74ACT8244

RELAY DRIVER IC

- OPERATES 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

T
(TSSOP Package)

ORDER CODES :
74ACT8244TTR

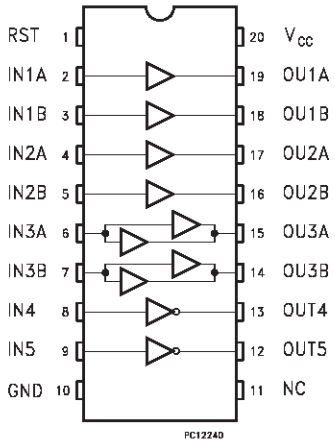
DESCRIPTION

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.

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_{CC}	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	± 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 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	°C
dt/dv	Input Rise and Fall Time V_{CC} = 4.5 to 5.5V (note1)	10	ns/V

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

DC SPECIFICATIONS (Electrical characteristics over recommended operating conditions)

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} = -35mA	V_{CC}-0.68	V_{CC}-0.3		V
V_{OL}	Low Level Output Voltage for Single Driver	I_{OUT} = 35mA		0.25	0.68	V
V_{OH}	High Level Output Voltage for Double Relay Driver	I_{OUT} = -70mA	V_{CC}-0.68	V_{CC}-0.3		V
V_{OL}	Low Level Output Voltage for Double Relay Driver	I_{OUT} = 70mA		0.25	0.68	V
V_{OH}	High Level Output Voltage for Single Side Relay or LED	I_{OUT} = -50mA	V_{CC}-0.8	V_{CC}-0.4		V
V_{OL}	Low Level Output Voltage for Single Side Relay or LED	I_{OUT} = 50mA		0.3	0.8	V
I_I	Input Leakage Current	V_I = V_{CC} or GND			±1	µA
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	µA

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

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

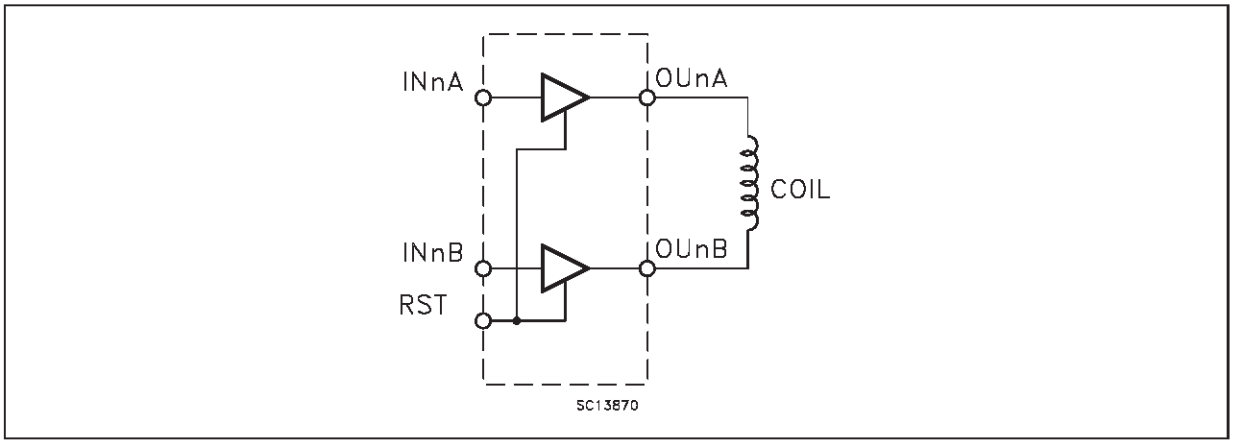
TRUTH TABLE FOR SINGLE SIDE RELAY

INPUT	OUTPUT
IN4	OUT4
L	H
H	L

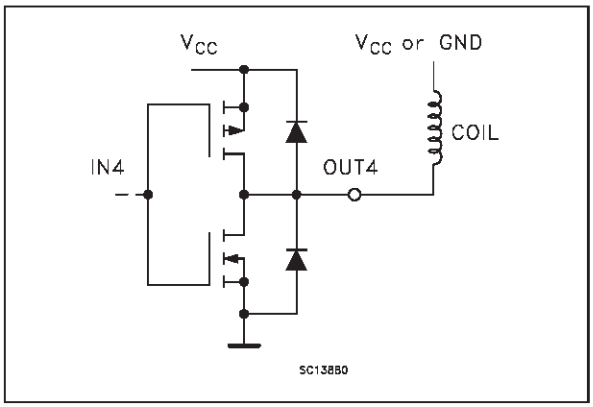
TRUTH TABLE FOR LED DRIVER

INPUT	OUTPUT
IN5	OUT5
L	H
H	L

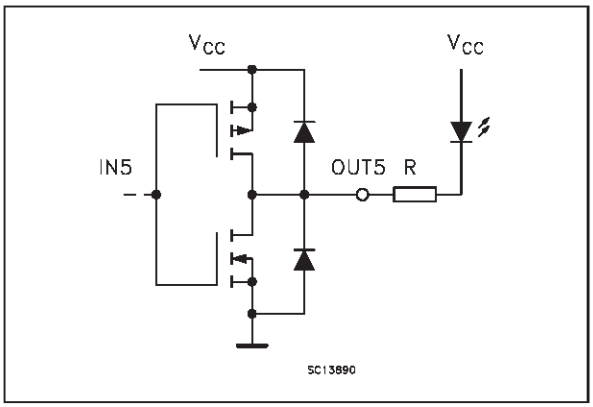
OUTPUT CIRCUIT FOR LATCHING RELAY DRIVER



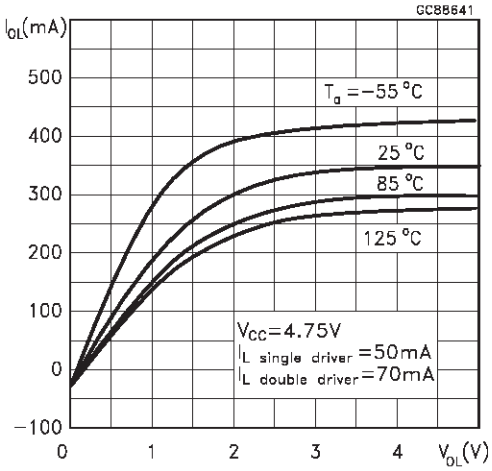
OUTPUT CIRCUIT FOR SINGLE SIDE RELAY



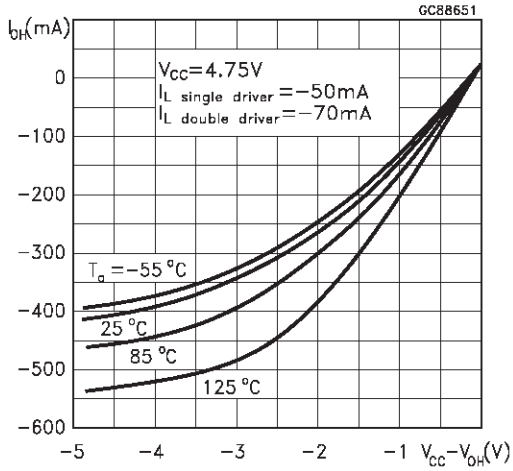
OUTPUT CIRCUIT FOR LED DRIVER



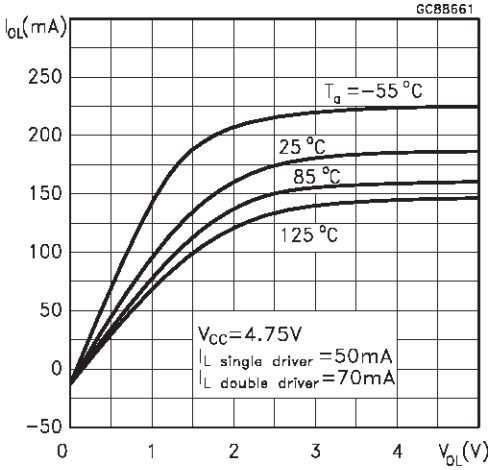
Output Characteristics of a Double Relay Driver N-channel with All Outputs Loaded



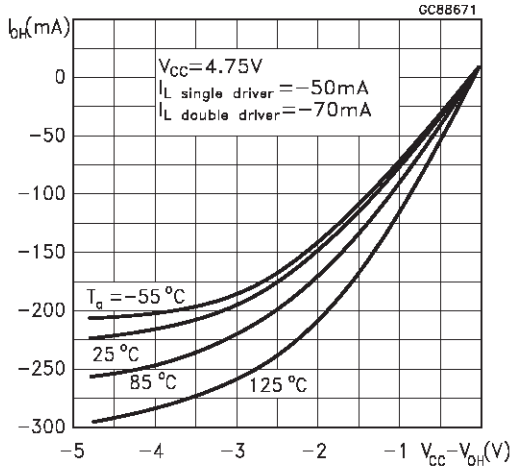
Output Characteristics of a Double Relay Driver P-channel with All Outputs Loaded



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



Output Characteristics of a Single Side Relay or Led Driver P-channel with All Outputs 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