- **Generates Either Odd or Even Parity for Nine Data Lines**
- **Cascadable for N-Bits Parity**
- **Package Options Include Plastic Small-Outline Packages, Ceramic Chip Carriers, and Standard Plastic and Ceramic 300-mil DIPs**

description

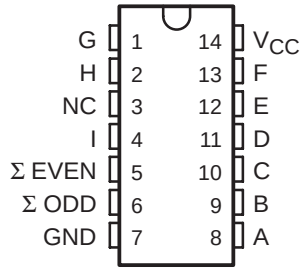
These universal, monolithic, 9-bit parity generators/checkers feature odd and even outputs to facilitate operation of either odd or even parity application. The word-length capability is easily expanded by cascading.

The SN54F280B is characterized for operation over the full military temperature range of −55°C to 125°C. The SN74F280B is characterized for operation from 0°C to 70°C.

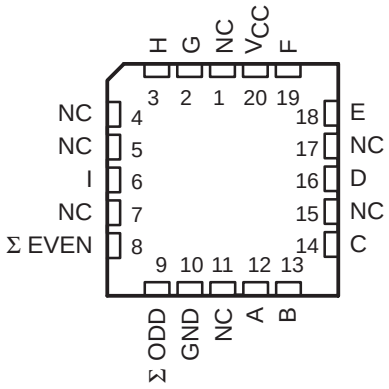
FUNCTION TABLE

NO. OF INPUTS A THRU I THAT ARE HIGH	OUTPUTS	
	Σ EVEN	Σ ODD
0, 2, 4, 6, 8	H	L
1, 3, 5, 7, 9	L	H

SN54F280B . . . J PACKAGE
SN74F280B . . . D OR N PACKAGE
(TOP VIEW)

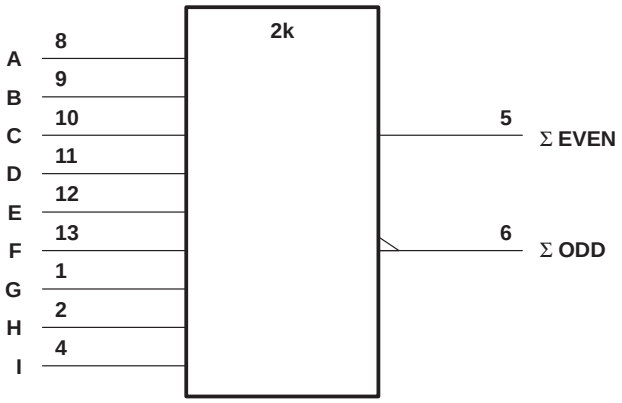


SN54F280B . . . FK PACKAGE
(TOP VIEW)



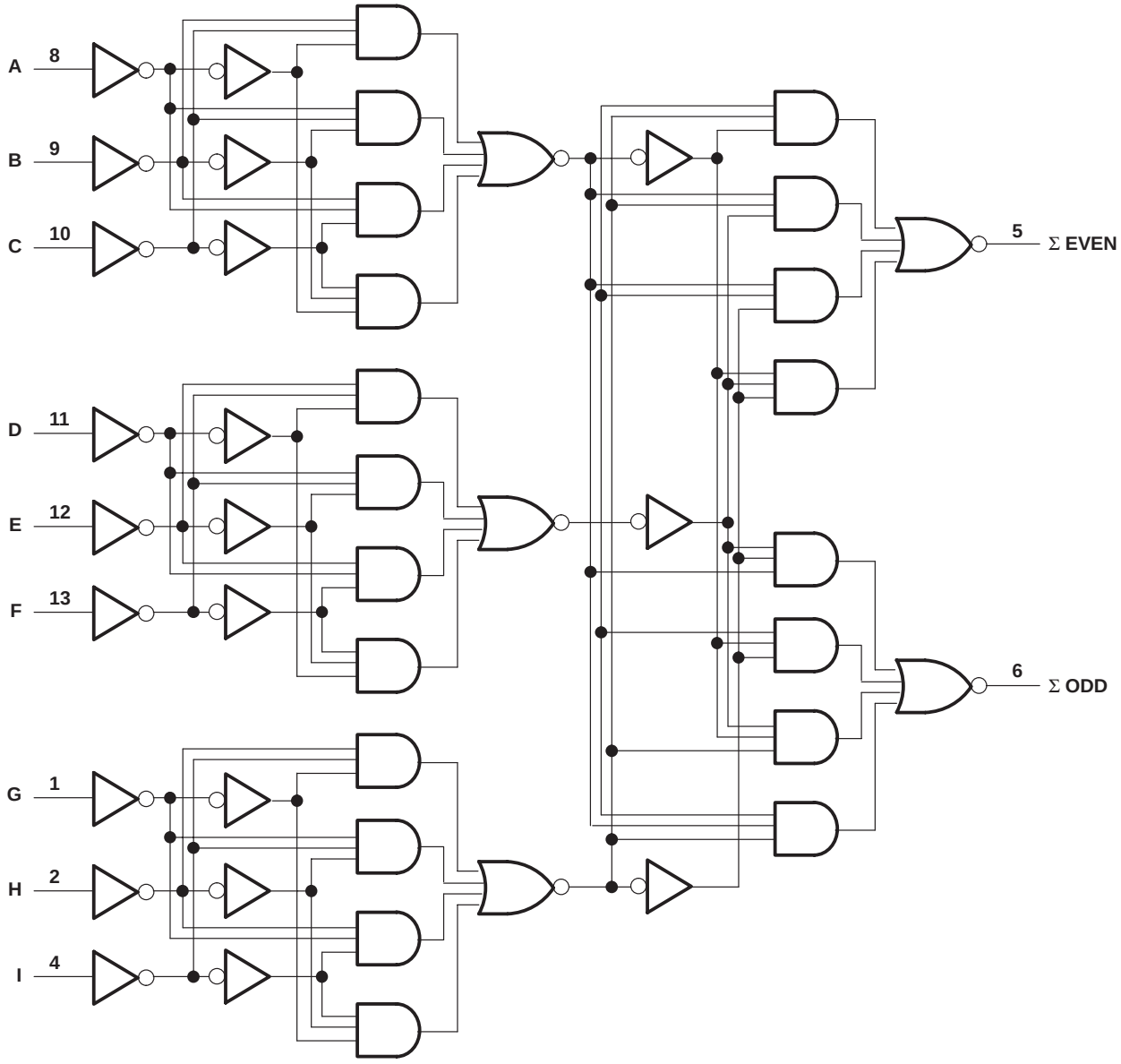
NC − No internal connection

logic symbol†



† This symbol is in accordance with ANSI/IEEE Std 91-1984 and IEC Publication 617-12.
Pin numbers shown are for the D, J, and N packages.

logic diagram (positive logic)



Pin numbers shown are for the D, J, and N packages.

TEXAS INSTRUMENTS
POST OFFICE BOX 655303 • DALLAS, TEXAS 75265
POST OFFICE BOX 1443 • HOUSTON, TEXAS 77251−1443

absolute maximum ratings over operating free-air temperature range (unless otherwise noted)†

Supply voltage range, V_{CC} . . . . . −0.5 V to 7 V
Input voltage range (see Note 1) . . . . . −1.2 V to 7 V
Input current range . . . . . −30 mA to 5 mA
Voltage range applied to any output in the high state . . . . . −0.5 V to V_{CC}
Current into any output in the low state . . . . . 40 mA
Operating free-air temperature range: SN54F280B . . . . . −55°C to 125°C
SN74F280B . . . . . 0°C to 70°C
Storage temperature range . . . . . −65°C to 150°C

† Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

NOTE 1: The input voltage ratings may be exceeded provided the input current ratings are observed.

recommended operating conditions

		SN54F280B			SN74F280B			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V_{CC}	Supply voltage	4.5	5	5.5	4.5	5	5.5	V
V_{IH}	High-level input voltage	2			2			V
V_{IL}	Low-level input voltage			0.8			0.8	V
I_{IK}	Input clamp current			−18			−18	mA
I_{OH}	High-level output current			− 1			− 1	mA
I_{OL}	Low-level output current			20			20	mA
T_A	Operating free-air temperature	−55		125	0		70	°C

electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER	TEST CONDITIONS		SN54F280B			SN74F280B			UNIT
			MIN	TYP‡	MAX	MIN	TYP‡	MAX	
V_{IK}	V_{CC} = 4.5 V,	I_I = −18 mA			−1.2			−1.2	V
V_{OH}	V_{CC} = 4.5 V	I_{OH} = − 1 mA	2.5	3.4		2.5	3.4		V
	V_{CC} = 4.75 V,	I_{OH} = − 1 mA				2.7			
V_{OL}	V_{CC} = 4.5 V	I_{OL} = 20 mA		0.3	0.5		0.3	0.5	V
I_I	V_{CC} = 0,	V_I = 7 V			0.1			0.1	mA
I_{IH}	V_{CC} = 5.5 V,	V_I = 2.7 V			20			20	µA
I_{IL}	V_{CC} = 5.5 V,	V_I = 0.5 V			− 20			− 20	µA
I_{OS}§	V_{CC} = 5.5 V,	V_O = 0	−60		−150	−60		−150	mA
I_{CC}	V_{CC} = 5.5 V,	V_I = 0		26	35		26	35	mA

‡ All typical values are at V_{CC} = 5 V, T_A = 25°C.

§ Not more than one output should be shorted at a time, and the duration of the short circuit should not exceed one second.

switching characteristics (see Note 2)

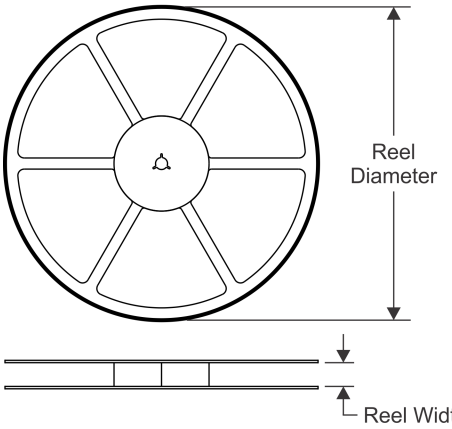
PARAMETER	FROM (INPUT)	TO (OUTPUT)	V_{CC} = 5 V, C_L = 50 pF, R_L = 500 Ω, T_A = 25°C			V_{CC} = 4.5 V to 5.5 V, C_L = 50 pF, R_L = 500 Ω, T_A = MIN to MAX†				UNIT
			′F280B			SN54F280B		SN74F280B		
			MIN	TYP	MAX	MIN	MAX	MIN	MAX	
t_{PLH}	Any input	Σ EVEN	3.2	6.1	9	2.7	13	2.7	10	ns
t_{PHL}			3.2	6.6	10	2.7	15	2.7	11	
t_{PLH}	Any input	Σ ODD	3.2	6.1	9	2.7	14	2.7	10	ns
t_{PHL}			3.2	6.6	10	2.7	14	2.7	11	

† For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions.

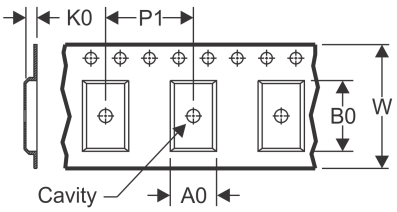
NOTE 2: Load circuits and waveforms are shown in Section 1.

TAPE AND REEL INFORMATION

REEL DIMENSIONS

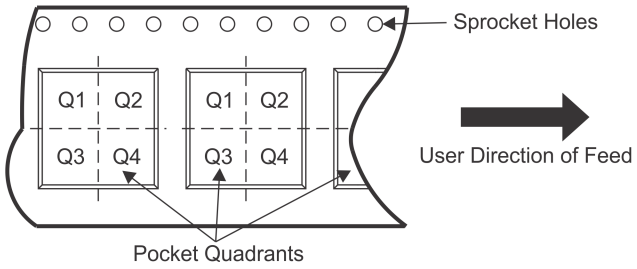


TAPE DIMENSIONS



A0	Dimension designed to accommodate the component width
B0	Dimension designed to accommodate the component length
K0	Dimension designed to accommodate the component thickness
W	Overall width of the carrier tape
P1	Pitch between successive cavity centers

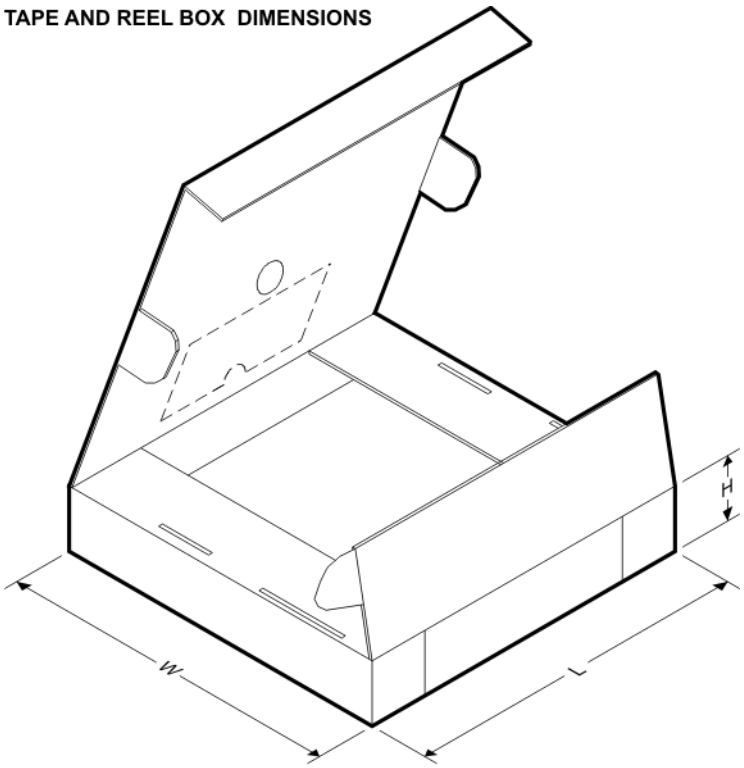
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
SN74F280BDR	SOIC	D	14	2500	330.0	16.4	6.5	9.0	2.1	8.0	16.0	Q1
SN74F280BNSR	SO	NS	14	2000	330.0	16.4	8.2	10.5	2.5	12.0	16.0	Q1

TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74F280BDR	SOIC	D	14	2500	853.0	449.0	35.0
SN74F280BNSR	SO	NS	14	2000	853.0	449.0	35.0

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