



Integrated Device Technology, Inc.  
6024 Silver Creek Valley Road, San Jose, CA - 95138

## PRODUCT/PROCESS CHANGE NOTICE (PCN)

<b>PCN #:</b> <b>A1804-01</b> <b>DATE:</b> <b>18-Apr-2018</b> <b>Product Affected:</b> TSE2004GB2C0NCG TSE2004GB2C0NCG8  <b>Date Effective:</b> <b>18-Jul-2018</b>	<b>MEANS OF DISTINGUISHING CHANGED DEVICES:</b> <input type="checkbox"/> Product Mark <input type="checkbox"/> Back Mark            Assembly lot# prefix: <input type="checkbox"/> Date Code            "TF" denote TFME, China <input checked="" type="checkbox"/> Other                    "HT" denote HTC, China
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<b>Contact:</b> IDT PCN DESK <b>E-mail:</b> <a href="mailto:pcndesk@idt.com">pcndesk@idt.com</a>	<b>Attachment:</b> <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No  <b>Samples:</b> Please contact your local sales representative for sample request.
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**DESCRIPTION AND PURPOSE OF CHANGE:**

<input type="checkbox"/> Die Technology <input type="checkbox"/> Wafer Fabrication Process <input type="checkbox"/> Assembly Process <input type="checkbox"/> Equipment <input type="checkbox"/> Material <input type="checkbox"/> Testing <input checked="" type="checkbox"/> Manufacturing Site <input type="checkbox"/> Data Sheet <input type="checkbox"/> Other	<p>This notification is to advise our customers that IDT is adding TFME, China and HTC, China as alternate facilities for Assembly, Test and Backend process for the select product. Current Assembly, Test and Backend location is Carsem, Malaysia.</p> <p>Attachment 1 details the change.</p>
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**RELIABILITY/QUALIFICATION SUMMARY:**

There is no expected change to the product quality or reliability performance.

**CUSTOMER ACKNOWLEDGMENT OF RECEIPT:**

IDT records indicate that you require written notification of this change. Please use the acknowledgement below or E-Mail to grant approval or request additional information. If IDT does not receive acknowledgement within 30 days of this notice it will be assumed that this change is acceptable.

IDT reserves the right to ship either version manufactured after the process change effective date until the inventory on the earlier version has been depleted.

Customer: _____	<input type="checkbox"/> <b>Approval for shipments prior to effective date.</b>
Name/Date: _____	E-Mail Address: _____
Title: _____	Phone# /Fax# : _____

**CUSTOMER COMMENTS:** \_\_\_\_\_

**IDT ACKNOWLEDGMENT OF RECEIPT:**

RECD. BY: \_\_\_\_\_                      DATE: \_\_\_\_\_



## PRODUCT/PROCESS CHANGE NOTICE (PCN)

### ATTACHMENT 1 - PCN # : A1804-01

**PCN Type:** Manufacturing Site - Alternate Assembly, Test & Backend Location

**Data Sheet Change:** None

**Detail Of Change:**

This notification is to advise our customers that IDT is adding TFME, China and HTC, China as alternate facilities for Assembly, Test and Backend process for the select product. Current Assembly, Test and Backend location is Carsem, Malaysia.

This change will allow IDT the flexibility to ship from all the qualified facilities and will provide the increased capacity, flexibility and shorter lead time to meet market demand.

The material set details of the current and alternate assembly locations are as shown in Table 1.

There is no change to moisture sensitive level.

There is no change in the Test processing flows. IDT has completed the electrical test correlation and based on the test results we do not anticipate any impact on device performance. The testing is fully compatible and transferrable between the test facilities with no change to the test coverage.

The Backend process is standardized between the alternate sites. The carrier tape and plastic reel used in the alternate sites are with the same dimensions as used in Carsem Malaysia. There is no change to form, fit and functions.

If you require samples to conduct evaluations, please contact your local sales representative to acknowledge this PCN and request samples.

Table 1: Assembly Material Sets for The Existing and Alternate Assembly Locations

	Existing Assembly (Carsem, Malaysia)	Alternate Assembly (TFME, China)	Alternate Assembly (HTC, China)
Die Attach	EN4900GC	EN4900GC	8200T
Bond Wire	Gold wire	Gold wire	Gold wire
Mold Compound	CEL-9240HF10CS	CEL-9240HF10NF-B3	CEL-9240HF10NF-B3
Singulation Method	Sawn	Sawn	Sawn



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### ATTACHMENT 1 - PCN # : A1804-01

#### Qualification Information and Qualification Data:

#### Assembly Qualification Results

**Affected Packages:** VFQFPN-8  
**Assembly Material:** Shown on page 2 of this attachment.  
**Qual Plan & Results:** Tests are in accordance with JEDEC47 recommended tests.  
**Qualification Vehicle:** VFQFPN-8, 3 lots each Assembly Location

Test Description	Test Method	Test Results (Rej / SS)	
		TFME, China	HTC, China
* Temperature Cycling (-55°C to 125°C, 700 cycles)	JESD22-A104	0/25, 0/25, 0/25	0/25, 0/25, 0/25
* HAST - biased (130 °C/85% RH, 96 Hrs)	JESD22-A110	0/25, 0/25, 0/25	0/25, 0/25, 0/25
High Temperature Storage Bake (150°C, 1000 Hrs)	JESD22-A103	0/25, 0/25, 0/25	0/25, 0/25, 0/25
Ball Shear Test	JESD22-B116	0/5, 0/5, 0/5	0/5, 0/5, 0/5
Bond Pull Test	IDT Spec MAC-3010	0/5, 0/5, 0/5	0/5, 0/5, 0/5
X Ray	IDT Spec. MAC-3012	0/45, 0/45, 0/45	0/45, 0/45, 0/45
Moisture Sensitivity Level, MSL	J-STD-20 / MSL 1, 260 °C	0/25, 0/25	0/25, 0/25

\* Tests were subjected to Preconditioning per JESD22-A113 prior to stress test



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### ATTACHMENT 1 - PCN # : A1804-01

#### Electrical Test Correlation Results

**Vehicle:** TSE2004GB2C0  
**Sample size:** 600 electrically good units and 30 GRR units for each Test Location

Description	Existing Test (Carsem, Malaysia)	Alternate Test (TFME, China)	Alternate Test (HTC, China)
Tester Platform	HP83000	Nextest maverick PT2	Vengy v50
Loadboard	SN#1	SN#1	SN#1
Test Program	QC_Cruz_TF	QC_Cruz_TF	QC_Cruz_TF
Test Site	4	4	2
Test Temperature	25°C	25°C	25°C
Test Correlation Results	100%	100%	100%
Number of Good Units Correlated @ ambient	600 pcs	600 pcs	600 pcs
600 units Bin 1 handler run (good units)	Passed	Passed	Passed
Number of GRR Units Correlated @ ambient	N/A	30 pcs	30 pcs
30 units GRR handler run by site	N/A	Passed	Passed
600 units Bin 1 datalog correlation (good units)	Passed	Passed	Passed



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## PRODUCT/PROCESS CHANGE NOTICE (PCN)

### ATTACHMENT 1 - PCN # : A1804-01

#### Carrier Tape and Plastic Reel comparisons (Carsem and TFME, China)

Table 1: Carrier Tape Comparisons


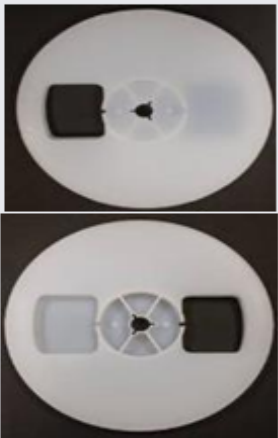
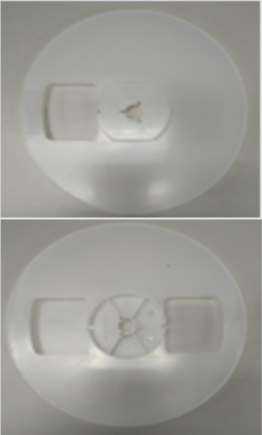
	Carsem, Malaysia	TFME, China
<b>Part Number</b>	C-PAK BD0200x0300	ECA1941-PS-BLK-520
<b>Ao</b>	2.3+0.1mm	2.3+0.05mm
<b>Bo</b>	3.2+0.1mm	3.2+0.05mm
<b>Ko</b>	1.0+0.1mm	1.0+0.05mm
<b>P</b>	4.0+0.1mm	4.0+0.1mm
<b>W</b>	8.0+0.3mm	8.0+0.2/-0.1mm
<b>Drawing</b>	Refer Page 7	Refer Page 8
<b>Snapshot</b>		

Table 2: Plastic Reel Comparisons

	Carsem, Malaysia	TFME, China
<b>Part Number</b>	NEWTECH P9-065-000 White	E-PAK eRL0126-T08-A47-TRL
<b>Reel Dia</b>	7"	7"
<b>Hub Dia</b>	2"	2"
<b>Drawing</b>	Refer Page 9, 10	Refer Page 11
<b>Snapshot</b>		



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## PRODUCT/PROCESS CHANGE NOTICE (PCN)

### ATTACHMENT 1 - PCN # : A1804-01

#### Carrier Tape and Plastic Reel comparisons (Carsem and HTC, China)

Table 3: Carrier Tape Comparisons


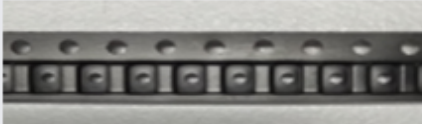




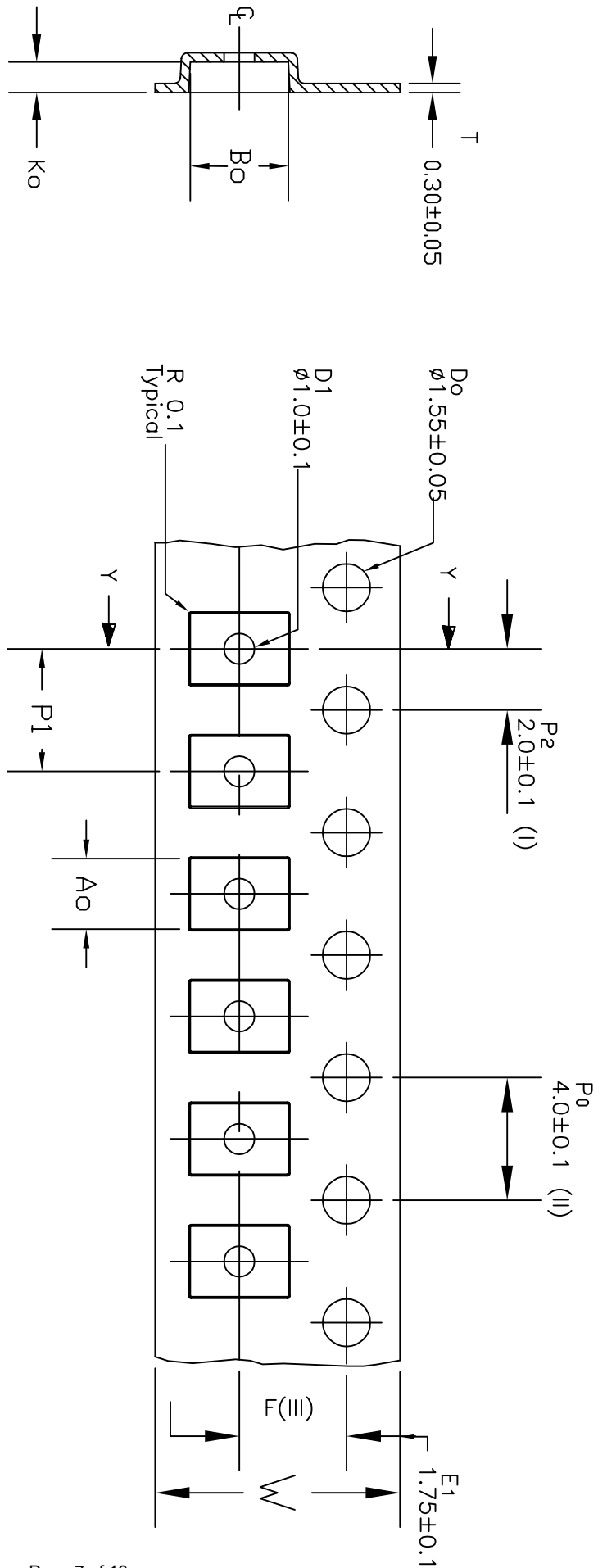
	Carsem, Malaysia	HTC, China
<b>Part Number</b>	C-PAK BD0200x0300	ECA1941-PS-BLK-520
<b>Ao</b>	2.3+0.1mm	2.3+0.05mm
<b>Bo</b>	3.2+0.1mm	3.2+0.05mm
<b>Ko</b>	1.0+0.1mm	1.0+0.05mm
<b>P</b>	4.0+0.1mm	4.0+0.1mm
<b>W</b>	8.0+0.3mm	8.0+0.2/-0.1mm
<b>Drawing</b>	Refer Page 7	Refer Page 12
<b>Snapshot</b>		

Table 4: Plastic Reel Comparisons

	Carsem, Malaysia	HTC, China
<b>Part Number</b>	NEWTECH P9-065-000 White	E-PAK eRL0126-T08-A47-TRL
<b>Reel Dia</b>	7"	7"
<b>Hub Dia</b>	2"	2"
<b>Drawing</b>	Refer Page 9, 10	Refer Page 13
<b>Snapshot</b>	 	 



SECTION Y-Y

Ao	2.30	+/-0.1
Bo	3.20	+/-0.1
Ko	1.00	+/-0.1
F	3.50	+/-0.05
P1	4.00	+/-0.1
W	8.00	+/-0.3

TOLERANCES UNLESS OTHERWISE SPECIFIED  
 DECIMAL 25  
 X ± .25  
 Y ± .13  
 XXX ± .13

ANGLE  
 ±.5°

APPROVALS DATE

www.IDT.com

**IDT**  
 6024 Silver Creek Valley Road,  
 San Jose, CA 95138  
 PHONE: (408) 284-8200  
 FAX: (408) 284-3572

TITLE:  
 NC/NCG 8 & NR/NRG 8  
 CARRIER TAPE

SCALE  
 N/A

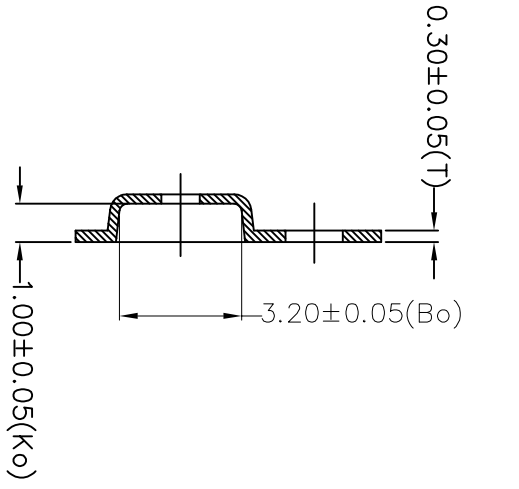
STOCK NO.  
 N/A

DRAWING NO.  
 MSC-5940-A

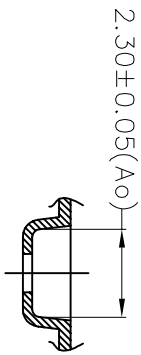
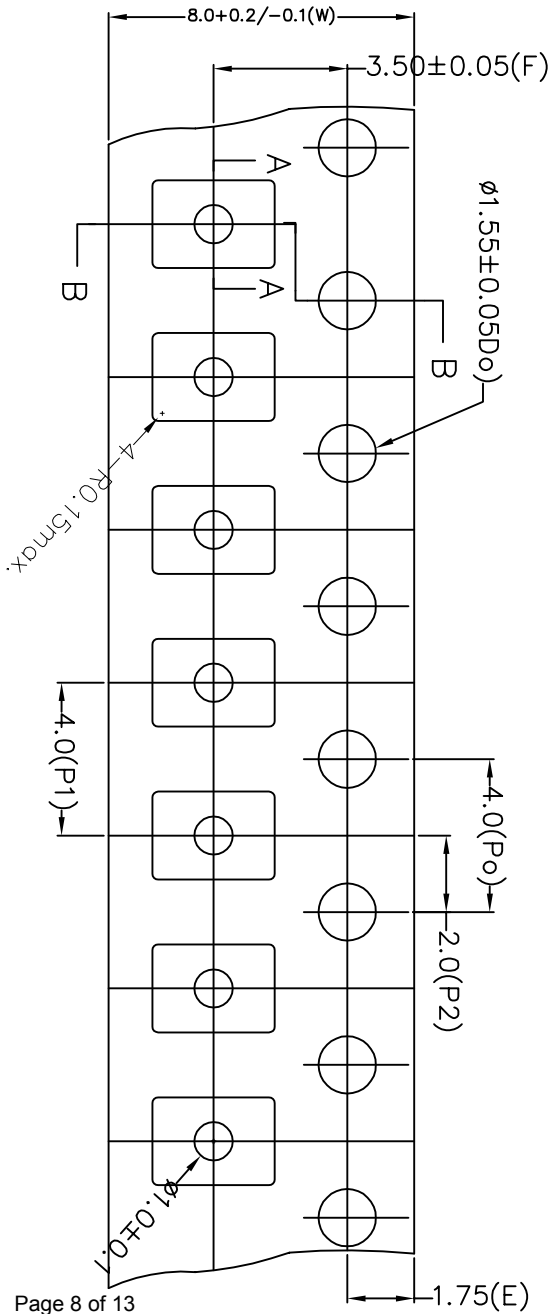
REV  
 00

DO NOT SCALE DRAWING SHEET 1 OF 1

TFME Carrier Tape



Section B-B



Section A-A

TOLERANCES UNLESS OTHERWISE SPECIFIED  
 DECIMAL : X ±.1  
 .XX ±.10  
 .XXX ±.1  
 ANGLE : ±  
 ANGULAR : ±



6024 Silver Creek Valley Road,  
 San Jose, CA 95138  
 PHONE: (408) 284-8200  
 FAX: (408) 284-3572

TITLE:

NCG 8 CARRIER TAPE

SCALE  
 N/A

STOCK NO.

N/A

DRAWING NO.

MSC-7980-A

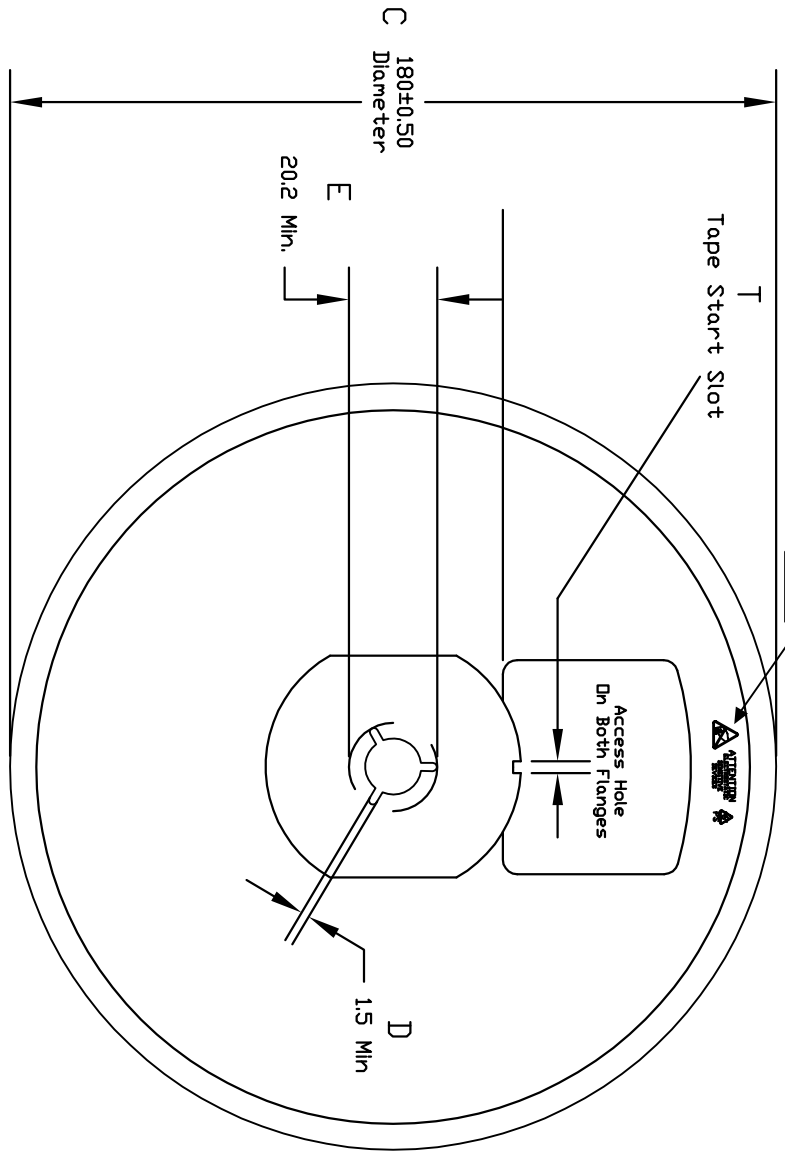
REV

00

DO NOT SCALE DRAWING

SHEET 1 OF 1





IDT PART NUMBER	SUPPLIER PART NUMBER	T	W1	W2	W3	COLOR
P9-065-000	7" x 8 MM WHITE REEL	3±0.50	8.4+1.5/-0.0	14.4 MAX	7.9 MIN 10.9 MAX	WHITE
P9-065-BLUE	7" x 8 MM BLUE REEL	3±0.50	8.4+1.5/-0.0	14.4 MAX	7.9 MIN 10.9 MAX	BLUE

- NOTES : (UNLESS OTHERWISE SPECIFIED)
1. MATERIAL : AMTISTATIC POLYSTYRENE
  2. ALL DIMENSIONS ARE IN mm
  3. REEL & ESD SURFACE RESISTIVITY SHALL CONFORM TO IDT SPEC MSA-3018.
  4. SUPPLIER : UNITED NEWTECH
  5. TAPE WIDTH : 8 MM

TOLERANCES UNLESS OTHERWISE SPECIFIED  
 DECIMAL .25  
 .X ± .25  
 .XX ± .13  
 .XXX ± .13  
 ANGLE ±.5°

APPROVALS \_\_\_\_\_ DATE \_\_\_\_\_

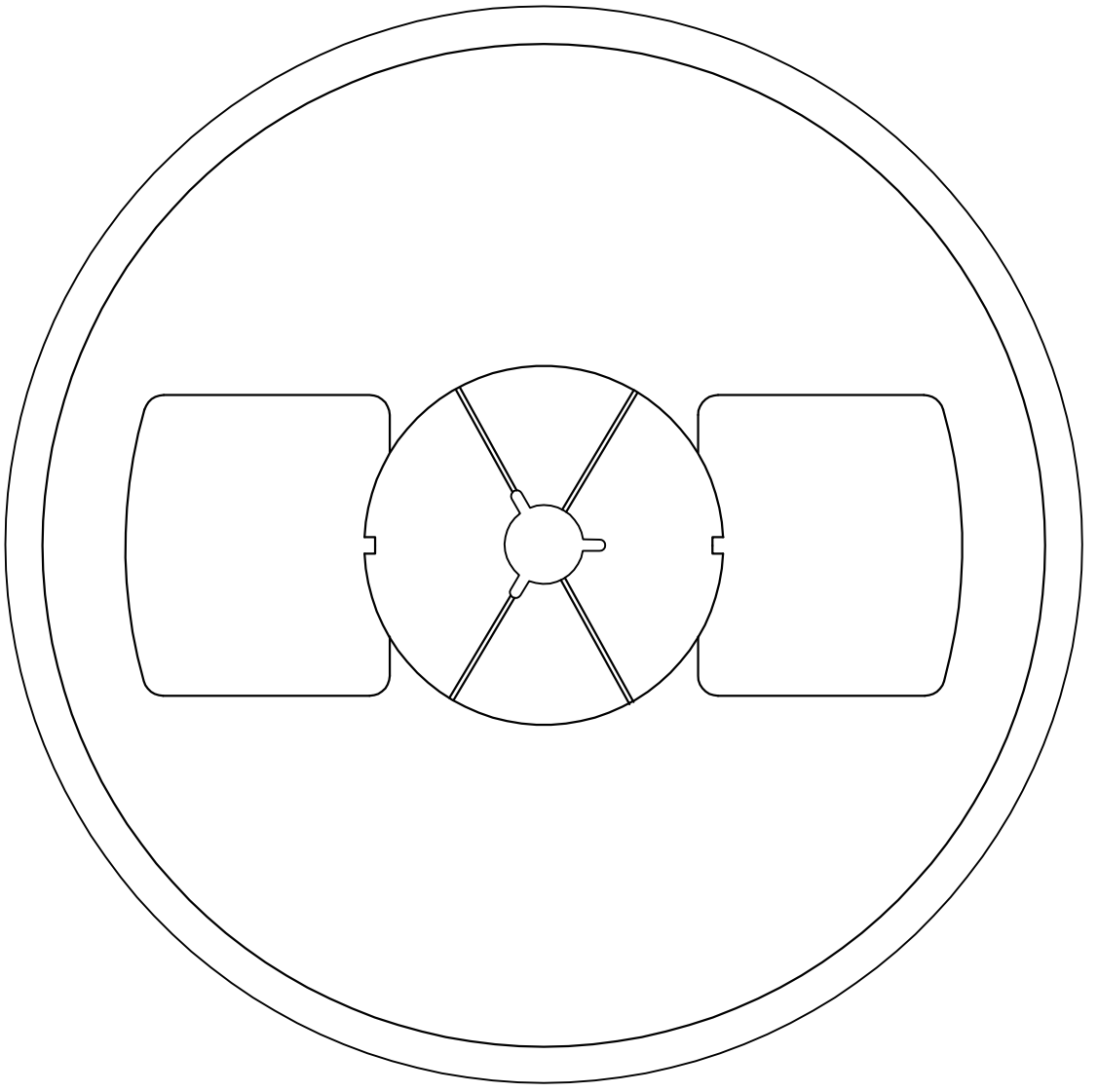
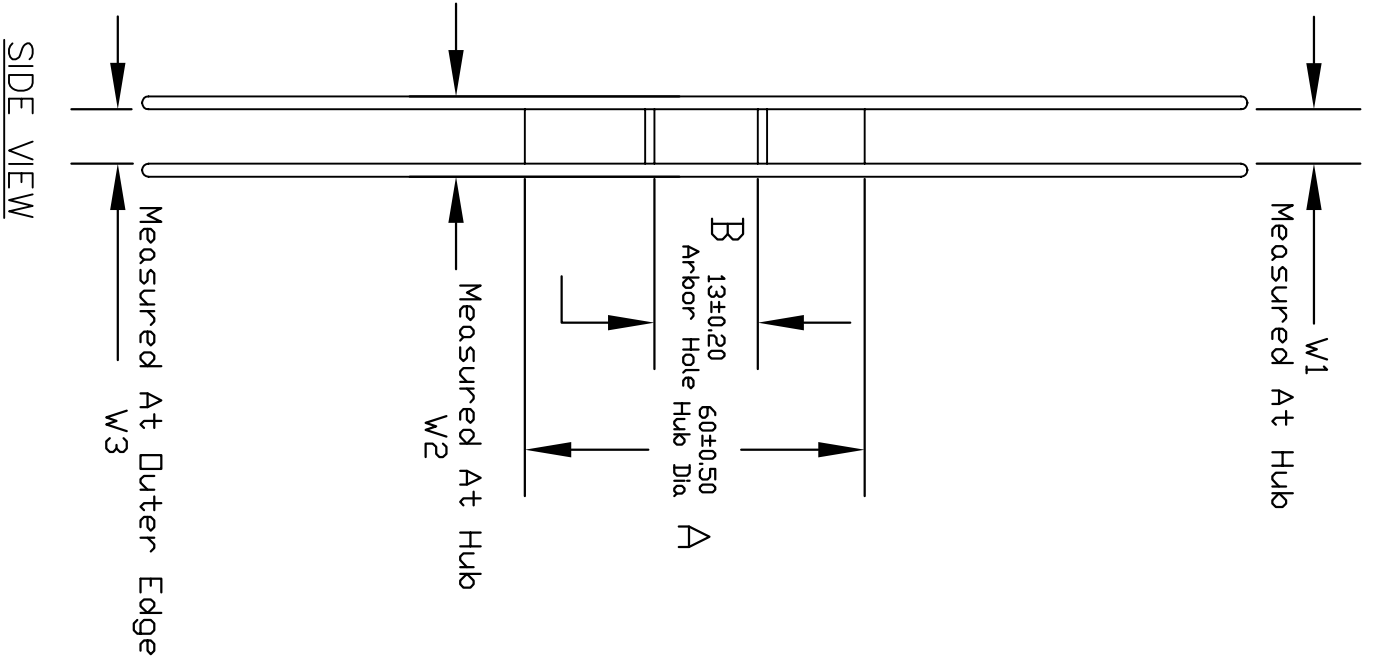
DRAWN \_\_\_\_\_

STOCK NO. \_\_\_\_\_ DRAWING NO. MSC-5965  
 REFER TO TABLE \_\_\_\_\_ SHEET 1 OF 3  
 DO NOT SCALE DRAWING

**IDT** 6024 Silver Creek Valley Road, San Jose, CA 95138  
 PHONE: (408) 284-8200  
 FAX: (408) 284-3572  
 WWW.IDT.COM

TITLE: 8 MM WIDTH PLASTIC REEL (7"/2" HUB)  
 SCALE: N/A  
 REV: 03

Carsem Reel



BACK VIEW

SIDE VIEW

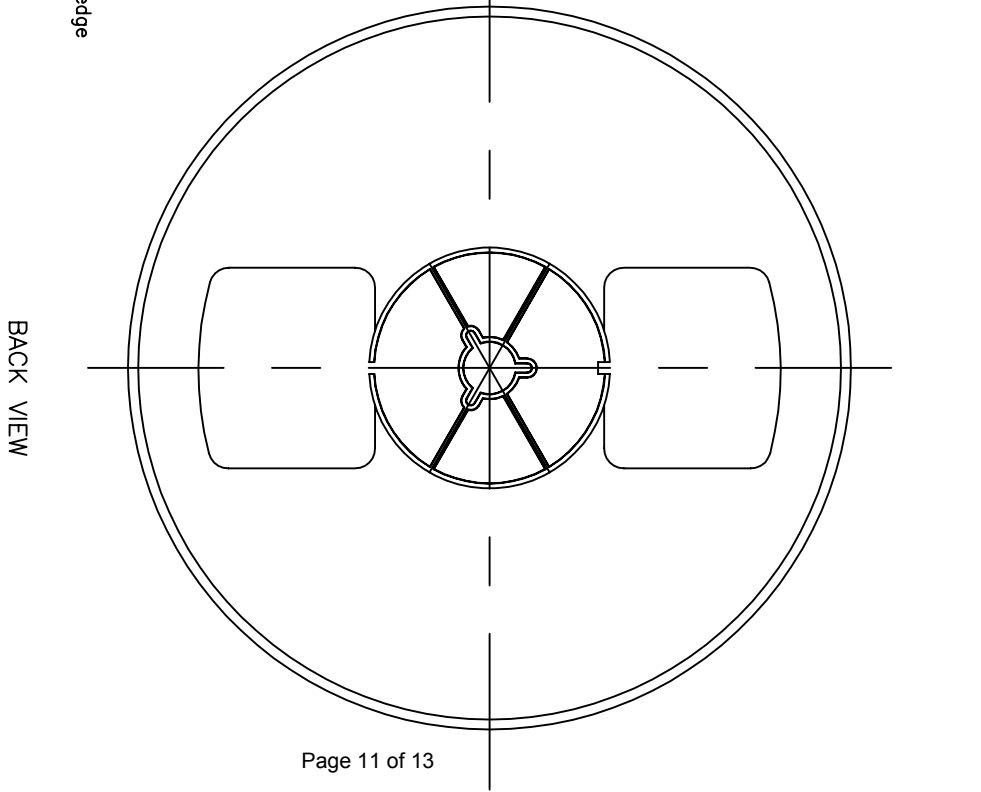
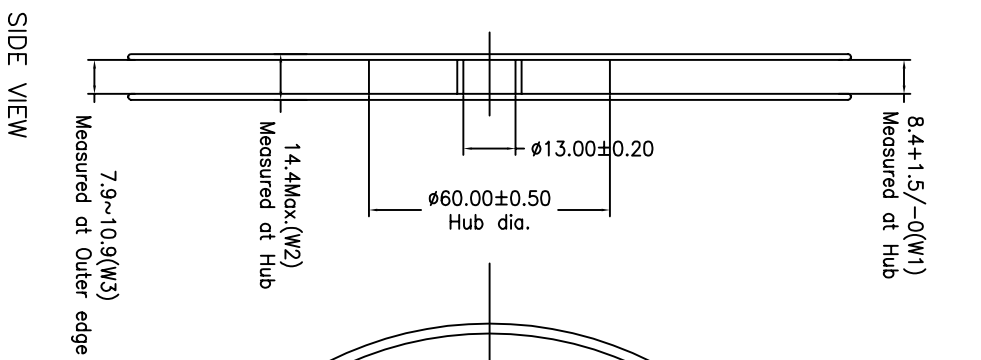
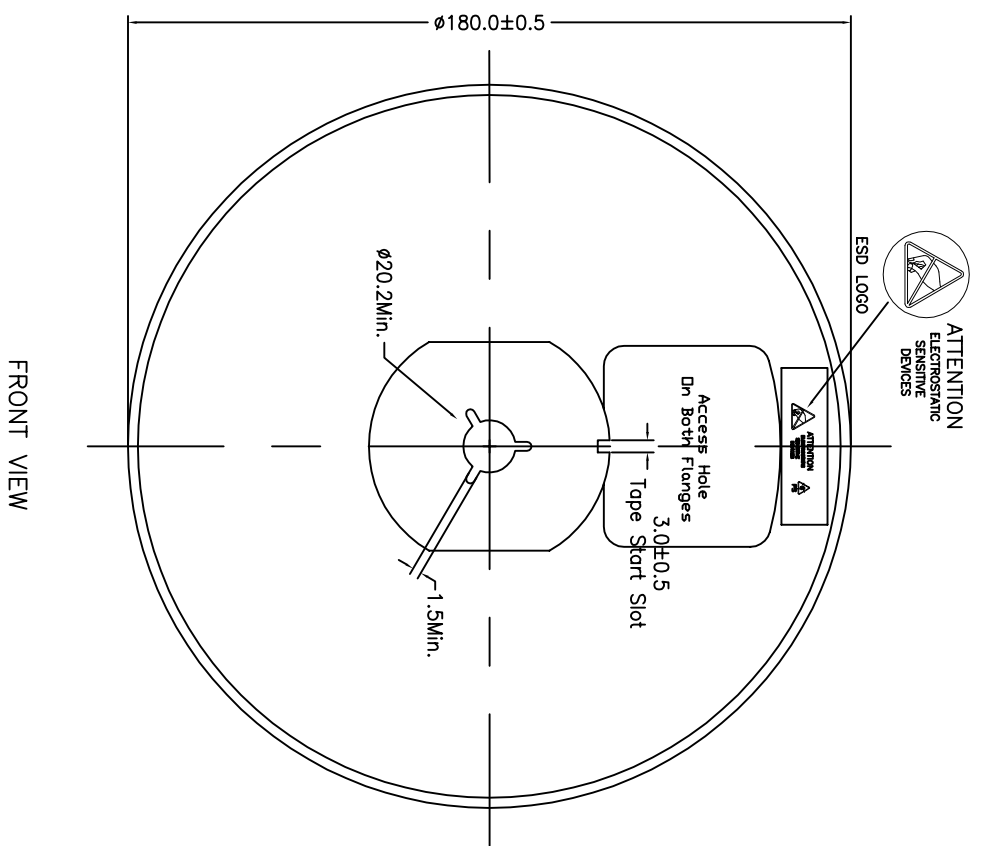
TOLERANCES UNLESS OTHERWISE SPECIFIED		ANGLE	
DECIMAL	.25	±.5°	
XX	±.13		
XX	±.13		
APPROVALS	DATE		
DRAWN			
TITLE: 8 MM WIDTH PLASTIC REEL (7"/2" HUB)		SCALE N/A	
STOCK NO. REFER TO TABLE		DRAWING NO. MSC-5965	
DO NOT SCALE DRAWING		REV N/A	
SHEET 2 OF 3		REV 03	



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San Jose, CA 95138  
PHONE: (408) 294-8200  
FAX: (408) 294-3572

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TFME Reel



NOTES : (UNLESS OTHERWISE SPECIFIED)  
1. COLOR : TRANSLUCENT.

FRONT VIEW

SIDE VIEW

BACK VIEW

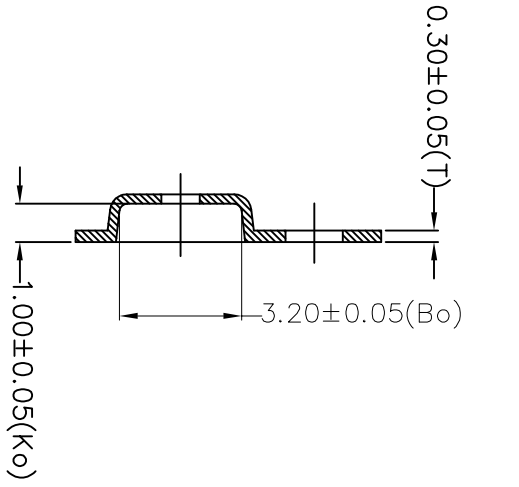
TOLERANCES UNLESS OTHERWISE SPECIFIED  
DECIMAL : X ± .5  
.XX ± .25  
.XXX ±  
ANGLE : ± .5°  
ANGULAR : ±



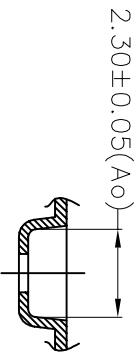
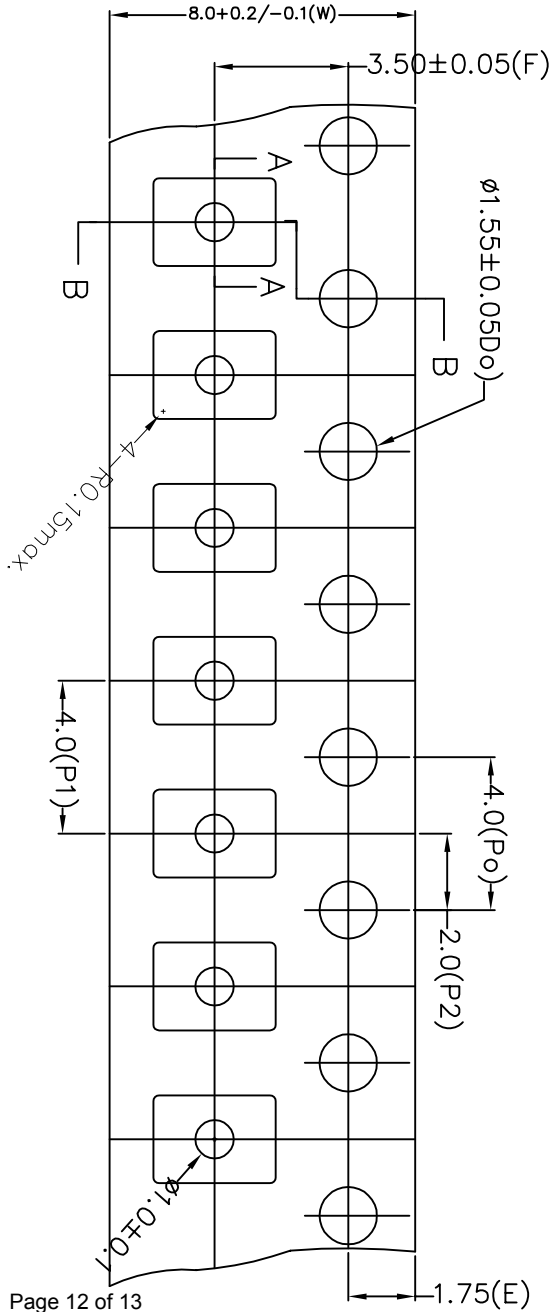
6024 Silver Creek Valley Road,  
San Jose, CA 95138  
PHONE: (408) 284-8200  
FAX: (408) 284-3572

TITLE:		7" PLASTIC REEL FOR 8 MM	
STOCK NO.	DRAWING NO.	REV	SCALE
N/A	MSC-8402-A	00	N/A
DO NOT SCALE DRAWING		SHEET 1 OF 1	

HTC Carrier Tape



Section B-B



Section A-A

TOLERANCES UNLESS OTHERWISE SPECIFIED  
 DECIMAL : X ±.1  
 .XX ±.10  
 .XXX ±  
 ANGLAR : ±



6024 Silver Creek Valley Road,  
 San Jose, CA 95138  
 PHONE: (408) 284-8200  
 FAX: (408) 284-3572

TITLE:

NCG 8 CARRIER TAPE

SCALE  
 N/A

STOCK NO.

N/A

DRAWING NO.

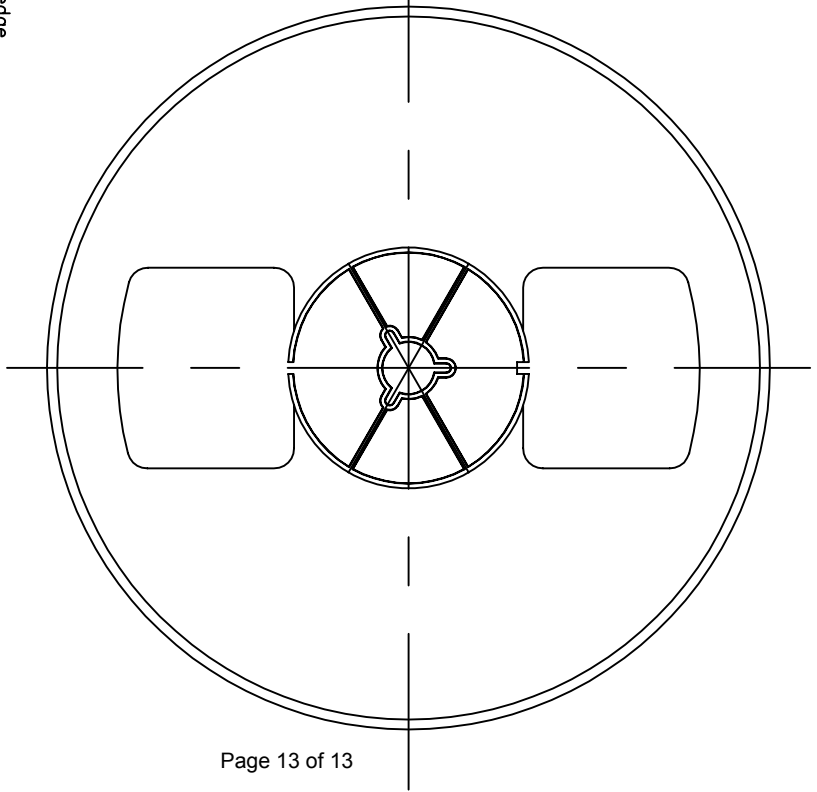
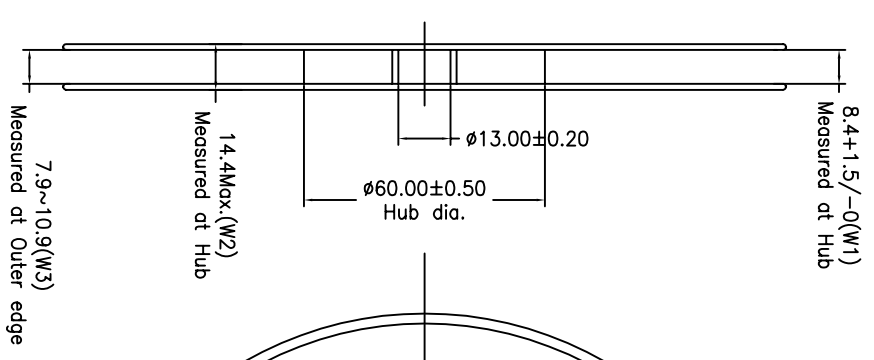
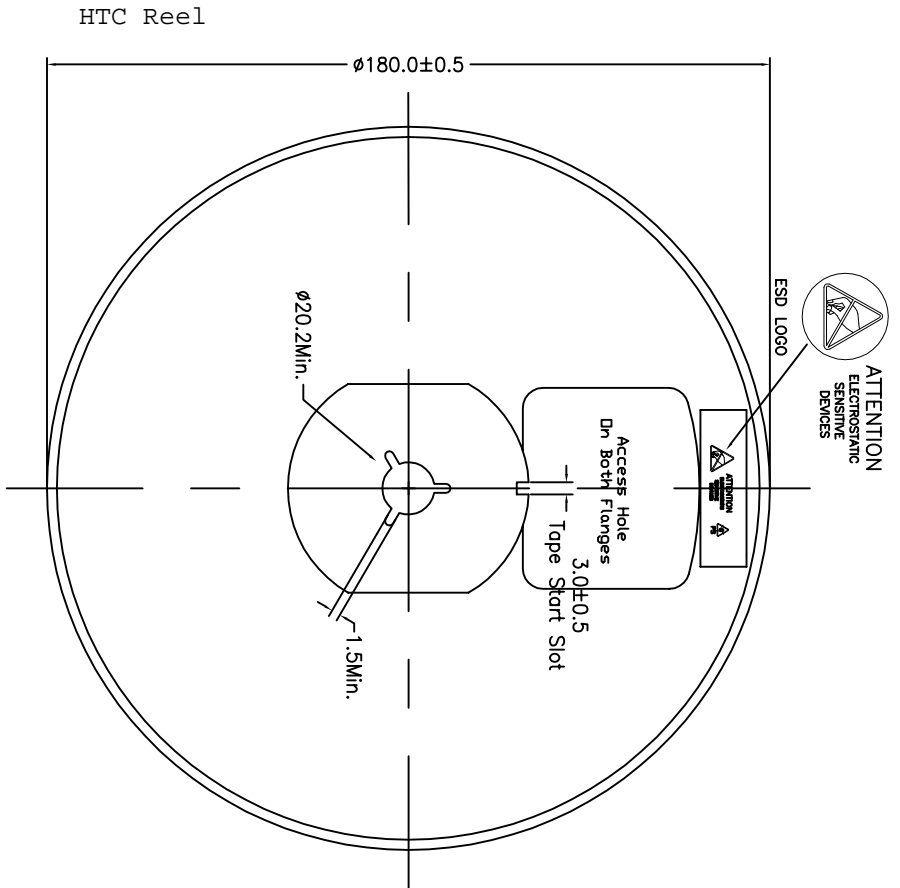
MSC-7980-A

REV

00

DO NOT SCALE DRAWING

SHEET 1 OF 1



NOTES : (UNLESS OTHERWISE SPECIFIED)  
1. COLOR : TRANSLUCENT.

TOLERANCES UNLESS OTHERWISE SPECIFIED  
DECIMAL : X ±.5  
.XX ±.25  
.XXX ±  
ANGLE : ±.5°  
ANGULAR : ±



6024 Silver Creek Valley Road,  
San Jose, CA 95138  
PHONE: (408) 284-8200  
FAX: (408) 284-3572

TITLE: 7" PLASTIC REEL FOR 8 MM		SCALE N/A	
STOCK NO. N/A	DRAWING NO. MSC-8402-A	REV 00	SCALE N/A
DO NOT SCALE DRAWING		SHEET 1 OF 1	