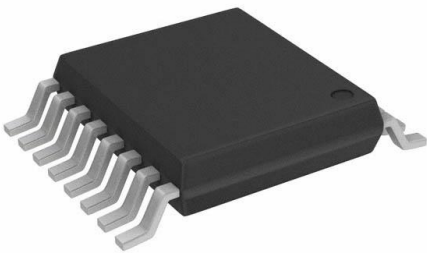


AB-557-03-HCLV-S-L-C-T Datasheet

www.digi-electronics.com



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

DiGi Electronics Part Number	AB-557-03-HCLV-S-L-C-T-DG
Manufacturer	Abracon LLC
Manufacturer Product Number	AB-557-03-HCLV-S-L-C-T
Description	IC PCIE CLOCK GEN 100MHZ 16TSSOP
Detailed Description	PCI Express (PCIe), Clock Generator Clock/Frequency Generator IC 460MHz 1 Output 16-TSSOP



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:

AB-557-03-HCLV-S-L-C-T

Series:

Pure Silicon™

DiGi-Electronics Programmable:

Not Verified

Main Purpose:

PCI Express (PCIe), Clock Generator

Output:

HCSL, LVDS

Ratio - Input:Output:

0:2

Frequency - Max:

460MHz

Operating Temperature:

-40°C ~ 85°C

Package / Case:

16-TSSOP (0.173", 4.40mm Width)

Manufacturer:

Abracon LLC

Product Status:

Active

PLL:

Yes

Input:

-

Number of Circuits:

1

Differential - Input:Output:

No/Yes

Voltage - Supply:

2.25V ~ 3.6V

Mounting Type:

Surface Mount

Supplier Device Package:

16-TSSOP

Environmental & Export classification

RoHS Status:

ROHS3 Compliant

REACH Status:

REACH Unaffected

HTSUS:

8542.39.0001

Moisture Sensitivity Level (MSL):

3 (168 Hours)

ECCN:

EAR99

AB-557-03 Series

Request Samples



Check Inventory



ESD Sensitive



3.2 x 2.5 x .85 mm (14 pin QFN)

RoHS/RoHS II Compliant

MSL Level = 1

Features

- Meets PCIe Gen1, Gen2, & Gen3 specs.
- High Performance MEMS Technology by Discera
- Available Mixed Output Formats: HCSL, LVPECL, LVDS or LVC MOS
- Wide Temperature Range: -40° to 105° C
- Wide Supply Range: 2.25V to 3.6 V
- Low Power Consumption
- Excellent Shock & Vibration Immunity

Applications

- Solid State Storage
- Storage Area Networks
- Passive Optical Networks
- Ethernet: 1G, 10GBASE-T/KR/LR/SR, and FCoE
- TV and other Consumer Electronics
- Industrial and Medical
- Scanner, Printer

Key Electrical Specifications

Parameters		Minimum	Typical	Maximum	Units	Notes
Frequency	f ₀	2.3	100	460*1	MHz	
Operating Temperature		-20		+70	°C	See options
Storage Temperature		-55		+150	°C	
Overall Freq. Stability*2	Δf	-100		+100	ppm	See options
Supply Voltage	V _{DD}	+2.25		+3.6	V	
Supply Current- Enabled	I _{DD}		60		mA	R _L =50Ω,
Supply Current- Disabled	I _{DD}		21	23	mA	
Startup Time	t _{su}			5	ms	
Enable Time	t _{EN}			20	ns	
Disable Time	t _{DA}			5	ns	
Tri-state Function (Standby/Disable)		"1" (VIH≥0.75*Vdd) or Open:			V	40kΩ pull-up
Aging		-5.0		+5.0	ppm	First year
Output Offset Voltage	V _{OH}	0.725			V	R _L =50 Ω
	V _{OL}			0.10		
Peak to Peak Output Swing			750		mV	Single-Ended
Rise Time	t _r	200		400	ps	R _L =50 Ω, C _L =2pF
Fall Time	t _f	200		400	ps	20% to 80%
Duty Cycle	SYM	48		52	%	Differential
Period Jitter	J _{PER}		2.5		ps _{RMS}	F ₀₁ =F ₀₂ =100.00MHz
Integrated Phase Noise (Common Clock Architecture)	R _J		0.540		ps _{RMS}	PCIe Gen 1.1 T _J = D _J + 14.069 x R _J (BER 10-12)
	D _J		0.832	41.9	ps _{P-P}	
	T _J		8.536	86.0		
	J _{RMS-}		0.458	3.1	ps _{RMS}	PCIe Gen 2.1
	J _{RMS-}		0.030	3.0		PCIe Gen 2.1
	J _{RMS-CC}		0.165	1.0		PCIe Gen 3.0
Integrated Phase Noise (Data Clock Architecture)	J _{RMS-}		0.561	4.0	ps _{RMS}	PCIe Gen 2.1
	J _{RMS-}		1.778	7.5		PCIe Gen 2.1
	J _{RMS-CC}		0.147	1.0		PCIe Gen 3.0

*1. For frequency other than 100MHz, please contact ABRACON or consider using ASEMDxx series

2. Frequency stability includes frequency variations due to initial tolerance, temp. and power supply voltage



5101 Hidden Creek Ln Spicewood TX 78669
 Phone: 512-371-6159 | Fax: 512-351-8858
 For terms and conditions of sales, please visit:
www.abracon.com

REV: A

ABRACON IS
 ISO9001-2015
 CERTIFIED

CRYSTAL-LESS PCI EXPRESS DUAL OUTPUT ULTRA MINIATURE PURE SILICON™ SMD CLOCK GENERATOR

AB-557-03 Series

Request Samples



Check Inventory



ESD Sensitive



3.2 x 2.5 x .85 mm (14 pin QFN)

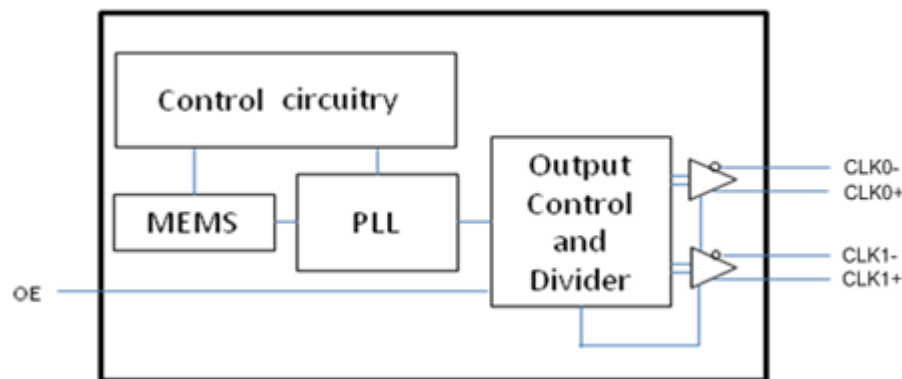
RoHS/RoHS II Compliant

MSL Level = 1

Absolute Maximum Ratings

Item	Minimum	Maximum	Unit	Condition
Supply Voltage	-0.3	+4.0	V	
Input Voltage	-0.3	V _{dd} +0.3	V	
Junction Temp.		+150	°C	
Storage Temp.	-55	+150	°C	
Soldering Temp.		+260	°C	40sec max
ESD				
HBM		4,000	V	
MM		400		
CDM		1,500		

Block Diagram



CRYSTAL-LESS PCI EXPRESS DUAL OUTPUT ULTRA MINIATURE PURE SILICON™ SMD CLOCK GENERATOR

AB-557-03 Series

Request Samples



Check Inventory



ESD Sensitive



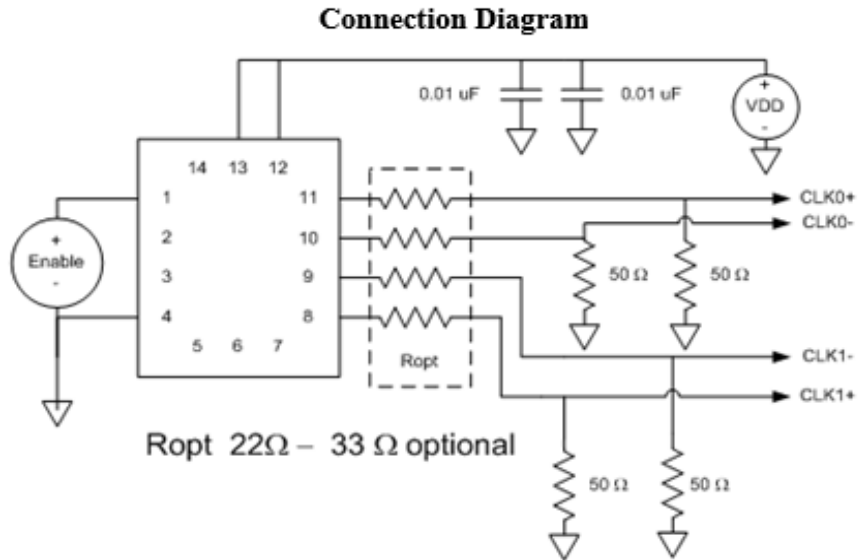
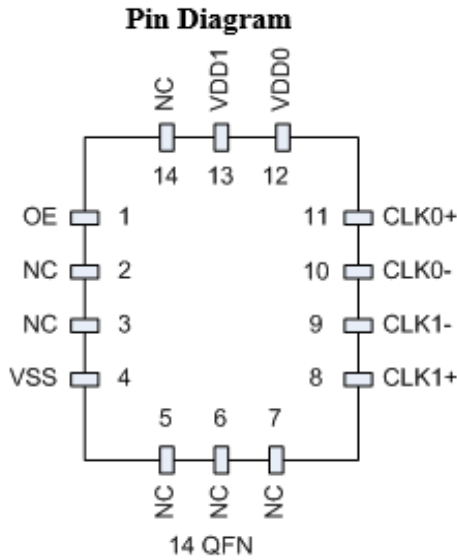
3.2 x 2.5 x .85 mm (14 pin QFN)

RoHS/RoHS II Compliant

MSL Level = 1

Pin Layout:

14 Pin QFN:



Pin No.	Pin Name	Pin Type	Description
1	OE	I	Output Enable; active high
2	NC	NA	Ground Connected or Leave Unconnected
3	NC	NA	Ground Connected or Leave Unconnected
4	VSS	Power	Ground
5	NC	NA	Ground Connected or Leave Unconnected
6	NC	NA	Ground Connected or Leave Unconnected
7	NC	NA	Ground Connected or Leave Unconnected
8	CLK1+	O	True output of differential pair
9	CLK1-	O	Complement output of differential pair
10	CLK0-	O	Complement output of differential pair
11	CLK0+	O	True output of differential pair
12	VDD0	Power	Power Supply for Output 0 (CLK+/- 0)
13	VDD1	Power	Power Supply for Core and Output 1 (CLK +/- 1)
14	NC	NA	Ground Connected or Leave Unconnected



5101 Hidden Creek Ln Spicewood TX 78669
 Phone: 512-371-6159 | Fax: 512-351-8858
 For terms and conditions of sales, please visit:
www.abracon.com

REV: A

ABRACON IS
 ISO9001-2015
 CERTIFIED

CRYSTAL-LESS PCI EXPRESS DUAL OUTPUT ULTRA MINIATURE PURE SILICON™ SMD CLOCK GENERATOR

AB-557-03 Series

Request Samples



Check Inventory



ESD Sensitive



3.2 x 2.5 x .85 mm (14 pin QFN)

RoHS/RoHS II Compliant

MSL Level = 1

Options and Part Identification (left blank if standard):

AB-557-03-□□-□-□-□-□

Output Format, Clk1
C: LVCMOS
LP: LVPECL
LV:LVDS
HC:HCSL

Packaging
Blank: Bulk
T: Tape & Reel(1kpcs / reel)
T3: Tape & Reel(3kpcs/reel)

Overall Freq. Stability
Blank: ±100ppm
C: ±50ppm

Output Format, Clk0
C: LVCMOS
LP: LVPECL
LV:LVDS
HC:HCSL

Package Type
F: 14-QFN

Operating Temp.
E: -20°C ~ +70°C
L: -40°C ~ +85°C
X: -40°C ~ +105°C

Note: For frequency other than 100MHz, please contact ABRACON or consider using ASEMDxx series



5101 Hidden Creek Ln Spicewood TX 78669
 Phone: 512-371-6159 | Fax: 512-351-8858
 For terms and conditions of sales, please visit:
www.abracon.com

REV: A

ABRACON IS
 ISO9001-2015
 CERTIFIED

CRYSTAL-LESS PCI EXPRESS DUAL OUTPUT ULTRA MINIATURE PURE SILICON™ SMD CLOCK GENERATOR

AB-557-03 Series

Request Samples



Check Inventory



ESD Sensitive



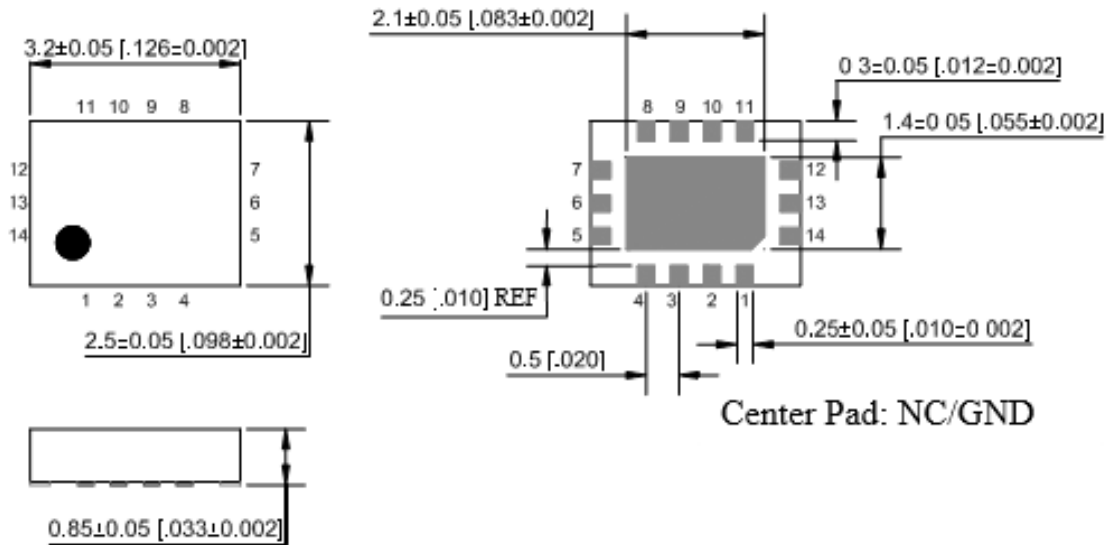
3.2 x 2.5 x .85 mm (14 pin QFN)

RoHS/RoHS II Compliant

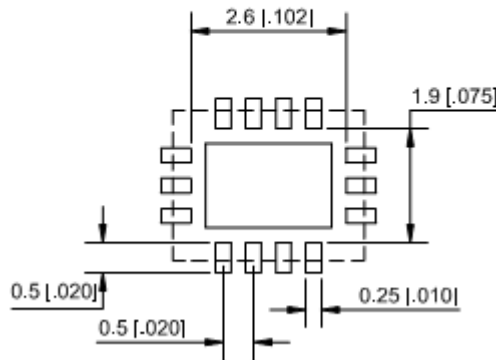
MSL Level = 1

Mechanical Dimensions:

14 pin QFN:



Recommended Solder Pad Layout



Dimensions: mm [inches]



5101 Hidden Creek Ln Spicewood TX 78669
 Phone: 512-371-6159 | Fax: 512-351-8858
 For terms and conditions of sales, please visit:
www.abracon.com

REV: A

ABRACON IS
 ISO9001-2015
 CERTIFIED

CRYSTAL-LESS PCI EXPRESS DUAL OUTPUT ULTRA MINIATURE PURE SILICON™ SMD CLOCK GENERATOR

AB-557-03 Series

Request Samples



Check Inventory



ESD Sensitive



3.2 x 2.5 x .85 mm (14 pin QFN)

RoHS/RoHS II Compliant

MSL Level = 1

Reflow Profile [JEDEC J-STD-020]

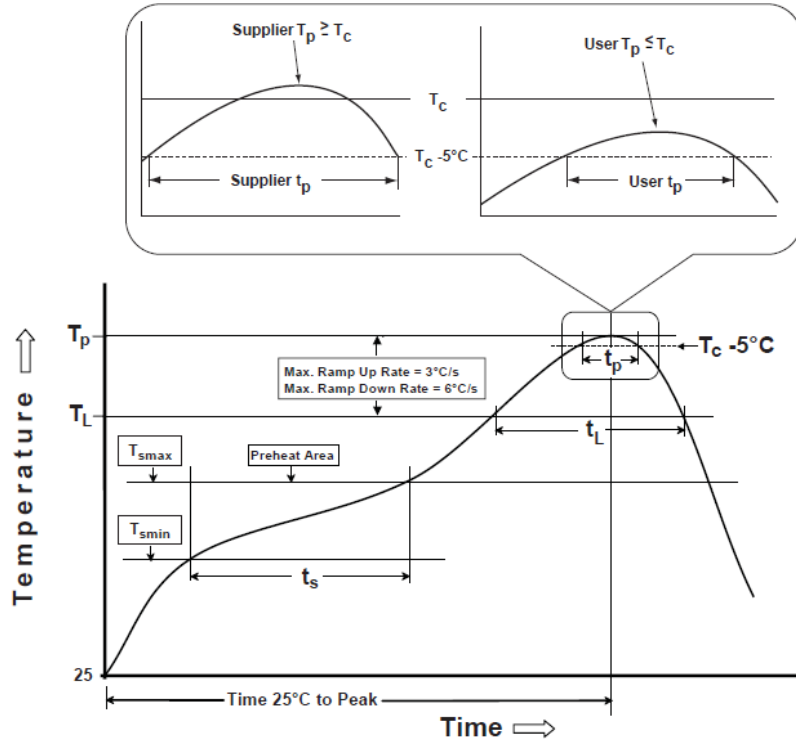


Table 1

SnPb Eutectic Process Classification Temperatures (T_c)

Package Thickness	Volume mm ³ <350	Volume mm ³ ≥350
<2.5 mm	235 °C	220 °C
≥2.5 mm	220 °C	220 °C

Table 2

Pb-Free Process Classification Temperatures (T_c)

Package Thickness	Volume mm ³ <350	Volume mm ³ 350-2000	Volume mm ³ >2000
<1.6 mm	260 °C	260 °C	260 °C
1.6 mm - 2.5 mm	260 °C	250 °C	245 °C
>2.5 mm	250 °C	245 °C	245 °C

Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Preheat / soak		
Temperature minimum (T_{smin})	100°C	150°C
Temperature maximum (T_{smax})	150°C	200°C
Time (T_{smin} to T_{smax}) (t_s)	60 - 120 sec.	60 - 120 sec.
Average ramp-up rate (T_{smax} to T_p)	3°C/sec. max	3°C/sec. max
Liquidous temperature (T_L)	183°C	217°C
Time at liquidous (t_L)	60 - 150 sec.	60 - 150 sec.
Peak package body temperature (T_p)*	see Table 1	see Table 2
Time (t_p)** within 5°C of the specified classification temperature (T_c)	20 sec.	30 sec.
Ramp-down rate (T_p to T_{smax})	6°C/sec. max	6°C/sec. max
Time 25°C to peak temperature	6 min. max	8 min. max
Reflow cycles	2 max	2 max

*Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.

**Tolerance for time at peak profile temperature (t_p) is defined as supplier minimum and a user maximum.



5101 Hidden Creek Ln Spicewood TX 78669
 Phone: 512-371-6159 | Fax: 512-351-8858
 For terms and conditions of sales, please visit:
www.abracon.com

REV: A

ABRACON IS
 ISO9001-2015
 CERTIFIED

CRYSTAL-LESS PCI EXPRESS DUAL OUTPUT ULTRA MINIATURE PURE SILICON™ SMD CLOCK GENERATOR

AB-557-03 Series

Request Samples



Check Inventory



ESD Sensitive



3.2 x 2.5 x .85 mm (14 pin QFN)

RoHS/RoHS II Compliant

MSL Level = 1

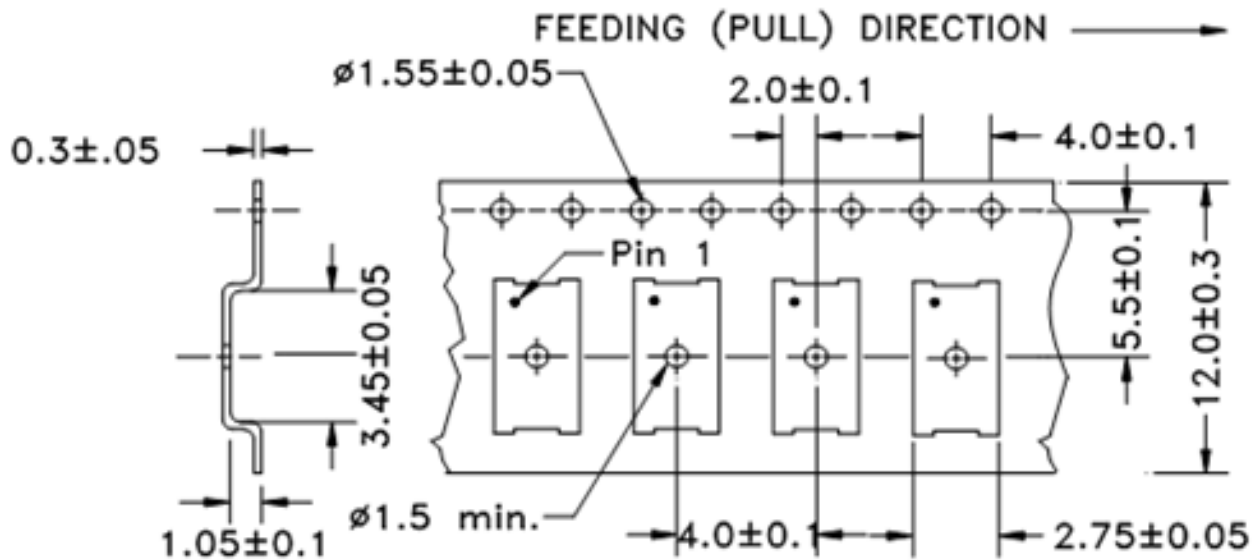
Packaging

14 Pin QFN Tape Drawing:

T= 1,000pcs/reel

T3= 3,000pcs/reel

Reel Size = 7" diameter



Dimensions: mm



5101 Hidden Creek Ln Spicewood TX 78669
 Phone: 512-371-6159 | Fax: 512-351-8858
 For terms and conditions of sales, please visit:
www.abracon.com

REV: A

ABRACON IS
 ISO9001-2015
 CERTIFIED

CRYSTAL-LESS PCI EXPRESS DUAL OUTPUT ULTRA MINIATURE PURE SILICON™ SMD CLOCK GENERATOR

AB-557-03 Series

Request Samples



Check Inventory



ESD Sensitive

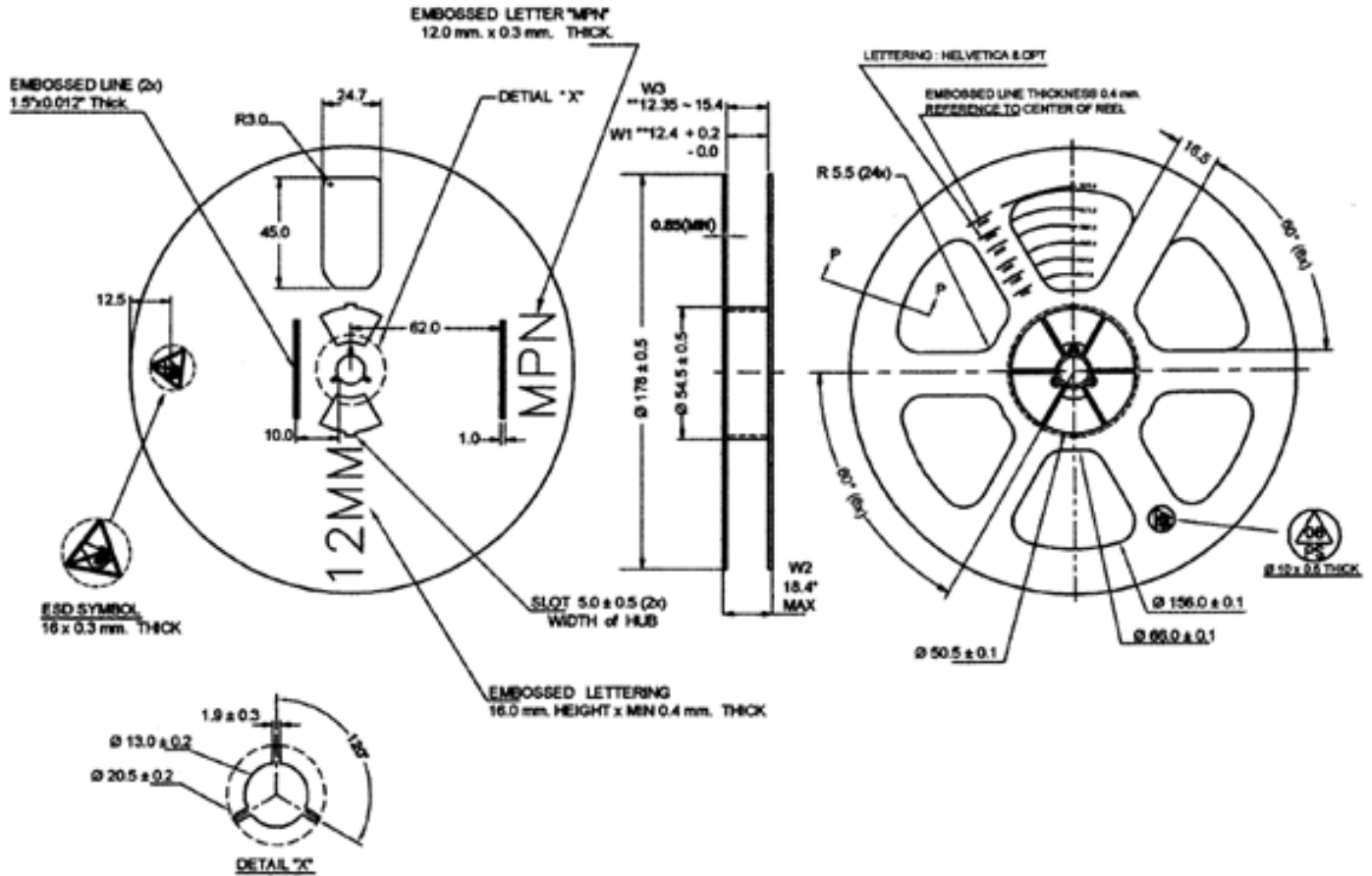


3.2 x 2.5 x .85 mm (14 pin QFN)

RoHS/RoHS II Compliant

MSL Level = 1

7" Reel Drawing (1000pcs/reel):



Dimensions: mm



5101 Hidden Creek Ln Spicewood TX 78669
 Phone: 512-371-6159 | Fax: 512-351-8858
 For terms and conditions of sales, please visit:
www.abracon.com

REV: A

ABRACON IS
 ISO9001-2015
 CERTIFIED

CRYSTAL-LESS PCI EXPRESS DUAL OUTPUT ULTRA MINIATURE PURE SILICON™ SMD CLOCK GENERATOR

AB-557-03 Series

Request Samples



Check Inventory



ESD Sensitive

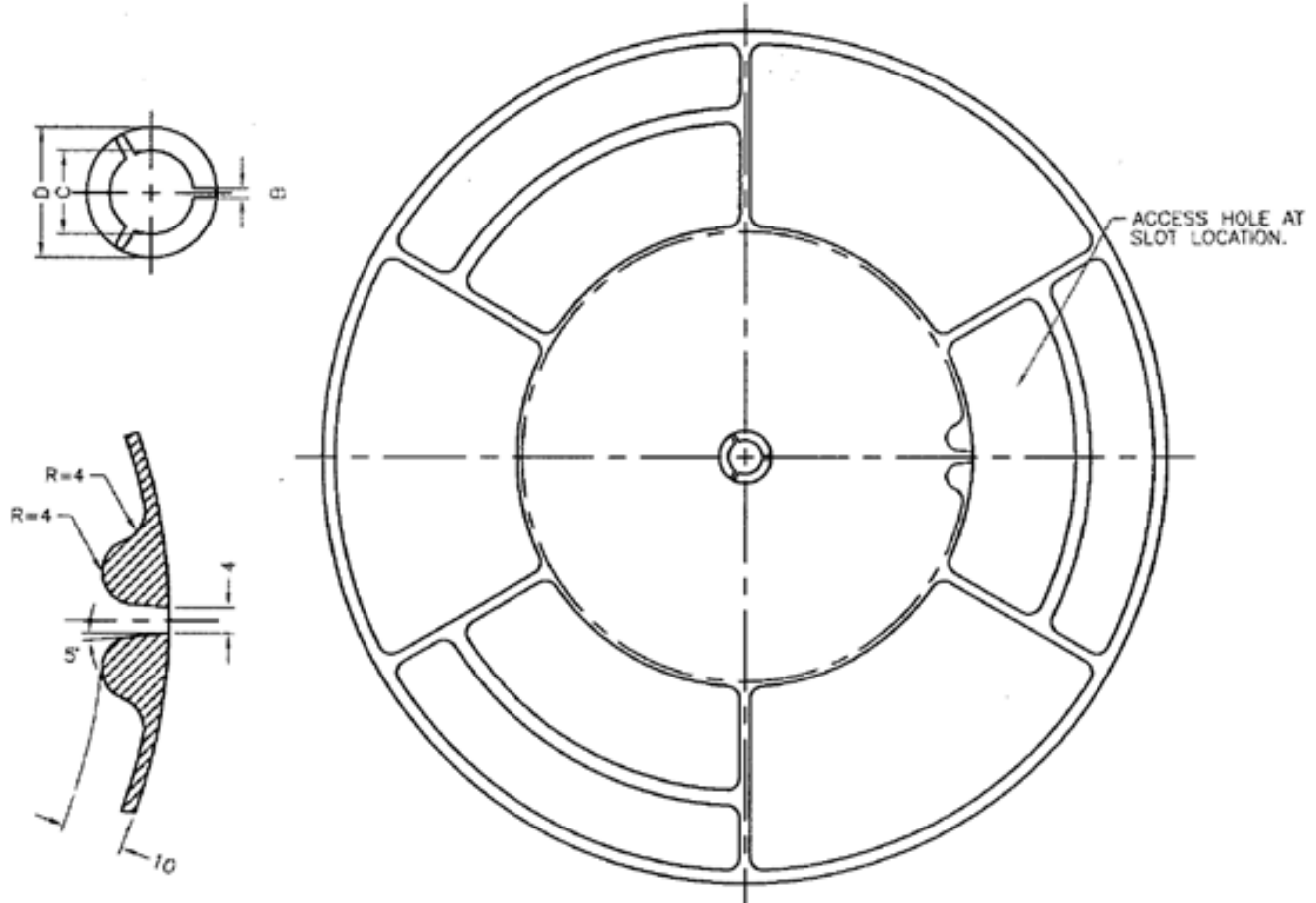


3.2 x 2.5 x .85 mm (14 pin QFN)

RoHS/RoHS II Compliant

MSL Level = 1

13" Reel Drawing (3000pcs/reel):



A	N	W1	W2	W3	D	B	C	Tape Width
330 (13")	178 (7") max.	12.4+2/-0	18.4 max.	12.35 min. 15.40 max.	20.2 min.	1.5 min	13.0+0.5/-0.2	12

Dimensions: mm

ATTENTION: Abracon LLC's products are COTS – Commercial-Off-The-Shelf products; suitable for Commercial, Industrial and, where designated, Automotive Applications. Abracon's products are not specifically designed for Military, Aviation, Aerospace, Life-dependent Medical applications or any application requiring high reliability where component failure could result in loss of life and/or property. For applications requiring high reliability and/or presenting an extreme operating environment, written consent and authorization from Abracon LLC is required. Please contact Abracon LLC for more information.



5101 Hidden Creek Ln Spicewood TX 78669
 Phone: 512-371-6159 | Fax: 512-351-8858
 For terms and conditions of sales, please visit:
www.abracon.com

REV: A

ABRACON IS
 ISO9001-2015
 CERTIFIED

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.