

EST.5192

USB Type-C DFP CC & PD Controller

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Version: V0.10P

EST.5192 Datasheet Revision History

Version	Date	Page	Revision History
V0.10P	2016/08	-	Preliminary

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LIFE SUPPORT APPLICATIONS

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GENERAL DESCRIPTION

EST.5192 is a USB Type-C controller that complies with the latest USB Type-C and PD standards, which provides connection and polarity detection of CC .It can also be used in many upstream and downstream facing port applications.

Through integration of all the required port terminations and threshold comparators required in all the Type-C port types, the EST.5192 provides a platform that can easily support any of the Type-C port types.

The EST.5192 also fully supports the increased power capabilities of the Type-C connector by implementing all the required components to detect the Type-C charging current levels as a device and to drive the required CC levels as a host. In addition to the Type-C charging current capabilities, the EST.5192 integrates the physical layer of the USB BMC power delivery protocol to allow up to 100W of power. The Biphase Mark Code(BMC) PD block enables full support for alternative interfaces of the Type-C specification.

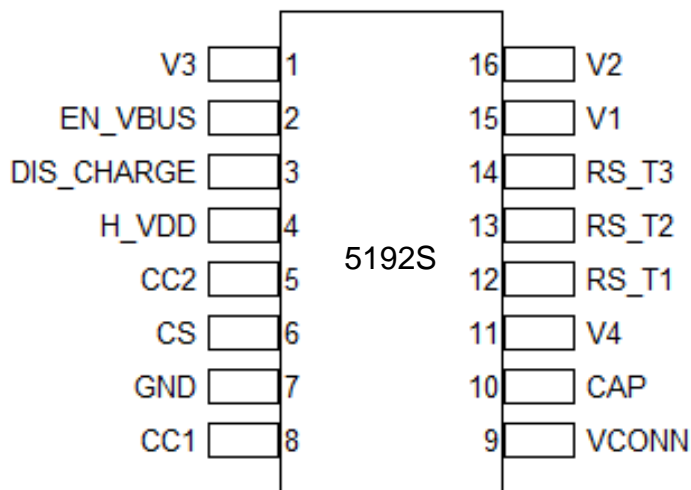
FEATURE LIST

- USB Type-C DFP type Supported.
- Support BMC coding for USB Type-C spec.
- Support full PD Profile and apple type-C profile.
- Support connection detection on Configuration Channel.
- Support Vconn power switch control.
- Pull-up/down resistor (Rp/Rd) integrated.
- EN_VBUS could enable the USB power switch for VBus.
- Discharge VBus voltage could be performed by DIS_CHARGE pin.
- SOP 16 pin package.
- support current and voltage capability detection function by CS pin and VBUS pin.

APPLICATIONS

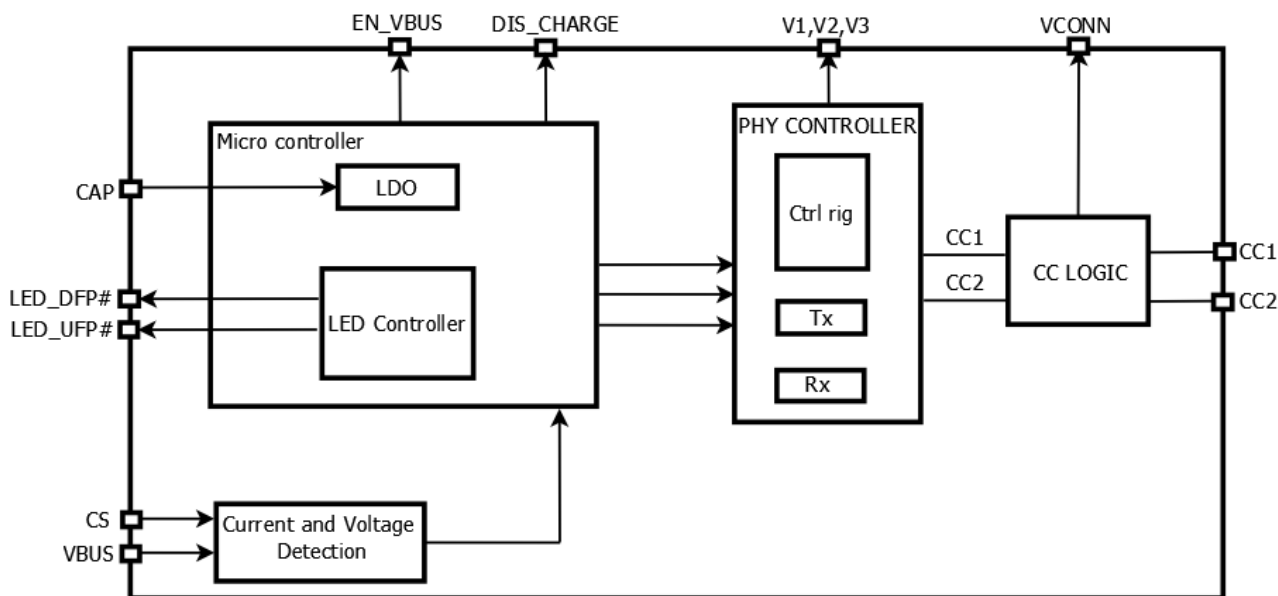
- Car Charger
- Wall-Adapter / Outlets
- USB Power Banks
- Computers / Notebooks

PIN CONFIGURATION



SOP-16L

BLOCK DIAGRAM



PIN DESCRIPTION

16Pin Functions

Pin No	Pin Name	Type	Description
1	V3	OD	Voltage Adjustment Switch 3.
2	EN_VBUS	OD	The USB power switch for VBus with tolerance 30V.
3	DIS_CHARGE	OD	The USB power switch for discharging VBus voltage with tolerance 30V.
4	VBUS	P	VBus with tolerance 30V.
5	CC2	I/O	Configuration channel 2.
6	CS	AIN	Current sense pin.
7	GND	G	GND.
8	CC1	I/O	Configuration channel 1.
9	VCONN	P	5V power for VCONN.
10	CAP	P	3.3V internal power.
11	V4	OD	Voltage Adjustment Switch 4.
12	RS_T1	-	Reserved pin.
13	RS_T2	-	Reserved pin.
14	RS_T3	-	Reserved pin.
15	V1	OD	Voltage Adjustment Switch 1.
16	V2	OD	Voltage Adjustment Switch 2.

ELECTRICAL CHARACTERISTICS REQUEST

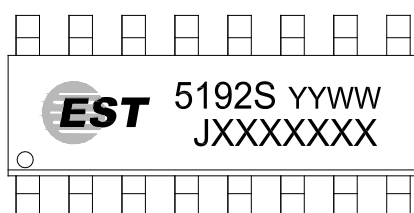
PARAMETER	SYMBOL	RATINGS	UNIT
VBUS , EN_VBUS , DIS_CHARGE Pin Voltage		-0.5 to 30	V
VCONN,V1,V2,V3,V4,Voltage		-0.5 to 5.5	V
CC1,CC2 Voltage		1.05 to 1.2	V
Maximum junction temperature (plastic package)	T_j	+150	°C
Maximum storage temperature	T_{STO}	-65 ~ +150	°C
Operating Temperature*		0 to 70	°C
Maximum lead temperature (soldering 10s)		+260	°C
Moisture Sensitivity Level(MSL)		LEVEL 3	

Note: If ICs are stressed beyond the limits listed in the “absolute maximum ratings”, they may be permanently destroyed. These are stress ratings only and functional operation of the device at these or any other condition beyond those indicated under “recommended operating conditions” is not implied. Exposure to absolute maximum rated conditions for extended periods may affect device reliability.

ORDERING INFORMATION

Part Number	Package Type	Production Flow
EST.5192S	SOP-16	0°C to 70°C*

TOP MARKING SPECIFICATION



SOP-16L

1st Line: Device Name: 5192S where S means SOP 16 package+ Assembled Year Code (Y) + Week Code (WW)

2nd Line: Assembly Plant Code (J) + Line: Wafer Fab Code (XXX....X)

3nd ○ Pin 1 Identifier

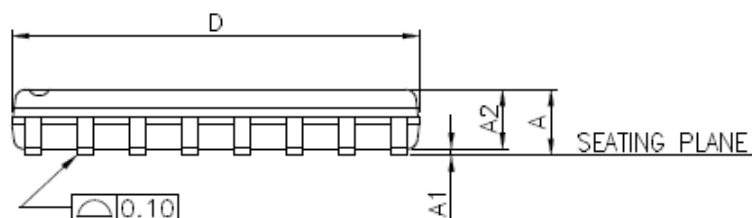
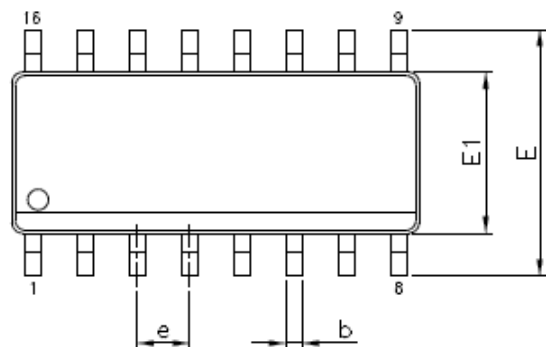


CAUTION

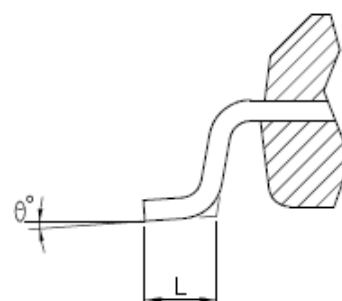
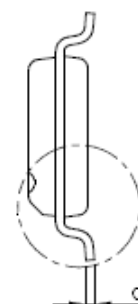
This integrated circuit has been designed carefully in the ESD protection ability. Failure to observe proper handling and installation procedures may cause damage. Recommend that all integrated circuits should be handled with appropriate precautions.

PACKAGE OUTLINES

Package Dimensions
 SOP-16 (Standard)



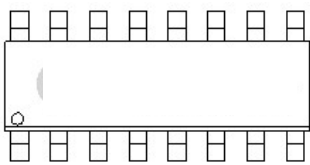
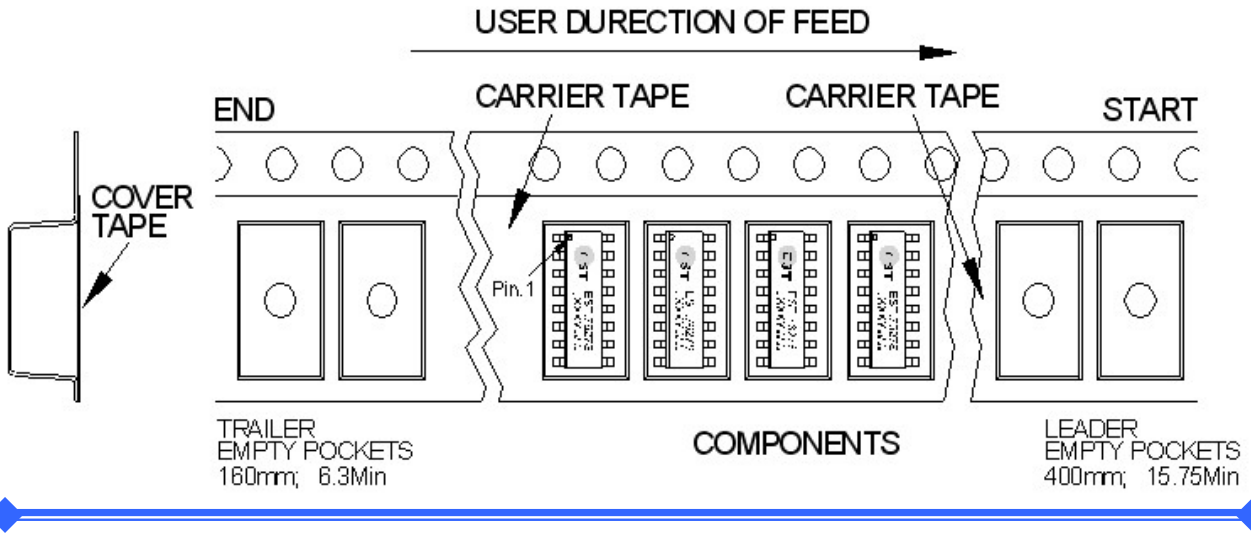
Small Outline Package
 UNIT : inch / mm



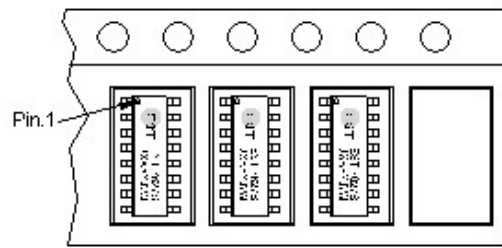
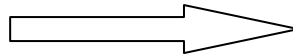
Symbols	Dimensions In inch		Dimensions In millimeters	
	Min.	Max.	Min.	Max.
A	-----	0.072	-----	1.837
A1	0.004	0.010	0.095	0.263
A2	0.047	-----	1.187	-----
b	0.012	0.021	0.294	0.535
c	0.004	0.010	0.095	0.263
D	0.390 BSC		9.900 BSC	
E	0.236 BSC		6.000 BSC	
E1	0.154 BSC		3.900 BSC	
e	0.050 BSC		1.270 BSC	
L	0.015	0.052	0.380	1.333
θ	0°	8°	0°	8°

SHIPPING PACKING :

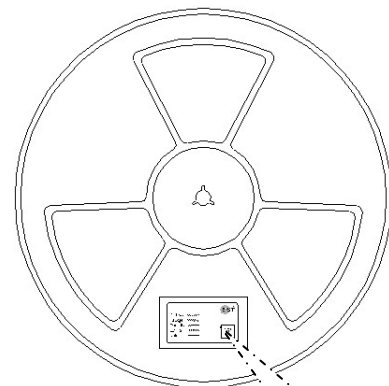
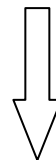
★SOP-16 tape & Reel:



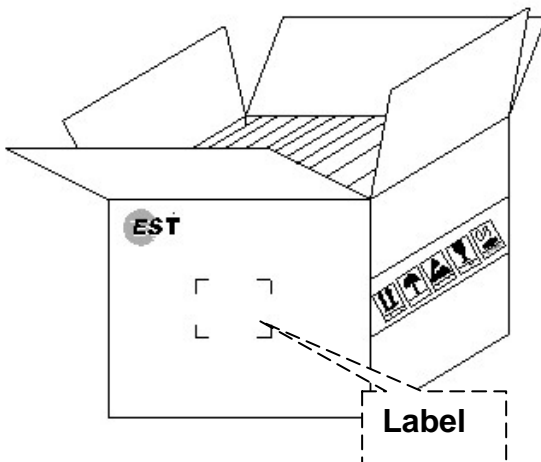
1Pc / device



2,500 devices / Reel



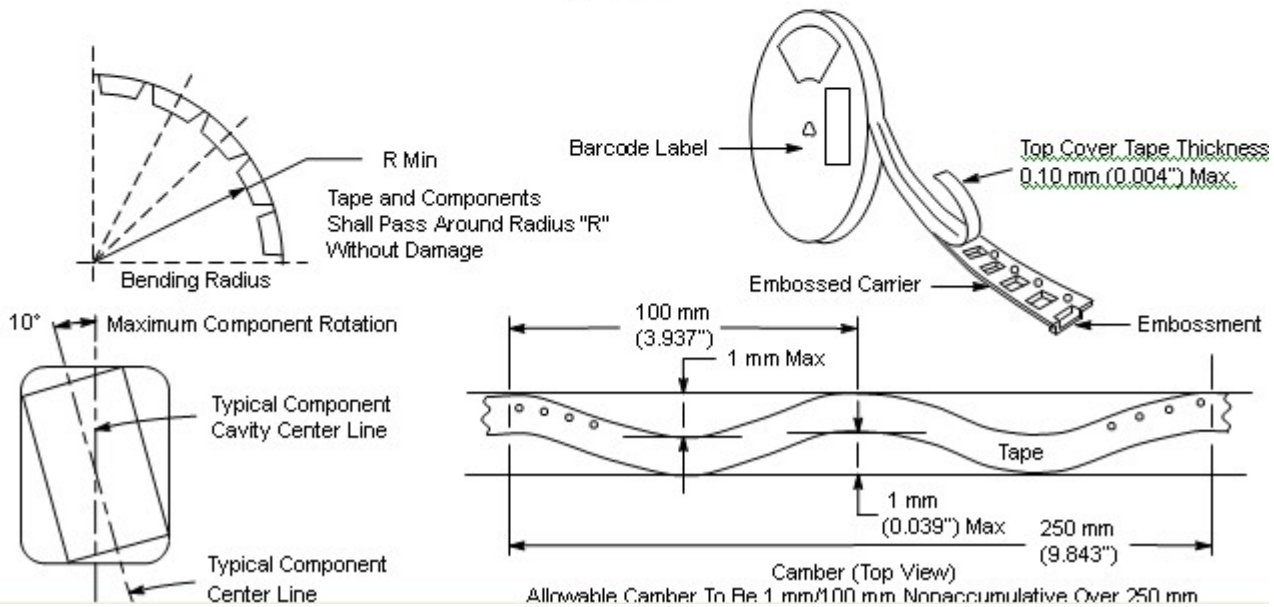
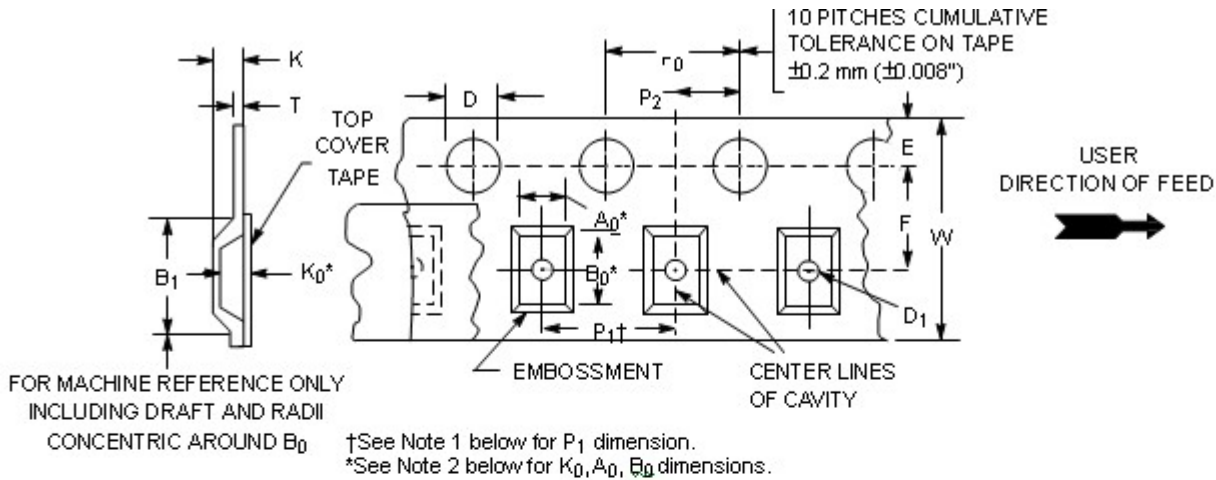
Label



12 Reel / Carton
 (30,000Pcs / Carton)

Label

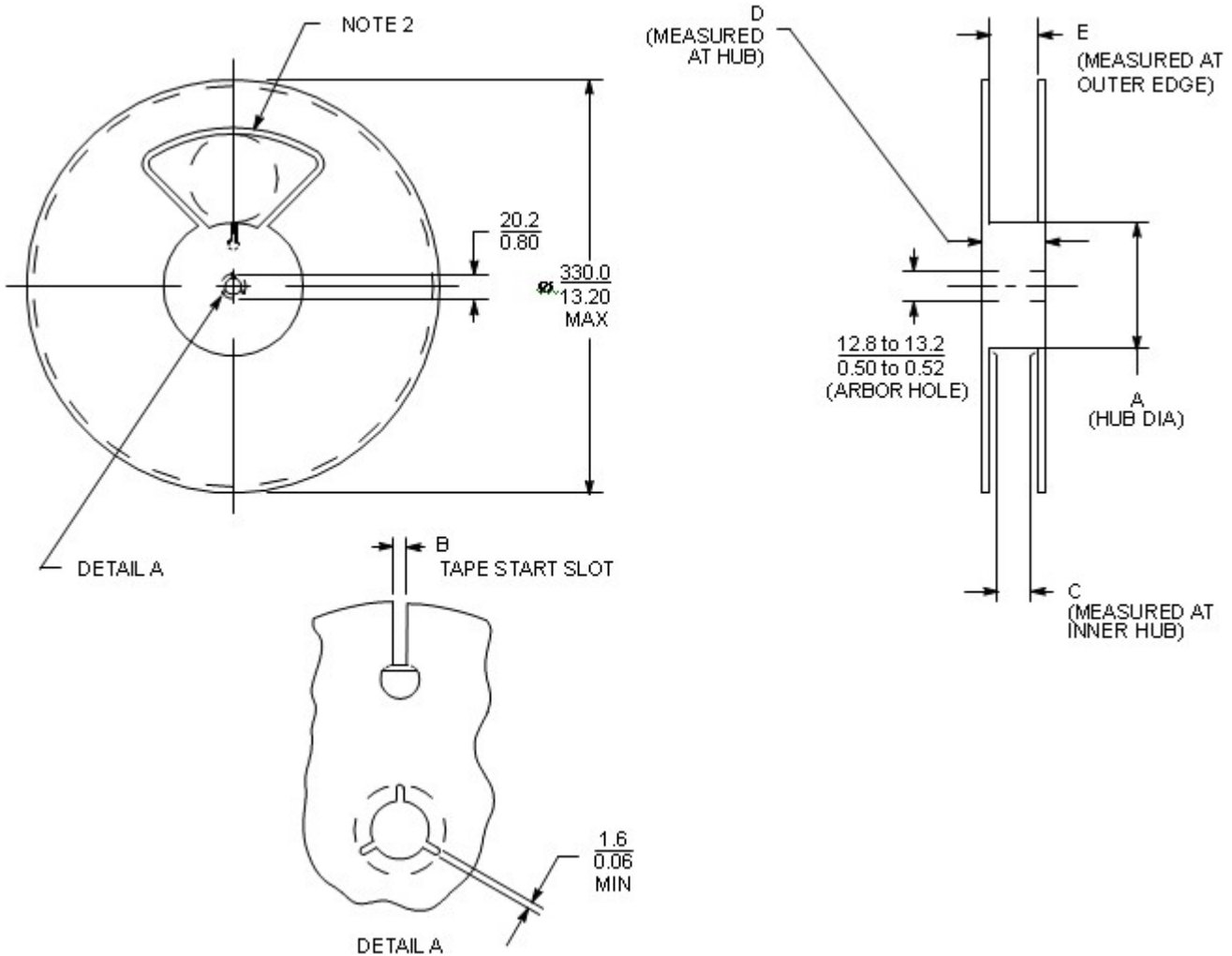
Embossed Tape and Reel Data Carrier Tape Specifications



DIMENSIONS

Tape	B_1 Max (Note 1)	D	D_1	E	F	K	P_0	P_2	R Min	T Max	W Max
8 mm	4.55 mm (0.1793)	1.5 + 0.1 mm - 0.0 (0.059 +0.0043 - 0.0)	1.0 Min (0.0393) or 0.5 mm Min (0.0203)	1.75 ± 0.1 mm (0.069 ± 0.0043)	3.5 ± 0.05 mm (0.138 ± 0.0023)	2.4 mm Max (0.0943)	4.0 ± 0.1 mm (0.157 ± 0.0043)	2.0 ± 0.1 mm (0.079 ± 0.0023)	25 mm (0.983)	0.6 mm (0.0243)	8.3 mm (0.3273)
12 mm	8.2 mm (0.3233)		1.5 mm Min (0.0603)		5.5 ± 0.05 mm (0.217 ± 0.0023)	6.4 mm Max (0.2523)					12 ± 0.30 mm (0.470 ± 0.0123)
16 mm	12.1 mm (0.476")				7.5 ± 0.10 mm (0.295 ± 0.0043)	7.9 mm Max (0.3113)					16.3 mm (0.6423)
24 mm	20.1 mm (0.791)				11.5 ± 0.1 mm (0.453 ± 0.0043)	11.9 mm Max (0.4683)					24.3 mm (0.9573)

Reel Dimensions



Reel	Tape	A		B		C		D	E
		Min	Max	Min	Max	Min	Max		
178.0 (7.01)	16.0 (0.63)		50.0 (1.97)	6.5 (0.26)	7.5 (0.30)	16.4 (0.65)	18.4 (0.72)	22.4 (0.88)	19.4 (0.76)
330.0 (12.99)	12.0 (0.47)	178.0 (7.01)		4.5 (0.18)	5.5 (0.22)	12.4 (0.49)	14.4 (0.57)	18.4 (0.72)	15.4 (0.61)
330.0 (12.99)	56.0 2.20	150.0 (5.91)		10.0 (0.39)	11.0 (0.43)	56.4 (2.22)	58.4 (2.30)	62.4 (2.46)	59.4 (2.34)
330.0 (12.99)	44.0 (1.73)	100.0 (3.94)		10.0 (0.39)	11.0 (0.43)	44.4 (1.75)	46.4 (1.83)	62.4 (2.46)	47.4 (1.87)
330.0 (12.99)	32.0 (1.26)	100.0 (3.94)		10.0 (0.39)	11.0 (0.43)	32.4 (1.28)	34.4 (1.35)	38.4 (1.51)	35.4 (1.39)
330.0 (12.99)	24.0 (0.94)	60.0 (2.36)		9.5 (0.37)	10.5 (0.41)	24.4 (0.96)	26.4 (1.04)	30.4 (1.51)	27.4 (1.08)
330.0 (12.99)	16.0 (0.63)			6.5 (0.26)	7.5 (0.30)	16.4 (0.65)	18.4 (0.72)	22.4 (0.88)	19.4 (0.76)
330.0 (12.99)	12.0 (0.47)			4.5 (0.18)	5.5 (0.22)	12.4 (0.49)	14.4 (0.57)	18.4 (0.72)	15.4 (0.61)
330.0 (12.99)	8.0 (0.31)	50.0 (1.97)		2.5 (0.10)	3.5 (0.14)	8.4 (0.33)	9.9 (0.39)	14.4 (0.57)	10.9 (0.43)
178.0 (7.01)	12.0 (0.47)	50.0 (1.97)		4.5 (0.18)	5.5 (0.22)	12.4 (0.49)	14.4 (0.57)	18.4 (0.72)	15.4 (0.61)
178.0 (7.00)	8.0 (0.31)	50.0 (1.97)		2.5 (0.10)	3.5 (0.14)	8.4 (0.33)	9.9 (0.39)	14.4 (0.47)	10.9 (0.43)
330.0 (12.99)	8.0 (0.31)	50.0 (1.97)		4.0 (0.16)	5.0 (0.20)	8.4 (0.33)	9.9 (0.39)	14.4 (0.57)	10.9 (0.43)
178.0 (7.00)	8.0 (0.31)	50.0 (1.97)		4.0 (0.16)	5.0 (0.20)	8.4 (0.33)	9.9 (0.39)	14.4 (0.57)	10.9 (0.43)

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