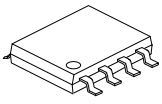
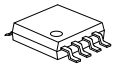
DUAL POLARISATION SWITCH TWIN LNB MULTIPLEX CONTROLLER



SOP-8



MSOP-8

■ DESCRIPTION

The UTC **L8020** dual polarisation switch controller is one of a wide range of satellite receiver LNB support circuits. Its features include completely independent channels, and every channel provides two logic outputs under the voltage sensitive input. The two inputs of the UTC **L8020** have a nominal threshold of 14.5V. Their threshold is temperature compensated to minimize drift. In order to achieve the transient protection by adding only a single resistor per channel, each input has a low and stable input current.

Normal and inverted outputs are provided for each input. All outputs can source 15mA and sink 10mA making them suitable to drive TTL and CMOS logic, pin diodes and for IF-amp supply switching.

The UTC **L8020** works in a single supply ranging from 5V to12V. The quiescent current of the UTC **L8020** is 4mA, and there is no remarkable change with load or logic state. In order to adapt the variation of environmental conditions, the ambient operating temperature is -40°C~+85°C.

The UTC **L8020** can be used in applications, such as IF switch box, LNB switch boxes and twin LNBs, replacing many discrete components to save both manufacturing cost and PCB size as well as improving reliability.

■ FEATURES

* Avoid external components
* Provides polarity detection and control
* Transient resistant
* Low input and supply current
* Temperature compensated input threshold
* Normal and inverted output available while wide supply operating range
* Dual polarisation switch
* Simplify the design

■ ORDERING INFORMATION

Ordering Number	Package	Packing
L8020G-S08-R	SOP-8	Tape Reel
L8020G-SM1-R	MSOP-8	Tape Reel

L8020G-S08-R

(1)Packing Type

(2)Package Type

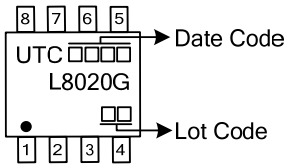
(3)Green Package

(1) R: Tape Reel

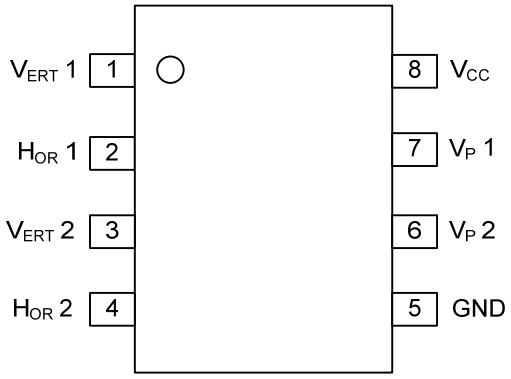
(2) S08: SOP-8, SM1: MSOP-8

(3) G: Halogen Free and Lead Free

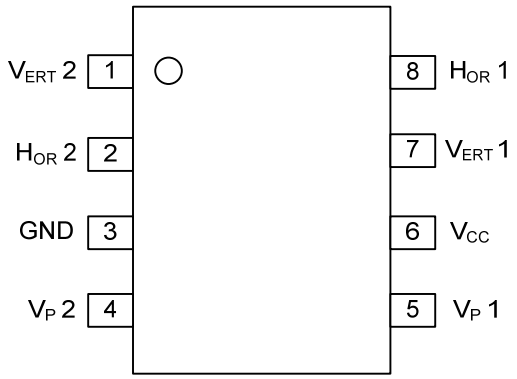
■ MARKING



■ PIN CONFIGURATION



SOP-8



MSOP-8

■ PIN DESCRIPTION

PIN NO.		PIN NAME	DESCRIPTION
SOP-8	MSOP-8		
1	7	$V_{ERT}1$	Vertical output 1
2	8	$H_{OR}1$	Horizontal output 1
3	1	$V_{ERT}2$	Vertical output 2
4	2	$H_{OR}2$	Horizontal output 2
5	3	GND	Ground connection pin.
6	4	V_P2	Polarity select input 2
7	5	V_P1	Polarity select input 1
8	6	V_{CC}	Supply voltage

■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATINGS	UNIT
Supply Voltage		V_{CC}	-0.6~+15	V
Input Voltage (V_{POL1} and V_{POL2})		V_{IN}	25	V
Supply Current		I_{CC}	50	mA
Power Dissipation (T_A=25°C)	MSOP-8	P_D	350	mW
	SOP-8		500	
Operating Temperature		T_{OPR}	-40~+85	°C
Storage Temperature		T_{STG}	-40~+85	°C

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS

(T_A= 25°C, V_{CC}=5V, I_D=10mA (R_{CAL1} =33kΩ), unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage	V_{CC}		5		12	V
Supply Current	I_{CC}	All inputs and outputs open circuit			10	mA
		I_{VERT1} =I_{VERT2} =10mA, V_{POL1} =V_{POL2} =14V			30	mA
		I_{HOR1} =I_{HOR2} =10mA, V_{POL1} =V_{POL2} =15.0V			30	mA
V_{POL1} and V_{POL2} Inputs						
Current	I_{POL}	V_{POL1} =V_{POL2} =25V (Note 1)	10	20	40	μA
Threshold Voltage	V_{TPOL}	(Note 1) (Note 2)	14.0	14.5	15.0	
Switching Speed	T_{SPOL}				100	μs
V_{ERT} 1/2 Outputs						
Voltage High	V_{VH}	I_{VERT1} =I_{VERT2} =10mA, V_{POL1} =V_{POL2} =14V	V_{CC}-1.0	V_{CC}-0.8	V_{CC}	V
		I_{VERT1} =I_{VERT2} =15mA, V_{POL1} =V_{POL2} =14V	V_{CC}-1.2	V_{CC}-0.9	V_{CC}	V
		I_{VERT1} =I_{VERT2} =10μA, V_{POL1} =V_{POL2} =14V	V_{CC}-0.2	V_{CC}-0.1	V_{CC}	V
Voltage Low	V_{VL}	I_{VERT1} =I_{VERT2} =-10mA, V_{POL1} =V_{POL2} =15.0V	0	0.25	0.5	V
H_{OR} 1/2 Outputs						
Voltage High	V_{VH}	I_{HOR1} =I_{HOR2} =10mA, V_{POL1} =V_{POL2} =15.0V	V_{CC}-1.0	V_{CC}-0.8	V_{CC}	V
		I_{HOR1} =I_{HOR2} =15mA, V_{POL1} =V_{POL2} =15.0V	V_{CC}-1.2	V_{CC}-0.9	V_{CC}	V
		I_{HOR1} =I_{HOR2} =10μA, V_{POL1} =V_{POL2} =15.0V	V_{CC}-0.2	V_{CC}-0.1	V_{CC}	V
Voltage Low	V_{VLOW}	I_{HOR1} =I_{HOR2} =-10mA, V_{POL1} =V_{POL2} =14V	0	0.25	0.5	V

Notes: 1. V_{POL1} and V_{POL2} switching thresholds apply over the whole operating temperature range specified above.
2. Applied via 10k resistors.

■ TYPICAL APPLICATION CIRCUIT

A twin LNB design is as followed. In this block diagram, the UTC **L8020** provides the two polarity switches required to decode the two independent receiver feeds.