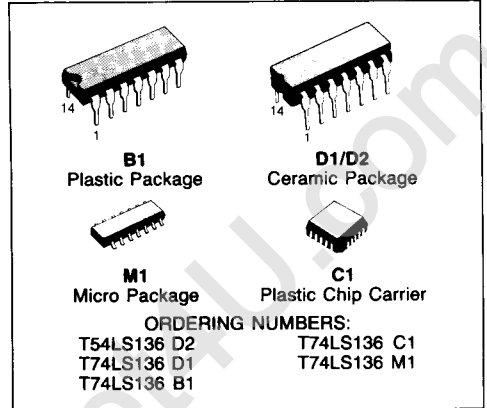




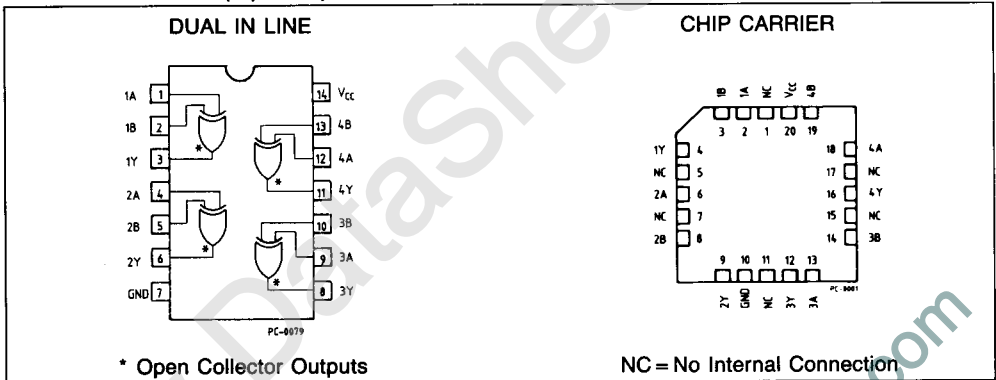
## QUAD 2-INPUT EXCLUSIVE OR GATE

### DESCRIPTION

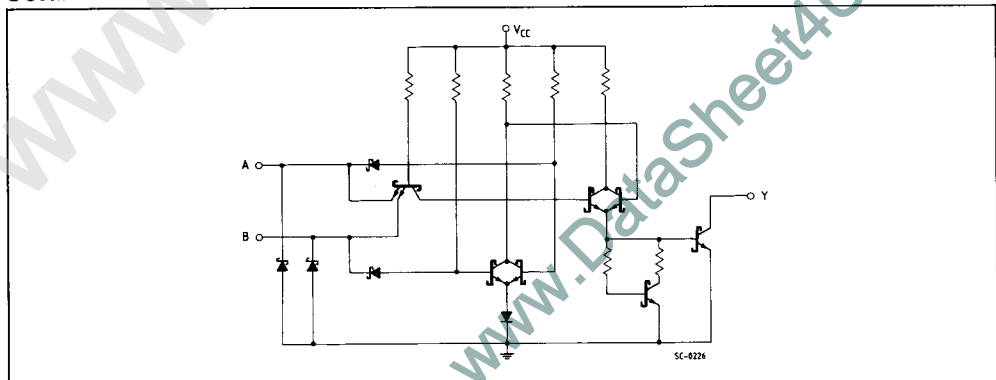
The T54LS136/T74LS136 is a high speed QUAD 2-INPUT EXCLUSIVE OR GATE (with open collector output) fabricated in LOW POWER SCHOTTKY technology.



### PIN CONNECTION (top view)

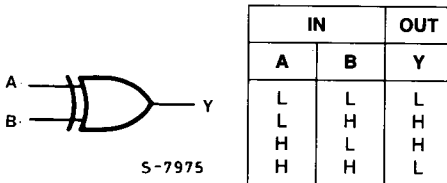


### SCHEMATIC





## LOGIC DIAGRAM AND TRUTH TABLE



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	$V_{CC} = \text{MIN}, I_{IN} = -18\text{mA}$	V
$I_{OH}$	Output HIGH Current	54,74			100	$V_{CC} = \text{MIN}, V_{OH} = -5.5\text{V}, V_{IN} = V_{IH}$ or $V_{IL}$ per Truth Table	$\mu\text{A}$
$V_{OL}$	Output LOW Voltage	54,74		0.25	0.4	$I_{OL} = 4.0\text{mA}$ $V_{CC} = \text{MIN}, V_{IN} = V_{IH}$ or $V_{IL}$ per Truth Table	V
		74		0.35	0.5		
$I_{IH}$	Input HIGH Current				40 0.2	$V_{CC} = \text{MAX}, V_{IN} = 2.7\text{V}$ $V_{CC} = \text{MAX}, V_{IN} = 5.5\text{V}$	$\mu\text{A}$ mA
$I_{IL}$	Input LOW Current				-0.6	$V_{CC} = \text{MAX}, V_{IN} = 0.4\text{V}$	mA
$I_{CC}$	Power Supply Current			6.0	10	$V_{CC} = \text{MAX}$	mA

### AC CHARACTERISTICS: $T_A = 25^\circ\text{C}$ (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	30		$V_{CC} = 5.0\text{V}$ $C_L = 15\text{pF}, R_L = 2.0\text{K}\Omega$	ns
$t_{PHL}$ $t_{PHL}$	Propagation Delay Other Input HIGH		18	30			

#### Notes:

- 1) For conditions shown as MIN or MAX, use the appropriate value specified under guaranteed operating ranges.
- 2) Typical values are at  $V_{CC} = 5.0\text{V}, T_A = 25^\circ\text{C}$