

## PRODUCT / PROCESS CHANGE INFORMATION

### 1. PCI basic data

1.1 Company		STMicroelectronics International N.V
1.2 PCI No.		MDG/22/13741
1.3 Title of PCI		ST Calamba (Philippines) CHANGE OF CARRIER TAPE SUPPLIER for 3CP40618 (Wi 12mm QFN 5x5), 3CP20434 (Wi 16mm QFN 6x6) & 3CP40620 (Wi 16mm QFN 8x8)
1.4 Product Category		Refer to impacted product list
1.5 Issue date		2022-11-15

### 2. PCI Team

2.1 Contact supplier	
2.1.1 Name	ROBERTSON HEATHER
2.1.2 Phone	+1 8475853058
2.1.3 Email	heather.robertson@st.com
2.2 Change responsibility	
2.2.1 Product Manager	Ricardo Antonio DE SA EARP
2.1.2 Marketing Manager	Veronique BARLATIER
2.1.3 Quality Manager	Pascal NARCHE

### 3. Change

3.1 Category	3.2 Type of change	3.3 Manufacturing Location
Materials	Any indirect material modifications for shipping products in dimensions, material, composition, orientation	ST Calamba (Philippines)

### 4. Description of change

	Old	New
4.1 Description	Current ST material code reference: - 3CP40618 (CARRIER TAPE Wi 12mm QFN 5x5) - 3CP20434 (CARRIER TAPE Wi 16mm QFN 6x6) - 3CP40620 (CARRIER TAPE Wi 16mm QFN 8x8) supplied by PEAK	Change of supplier for ST material code reference: - 3CP40618 (CARRIER TAPE Wi 12mm QFN 5x5) - 3CP20434 (CARRIER TAPE Wi 16mm QFN 6x6) - 3CP40620 (CARRIER TAPE Wi 16mm QFN 8x8) supplied by ADVANTEK
4.2 Anticipated Impact on form,fit, function, quality, reliability or processability?	Form: No change on product Fit: No change on product Function: No change on product Reliability : No change on product Processability : No change on product	

### 5. Reason / motivation for change

5.1 Motivation	PEAK has declared to discontinue production 3CP40618, 3CP20434, 3CP40620
5.2 Customer Benefit	SERVICE CONTINUITY

### 6. Marking of parts / traceability of change

6.1 Description	Date-code - Internal Traceability
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### 7. Timing / schedule

7.1 Date of qualification results	2022-10-24
7.2 Intended start of delivery	2022-12-30
7.3 Qualification sample available?	Not Applicable

### 8. Qualification / Validation

8.1 Description	
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<b>8.2 Qualification report and qualification results</b>	In progress	<b>Issue Date</b>	
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#### **9. Attachments (additional documentations)**

13741 Public product.pdf  
13741 \_Detailed Description 13741.pdf

#### **10. Affected parts**

<b>10. 1 Current</b>		<b>10.2 New (if applicable)</b>
<b>10.1.1 Customer Part No</b>	<b>10.1.2 Supplier Part No</b>	<b>10.1.2 Supplier Part No</b>
	BLUENRG-132	
	BLUENRG-232	
	BLUENRG-232N	
	BLUENRG-248	
	BLUENRG-332AT	
	BLUENRG-345AC	
	BLUENRG-345AT	
	BLUENRG-345MC	
	BLUENRG-345MT	
	BLUENRG-355AC	
	BLUENRG-355AT	
	BLUENRG-355MC	
	BLUENRG-355MT	
	BLUENRG-MSQTR	

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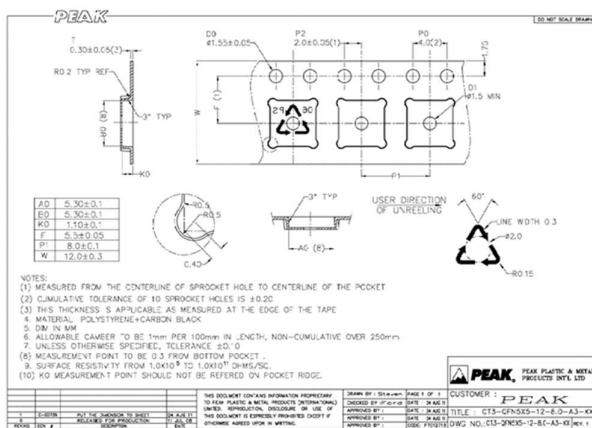
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## PCI - CHANGE OF SUPPLIER FOR 3CP40618 (CARRIER TAPE Wi 12mm QFN/LGA/PFLAT 5x5x1)

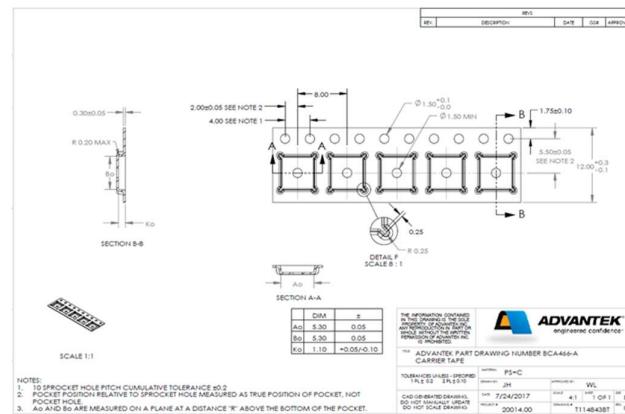
### WHAT is the change?

Change of supplier for ST material code reference: 3CP40618 (CARRIER TAPE Wi 12mm QFN/LGA/PFLAT 5x5x1) from PEAK to ADVANTEK which affected ST CALAMBA.

### CURRENT: PEAK



### NEW: ADVANTEK



### WHY?

- PEAK has declared to discontinue production of 3CP40618.

### HOW will the change be qualified?

- Pls refer to attached qualification reports in Appendix 2.

### IMPACTS of the Change

Form: No change on product  
 Fit: No change on product  
 Function: No change on product  
 Reliability: No change on product  
 Processability: No change on product

### APPENDICES:

- APPENDIX 1 Risk assessment
- APPENDIX 2 Qualification plan
- APPENDIX 3 Qualification results

## APPENDIX 1: RISK ASSESSMENT

#	Risks identified	Potential risk resulting from	Class (Low / Medium)	Considered action
1	Insufficient lead protection from accidental drops up to 4 ft height	Units cannot be soldered at PCBA due to bent leads	Medium	Perform drop test from 4 ft height to ensure no bent leads
2	Insufficient clearance between leads and carrier tape pocket	Bent leads due to mechanical contact	Medium	Perform fit analysis considering all potential combinations for carrier tape vs package dimensions
3	Opened/improper cover tape sealing	Units drop out of carrier tape	Medium	Perform peel off strength test to ensure it meets ST requirements
4	Device malfunction	EOS damage due to ESD	Medium	Perform validation for ESD protection compliance
5				
6				
7				
8				
9				

## **APPENDIX 2: QUALIFICATION PLAN**

- Visual inspection report
- Drop Test, Peel Test and ESD Test
- Fit Analysis

APPENDIX 3: QUALIFICATION EXECUTION & RESULTS

# Visual Inspection Report

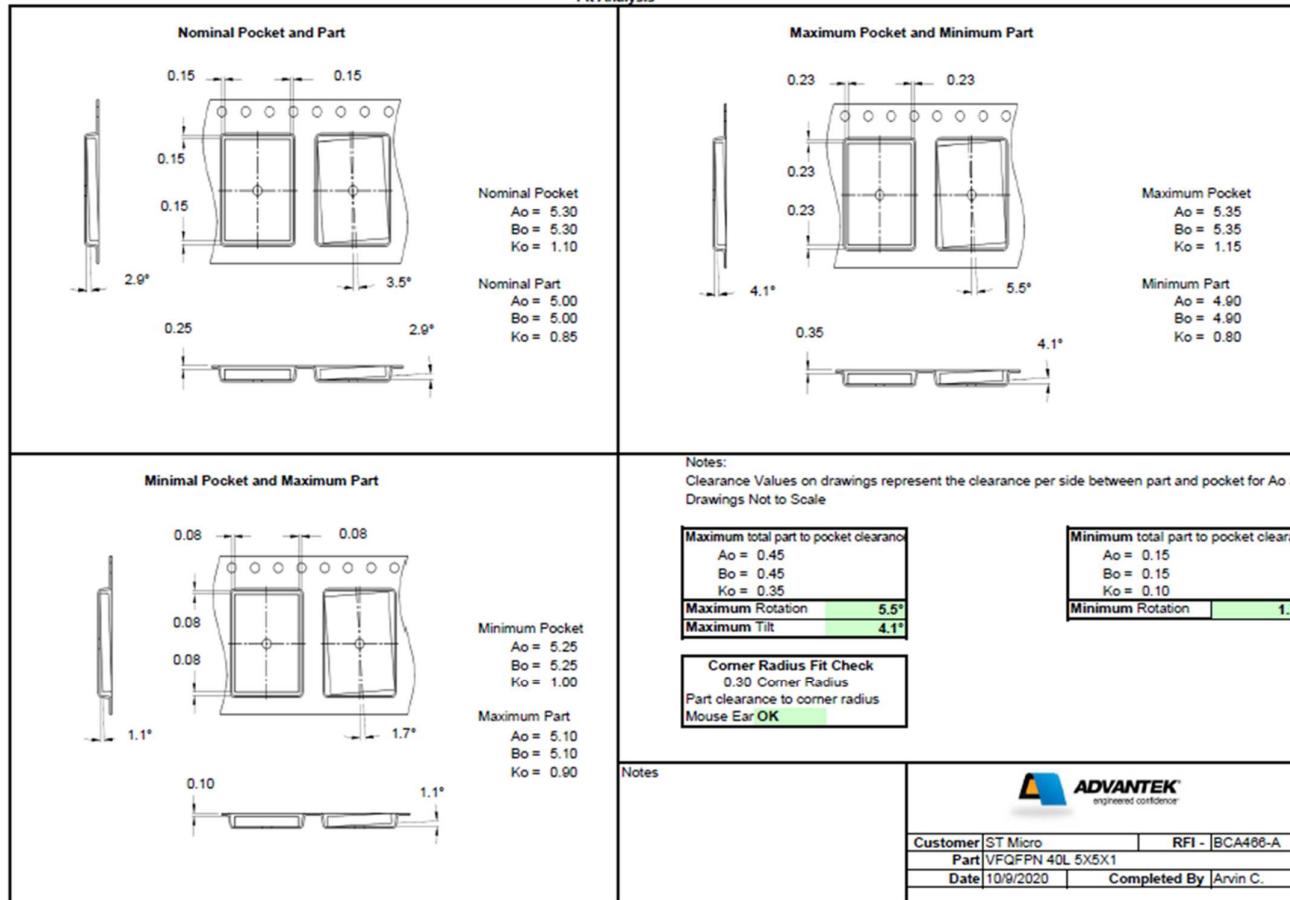
Visual inspection	Results
Does not contain stain or foreign material	Passed
No Damage	Passed
No Burr	Passed
Orientation	Passed
The component does not protrude above the top surface of the carrier tape	Passed
The component can be removed from the cavity in a vertical direction without mechanical restriction, after the top cover tape has been removed.	Passed
Lateral movement of the component is restricted to 1.0mm maximum	Passed

# Drop Test, Peel Test and ESD Test

Test	Result
Drop Test Result	Passed
Peel Test Result	Passed
ESD Test Result	Passed

# CADFIT SIMULATION

## Fit Analysis

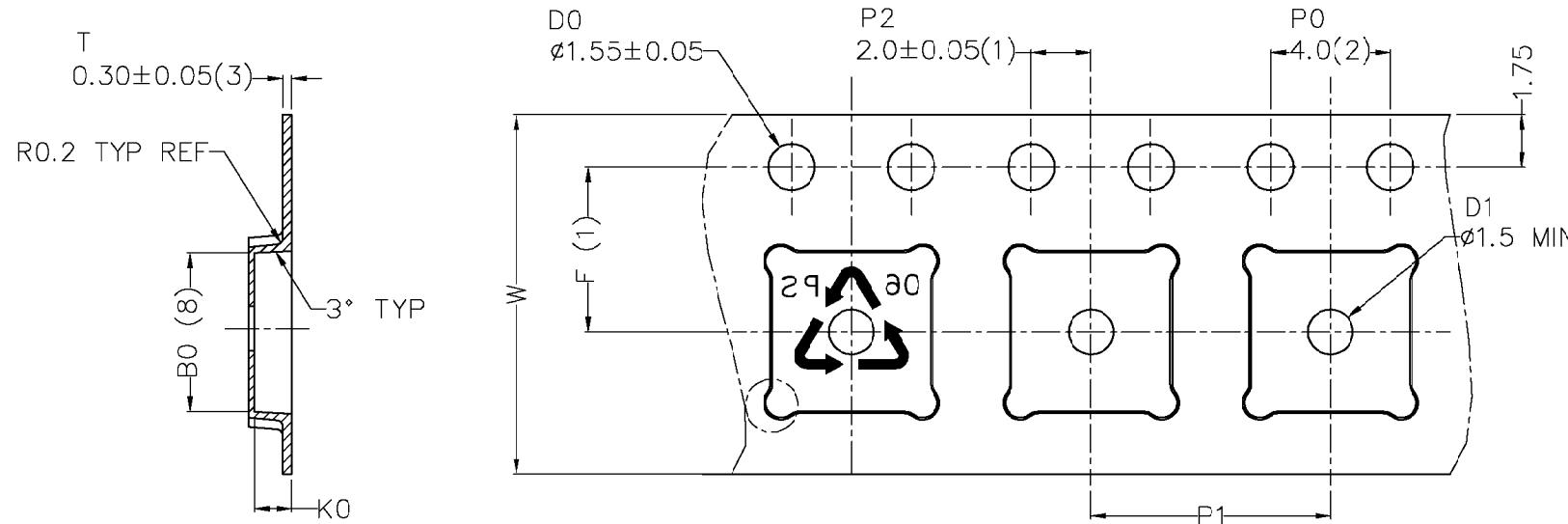


## Results : Passed

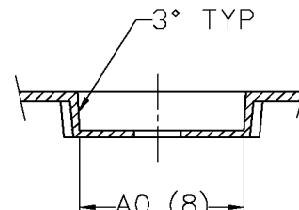
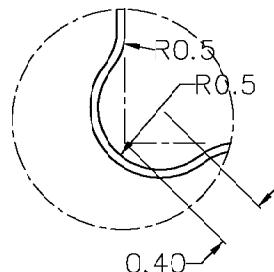
**Sufficient clearance available between leads and carrier tape cavity**

## Conclusion

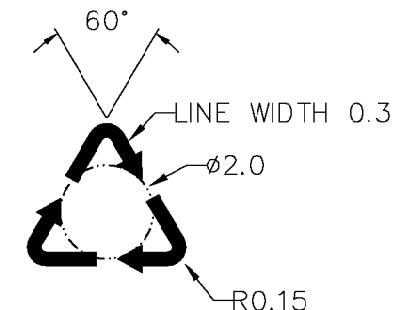
Based on above material qualification, the 12mm carrier tape from Advantek for QFN 5x5x1mm passed the Calamba requirement and can be used for normal tape and reeling process.



A0	5.30±0.1
B0	5.30±0.1
K0	1.10±0.1
F	5.5±0.05
P1	8.0±0.1
W	12.0±0.3



USER DIRECTION  
OF UNREELING



NOTES:

- (1) MEASURED FROM THE CENTERLINE OF SPROCKET HOLE TO CENTERLINE OF THE POCKET
- (2) CUMULATIVE TOLERANCE OF 10 SPROCKET HOLES IS  $\pm 0.20$
- (3) THIS THICKNESS IS APPLICABLE AS MEASURED AT THE EDGE OF THE TAPE
4. MATERIAL: POLYSTYRENE+CARBON BLACK
5. DIM IN MM
6. ALLOWABLE CAMBER TO BE 1mm PER 100mm IN LENGTH, NON-CUMULATIVE OVER 250mm
7. UNLESS OTHERWISE SPECIFIED, TOLERANCE  $\pm 0.10$
- (8) MEASUREMENT POINT TO BE 0.3 FROM BOTTOM POCKET.
9. SURFACE RESISTIVITY FROM  $1.0 \times 10^5$  TO  $1.0 \times 10^{11}$  OHMS/SQ.
- (10) KO MEASUREMENT POINT SHOULD NOT BE REFERRED ON POCKET RIDGE.



PEAK

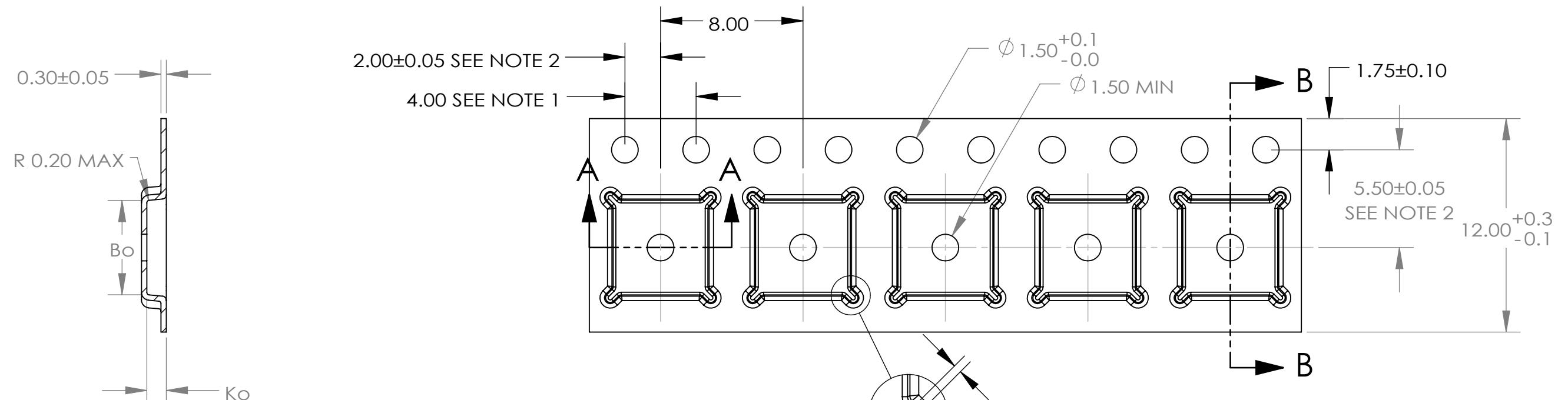
PEAK PLASTIC & METAL  
PRODUCTS INT'L LTD.

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0		RELEASED FOR PRODUCTION	11 JUL 08
REV.NO.	ECN #	DESCRIPTION	DATE

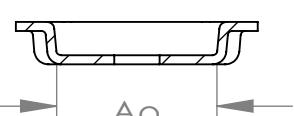
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APPROVED BY : DATE : 04 AUG 11  
CODE: PTC12713

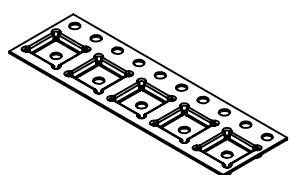
CUSTOMER : PEAK  
TITLE : CT3-QFN5X5-12-8.0-A3-XX  
DWG NO.:CT3-QFN5X5-12-8.0-A3-XX REV. 1



SECTION B-B



SECTION A-A



SCALE 1:1

## NOTES:

1. 10 SPROCKET HOLE PITCH CUMULATIVE TOLERANCE  $\pm 0.2$
2. POCKET POSITION RELATIVE TO SPROCKET HOLE MEASURED AS TRUE POSITION OF POCKET, NOT POCKET HOLE.
3. Ao AND Bo ARE MEASURED ON A PLANE AT A DISTANCE "R" ABOVE THE BOTTOM OF THE POCKET.

	DIM	$\pm$
Ao	5.30	0.05
Bo	5.30	0.05
Ko	1.10	+0.05/-0.10

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TITLE: ADVANTEK PART DRAWING NUMBER BCA466-A  
CARRIER TAPE

TOLERANCES UNLESS - SPECIFIED  
1 PL  $\pm 0.2$  2 PL  $\pm 0.10$

MATERIAL  
PS+C

DRAWN BY: JH APPROVED BY: WL

CAD GENERATED DRAWING,  
DO NOT MANUALLY UPDATE  
DO NOT SCALE DRAWING

DATE 7/24/2017 SCALE 4:1 SHEET 1 OF 1 SIZE B  
PROJECT # 20014.00 DRAWING # T114843BT REV. 0

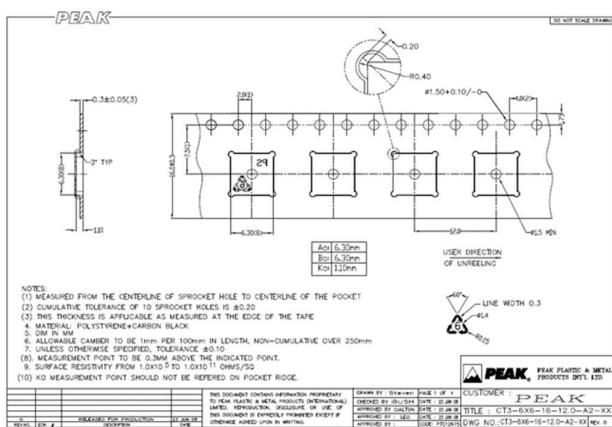
# PRODUCT / PROCESS CHANGE INFORMATION

## PCI - CHANGE OF SUPPLIER FOR 3CP20434 (CARRIER TAPE WI 16mm QFN/LGA 6x6 CND)

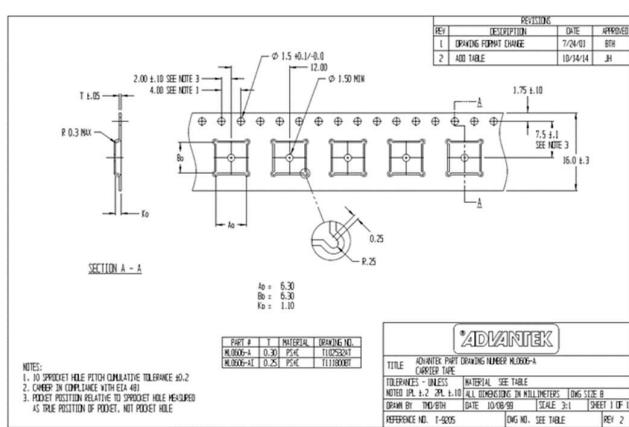
### WHAT is the change?

Change of supplier for ST material code reference: 3CP20434 (CARRIER TAPE Wi 16mm QFN/LGA 6x6 Cnd) from PEAK to ADVANTEK which affected ST CALAMBA.

### CURRENT: PEAK



### NEW: ADVANTEK



### WHY?

- PEAK has declared to discontinue production of 3CP20434.

### HOW will the change be qualified?

- Pls refer to attached qualification reports in Appendix 2.

### IMPACTS of the Change

Form: No change on product  
 Fit: No change on product  
 Function: No change on product  
 Reliability: No change on product  
 Processability: No change on product

### APPENDICES:

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3	Opened/improper cover tape sealing	Units drop out of carrier tape	Medium	Perform peel off strength test to ensure it meets ST requirements
4	Device malfunction	EOS damage due to ESD	Medium	Perform validation for ESD protection compliance
5				
6				
7				
8				
9				

## **APPENDIX 2: QUALIFICATION PLAN**

- Visual inspection report
- Drop Test, Peel Test and ESD Test
- Fit Analysis

APPENDIX 3: QUALIFICATION EXECUTION & RESULTS

# Visual Inspection Report

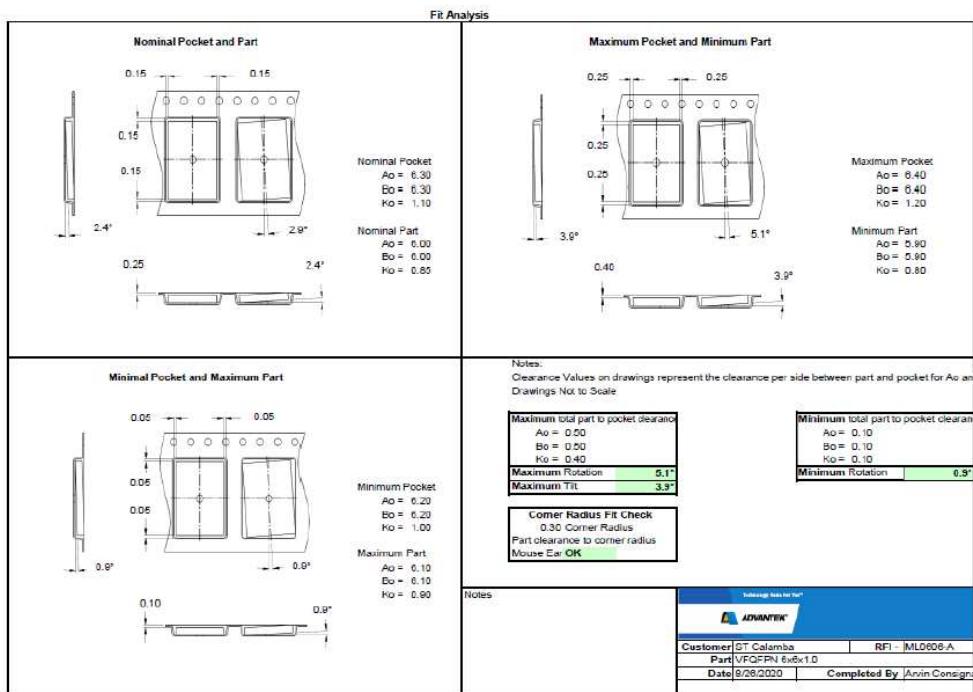
Visual inspection	Results
Does not contain stain or foreign material	Passed
No Damage	Passed
No Burr	Passed
Orientation	Passed
The component does not protrude above the top surface of the carrier tape	Passed
The component can be removed from the cavity in a vertical direction without mechanical restriction, after the top cover tape has been removed.	Passed
Lateral movement of the component is restricted to 1.0mm maximum	Passed

# Drop Test, Peel Test and ESD Test

Test	Result
Drop Test Result	Passed
Peel Test Result	Passed
ESD Test Result	Passed

# CADFIT Simulation

**FIT Test: Passed**



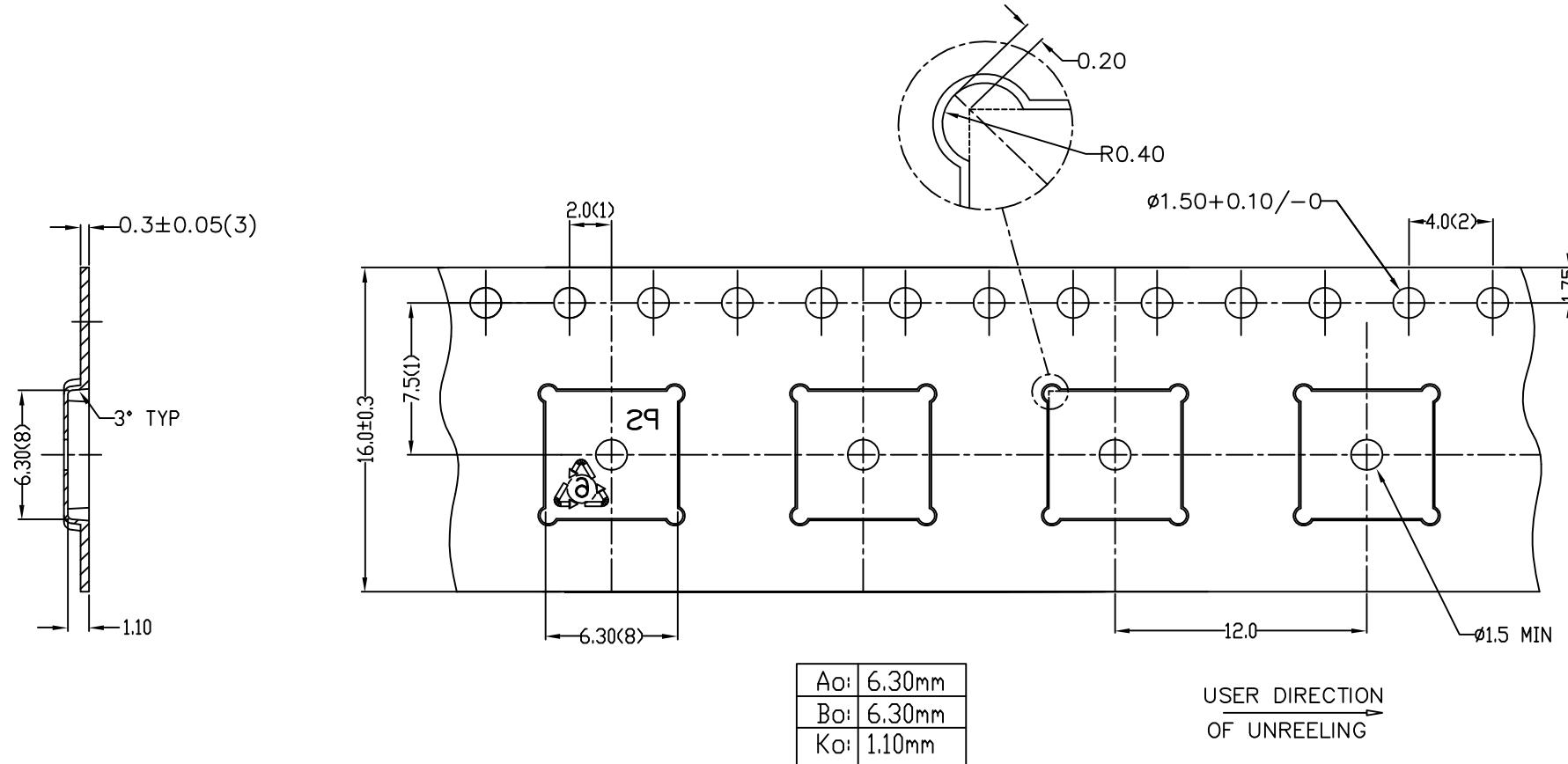
**Results : Passed**

**Sufficient clearance available between leads and carrier tape cavity**

## Conclusion

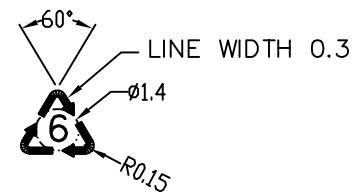
Based on above material qualification, the 16mm carrier tape from Advantek for QFN 6x6 passed the Calamba requirement and can be used for normal tape and reeling process.





## NOTES:

- (1) MEASURED FROM THE CENTERLINE OF SPROCKET HOLE TO CENTERLINE OF THE POCKET
- (2) CUMULATIVE TOLERANCE OF 10 SPROCKET HOLES IS  $\pm 0.10$
- (3) THIS THICKNESS IS APPLICABLE AS MEASURED AT THE EDGE OF THE TAPE
4. MATERIAL: POLYSTYRENE+CARBON BLACK
5. DIM IN MM
6. ALLOWABLE CAMBER TO BE 1mm PER 100mm IN LENGTH, NON-CUMULATIVE OVER 250mm
7. UNLESS OTHERWISE SPECIFIED, TOLERANCE  $\pm 0.10$
- (8). MEASUREMENT POINT TO BE 0.3MM ABOVE THE INDICATED POINT.
9. SURFACE RESISTIVITY FROM  $1.0 \times 10^5$  TO  $1.0 \times 10^{11}$  OHMS/SQ
- (10) KO MEASUREMENT POINT SHOULD NOT BE REFERRED ON POCKET RIDGE.



PEAK

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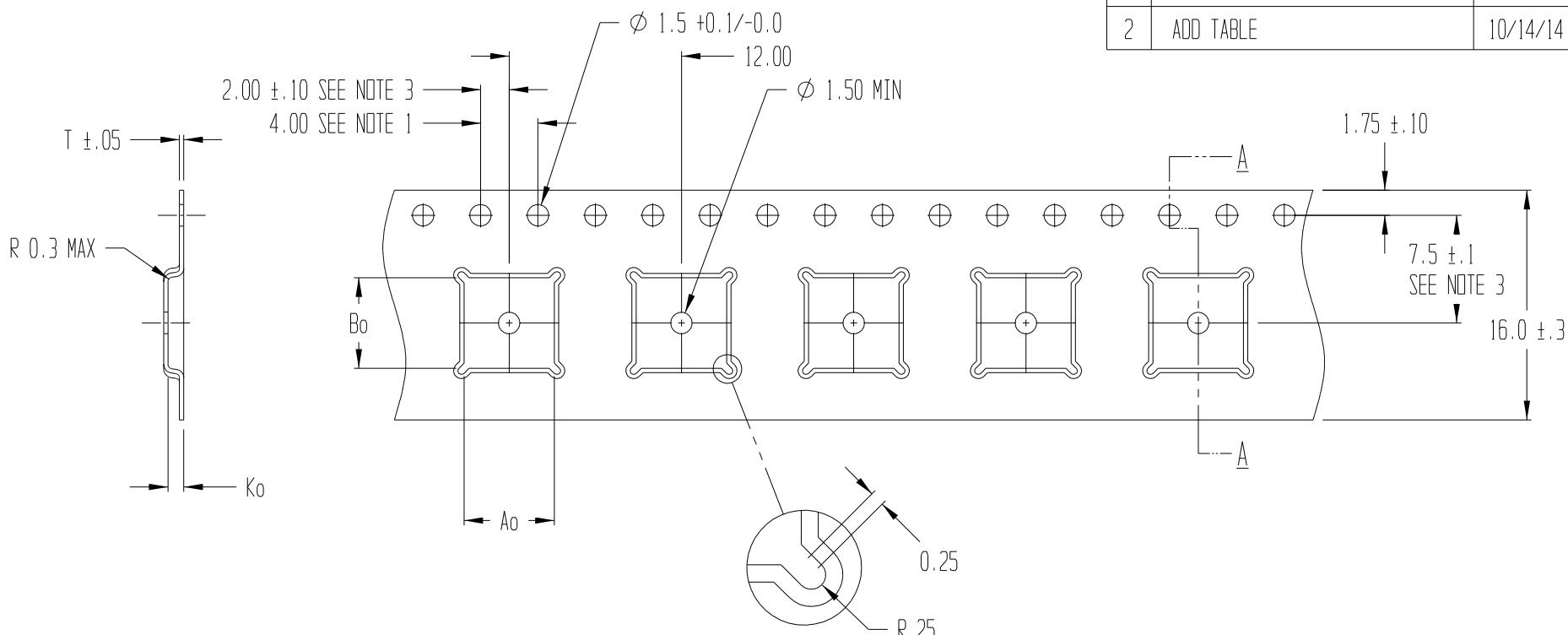
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APPROVED BY : LEO DATE : 23 JUN 08  
APPROVED BY : CODE: PTC12675

CUSTOMER : PEAK  
TITLE : CT3-6X6-16-12.0-A2-XX  
DWG NO.:CT3-6X6-16-12.0-A2-XX REV. 0

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
1	DRAWING FORMAT CHANGE	7/24/01	BTH
2	ADD TABLE	10/14/14	JH



SECTION A - A

Ao = 6.30

Bo = 6.30

Ko = 1.10

PART #	T	MATERIAL	DRAWING NO.
ML0606-A	0.30	PS+C	T102532AT
ML0606-AI	0.25	PS+C	T111800BT

NOTES:

1. 10 SPROCKET HOLE PITCH CUMULATIVE TOLERANCE ±0.2
2. CAMBER IN COMPLIANCE WITH EIA 481
3. POCKET POSITION RELATIVE TO SPROCKET HOLE MEASURED AS TRUE POSITION OF POCKET, NOT POCKET HOLE

®ADVANTEK			
TITLE ADVANTEK PART DRAWING NUMBER ML0606-A CARRIER TAPE			
TOLERANCES - UNLESS NOTED 1PL ±.2 2PL ±.10		MATERIAL SEE TABLE ALL DIMENSIONS IN MILLIMETERS DWG SIZE B	
DRAWN BY TMD/BTH	DATE 10/08/99	SCALE 3:1	SHEET 1 OF 1
REFERENCE NO. T-9205		DWG NO. SEE TABLE	REV 2

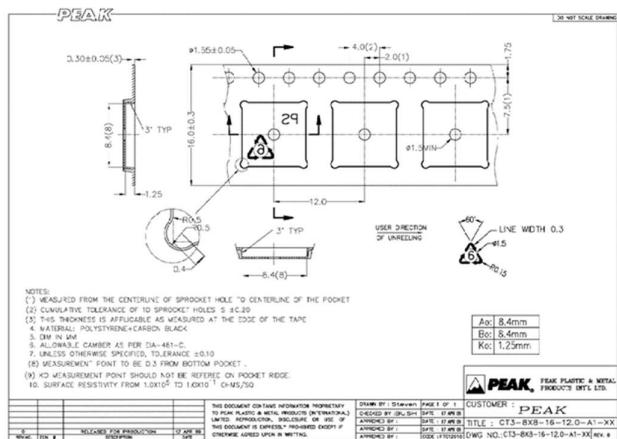
## PRODUCT / PROCESS CHANGE NOTIFICATION

### PCN - CHANGE OF SUPPLIER FOR 3CP40620 (CARRIER TAPE Wi 16mm QFN/LGA 8x8 dsp)

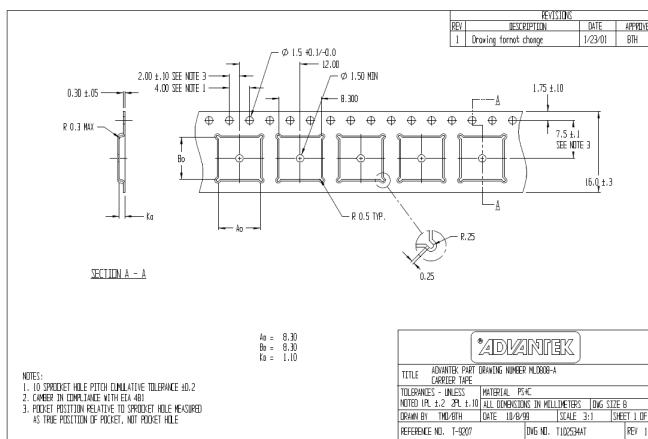
#### WHAT is the change?

Change of supplier for ST material code reference: 3CP40620 (CARRIER TAPE Wi 16mm QFN/LGA 8x8 dsp) from PEAK to ADVANTEK which affected ST CALAMBA.

#### CURRENT: PEAK



#### NEW: ADVANTEK



#### WHY?

- PEAK has declared to discontinue production of 3CP40620.

#### HOW will the change be qualified?

- Pls refer to attached qualification reports in Appendix 2.

#### IMPACTS of the Change

Form: No change on product  
 Fit: No change on product  
 Function: No change on product  
 Reliability: No change on product  
 Processability: No change on product

#### APPENDICES:

- APPENDIX 1 Risk assessment
- APPENDIX 2 Qualification plan
- APPENDIX 3 Qualification results

## APPENDIX 1: RISK ASSESSMENT

#	Risks identified	Potential risk resulting from	Class (Low / Medium)	Considered action
1	Insufficient lead protection from accidental drops up to 4 ft height	Units cannot be soldered at PCBA due to bent leads	Medium	Perform drop test from 4 ft height to ensure no bent leads
2	Insufficient clearance between leads and carrier tape pocket	Bent leads due to mechanical contact	Medium	Perform fit analysis considering all potential combinations for carrier tape vs package dimensions
3	Opened/improper cover tape sealing	Units drop out of carrier tape	Medium	Perform peel off strength test to ensure it meets ST requirements
4	Device malfunction	EOS damage due to ESD	Medium	Perform validation for ESD protection compliance
5				
6				
7				
8				
9				

## APPENDIX 2: QUALIFICATION PLAN

- Visual inspection report
- Drop Test, Peel Test and ESD Test
- Fit Analysis

APPENDIX 3: QUALIFICATION EXECUTION & RESULTS

# Visual Inspection Report

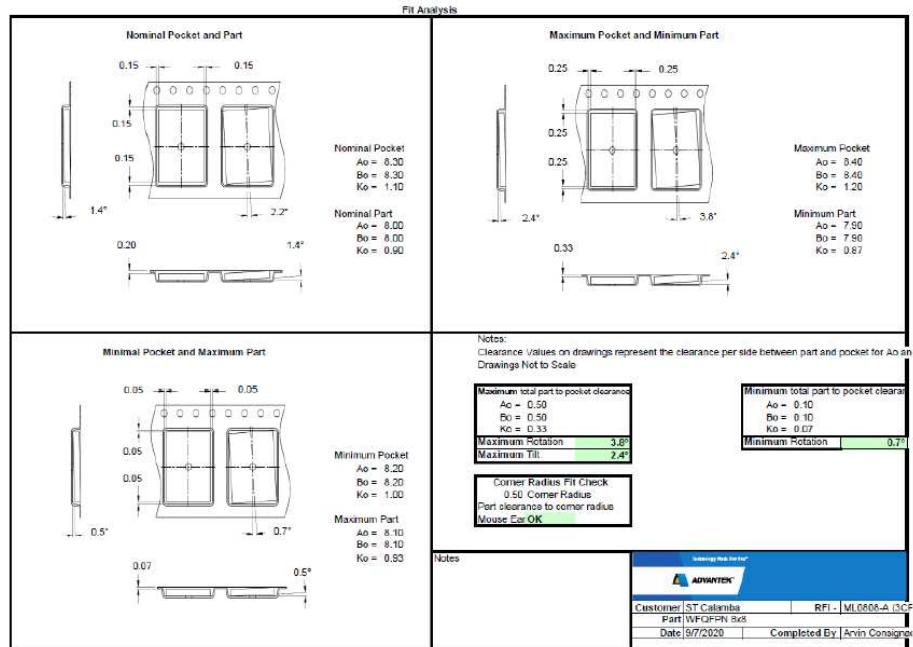
Visual inspection	Results
Does not contain stain or foreign material	Passed
No Damage	Passed
No Burr	Passed
Orientation	Passed
The component does not protrude above the top surface of the carrier tape	Passed
The component can be removed from the cavity in a vertical direction without mechanical restriction, after the top cover tape has been removed.	Passed
Lateral movement of the component is restricted to 1.0mm maximum	Passed

# Drop Test, Peel Test and ESD Test

Test	Result
Drop Test Result	Passed
Peel Test Result	Passed
ESD Test Result	Passed

# CADFIT Simulation

**FIT Test: Passed**



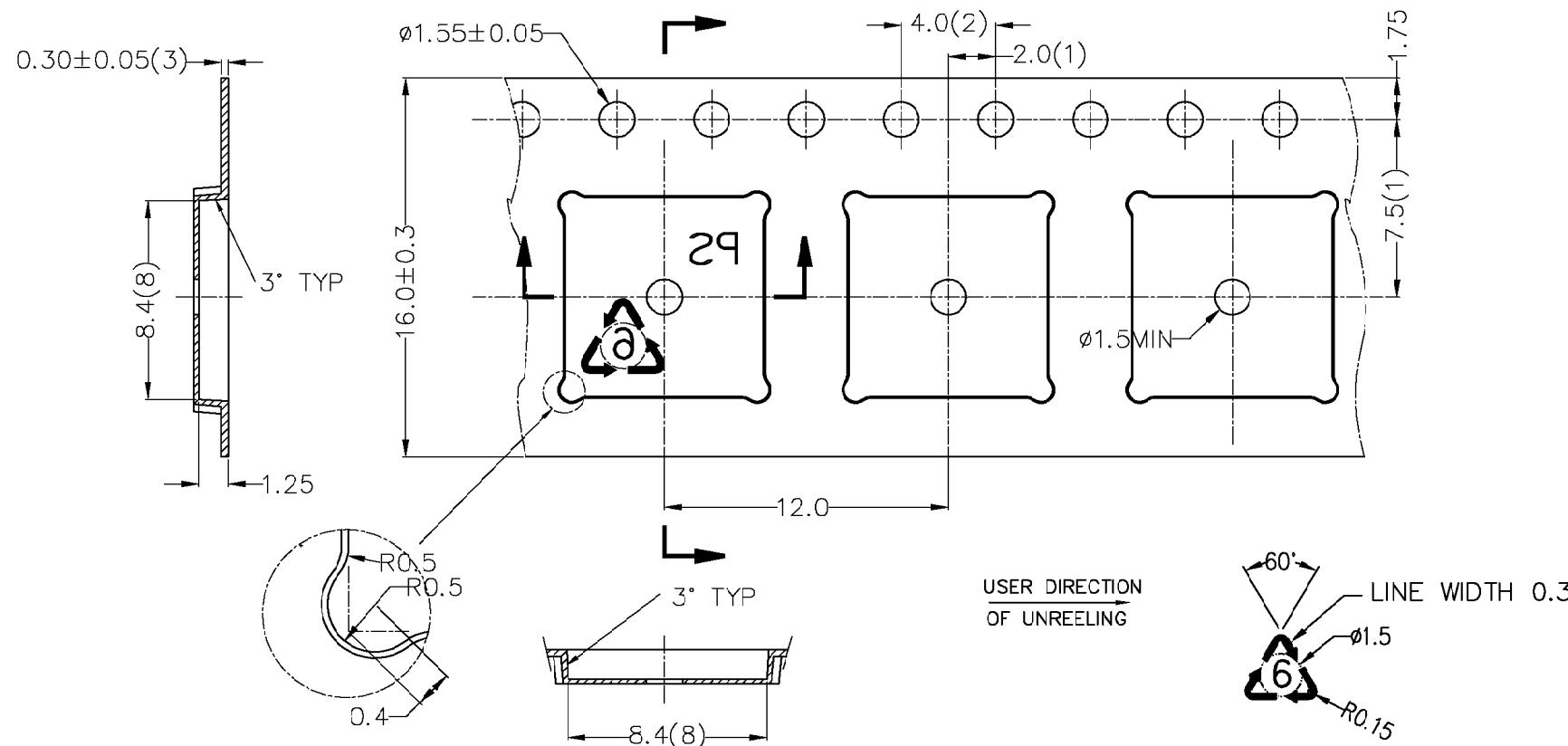
**Results : Passed**

**Sufficient clearance available between leads and carrier tape cavity**

# Conclusion

Based on above material qualification, the 16mm carrier tape from Advantek for QFN 8x8x1mm with drawing number ML0808-A passed the Tape and Reel processing requirements.





## NOTES:

- (1) MEASURED FROM THE CENTERLINE OF SPROCKET HOLE TO CENTERLINE OF THE POCKET
- (2) CUMULATIVE TOLERANCE OF 10 SPROCKET HOLES IS  $\pm 0.20$
- (3) THIS THICKNESS IS APPLICABLE AS MEASURED AT THE EDGE OF THE TAPE
4. MATERIAL: POLYSTYRENE+CARBON BLACK
5. DIM IN MM
6. ALLOWABLE CAMBER AS PER EIA-481-D.
7. UNLESS OTHERWISE SPECIFIED, TOLERANCE  $\pm 0.10$
- (8) MEASUREMENT POINT TO BE 0.3 FROM BOTTOM POCKET .
- (9) KO MEASUREMENT POINT SHOULD NOT BE REFERED ON POCKET RIDGE.
10. SURFACE RESISTIVITY FROM  $1.0 \times 10^5$  TO  $1.0 \times 10^{11}$  OHMS/SQ

Ao:	8.4mm
Bo:	8.4mm
Ko:	1.25mm

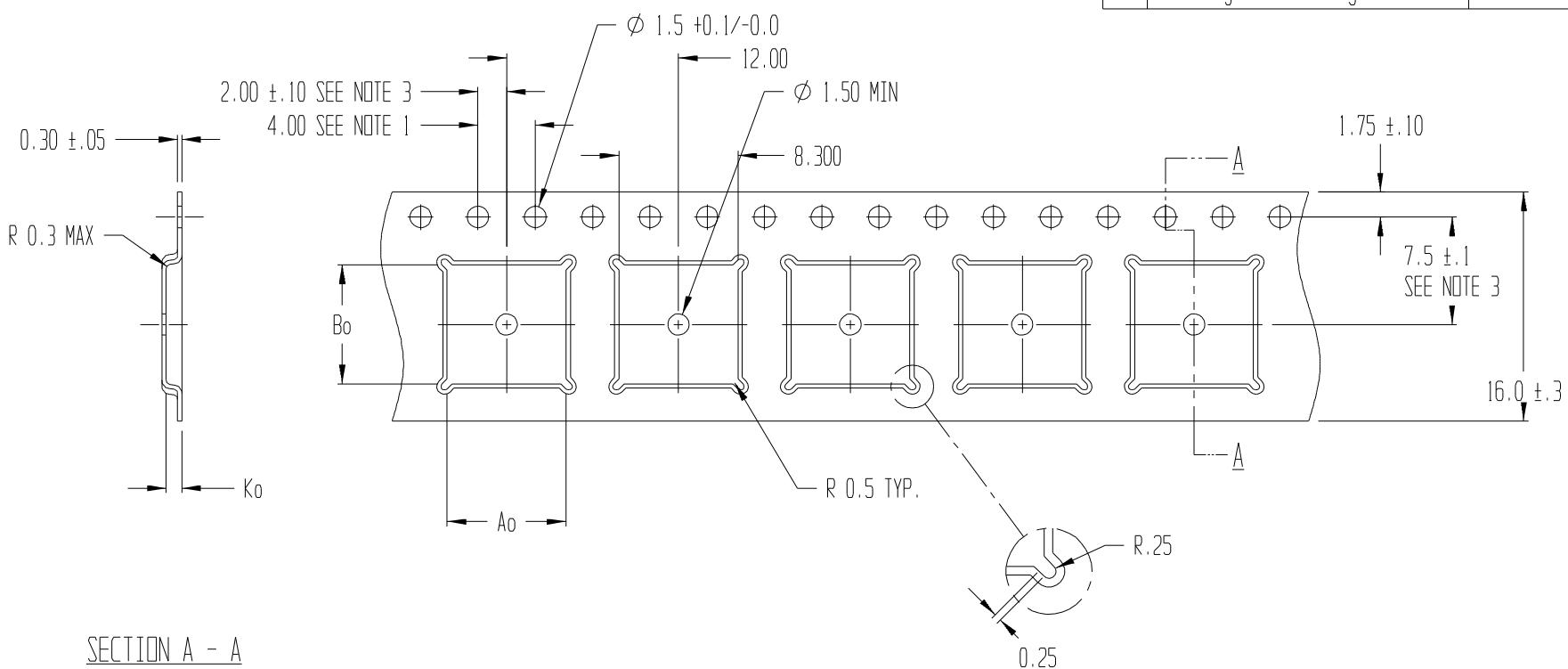


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				APPROVED BY :	DATE : 17 APR 09	DWG NO.:	CT3-8X8-16-12.0-A1-XX
				APPROVED BY :	DATE : 17 APR 09	REV. 0	
				APPROVED BY :	CODE : PTC12910		

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
1	Drawing format change	1/23/01	BTH



$$\begin{array}{l} A_0 = 8,30 \\ B_0 = 8,30 \\ K_0 = 1,10 \end{array}$$

## NOTES:

1. 10 SPROCKET HOLE PITCH CUMULATIVE TOLERANCE  $\pm 0.2$
2. CAMBER IN COMPLIANCE WITH EIA 481
3. POCKET POSITION RELATIVE TO SPROCKET HOLE MEASURED AS TRUE POSITION OF POCKET, NOT POCKET HOLE

			
<b>TITLE</b>	ADVANTEK PART DRAWING NUMBER MLO808-A CARRIER TAPE		
	<b>TOLERANCES - UNLESS NOTED</b> 1PL $\pm .2$ 2PL $\pm .10$		
<b>DRAWN BY</b> TMO/BTH	<b>MATERIAL</b> PS+C		
	<b>ALL DIMENSIONS IN MILLIMETERS</b>	<b>DWG SIZE</b> B	
<b>DATE</b> 10/8/99	<b>SCALE</b> 3:1	<b> SHEET 1 OF 1</b>	
<b>REFERENCE NO.</b> T-9207		<b>DWG NO.</b> T102534AT	<b>REV</b> 1



## Public Products List

Public Products are off the shelf products. They are not dedicated to specific customers, they are available through ST Sales team, or Distributors, and visible on ST.com

**PCI Title :** ST Calamba (Philippines) CHANGE OF CARRIER TAPE SUPPLIER for 3CP40618 (Wi 12mm QFN 5x5), 3CP20434 (Wi 16mm QFN 6x6) & 3CP40620 (Wi 16mm QFN 8x8)

**PCI Reference :** MDG/22/13741

**Subject :** Public Products List

Dear Customer,

Please find below the Standard Public Products List impacted by the change.

BLUENRG-332AC	BLUENRG-332AT	BLUENRG-345MC
BLUENRG-345AT	BLUENRG-232	BLUENRG-355AT
BLUENRG-MSQTR	BLUENRG-132	BLUENRG-248
BLUENRG-355MC	BLUENRG-355MT	BLUENRG-355AC
BLUENRG-232N	BLUENRG-345MT	BLUENRG-345AC



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