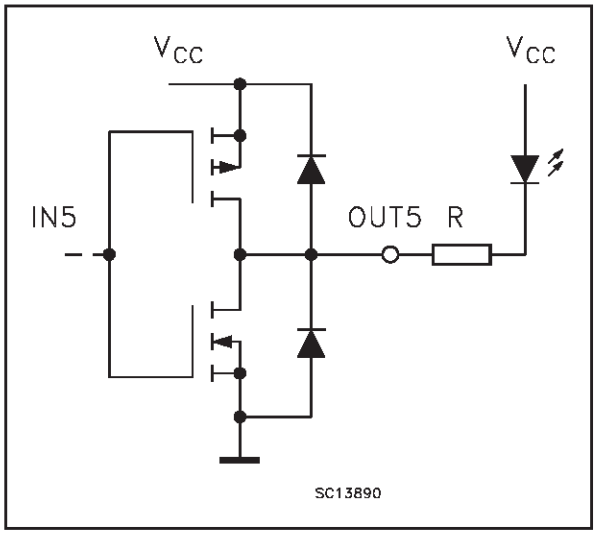
OUTPUT CIRCUIT FOR LATCHING RELAY DRIVER



OUTPUT CIRCUIT FOR SINGLE SIDE RELAY



OUTPUT CIRCUIT FOR LED DRIVER



TYPICAL PERFORMANCE CHARACTERISTICS (unless otherwise specified T_j = 25°C)

Figure 1 : Output Characteristics of a Double Relay Driver N-channel with All Output Loaded

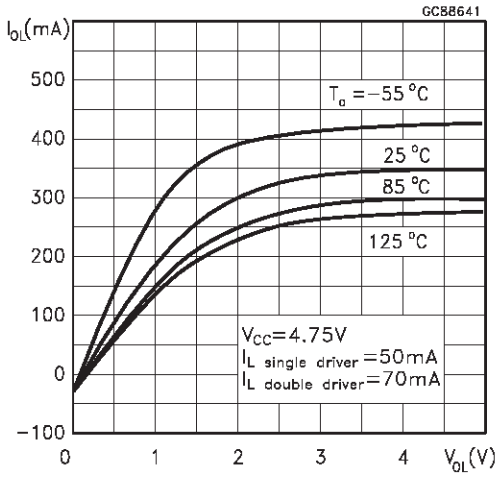


Figure 2 : Output Characteristics of a Single Side Relay or Led Driver N-channel with All Output Loaded

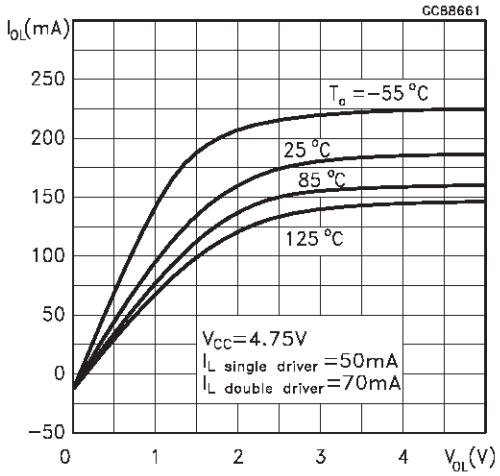


Figure 3 : Output Characteristics of a Double Relay Driver P-channel with All Output Loaded

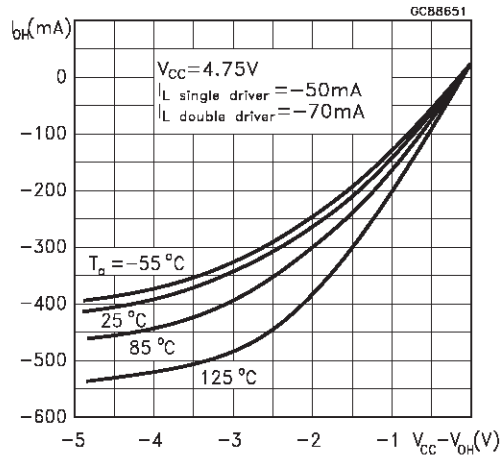
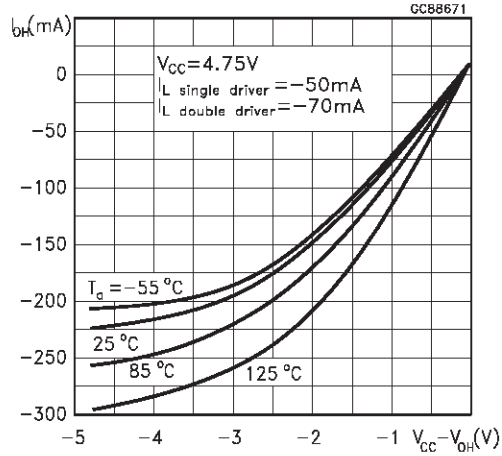


Figure 4 : Output Characteristics of a Single Side Relay or Led Driver P-channel with All Output Loaded



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^o	4^o	8^o	0^o	4^o	8^o
L	0.50	0.60	0.70	0.020	0.024	0.028