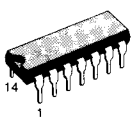
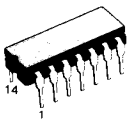
QUAD 2-INPUT EXCLUSIVE OR GATE

DESCRIPTION

The T54LS136/T74LS136 is a high speed QUAD 2-INPUT EXCLUSIVE OR GATE (with open collector output) fabricated in LOW POWER SCHOTTKY technology.



B1
Plastic Package



D1/D2
Ceramic Package

M1
Micro Package

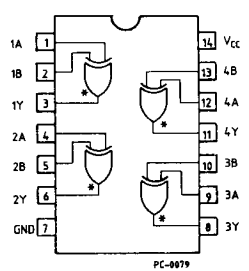
C1
Plastic Chip Carrier

ORDERING NUMBERS:

T54LS136 D2	T74LS136 C1
T74LS136 D1	T74LS136 M1
T74LS136 B1	

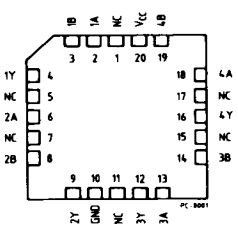
PIN CONNECTION (top view)

DUAL IN LINE



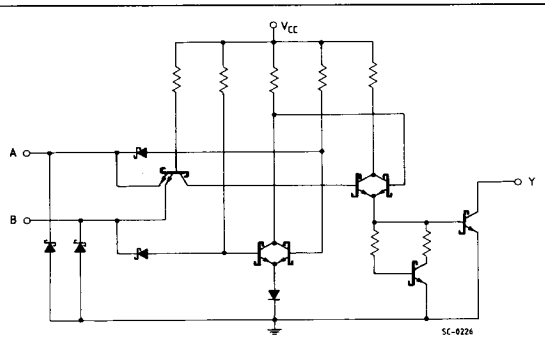
* Open Collector Outputs

CHIP CARRIER

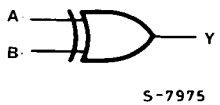


NC = No Internal Connection

SCHEMATIC



LOGIC DIAGRAM AND TRUTH TABLE



IN		OUT
A	B	Y
L	L	L
L	H	H
H	L	H
H	H	L

L = LOW Voltage level
H = HIGH Voltage level

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CC}	Supply Voltage	−0.5 to 7	V
V_I	Input Voltage, Applied to Input	−0.5 to 15	V
V_O	Output Voltage, Applied to Output	−0.5 to 10	V
I_I	Input Current, Into Inputs	−30 to 5	mA
I_O	Output Current, Into Outputs	50	mA

Stresses in excess of those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions in excess of those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

GUARANTEED OPERATING RANGES

Part Numbers	Supply Voltage			Temperature
	Min	Typ	Max	
T54LS136D2	4.5 V	5.0 V	5.5 V	−55°C to +125°C
T74LS136XX	4.75 V	5.0 V	5.25 V	0°C to +70°C

XX = package type.

DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE

Symbol	Parameter		Limits			Test Conditions (Note 1)		Units
			Min.	Typ.	Max.			
V_{IH}	Input HIGH Voltage		2.0			Guaranteed input HIGH Voltage for all Inputs		V
V_{IL}	Input LOW Voltage	54			0.7	Guaranteed input LOW Voltage for all Inputs		V
		74			0.8			
V_{CD}	Input Clamp Diode Voltage			−0.65	−1.5	V_{CC} = MIN, I_{IN} = −18mA		V
I_{OH}	Output HIGH Current	54,74			100	V_{CC} = MIN, V_{OH} = −5.5V, V_{IN} = V_{IH} or V_{IL} per Truth Table		μA
V_{OL}	Output LOW Voltage	54,74		0.25	0.4	I_{OL} = 4.0mA	V_{CC} = MIN, V_{IN} = V_{IH} or V_{IL} per Truth Table	V
		74		0.35	0.5	I_{OL} = 8.0mA		
I_{IH}	Input HIGH Current				40 0.2	V_{CC} = MAX, V_{IN} = 2.7V V_{CC} = MAX, V_{IN} = 5.5V		μA mA
I_{IL}	Input LOW Current				−0.6	V_{CC} = MAX, V_{IN} = 0.4V		mA
I_{CC}	Power Supply Current			6.0	10	V_{CC} = MAX		mA

AC CHARACTERISTICS: T_A = 25°C (See page 576 for AC test circuit and waveforms)

Symbol	Parameter	Limits			Test Conditions	Units
		Min.	Typ.	Max.		
t_{PLH} t_{PHL}	Propagation Delay Other Input LOW		18 18	30 30	V_{CC} = 5.0V	ns
t_{PHL} t_{PHL}	Propagation Delay Other Input HIGH		18 18	30 30	C_L = 15pF, R_L = 2.0KΩ	ns

Notes:
1) For conditions shown as MIN or MAX, use the appropriate value specified under guaranteed operating ranges.
2) Typical values are at V_{CC} = 5.0V, T_A = 25°C