

**REVISIONS**

| REV | DESCRIPTION                                                                             | DATE     | ISSUED BY |
|-----|-----------------------------------------------------------------------------------------|----------|-----------|
| -   | ISSUE 1                                                                                 |          | /         |
| A   | REVISED OPERATING TEMP ON PAGE 4.<br>OVP FOR 48V ON PAGE 2.<br>REMOTE ON/OFF ON PAGE 2. | 07/02/02 | RJ        |
| B   | CHANGED CN4 ON PAGE 5                                                                   | 07/12/02 | RJ        |
| C   | CHANGED D (MODELS – H & J ON PAGE 4                                                     | 11/20/03 | JC        |
| D   | REVISED NOTE D. FOR –H &J: SWITCHED WITH & WITHOUT COVER<br>TEMPS                       | 06/26/06 | YS        |

|                                                                                                                                                                                                                                                                                                                                                                                              |                                       |               |                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|---------------|-------------------------|
| FILE NAME: <b>CAD1:MSWORD:PA211242.DOC</b>                                                                                                                                                                                                                                                                                                                                                   | SCALE: <b>NONE</b>                    | REV: <b>D</b> | SH <b>1</b> OF <b>7</b> |
| TITLE:<br><b>OVS-U (UNIVERSAL INPUT) SERIES SPECIFICATION</b>                                                                                                                                                                                                                                                                                                                                | DOCUMENT NUMBER:<br><b>P-A2-11242</b> |               |                         |
| <b>TAMURA CORPORATION OF AMERICA</b><br>43352 BUSINESS PARK DRIVE • TEMECULA • CA • 92590<br>TEL: (951) 699-1270 • FAX: 9516769482                                                                                                                                                                                                                                                           | PREPARED BY:                          | K. BRENNAN    | 06/26/06                |
|                                                                                                                                                                                                                                                                                                                                                                                              | ENGINEERING:                          | M. PITCHAI    | 06/26/06                |
|                                                                                                                                                                                                                                                                                                                                                                                              | APPROVED:                             | Y. SEKIGUCHI  | 06/26/06                |
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## A. Electrical Specifications

### (1) AC Input Voltage Rating

AC100 - 230V, 50/60Hz (47 - 63Hz)  
 AC90 - 264V -----E Series  
 AC90 - 132VAC / AC180 - 264V -----F to J Series  
 (Automatic voltage selection)

### DC Input Voltage Range

DC115 - 372V -----E Series  
 DC230 - 372V -----F to J Series with JW1 open

### (2) Input Surge Current

35A MAX for E Series at nominal line (115/230V) cold start  
 30A MAX for F to J Series at nominal line (115/230V) cold start

### (3) DC Output Adjustment Range

± 10% MIN  
 24V output: 22.8V to 29.2V

### (4) Line Regulation

± 0.5% MAX under specified input range

### (5) Load Regulation

± 0.5% MAX from no load to full rated load

### (6) Output Ripple and Noise

3/5 - 15V output 75mVp-p MAX  
 24V output 120mVp-p MAX  
 28, 48V output 240mVp-p MAX } DC to 20MHz BW

### (7) Hold-up Time

20msec MIN under nominal line and rated load

### (8) Output Transient Response

1msec MAX over ±2% of rated voltage  
 under 50 - 100% load change

### (9) Output Voltage Rise Time

100msec MAX, from 10% to 90% of rated output voltage

### (10) Efficiency

70% MIN at nominal line and rated load

### (11) Overload Protection

120% TYP of rated load, fold-back limiting type

### (12) OverVoltage Protection

3V output 3.8 - 4.6V  
 5V output 5.7 - 6.7V  
 12V output 14.25 - 15.75V  
 15V output 17.25 - 18.75V  
 24/28V output 31.0 - 34.5V  
 48V output 54.0 - 62.0V

### (13) Leakage Current

0.75mA rms MAX

### (14) Overshoot

No overshoot during turn ON/OFF

### (15) Output Voltage Stability

± 0.1% MAX for 8 hours after 20 minute warm-up

### (16) Temperature Coefficient

±0.03% per deg. C MAX

### (17) Remote/Local Sensing

Built-in

### (18) Remote ON/OFF Control

Built-in F, G, H and J Series, 300uA MIN  
 < 1V for inhibit, > 4.5V (or open) for ON

|                                                                                                                                       |                                          |        |               |           |
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| FILE NAME: CAD1:MSWORD:PA211242.DOC                                                                                                   | SCALE: NONE                              | REV: D | DATE:06/26/06 | SH 2 OF 7 |
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|                                                                                                                                       | DOCUMENT NUMBER:<br>P-A2-11242           |        |               |           |

- 19) AC Power Fail Signal      Built-in on 5V output models only, other voltages optional  
Power Good Logic "0"  
Power Fail    Logic "1", 5msec MIN pulse width, output 4.5V  $\pm$ 5%
- 20) Current Sharing      Current sharing capability available by using CS terminal and external circuit
- 21) Surge Voltage Test      Meets IEEE587 C62.41 test method with no damage to power supply
- 22) Withstand Voltage      AC 3KV (Input - Output), AC 1.5KV (Input - Chassis ground)
- 23) Insulation Resistance      50Mohm MIN DC500V (Input - Output)

24) Part Number Description

Model No.      **OVS - □□□ - U□**

Series Name      \_\_\_\_\_ U: No cover (Standard)  
UC: With cover (Option)

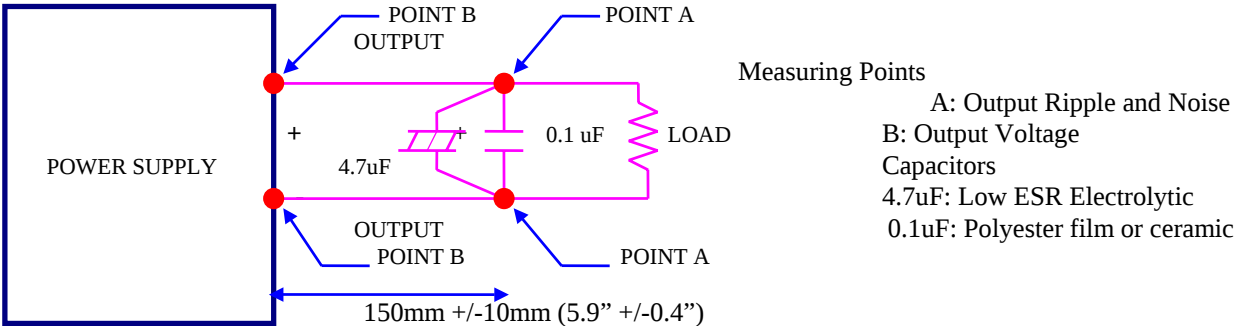
Output voltage      \_\_\_\_\_ Case size

| CASE SIZE | MODEL      | VOLTS | AMPS     |
|-----------|------------|-------|----------|
| E         | OVS-5E-UC  | 5     | 0-10     |
|           | OVS-12E-UC | 12    | 0-5      |
|           | OVS-15E-UC | 15    | 0-4      |
|           | OVS-24E-UC | 24    | 0-2.5    |
|           | OVS-48E-UC | 48    | 0-1.2    |
| F         | OVS-5F-UC  | 3.2 * | 2-20 *   |
|           |            | 5 *   | 0-20 *   |
|           | OVS-12F-UC | 12    | 0-10     |
|           | OVS-15F-UC | 15    | 0-8      |
|           | OVS-24F-UC | 24 *  | 0-5 *    |
|           |            | 28 *  | 0-3.8 *  |
| G         | OVS-48F-UC | 48    | 0-2.3    |
|           | OVS-5G-UC  | 3.2 * | 3-30 *   |
|           |            | 5 *   | 0-30 *   |
|           | OVS-12G-UC | 12    | 0-15     |
|           | OVS-15G-UC | 15    | 0-12     |
|           | OVS-24G-UC | 24 *  | 0-8 *    |
| H         |            | 28 *  | 0-6 *    |
|           | OVS-48G-UC | 48    | 0-3.7    |
|           | OVS-5H-UC  | 3.2 * | 4.5-45 * |
|           |            | 5 *   | 0-45 *   |
|           | OVS-12H-UC | 12    | 0-22     |
|           | OVS-15H-UC | 15    | 0-18     |
| J         | OVS-24H-UC | 24 *  | 0-12 *   |
|           |            | 28 *  | 0-9.2 *  |
|           | OVS-48H-UC | 48    | 0-5.5    |
|           | OVS-5J-UC  | 3.2 * | 6-60 *   |
|           |            | 5 *   | 0-60 *   |
|           | OVS-12J-UC | 12    | 0-30     |
|           | OVS-15J-UC | 15    | 0-25     |
|           | OVS-24J-UC | 24 *  | 0-16 *   |
|           |            | 28 *  | 0-12.2 * |
|           | OVS-48J-UC | 48    | 0-7.3    |

\* INDICATES A DUAL RATING

|                                                                                                                                    |             |                                          |               |           |
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| FILE NAME: CAD1:MSWORD:PA211242.DOC                                                                                                | SCALE: NONE | REV: D                                   | DATE:06/26/06 | SH 3 OF 7 |
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|                                                                                                                                    |             | DOCUMENT NUMBER:<br>P-A2-11242           |               |           |

- Note 1. Output ripple and noise to be measured with a 4.7uF +0.1 uF film or ceramic capacitor measured at points A as shown below.
- Note 2. Output voltage to be measured at output terminals, Points B as shown below.
- Note 3. OVS-5\*-U has a dual rating of 3.2V and 5V. The unit is shipped from the factory set to 5V.  
To obtain 3.2V, the unit must be modified according to the instructions.
- Note 4. OVS-24\*-U has a dual rating of 24V and 28V. The unit is shipped from the factory set to 24V.  
To obtain 28V, customer must readjust the output voltage potentiometer.



- B. Safety  
Meets UL1950, C22.2 No. 234, EN60950, VDE0805
- C. EMI  
Meets FCC20780 Part 15J Class B                      E, F Series  
                                                                                 Class A                      G, H, J Series  
                                                                                 VDE 0871 Class B                      E, F Series  
                                                                                 Class A                      G, H, J Series  
                                                                                 VCC1 Class 2                      E, F Series  
                                                                                 Class 1                      G, H, J Series
- Note 1. Models OVS-48E-UC and -48F-UC meet Class A for FCC and VDE and meet Class 1 with VCC1

- D. Environmental
- (1) Operating Temperature                      **MODELS –E, F & G:**  
                                                                                 0 to +40 deg. C with cover, 0 to +50 deg. C without cover\*  
                                                                                 In either case, the temperature at the center portion on the side of the  
                                                                                 chassis should be +60 deg. C MAX.  
                                                                                 For operation above +40 with cover (+50 deg. C without cover) derate  
                                                                                 linearly to 50% load at +55 deg. C with cover (+65 deg. C without cover).  
                                                                                 In either case, the temperature at the center portion on the side of the chassis  
                                                                                 should be +70 deg. C MAX.  
                                                                                 \* Ambient temperature to be measured at 1” above the main transformer.
- MODELS –H & J:**  
                                                                                 0 to +40 deg. C with cover, 0 to +50 deg. C without cover\*  
                                                                                 In either case, the temperature at the center portion on the side of the  
                                                                                 chassis should be +60 deg. C MAX.  
                                                                                 For operation above +40 deg. C without cover (+50 deg. C with cover)  
                                                                                 derate linearly to 50% load at +55 deg. C without cover (+65 deg. C with cover).  
                                                                                 In either case, the temperature at the center portion on the side of the chassis  
                                                                                 should be +70 deg. C MAX.  
                                                                                 \*Ambient temperature to be measured at 1” above the main transformer
- (2) Storage Temperature                      -20 to +85 deg. C

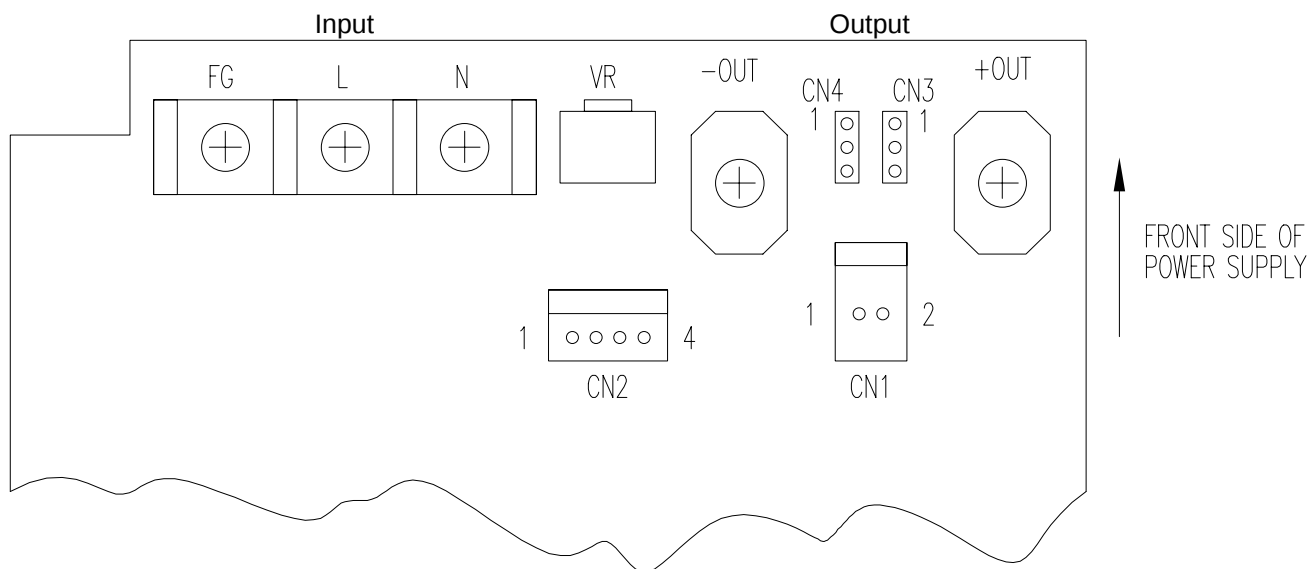
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| FILE NAME: CAD1:MSWORD:PA211242.DOC               | SCALE: NONE | REV: D                                    | DATE: 06/26/06 | SH 4 OF 7 |
| TAMURA CORPORATION OF AMERICA                     |             | TITLE:<br>OVS-U (UNIVERSAL OUTPUT) SERIES |                |           |
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- (3) Operating Humidity 10 - 90% RH, non condensing
- (4) Storage Humidity 10 - 95%, non condensing
- (5) Vibration 10 - 55Hz, 2G (All axis, 1 hour)
- (6) Shock 20msec, 20G (All axis, 3X ea.)

#### E. Power Factor Correction

Use Tamura Part Number PFC-500 as an external active filter power supply for OVS-E through J Series

#### F. Input and Output terminals



\*I/O Terminal Screws: M4

#### CN1 (Remote sense) Pin Assignment

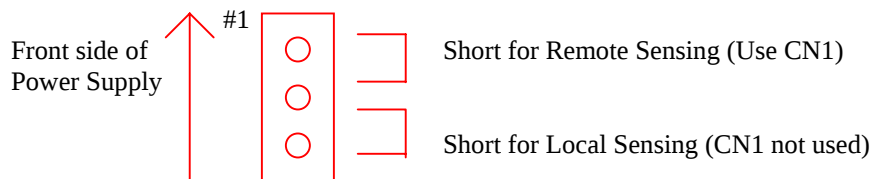
- #1 pin +Sense
- #2 pin -Sense

#### CN2 (Input / Output Signal) Pin Assignment

- #1 pin CS (Current sharing, external circuit required)
- #2 pin AC Power Fail signal output (+5V only, other voltages optional)
- #3 pin SG (Signal Ground)
- #4 pin Remote ON/OFF (not available on E Series)

#### CN3, CN4 Jumper Tip Position

- CN3 +OUT
- CN4 -OUT



**CN1 Part No:** 5273-02A/Molex  
**Mating Part No:** 5195-02 or 5239-02/Molex

|                                                                                                                                    |             |                                                                |                |           |
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| FILE NAME: CAD1:MSWORD:PA2112421.DOC                                                                                               | SCALE: NONE | REV: D                                                         | DATE: 06/26/06 | SH 5 OF 7 |
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|                                                                                                                                    |             | DOCUMENT NUMBER:<br><b>P-A2-11242</b>                          |                |           |

**CN2 Part No:** 5045-03A/Molex ----E Series  
 5045-04A/Molex ----F through J Series  
**Mating Part No:** 5102-03 or 5051-03/Molex ---- E Series  
 5012-04 or 5051-04/Molex ----F through J Series  
**CN3, 4 Part No:** 5548-03A/Molex  
**Tip Part No:** 90059-0013/Molex

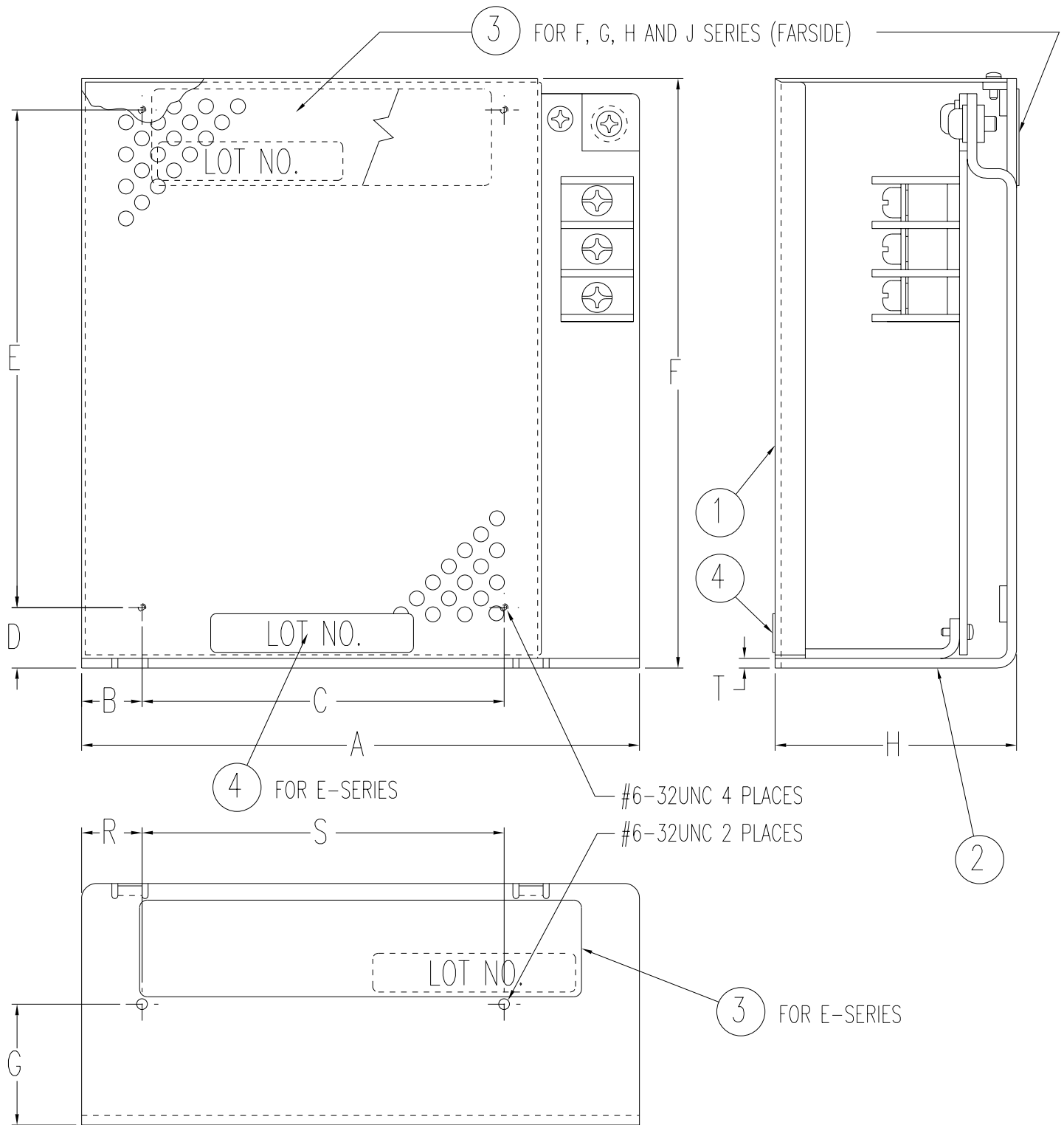
G. Mechanical Specifications dimensions shown in mm (inches).  
 See sheet 7 for drawing representations

| MODEL      | A                 | B                 | C                 | D                 | E                 | F                 | G                 | H                 | R                 | S                 | T               |
|------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------|
| OVS-E      | 117.3<br>(4.62)   | 12.7<br>(0.50)    | 76.29<br>(3.00)   | 12.7<br>(0.50)    | 104.6<br>(4.12)   | 124<br>(4.88)     | 25.4<br>(1.00)    | 50.8<br>(2.00)    | 12.7<br>(0.50)    | 76.2<br>(3.00)    | 2.00<br>(0.079) |
| OVS-F      | 180.3<br>(7.10)   | 38.1<br>(1.50)    | 114.3<br>(4.50)   | 12.7<br>(0.50)    | 104.6<br>(4.12)   | 124<br>(4.88)     | 30.2<br>(1.19)    | 60.2<br>(2.37)    | 38.1<br>(1.50)    | 114.3<br>(4.50)   | 2.00<br>(0.079) |
| OVS-G      | 218.4<br>(8.60)   | 12.7<br>(0.50)    | 177.8<br>(7.00)   | 12.7<br>(0.50)    | 104.6<br>(4.12)   | 124<br>(4.88)     | 30.2<br>(1.19)    | 60.2<br>(2.37)    | 12.7<br>(0.50)    | 177.8<br>(7.00)   | 2.00<br>(0.079) |
| OVS-H      | 269.2<br>(10.60)  | 12.7<br>(0.50)    | 228.6<br>(9.00)   | 12.7<br>(0.50)    | 104.6<br>(4.12)   | 124<br>(4.88)     | 33.3<br>(1.31)    | 66.0<br>(2.60)    | 12.7<br>(0.50)    | 228.6<br>(9.00)   | 3.00<br>(0.116) |
| OVS-J      | 304.8<br>(12.00)  | 12.7<br>(0.50)    | 254<br>(10.00)    | 12.7<br>(0.50)    | 104.6<br>(4.12)   | 124<br>(4.88)     | 34.8<br>(1.37)    | 69.9<br>(2.75)    | 12.7<br>(0.50)    | 279.4<br>(11.00)  | 3.00<br>(0.118) |
| TOLERANCES | ±1.016<br>(±0.04) | ±0.508<br>(±0.02) | ±0.254<br>(±0.01) | ±0.508<br>(±0.02) | ±0.254<br>(±0.01) | ±1.016<br>(±0.04) | ±0.508<br>(±0.02) | ±1.016<br>(±0.04) | ±0.508<br>(±0.02) | ±0.254<br>(±0.01) | N/A             |

#### Material List

| ITEM # | PART NAME | QTY | MATERIAL       |
|--------|-----------|-----|----------------|
| 1      | CHASSIS   | 1   | ALUMINUM SHEET |
| 2      | COVER     | 1   | ALUMINUM SHEET |
| 3      | LABEL     | 1   | PAPER          |
| 4      | LABEL     | 1   | PAPER          |

|                                                                                                                                    |             |                                                                                           |               |           |
|------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------------------------------------------------------------------------------------|---------------|-----------|
| FILE NAME: CAD1:MSWORD:PA211242.DOC                                                                                                | SCALE: NONE | REV: D                                                                                    | DATE:06/26/06 | SH 6 OF 7 |
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SCALE: NONE

REV: D

DATE:06/26/06

SH 7 OF 7

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