

D

C

B

A

D

C

B

A

NOTES, UNLESS OTHERWISE SPECIFIED:

1. FABRICATE AND PROCESS IN ACCORDANCE WITH IPC–A–600 CLASS 2.
2. MATERIAL: FR4 COPPER CLAD GLASS EPOXY LAMINATE, 35um [1oz] COPPER, ALL LAYER. INTERPRET COPPER THICKNESS SPECIFIED AS UNFINISHED WEIGHT. EXPOSED COPPER IS FINISHED TO A GREATER THICKNESS.
3. FINISHED LAMINATE THICKNESS SHALL BE 1.570 +/-0.16mm [0.062 +/- 10%]. LAYER STACK UP SHALL BE IN ACCORDANCE WITH LAYER STACKUP DETAIL IN NOTE 14. ALL PROCESSES AND MATERIALS MUST BE ROHS COMPLIANT. ACCEPTANCE CRITERIA: EACH LOT OF PCB'S DEFINED BY A COMMON DATE CODE MUST HAVE ONE PANEL SUBJECTED TO A CROSS–SECTION ANALYSIS TO VERIFY CONFORMANCE TO ALL FABRICATION SPECIFICATIONS. A REPORT OF THE INSPECTION IS TO BE MAINTAINED BY THE CONTRACT MANUFACTURER AND AVAILABLE UPON REQUEST
4. FABRICATE PRINTED WIRING BOARD USING COMPUTER GENERATED PRODUCTION MASTERS. THE GERBERS FOR THIS DESIGN ARE ARE STORED IN ARTWORK FILE AF PCB–00183 / 3080043.025 .
5. FINISHED HOLE DIAMETER TOLERANCE FOR PLATED AND NONPLATED HOLES SHALL BE IN ACCORDANCE WITH IPC–2615.
6. FINISHED LINE WIDTH TOLERANCE SHALL BE +/- 0.025mm OR +/- 20% OF THE NOMINAL WIDTH PER THE ARTWORK MASTER, WHICHEVER IS SMALLER. IT IS ACCORDING TO GUIDELINES OF IPC–2221A AND IPC–D–325.
7. PLATED THROUGH HOLES SHALL BE COPPER PLATED 18um MINIMUM THICK FOR HOLE LOCATIONS. ACCORDING TO IPC–2221A TABLE 4–3. MINIMUM ANNULAR RING ACCORDING TO IPC–6012B CLASS 2.
8. PLATE EXPOSED CONDUCTOR PATTERN WITH 0.05–0.2um OF IMMERSION GOLD OVER 3–6um ELECTROLESS NICKEL. ELECTROLESS NICKEL IMMERSION GOLD PLATING SHALL BE AS SPECIFIED IN IPC–4552.
9. APPLY POLYMER MASK COATING OVER BARE COPPER IN ACCORDANCE WITH IPC–SM–840, CLASS T, USING GREEN SOLDER MASK MASTERS STORED IN ARTWORK FILE AF PCB–00183 / 3080043.025. POLYMER COATING SHALL BE REGISTERED TO CONDUCTOR PADS WITHIN 0.26mm OF FULL INDICATOR MOVEMENT. VENDOR HAS OPTION TO USE DRY FILM OR LIQUID PHOTO IMAGEABLE.
10. APPLY SILKSCREEN LEGEND USING WHITE PERMANENT INK. VENDOR SHALL MODIFY SILKSCREEN ARTWORK AS REQUIRED TO PREVENT INK FROM CONTAMINATING COMPONENT PADS. MODIFY SILKSCREEN ARTWORK TO INCLUDE CURRENT REVISION LETTER.
11. FOR SCHEMATIC DIAGRAM SEE DRAWING SCH–00181 / 7080043.038.
12. ARTWORK FILE: (GERBER FORMAT 4.2)
DRILL FILE: PCB–00183 .DRR
APERTURE FILE: PCB–00183 .APR
COMPONENT LOCATION (INSERTION) FILE: PCB–00183 .CSV

GERBER FILE	DESCRIPTION	LAYER
PCB–00183 .GTO	TOP SILKSCREEN	TOP SILK
PCB–00183 .GTP	TOP SLD R PASTE	TOP PASTE
PCB–00183 .GTS	TOP SLD R MASK	TOP MASK
PCB–00183 .GTL	LAYER 1	TOP
PCB–00183 .G1	LAYER 2	GND
PCB–00183 .G2	LAYER 3	PWR
PCB–00183 .GBL	LAYER 4	BOT
PCB–00183 .GBS	BOTTOM SLD R MASK	BOT MASK
PCB–00183 .GBP	BOTTOM SLD R PASTE	BOT PASTE
PCB–00183 .GBO	BOTTOM SILKSCREEN	BOT SILK

14. LAYER STACKUP DETAIL:
- 0.71mm [0.028] +/- 0.003 THICK COPPER CLAD LAMINATE WITH 170C (FR–4), AND DIELECTRIC CONSTANT OF 4.6 +0.2/–0.4

0.10mm [0.004] +/- 0.0015 THICK PRE–PREG Tg 170C (FR–4) WITH DIELECTRIC CONSTANT OF 4.6 +0.2/–0.4.

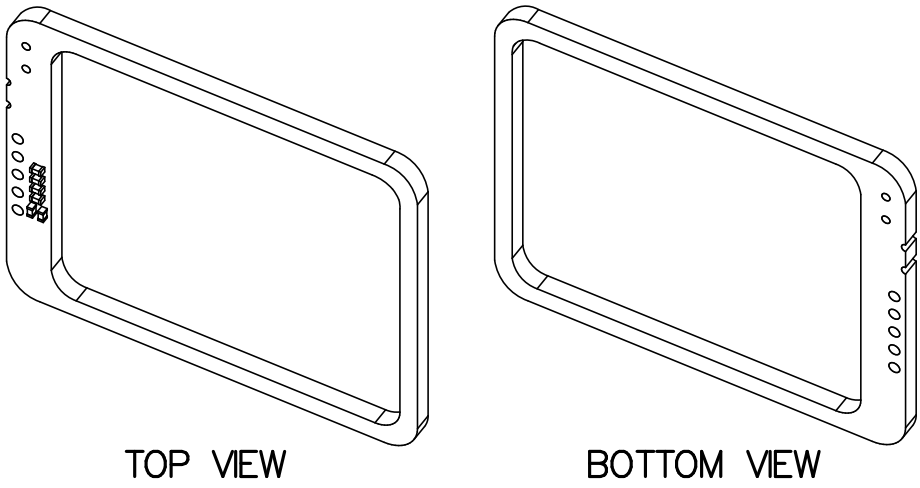
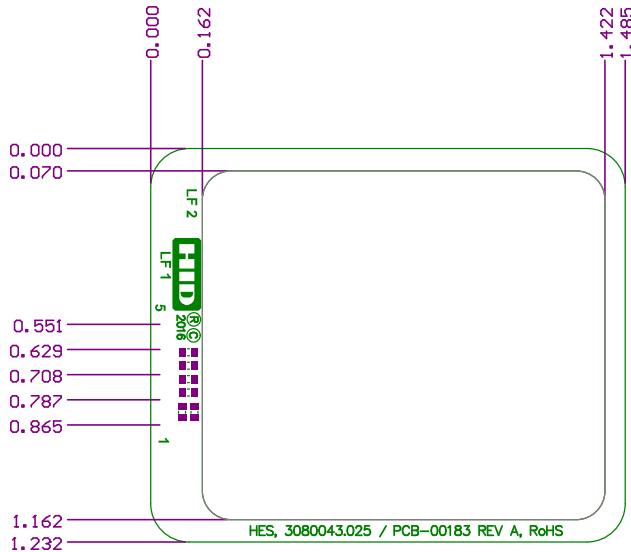
0.71mm [0.028] +/- 0.003 THICK COPPER CLAD LAMINATE WITH 170C (FR–4), AND DIELECTRIC CONSTANT OF 4.6 +0.2/–0.4

LAYER 1, COMPONENT SIDE
1 oz. (35um (0.036mm (0.0014”)))
(48um (0.049mm (0.0019”))) MIN THICK AFTER PLATING

LAYER 2, 1oz. (35um (0.036mm (0.0014”)))

LAYER 3, 1oz. (35um (0.036mm (0.0014”)))

LAYER 4, COMPONENT SIDE
1 oz. (35um (0.036mm (0.0014”)))
(48um (0.049mm (0.0019”))) MIN THICK AFTER PLATING
15. CONFORMAL COATING REQUIREMENTS. APPLY POLYURETHANE CONFORMAL COATING 1MIL (min) TO 3MIL (max) THICK THAT MEETS UL FLAME CLASS 94V–0 AND UL746C SPECIFICATIONS. INSPECT BOTH SIDES FOR COVERAGE. REQUIRED CONFORMAL COATING MATERIAL: HUMISEAL UV40–250. COATING SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND REQUIREMENTS. CONFORMAL COATING MATERIAL SHALL BE APPLIED AND INSPECTED IN ACCORDANCE WITH IPC–CC–830B. HATCHED AREAS ON THE CONFORMAL COATING DRAWING INDICATE AREAS TO BE MASKED. PREVENTATIVE MEASURES SHALL BE USED IN MASKING PREPARATION TO ENSURE COATING DOES NOT CONTAMINATE CONNECTION AREAS.



TOP OVERLAY
PCB–00183
REV A

TOP PASTE
PCB–00183
REV A

HID GLOBAL CONFIDENTIAL AND PROPRIETARY INFORMATION. THIS DOCUMENT CONTAINS CONFIDENTIAL AND PROPRIETARY INFOMRATION, WHICH MAY NOT BE DUPLICATED, PUBLISHED, DISSEMINATED OR DISCLOSED TO UN-INTENDED THIRD PARTY RECIPIENTS [OR JUST: "THIRD PARTIES"] OR USED FOR ANY PURPOSE, WITHOUT WRITTEN PERMISSION FROM HID GLOBAL. IF YOU ARE AN UNIN-TENDED RECIPIENT OF THIS PROPRIETARY INFORMATION OR ARE UNWILLING TO ACCEPT THE ABOVE RESTRICTIONS, PLEASE IMMEDIATELY RETURN THIS DOCUMENT TO: HID GLOBAL CORPORATION, 611 CENTER RIDGE DRIVE, AUSTIN TX 78753	UNLESS OTHERWISE SPECIFIED:	DO NOT SCALE DRAWING	HID DESIGNED BY HID GLOBAL FOR HANCHETT ENTRY SYSTEMS, INC. TITLE: PRINTED WIRING BOARD, APERIO V3 HF–LF RFID ANTENNA TOP PASTE TOP OVERLAY SIZE B CAGE CODE DWG NO: 7080043.038 REV 3 SCALE: NONE3/6/2019SHEET 2 OF 14
	DIMENSIONS ARE IN MILLIMETER/S [INCHES]	SEE SEPARATE APPROVAL LIST	
	.XX .XXX ANGLES +/- .20 +/- .100 +/- 1	SEE SEPARATE PARTS LIST	
	FINISH: N/A	THIRD ANGLE PROJECTION	
		INTERPRET DRAWING PER ANSI/ASME Y14.5M	

PCBA REVISIONS		
REV	CR #	DESCRIPTION
1 (A)	17–235	PRODUCTION RELEASE.
2	17–338	ADD ASSY. PN TO TITLE BLOCK. NO DESIGN CHANGE.
3	00852	BLE RFID TUNE. UPDATE C1, C4. REMOVE C3.

8

7

6

5

4

3

2

1

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CORE

PRE-PREG

CORE

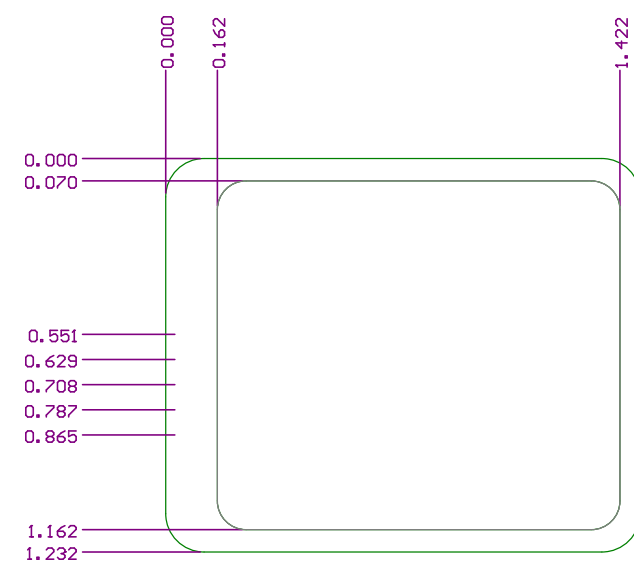
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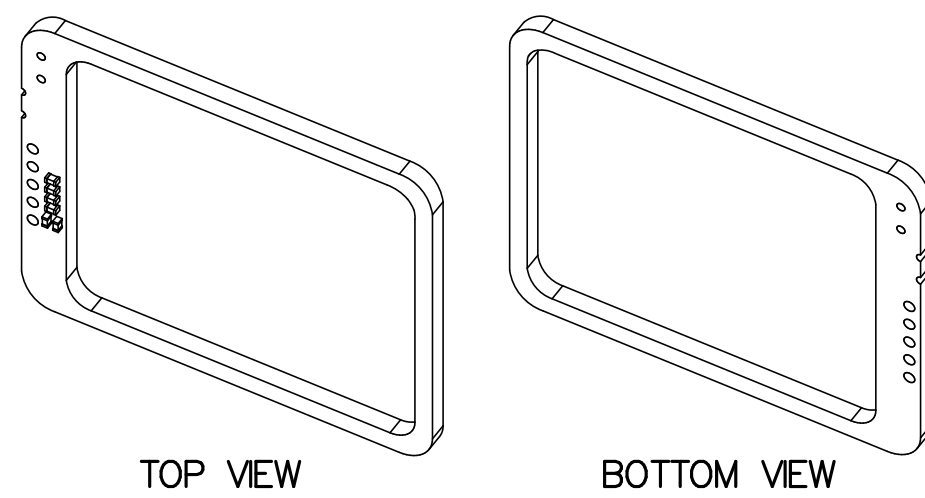
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BOTTOM PASTE
PCB-00183
REV A

BOTTOM OVERLAY
PCB-00183
REV A

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HID GLOBAL CORPORATION,
611 CENTER RIDGE DRIVE, AUSTIN TX 78753

UNLESS OTHERWISE SPECIFIED:

DIMENSIONS ARE IN
MILLIMETER/S [INCHES]

.XX	.XXX	ANGLES
+/- .20	+/- .100	+/- 1

FINISH: N/A

DO NOT SCALE DRAWING

SEE SEPARATE APPROVAL LIST

SEE SEPARATE PARTS LIST

INTERPRET DRAWING
PER ANSI/ASME Y14.5M

MATERIAL: N/A



DESIGNED BY HID GLOBAL
FOR HANCHETT ENTRY SYSTEMS, INC.

TITLE: PRINTED WIRING BOARD,
APERIO V3 HF-LF RFID ANTENNA
BOTTOM OVERLAY BOTTOM PASTE

SIZE B	CAGE CODE	DWG NO: 7080043.038	REV 3
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SCALE: NONE	3/6/2019	SHEET 10 OF 14
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A