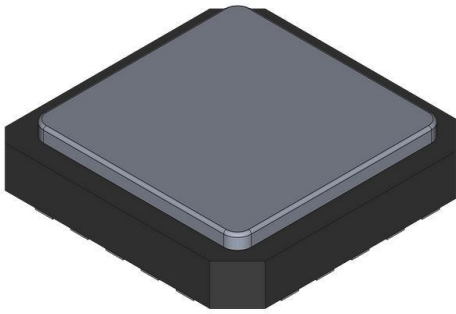


SNJ54LS273FK Datasheet

www.digi-electronics.com



<https://www.DiGi-Electronics.com>

DiGi Electronics Part Number	SNJ54LS273FK-DG
Manufacturer	Texas Instruments
Manufacturer Product Number	SNJ54LS273FK
Description	54LS273 OCTAL D-TYPE FLIP-FLOP W
Detailed Description	Flip Flop Element Bit



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.



Purchase and inquiry

Manufacturer Product Number:

SNJ54LS273FK

Series:

*

Base Product Number:

54LS273

Manufacturer:

Texas Instruments

Product Status:

Active

Environmental & Export classification

ECCN:

EAR99

HTSUS:

8542.39.0001

SN54273, SN54LS273, SN74273, SN74LS273 OCTAL D-TYPE FLIP-FLOP WITH CLEAR

SDLS090 – OCTOBER 1976 – REVISED MARCH 1988

- Contains Eight Flip-Flops With Single-Rail Outputs
- Buffered Clock and Direct Clear Inputs
- Individual Data Input to Each Flip-Flop
- Applications Include:
 - Buffer/Storage Registers
 - Shift Registers
 - Pattern Generators

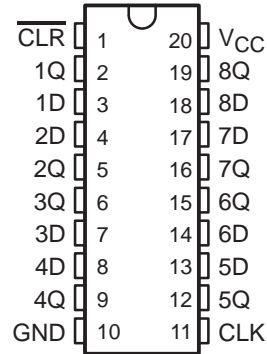
description

These monolithic, positive-edge-triggered flip-flops utilize TTL circuitry to implement D-type flip-flop logic with a direct clear input.

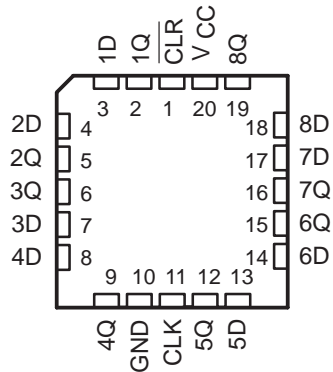
Information at the D inputs meeting the setup time requirements is transferred to the Q outputs on the positive-going edge of the clock pulse. Clock triggering occurs at a particular voltage level and is not directly related to the transition time of the positive-going pulse. When the clock input is at either the high or low level, the D input signal has no effect at the output.

These flip-flops are guaranteed to respond to clock frequencies ranging from 0 to 30 megahertz while maximum clock frequency is typically 40 megahertz. Typical power dissipation is 39 milliwatts per flip-flop for the '273 and 10 milliwatts for the 'LS273.

SN54273, SN74LS273 . . . J OR W PACKAGE
SN74273 . . . N PACKAGE
SN74LS273 . . . DW OR N PACKAGE
(TOP VIEW)



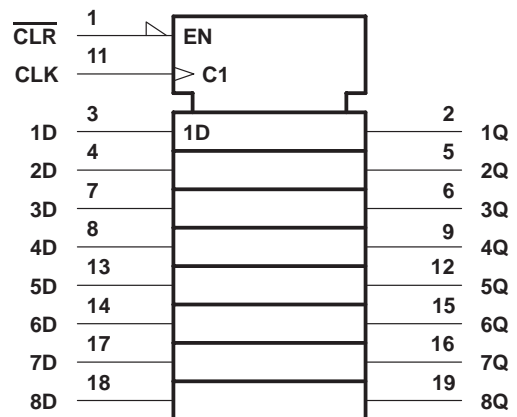
SN54LS273 . . . FK PACKAGE
(TOP VIEW)



FUNCTION TABLE
(each flip-flop)

INPUTS			OUTPUT
CLEAR	CLOCK	D	Q
L	X	X	L
H	↑	H	H
H	↑	L	L
H	L	X	Q ₀

logic symbol†

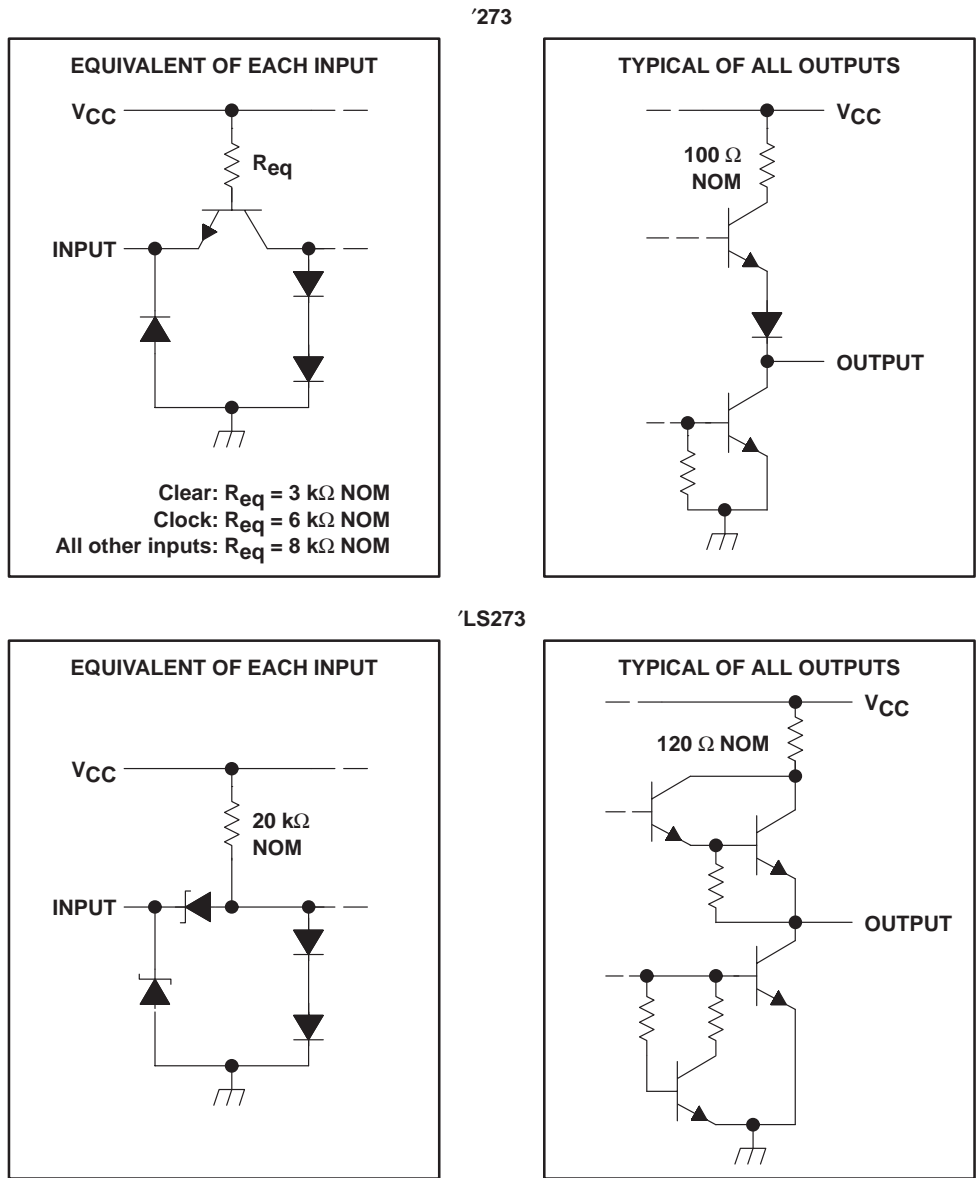


† This symbol is in accordance with ANSI/IEEE Std. 91-1984 and IEC Publication 617-12. Pin numbers shown are for the DW, J, N, and W packages.

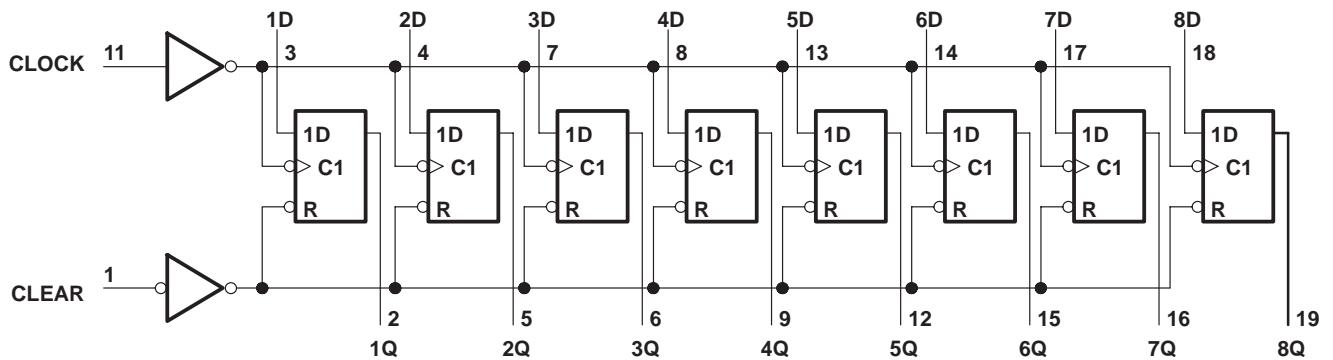
SNJ54LS273FK Texas Instruments 54LS273 OCTAL D-TYPE FLIP-FLOP W
SN54273, SN54LS273, SN74273, SN74LS273
OCTAL D-TYPE FLIP-FLOP WITH CLEAR

SDLS090 – OCTOBER 1976 – REVISED MARCH 1988

schematics of inputs and outputs



logic diagram (positive logic)



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



POST OFFICE BOX 655303 • DALLAS, TEXAS 75265

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

Supply voltage, V_{CC} (see Note 1)	7 V
Input voltage	5.5 V
Operating free-air temperature range, T_A : SN54273	-55°C to 125°C
SN74273	0°C to 70°C
Storage temperature range	-65°C to 150°C

NOTE 1: Voltage values are with respect to network ground terminal.

recommended operating conditions

	SN54273			SN74273			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
Supply voltage, V_{CC}	4.5	5	5.5	4.75	5	5.25	V
High-level output current, I_{OH}			-800			-800	μ A
Low-level output current, I_{OL}			16			16	mA
Clock frequency, f_{clock}	0		30	0		30	MHz
Width of clock or clear pulse, t_w	16.5			16.5			ns
Setup time, t_{su}	Data input		20 \uparrow	20 \uparrow			ns
	Clear inactive state		25 \uparrow	25 \uparrow			
Data hold time, t_h	5 \uparrow			5 \uparrow			ns
Operating free-air temperature, T_A	-55		125	0		70	°C

 \uparrow The arrow indicates that the rising edge of the clock pulse is used for reference.**electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)**

PARAMETER		TEST CONDITIONS \dagger	MIN	TYP \ddagger	MAX	UNIT
V_{IH}	High-level input voltage		2			V
V_{IL}	Low-level input voltage				0.8	V
V_{IK}	Input clamp voltage	$V_{CC} = \text{MIN}$, $I_I = -12 \text{ mA}$			-1.5	V
V_{OH}	High-level output voltage	$V_{CC} = \text{MIN}$, $V_{IL} = 0.8 \text{ V}$, $V_{IH} = 2 \text{ V}$, $I_{OH} = -800 \mu\text{A}$	2.4	3.4		V
V_{OL}	Low-level output voltage	$V_{CC} = \text{MIN}$, $V_{IL} = 0.8 \text{ V}$, $V_{IH} = 2 \text{ V}$, $I_{OH} = 16 \text{ mA}$			0.4	V
I_I	Input current at maximum input voltage	$V_{CC} = \text{MAX}$, $V_I = 5.5 \text{ V}$			1	mA
I_{IH}	High-level input current	Clear			80	μ A
		Clock or D	$V_{CC} = \text{MAX}$, $V_I = 2.4 \text{ V}$		40	
I_{IL}	Low-level input current	Clear	$V_{CC} = \text{MAX}$, $V_I = 0.4 \text{ V}$		-3.2	mA
		Clock or D			-1.6	
I_{OS}	Short-circuit output current \S	$V_{CC} = \text{MAX}$	-18		-57	mA
I_{CC}	Supply current	$V_{CC} = \text{MAX}$, See Note 2		62	94	mA

 \dagger For conditions shown as MIN or MAX, use the appropriate value specified under recommended operating conditions. \ddagger All typical values are at $V_{CC} = 5 \text{ V}$, $T_A = 25^\circ\text{C}$. \S Not more than one output should be shorted at a time.NOTE 2: With all outputs open and 4.5 V applied to all data and clear inputs, I_{CC} is measured after a momentary ground, then 4.5 V, is applied to clock.

SN54273, SN54LS273, SN74273, SN74LS273

OCTAL D-TYPE FLIP-FLOP WITH CLEAR

SDLS090 – OCTOBER 1976 – REVISED MARCH 1988

switching characteristics, $V_{CC} = 5\text{ V}$, $T_A = 25^\circ\text{C}$

PARAMETER		TEST CONDITIONS	MIN	TYP	MAX	UNIT
f_{\max}	Maximum clock frequency	$C_L = 15\text{ pF}$, $R_L = 400\ \Omega$, See Note 3	30	40		MHz
t_{PHL}	Propagation delay time, high-to-low-level output from clear			18	27	ns
t_{PLH}	Propagation delay time, low-to-high-level output from clock			17	27	ns
t_{PHL}	Propagation delay time, high-to-low-level output from clock			18	27	ns

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

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

Supply voltage, V_{CC} (see Note 1)	7 V
Input voltage	7 V
Operating free-air temperature range, T_A : SN54LS273	-55°C to 125°C
SN74LS273	0°C to 70°C
Storage temperature range	-65°C to 150°C

NOTE 1: Voltage values are with respect to network ground terminal.

recommended operating conditions

	SN54LS273			SN74LS273			UNIT
	MIN	NOM	MAX	MIN	NOM	MAX	
Supply voltage, V_{CC}	4.5	5	5.5	4.75	5	5.25	V
High-level output current, I_{OH}			-400			-400	μA
Low-level output current, I_{OL}			4			8	mA
Clock frequency, f_{clock}	0		30	0		30	MHz
Width of clock or clear pulse, t_w	20			20			ns
Setup time, t_{su}	Data input			20 \uparrow			ns
	Clear inactive state			25 \uparrow			
Data hold time, t_h	5 \uparrow			5 \uparrow			ns
Operating free-air temperature, T_A	-55		125	0		70	$^\circ\text{C}$

 \uparrow The arrow indicates that the rising edge of the clock pulse is used for reference.

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

PARAMETER	TEST CONDITIONST	SN54LS273			SN74LS273			UNIT	
		MIN	TYP‡	MAX	MIN	TYP‡	MAX		
V _{IH} High-level input voltage		2			2			V	
V _{IL} Low-level input voltage				0.7			0.8	V	
V _{IK} Input clamp voltage	V _{CC} = MIN, I _I = -18 mA			-1.5			-1.5	V	
V _{OH} High-level output voltage	V _{CC} = MIN, V _{IH} = 2 V, V _{IL} = V _{ILmax} , I _{OH} = -400 μA	2.5	3.4		2.7	3.4		V	
V _{OL} Low-level output voltage	V _{CC} = MIN, V _{IH} = 2 V, V _{IL} = V _{ILmax} , I _{OL} = 4 mA	0.25	0.4		0.25	0.4		V	
					0.35	0.5			
I _I Input current at maximum input voltage	V _{CC} = MAX, V _I = 7 V			0.1			0.1	mA	
I _{IH} High-level input current	V _{CC} = MAX, V _I = 2.7 V			20			20	μA	
I _{IL} Low-level input current	V _{CC} = MAX, V _I = 0.4 V			-0.4			-0.4	mA	
I _{OS} Short-circuit output current§	V _{CC} = MAX	-20		-100	-20		-100	mA	
I _{CC} Supply current	V _{CC} = MAX, See Note 2			17	27		17	27	mA

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

‡ 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 duration of short circuit should not exceed one second.

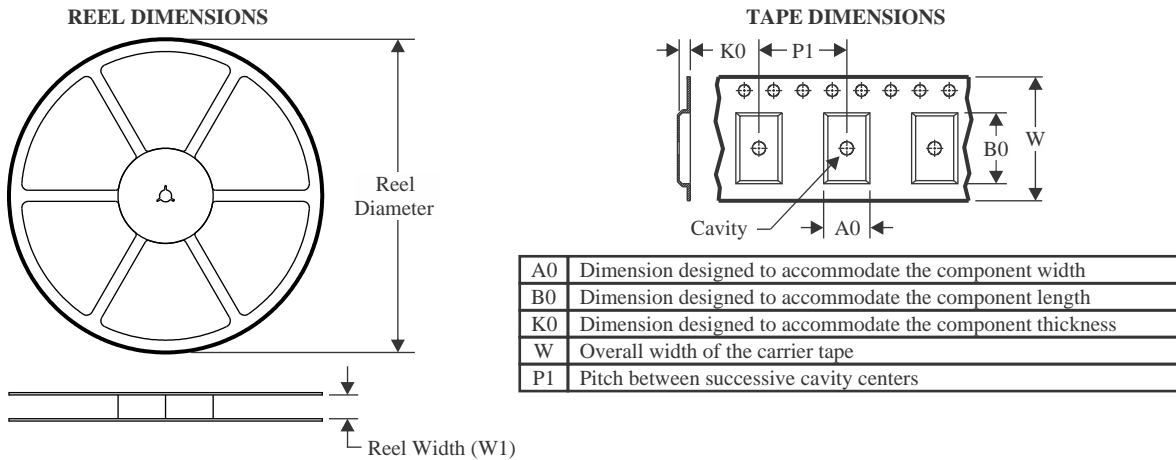
NOTE 2: With all outputs open and 4.5 V applied to all data and clear inputs, I_{CC} is measured after a momentary ground, then 4.5 V, is applied to clock.

switching characteristics, V_{CC} = 5 V, T_A = 25°C

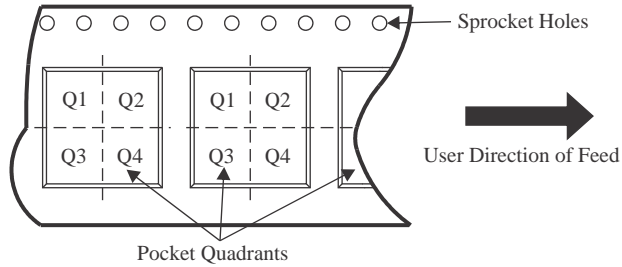
PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT
f _{max} Maximum clock frequency	C _L = 15 pF, R _L = 2 kΩ, See Note 3	30	40		MHz
t _{PHL} Propagation delay time, high-to-low-level output from clear			18	27	ns
t _{PLH} Propagation delay time, low-to-high-level output from clock			17	27	ns
t _{PHL} Propagation delay time, high-to-low-level output from clock			18	27	ns

NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

TAPE AND REEL INFORMATION



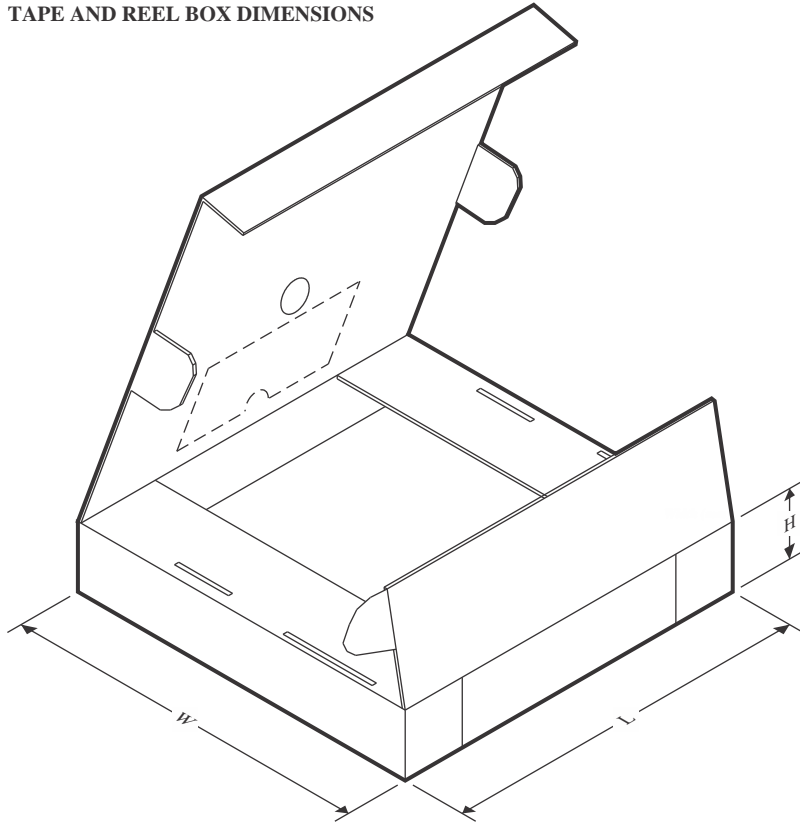
QUADRANT ASSIGNMENTS FOR PIN 1 ORIENTATION IN TAPE



*All dimensions are nominal

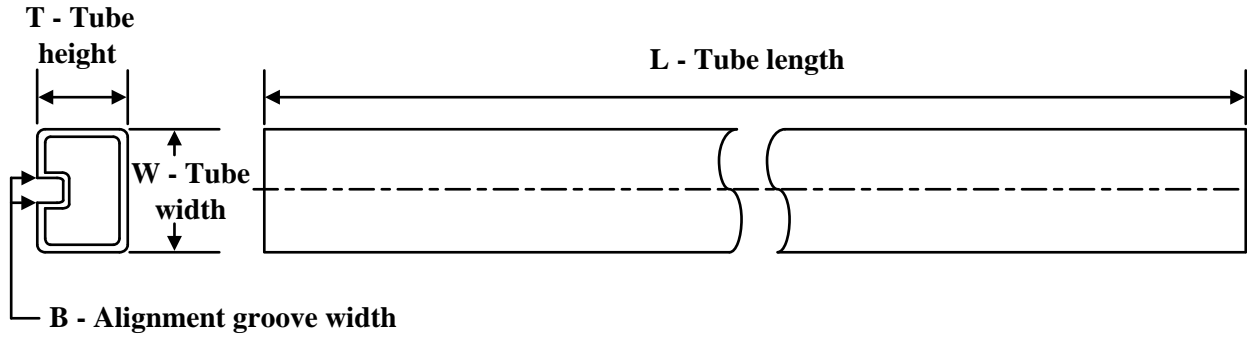
Device	Package Type	Package Drawing	Pins	SPQ	Reel Diameter (mm)	Reel Width W1 (mm)	A0 (mm)	B0 (mm)	K0 (mm)	P1 (mm)	W (mm)	Pin1 Quadrant
SN74LS273DWR	SOIC	DW	20	2000	330.0	24.4	10.8	13.3	2.7	12.0	24.0	Q1
SN74LS273NSR	SOP	NS	20	2000	330.0	24.4	8.4	13.0	2.5	12.0	24.0	Q1

TAPE AND REEL BOX DIMENSIONS



*All dimensions are nominal

Device	Package Type	Package Drawing	Pins	SPQ	Length (mm)	Width (mm)	Height (mm)
SN74LS273DWR	SOIC	DW	20	2000	367.0	367.0	45.0
SN74LS273NSR	SOP	NS	20	2000	367.0	367.0	45.0

TUBE

*All dimensions are nominal

Device	Package Name	Package Type	Pins	SPQ	L (mm)	W (mm)	T (μm)	B (mm)
78010012A	FK	LCCC	20	55	506.98	12.06	2030	NA
7801001SA	W	CFP	20	25	506.98	26.16	6220	NA
JM38510/32501B2A	FK	LCCC	20	55	506.98	12.06	2030	NA
JM38510/32501BSA	W	CFP	20	25	506.98	26.16	6220	NA
M38510/32501B2A	FK	LCCC	20	55	506.98	12.06	2030	NA
M38510/32501BSA	W	CFP	20	25	506.98	26.16	6220	NA
SN74LS273N	N	PDIP	20	20	506	13.97	11230	4.32
SN74LS273NE4	N	PDIP	20	20	506	13.97	11230	4.32
SNJ54LS273FK	FK	LCCC	20	55	506.98	12.06	2030	NA
SNJ54LS273W	W	CFP	20	25	506.98	26.16	6220	NA

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATA SHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, regulatory or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

TI objects to and rejects any additional or different terms you may have proposed.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2024, Texas Instruments Incorporated

OUR CERTIFICATE

DiGi provide top-quality products and perfect service for customer worldwide through standardization, technological innovation and continuous improvement. DiGi through third-party certification, we stricly control the quality of products and services. Welcome your RFQ to

Email: Info@DiGi-Electronics.com



Tel: +00 852-30501935

RFQ Email: Info@DiGi-Electronics.com

DiGi is a global authorized distributor of electronic components.