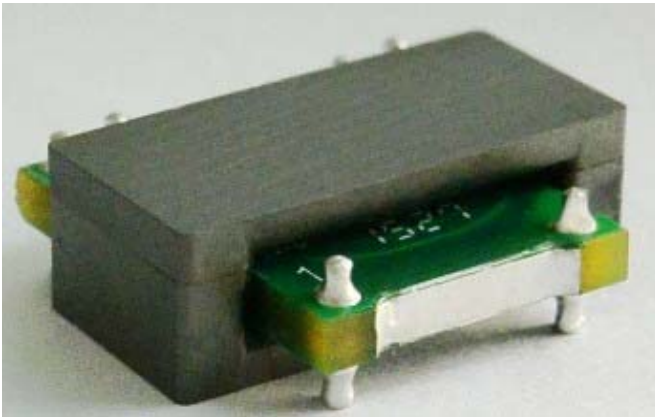


## Planar Flyback - Low Height. Vin 36-72 & 9-36. Pout 20-40W



- Flyback Topology -- CCM + BCM Options. *Low Profile [7.0 to 8.5mm]*.
- Highest Efficiency - -Secondary Side Synchronous FET Driven.
- Aggressive Interleave planar construction -- lowest achievable Leakage Inductance.
- Multilayer PCB optimization for lowest AC resistance and Proximity Effect.
- Wide variety of PNs, Designs and Turns Ratios in stock [Contact Us if Not Shown in Table].
- Surface Mount, Thru-Hole, Pad-to-Pad Options

### 1. Input Voltage Range 36-72. CCM Flyback.

| Champs PN        | Vin (Min) | Vin (Max) | Vout | Iout (A <sub>dc</sub> ) | Pout (Watts) | Freq (KHz) | I <sub>pk</sub> [Rated] | I <sub>pk</sub> [Max] | Mode (BCM/CCM) |
|------------------|-----------|-----------|------|-------------------------|--------------|------------|-------------------------|-----------------------|----------------|
| 20F1-1602-08-45R | 36        | 72        | 3.3  | 10.0                    | 33.0         | 200        | 3.4                     | 5.5                   | CCM            |
| 20F1-1202-05-30R | 36        | 72        | 5.0  | 7.0                     | 35.0         | 200        | 4.0                     | 6.0                   | CCM            |
| 20F1-1305-06-30R | 36        | 72        | 12.0 | 3.0                     | 36.0         | 200        | 4.0                     | 6.7                   | CCM            |

### 2. Input Voltage Range 9-36. CCM Flyback.

| Champs PN        | Vin (Min) | Vin (Max) | Vout | Iout (A <sub>dc</sub> ) | Pout (Watts) | Freq (KHz) | I <sub>pk</sub> [Rated] | I <sub>pk</sub> [Max] | Mode (BCM/CCM) |
|------------------|-----------|-----------|------|-------------------------|--------------|------------|-------------------------|-----------------------|----------------|
| 20F1-0602-07-6R0 | 9         | 36        | 3.3  | 7.3                     | 24.0         | 200        | 8.0                     | 13.3                  | CCM            |
| 20F1-0603-07-6R0 | 9         | 36        | 5.0  | 5.0                     | 25.0         | 200        | 8.3                     | 13.3                  | CCM            |
| 20F1-0607-07-6R5 | 9         | 36        | 12.0 | 2.0                     | 24.0         | 200        | 7.8                     | 12.0                  | CCM            |

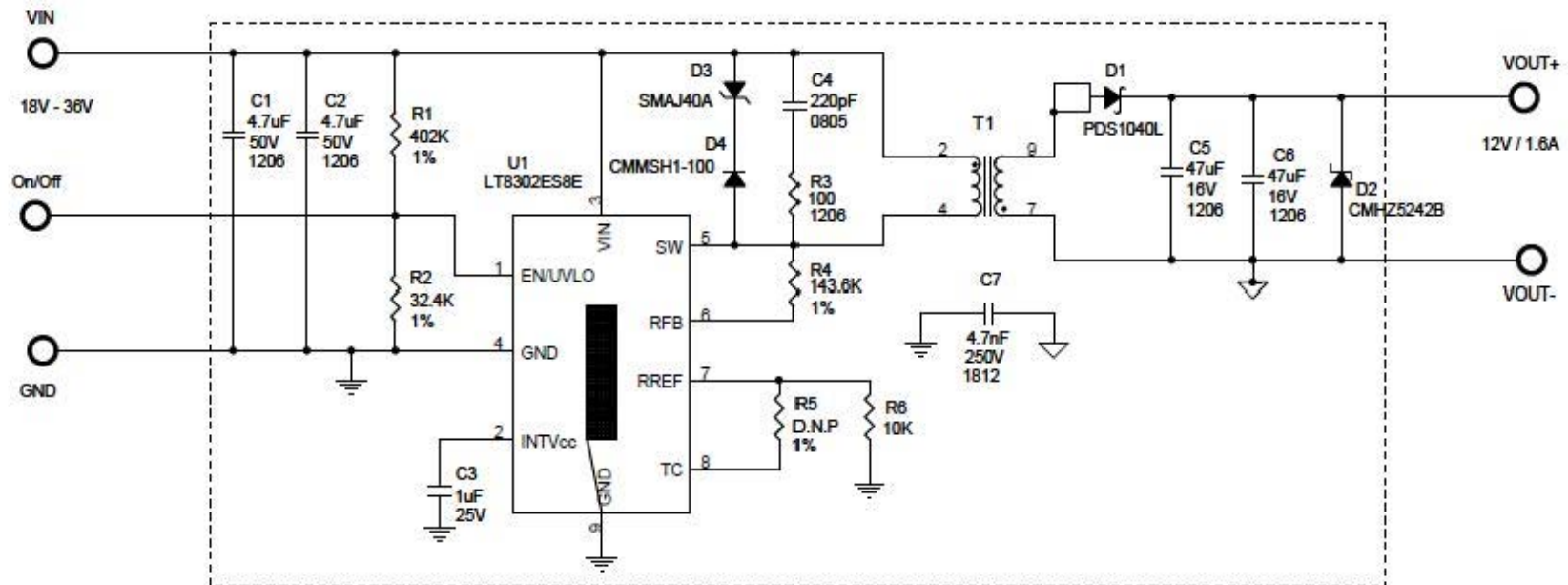
### 3. Input Voltage Range 36-72. BCM Flyback. Ref ICs: <http://www.linear.com/product/LT3748>

| Champs PN        | Vin (Min) | Vin (Max) | Vout | Iout (A <sub>dc</sub> ) | Pout (Watts) | Freq (KHz) | I <sub>pk</sub> [Rated] | I <sub>pk</sub> [Max] | Mode (BCM/CCM) |
|------------------|-----------|-----------|------|-------------------------|--------------|------------|-------------------------|-----------------------|----------------|
| 20F1-1602-08-25R | 36        | 72        | 3.3  | 9.0                     | 30.0         | 160-270    | 4.6                     | 9.2                   | BCM            |
| 20F1-1202-05-28R | 36        | 72        | 5.0  | 6.0                     | 30.0         | 150-260    | 4.3                     | 6.5                   | BCM            |
| 20F1-1305-06-25R | 36        | 72        | 12.0 | 3.0                     | 36.0         | 140-240    | 5.2                     | 7.8                   | BCM            |

#### 4. Input Voltage Range 9-36. BCM Flyback.

| Champs PN        | Vin (Min) | Vin (Max) | Vout | Iout (A dc) | Pout (Watts) | Freq (KHz) | Ipk [Rated] | Ipk [Max] | Mode (BCM/CCM) |
|------------------|-----------|-----------|------|-------------|--------------|------------|-------------|-----------|----------------|
| 20F1-0602-07-4R0 | 9         | 36        | 3.3  | 7.3         | 24.0         | 90-230     | 12.5        | 22.0      | BCM            |
| 20F1-0603-07-4R0 | 9         | 36        | 5.0  | 5.0         | 25.0         | 90-230     | 12.8        | 22.0      | BCM            |
| 20F1-0607-07-4R5 | 9         | 36        | 12.0 | 2.0         | 24.0         | 90-230     | 11.8        | 20.0      | BCM            |

Ref ICs: <http://www.linear.com/product/LT8302>





# Champs Technologies

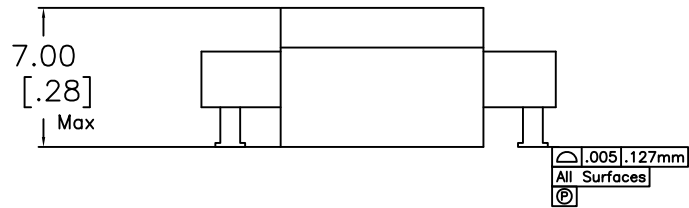
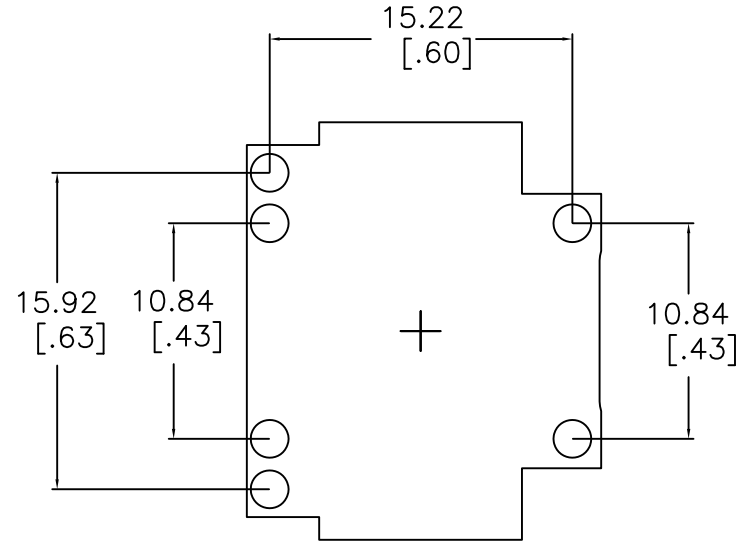
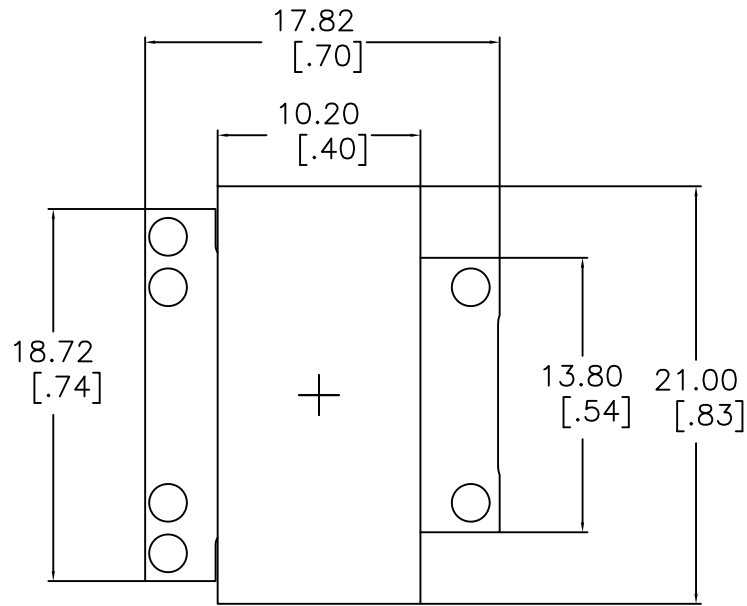
## Champs USA

Champs Technologies, LLC  
7 Peter Cooper Rd #10E  
New York, NY 10010  
Attn: Harold Eicher  
646-330-5064  
646-202-2899  
Harold.eicher@champs-tech.com  
<http://www.champs-tech.com>

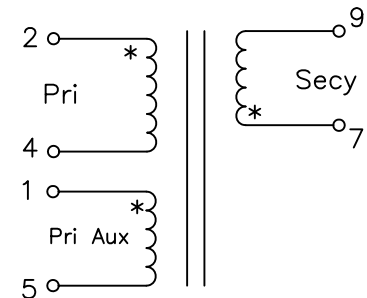
## Champs Taiwan

All Purchase Orders, Returns, Invoices, etc to:  
Champs Technologies Co., Ltd  
No 955 Sec 7.Taiwan Blvd.  
Shalu Dist , Taichung , 43350 Taiwan R.O.C.  
Phone: 886-2-2546-7766  
Attn: Cathy Lee Cathy@champstech.com

SUGGESTED PAD LAYOUT



Schematic

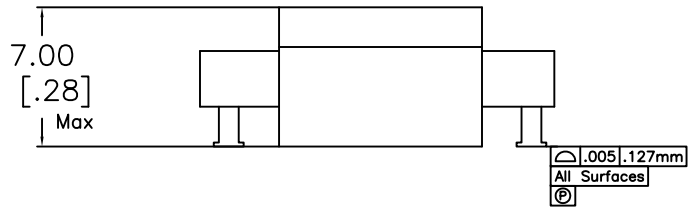
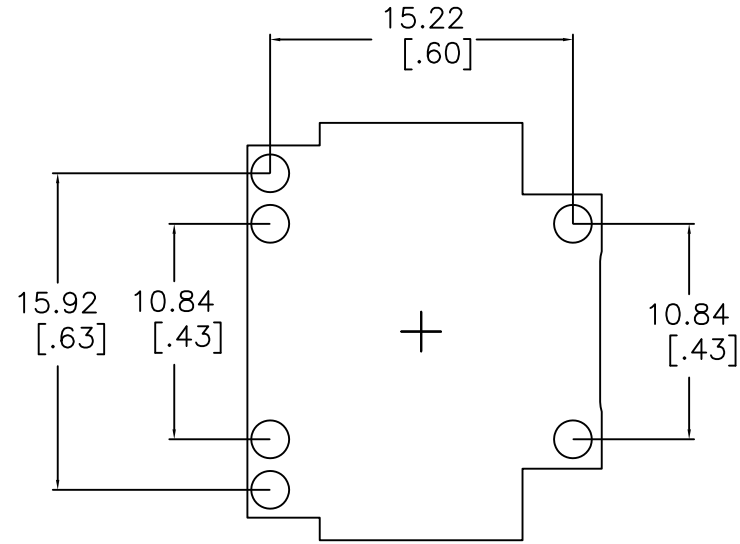
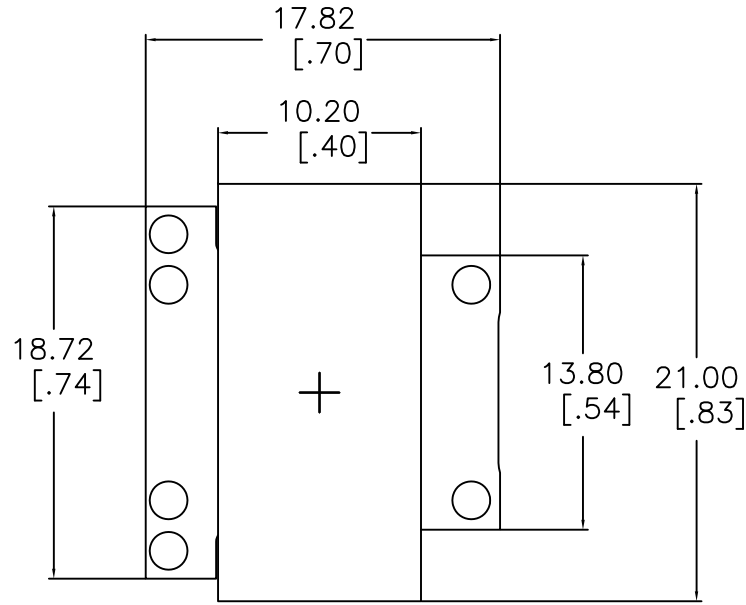


NOTES:

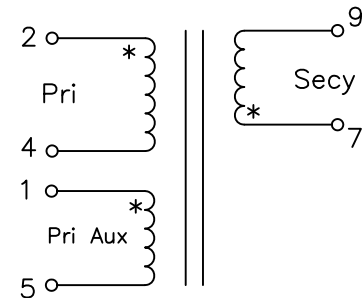
1. TURNS RATIO [7-9] : [2-4] = 0.125 +/- 2% || [1-5] : [2-4] = 0.50
2. DCR [2-4]=130 mohm Nom, [7-9]= 1.35 mohm Nom.[1-5]=30 mohm Max.
3. Inductance [2-4]=45.0 uH Nom, 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2-4] Short [7-9] = 250nH Nom @100 KHz
5. Dielectric Strength [2,4-1,5] to [7-9] 1500 VDC, [2-4] to CORE 1500 VDC, [7-9] to CORE 500 VDC
6. Weight 6.8 grams Max | RoHS & REACH Compliant

| No.                 | DESCRIPTION | REVISIONS | DATE     | APPR                        |
|---------------------|-------------|-----------|----------|-----------------------------|
| CHAMPS TECHNOLOGIES |             |           |          |                             |
| DRAWN               |             | SIGN      | DATE     | Champs No. 20F1-1602-08-45R |
| CHKD                |             | HE        | 10.07.13 | Customer                    |
| APPR                |             |           |          | Part #: ISSUE A REV 00      |
|                     |             |           |          | SIZE SCALE 3:1              |

SUGGESTED PAD LAYOUT



Schematic

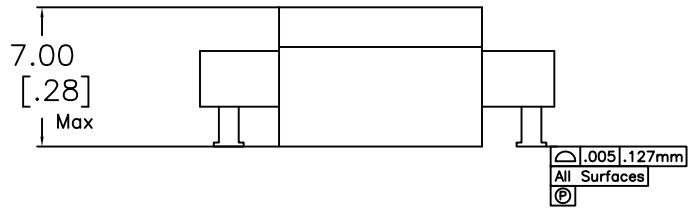
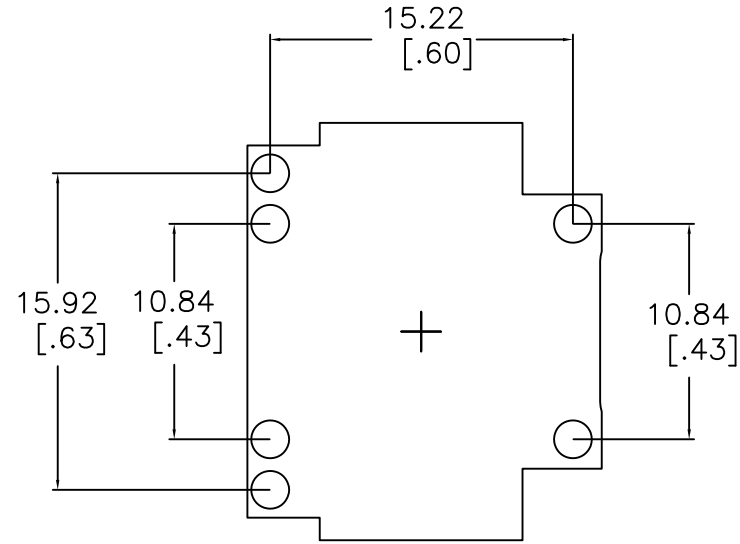
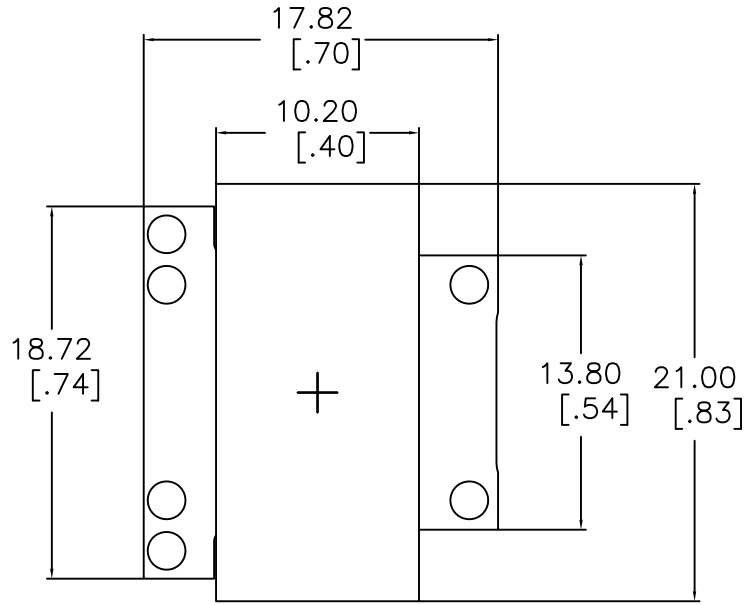


NOTES:

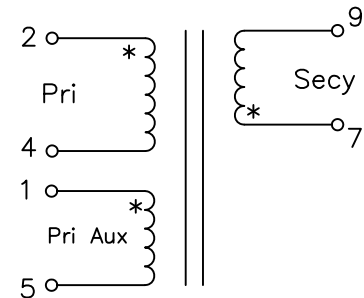
1. TURNS RATIO [7-9] : [2-4] = 0.167 +/-2% || [1-5] : [2-4] = 0.416
2. DCR [2-4]=60 mohm Nom, [7-9]= 1.30 mohm Nom.[1-5]=30 mohm Max.
3. Inductance [2-4]=30.0 uH Nom, 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2-4] Short [7-9] = 200nH Nom @100 KHz
5. Dielectric Strength [2,4-1,5] to [7-9] 1500 VDC, [2-4] to CORE 1500 VDC, [7-9] to CORE 500 VDC
6. Weight 6.8 grams Max | RoHS & REACH Compliant

| No.                 | DESCRIPTION | REVISIONS | DATE     | APPR                        |
|---------------------|-------------|-----------|----------|-----------------------------|
| CHAMPS TECHNOLOGIES |             |           |          |                             |
| DRAWN               |             | SIGN      | DATE     | Champs No. 20F1-1202-05-30R |
| CHKD                |             | HE        | 10.07.13 | Customer                    |
| APPR                |             |           |          | Part #:   ISSUE A   REV 00  |
|                     |             |           |          | SIZE   SCALE 3:1            |

SUGGESTED PAD LAYOUT



Schematic

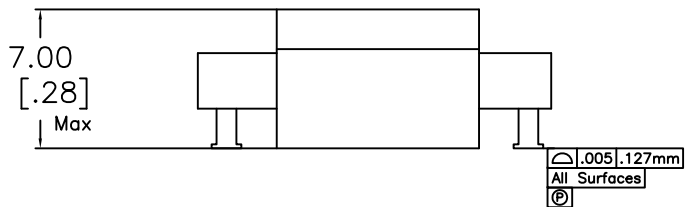
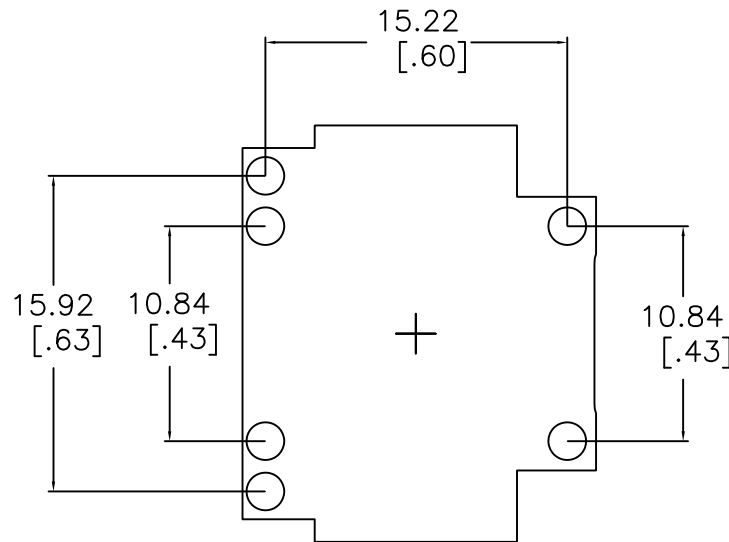
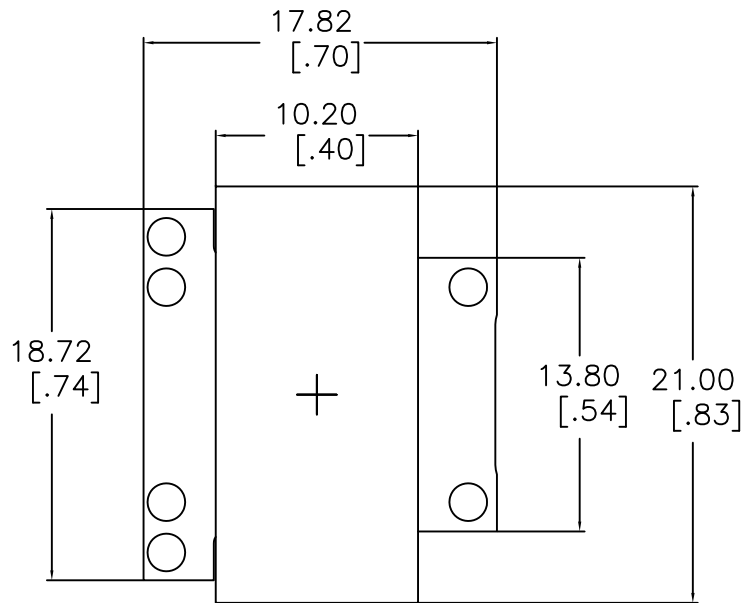


NOTES:

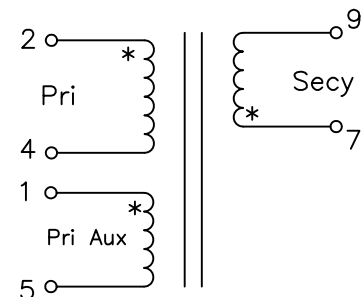
1. TURNS RATIO [7-9] : [2-4] = 0.385 +/-2% || [1-5] : [2-4] = 0.461
2. DCR [2-4]=75 mohm Nom, [7-9]= 9.6 mohm Nom.[1-5]=30 mohm Max.
3. Inductance [2-4]=30.0 uH Nom, 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2-4] Short [7-9] = 200nH Nom @100 KHz
5. Dielectric Strength [2,4-1,5] to [7-9] 1500 VDC, [2-4] to CORE 1500 VDC, [7-9] to CORE 500 VDC
6. Weight 6.8 grams Max | RoHS & REACH Compliant

| No.                 | DESCRIPTION | REVISIONS | DATE      | APPR                        |
|---------------------|-------------|-----------|-----------|-----------------------------|
| CHAMPS TECHNOLOGIES |             |           |           |                             |
| DRAWN               |             | SIGN      | DATE      | Champs No. 20F1-1305-06-30R |
| CHKD                |             | HE        | 10.07.13  | Customer                    |
| APPR                |             |           |           | Part #:   ISSUE A   REV 00  |
| SIZE                |             |           | SCALE 3:1 |                             |

SUGGESTED PAD LAYOUT



Schematic



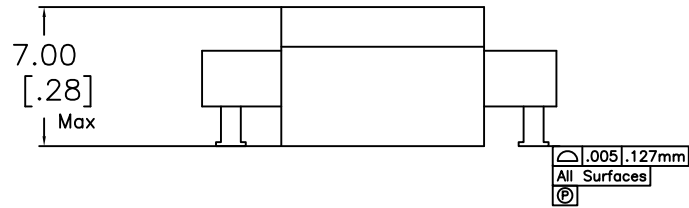
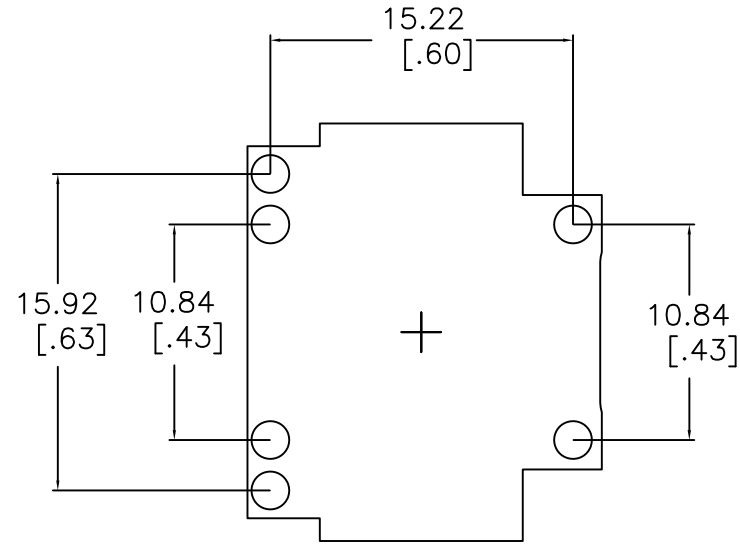
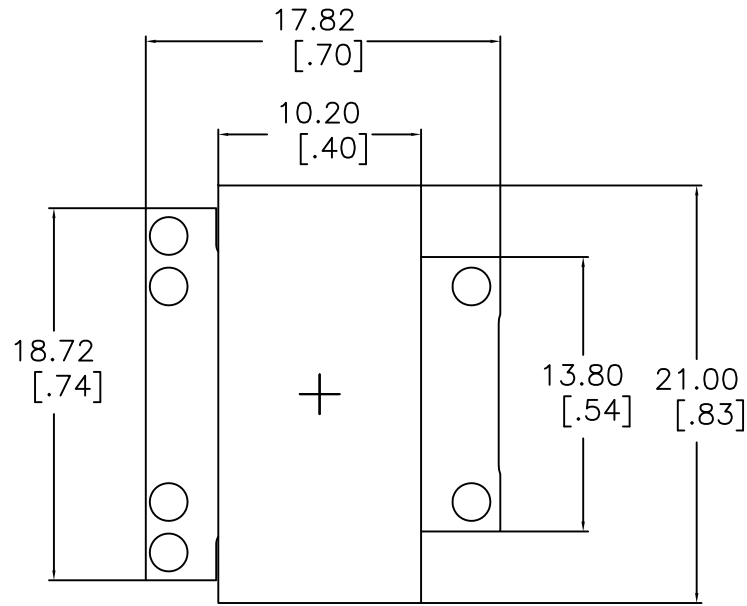
NOTES:

1. TURNS RATIO [7-9] : [2-4] = 0.33 +/-2% || [1-5] : [2-4] = 1.167
2. DCR [2-4]=14.5 mohm Nom, [7-9]= 1.3 mohm Nom.[1-5]=30 mohm Max.
3. Inductance [2-4]= 6.0 uH Nom, 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2-4] Short [7-9] = 50nH Nom @100 KHz
5. Dielectric Strength [2,4-1,5] to [7-9] 1500 VDC, [2-4] to CORE 1500 VDC, [7-9] to CORE 500 VDC
6. Weight 6.8 grams Max | RoHS & REACH Compliant

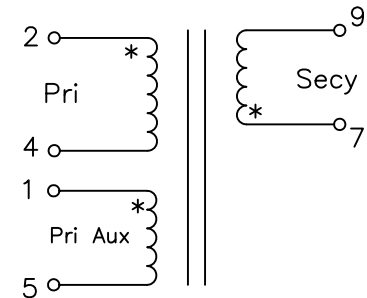
|   |    |             |          |                             |       |      |
|---|----|-------------|----------|-----------------------------|-------|------|
| No.   |    | DESCRIPTION |          | REVISIONS                   | DATE  | APPR |
| THIRD ANGLE PROJECTION                        |    |             |          |                             |       |      |
| CHAMPS TECHNOLOGIES                           |    |             |          |                             |       |      |
| TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED |    | SIGN        | DATE     | Champs No. 20F1-0602-07-6R0 |       |      |
| DRAWN   | HE | 10.07.13    | Customer |                             | ISSUE | REV  |
| CHKD  |    |             | Part #:  |                             | A     | 00   |
| APPR  |    |             | SIZE     | SCALE 3:1                   |       |      |



SUGGESTED PAD LAYOUT



Schematic

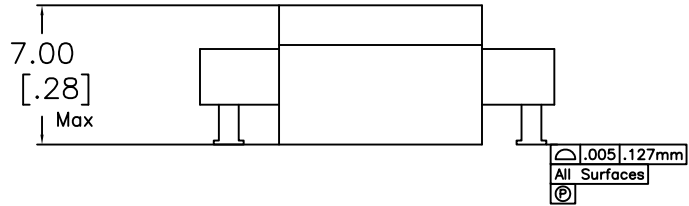
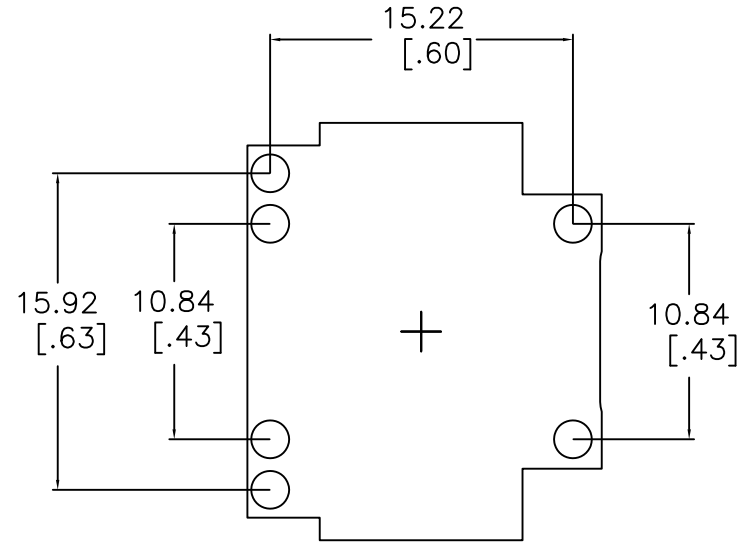
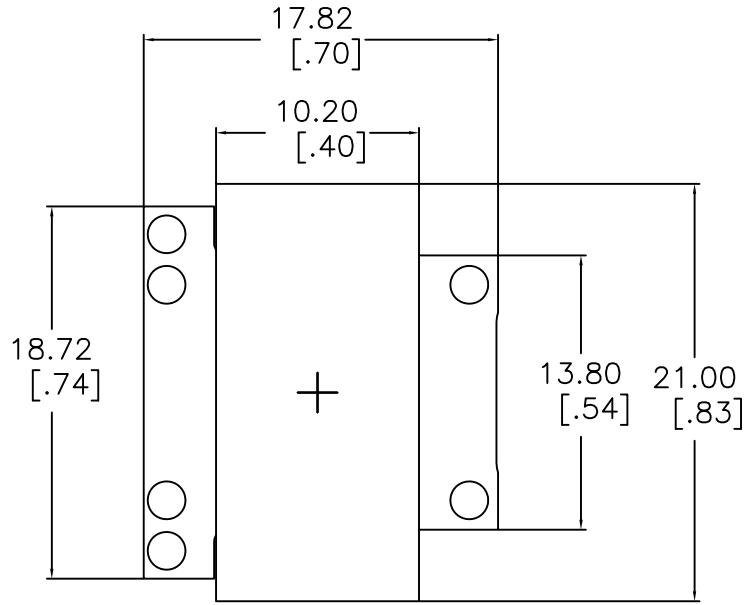


NOTES:

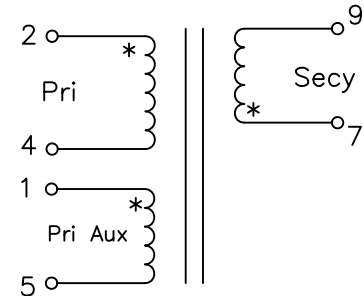
1. TURNS RATIO [7-9] : [2-4] = 0.50 +/-2% || [1-5] : [2-4] = 1.167
2. DCR [2-4]=14.5 mohm Nom, [7-9]= 3.3 mohm Nom.[1-5]=30 mohm Max.
3. Inductance [2-4]= 6.0 uH Nom, 100KHZ, 1.0 VRMS @ 25C
4. Leakage Inductance [2-4] Short [7-9] = 50nH Nom @100 KHz
5. Dielectric Strength [2,4-1,5] to [7-9] 1500 VDC, [2-4] to CORE 1500 VDC, [7-9] to CORE 500 VDC
6. Weight 6.8 grams Max | RoHS & REACH Compliant

| No.   | DESCRIPTION | REVISIONS | DATE     | APPR                        |
|---|-------------|-----------|----------|-----------------------------|
| THIRD ANGLE PROJECTION                        |             |           |          |                             |
| CHAMPS TECHNOLOGIES                           |             |           |          |                             |
| TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED |             | SIGN      | DATE     | Champs No. 20F1-0603-07-6R0 |
| .XXX ±  | DRAWN       | HE        | 10.07.13 | Customer                    |
| .XX ±   | CHKD        |           |          | Part #:                     |
| .X  | APPR        |           |          | ISSUE A                     |
| ANGLE ±                                       |             |           |          | REV 00                      |
|   |             |           | SIZE     | SCALE 3:1                   |

SUGGESTED PAD LAYOUT



Schematic

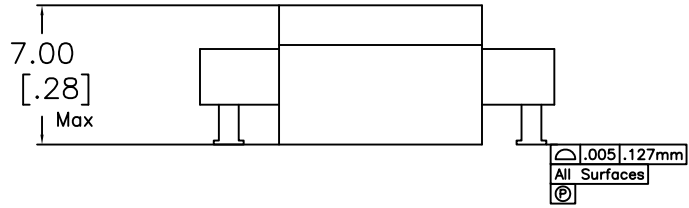
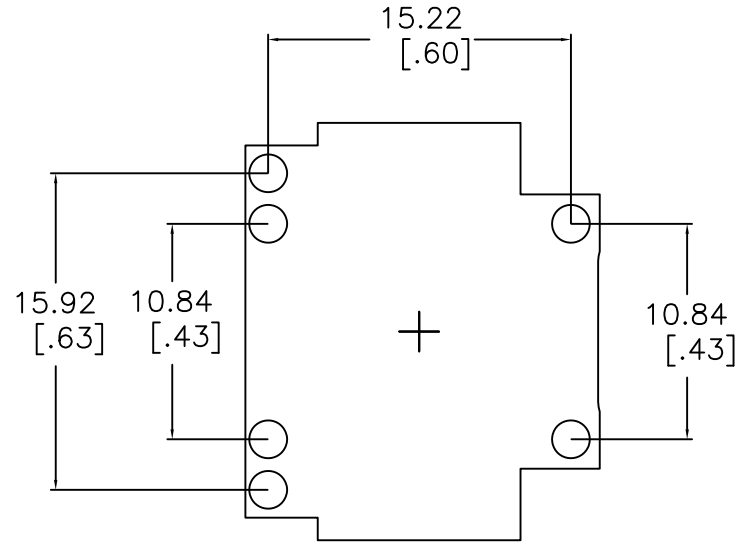
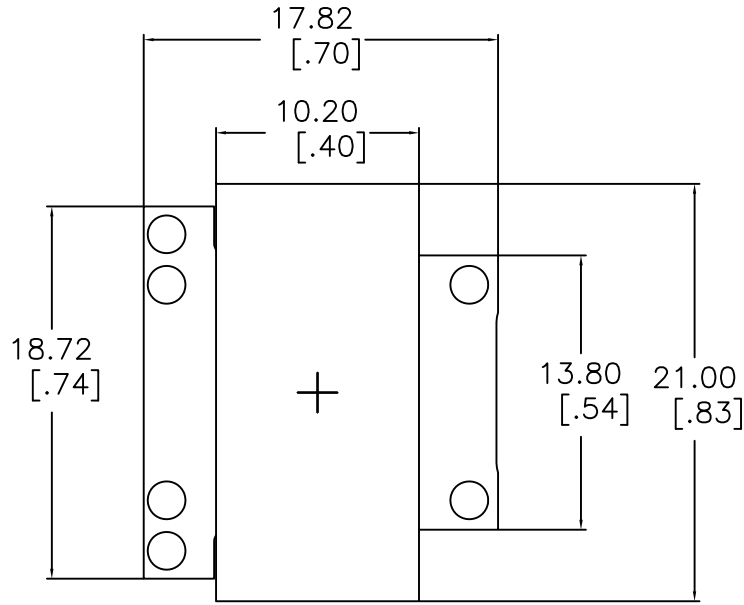


NOTES:

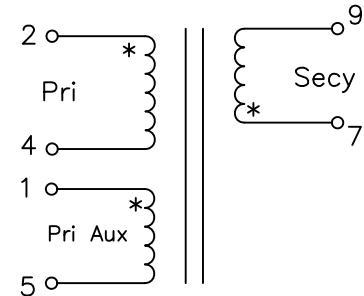
1. TURNS RATIO [2-4] : [7-9] = 0.857 +/-2% || [1-5] : [7-9] = 1.0
2. DCR [2-4]=14.5 mohm Nom, [7-9]= 19 mohm Nom.[1-5]=30 mohm Max.
3. Inductance [2-4]= 6.5 uH Nom, 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2-4] Short [7-9] = 50nH Nom @100 KHz
5. Dielectric Strength [2,4-1,5] to [7-9] 1500 VDC, [2-4] to CORE 1500 VDC, [7-9] to CORE 500 VDC
6. Weight 6.8 grams Max | RoHS & REACH Compliant

| No.   | DESCRIPTION | REVISIONS | DATE     | APPR                        |
|---|-------------|-----------|----------|-----------------------------|
| CHAMPS TECHNOLOGIES                           |             |           |          |                             |
| DRAWN   |             | SIGN      | DATE     | Champs No. 20F1-0607-07-6R5 |
| CHKD  |             | HE        | 10.07.13 | Customer                    |
| APPR  |             |           |          | Part #:   ISSUE A   REV 00  |
| TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED |             | SIZE      |          | SCALE 3:1                   |

SUGGESTED PAD LAYOUT



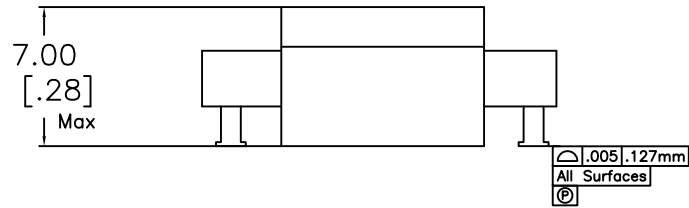
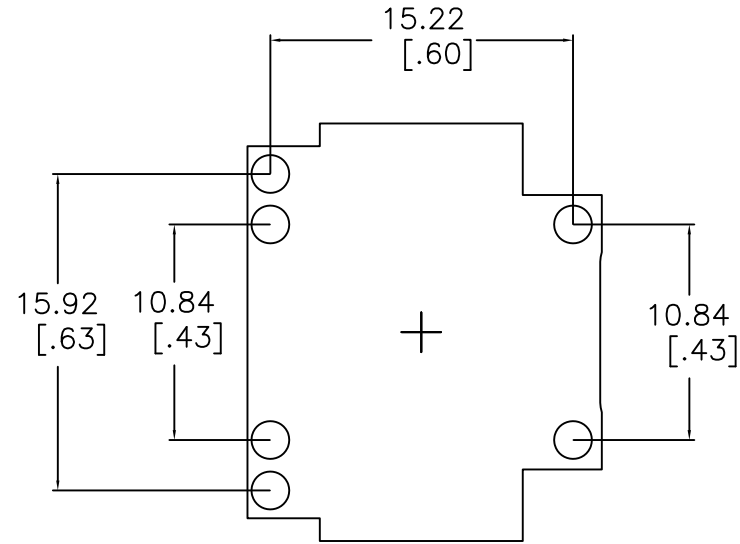
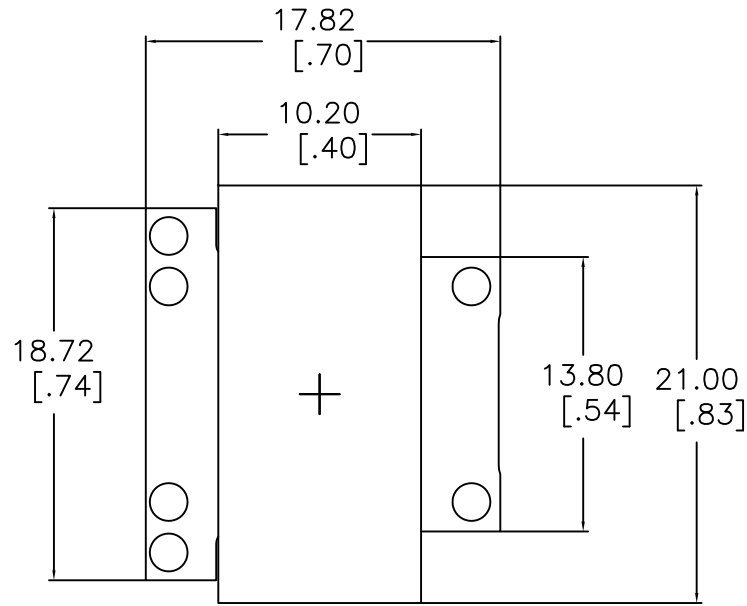
Schematic



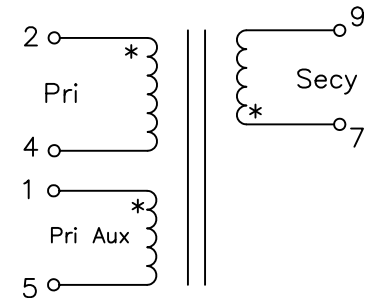
- NOTES:
1. TURNS RATIO [7-9] : [2-4] = 0.125 +/-2% || [1-5] : [2-4] = 0.50
  2. DCR [2-4]=130 mohm Nom, [7-9]= 1.35 mohm Nom.[1-5]=30 mohm Max.
  3. Inductance [2-4]=25.0 uH Nom, 100KHz, 1.0 VRMS @ 25C
  4. Leakage Inductance [2-4] Short [7-9] = 250nH Nom @100 KHz
  5. Dielectric Strength [2,4-1,5] to [7-9] 1500 VDC, [2-4] to CORE 1500 VDC, [7-9] to CORE 500 VDC
  6. Weight 6.8 grams Max | RoHS & REACH Compliant

| No.   | DESCRIPTION | REVISIONS | DATE     | APPR                        |
|---|-------------|-----------|----------|-----------------------------|
| CHAMPS TECHNOLOGIES                           |             |           |          |                             |
| DRAWN   |             | SIGN      | DATE     | Champs No. 20F1-1602-08-25R |
| CHKD  |             | HE        | 10.07.13 | Customer                    |
| APPR  |             |           |          | Part #:   ISSUE A   REV 00  |
| TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED |             | SIZE      |          | SCALE 3:1                   |

SUGGESTED PAD LAYOUT



Schematic

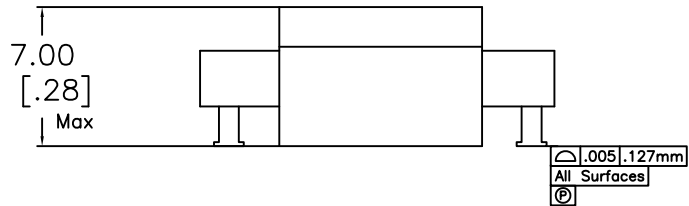
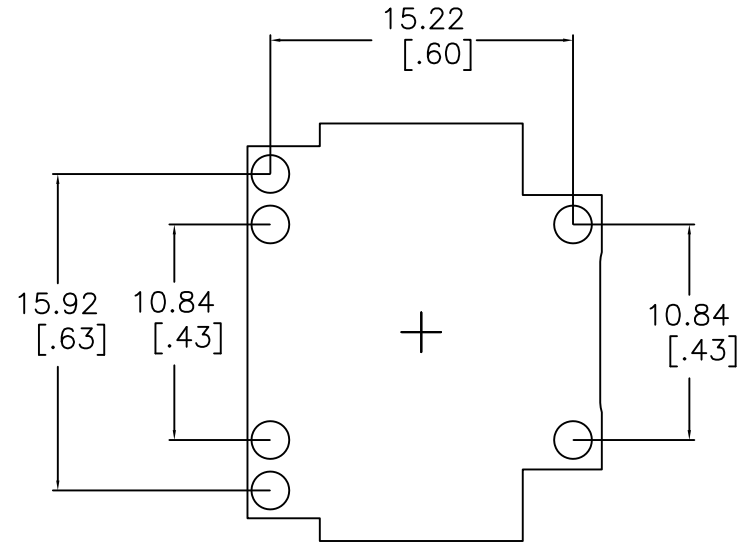
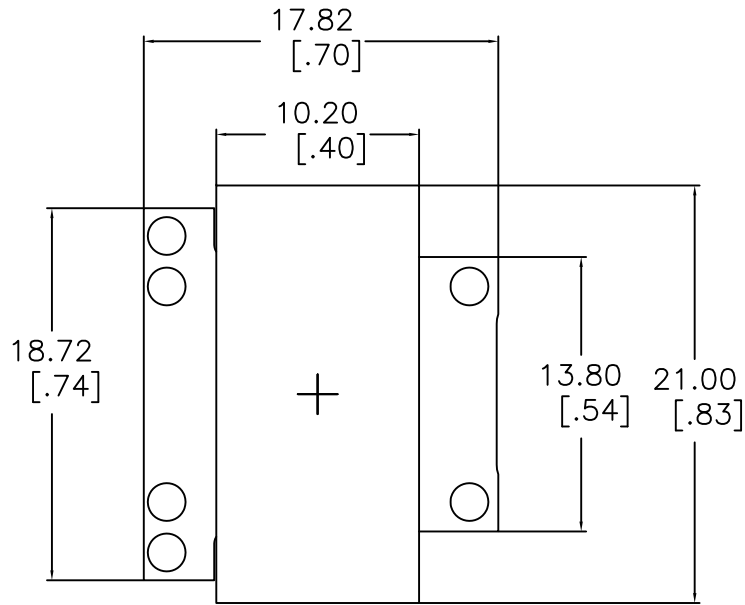


NOTES:

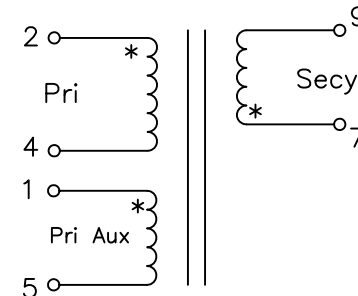
1. TURNS RATIO [7-9] : [2-4] = 0.167 +/-2% || [1-5] : [2-4] = 0.416
2. DCR [2-4]=60 mohm Nom, [7-9]= 1.30 mohm Nom.[1-5]=30 mohm Max.
3. Inductance [2-4]=28.0 uH Nom, 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2-4] Short [7-9] = 200nH Nom @100 KHz
5. Dielectric Strength [2,4-1,5] to [7-9] 1500 VDC, [2-4] to CORE 1500 VDC, [7-9] to CORE 500 VDC
6. Weight 6.8 grams Max | RoHS & REACH Compliant

| No.                 | DESCRIPTION | REVISIONS | DATE     | APPR                        |
|---------------------|-------------|-----------|----------|-----------------------------|
| CHAMPS TECHNOLOGIES |             |           |          |                             |
| DRAWN               |             | SIGN      | DATE     | Champs No. 20F1-1202-05-28R |
| CHKD                |             | HE        | 10.07.13 | Customer                    |
| APPR                |             |           |          | Part #: ISSUE A REV 00      |
|                     |             |           |          | SIZE SCALE 3:1              |

SUGGESTED PAD LAYOUT



Schematic

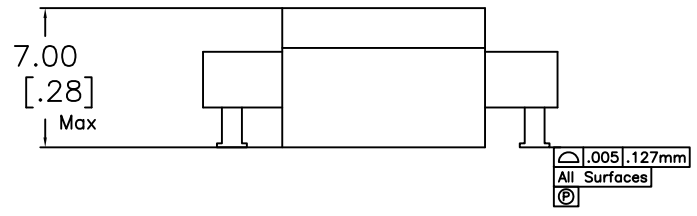
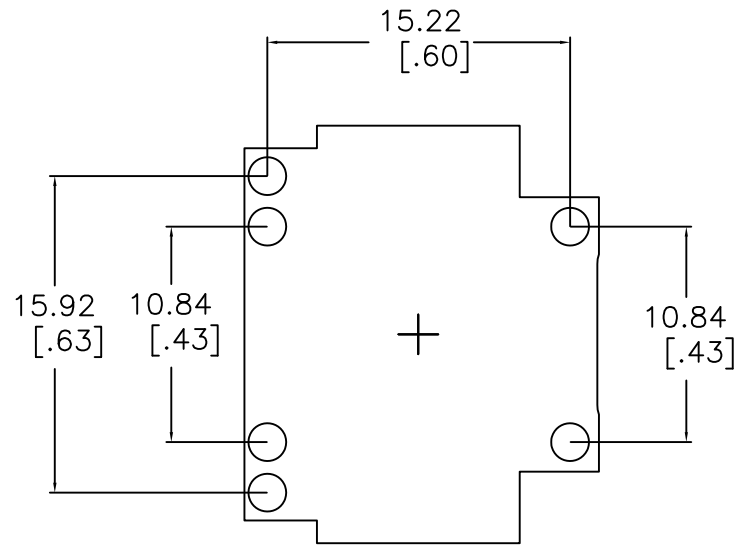
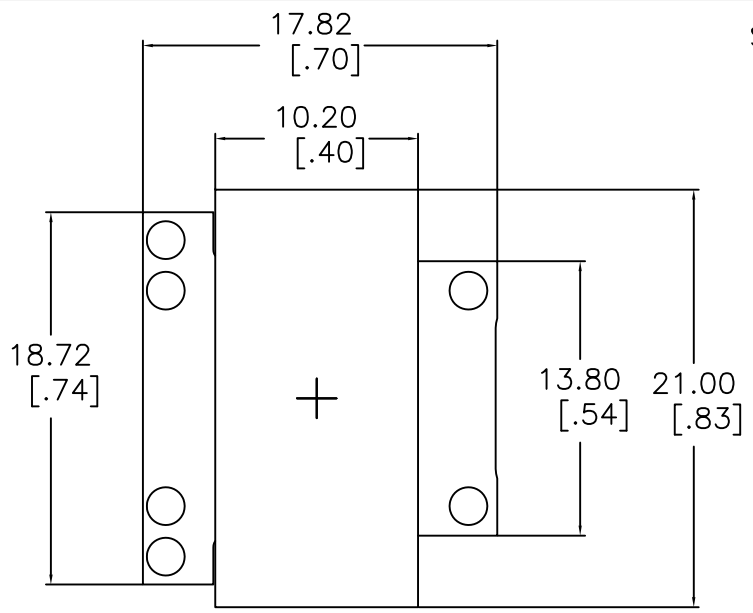


NOTES:

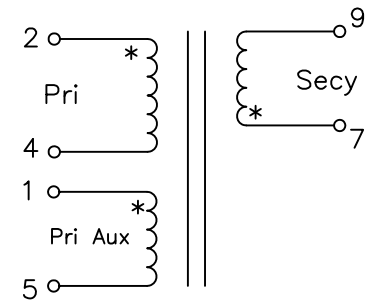
1. TURNS RATIO [7-9] : [2-4] = 0.385 +/- 2% || [1-5] : [2-4] = 0.461
2. DCR [2-4]=75 mohm Nom, [7-9]= 9.6 mohm Nom.[1-5]=30 mohm Max.
3. Inductance [2-4]=25.0 uH Nom, 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2-4] Short [7-9] = 200nH Nom @100 KHz
5. Dielectric Strength [2,4-1,5] to [7-9] 1500 VDC, [2-4] to CORE 1500 VDC, [7-9] to CORE 500 VDC
6. Weight 6.8 grams Max | RoHS & REACH Compliant

| No.   | DESCRIPTION | REVISIONS | DATE     | APPR                        |
|---|-------------|-----------|----------|-----------------------------|
| CHAMPS TECHNOLOGIES                           |             |           |          |                             |
| THIRD ANGLE PROJECTION                        |             |           |          |                             |
| TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED |             | SIGN      | DATE     | Champs No. 20F1-1305-06-25R |
| .XXX ±  | DRAWN       | HE        | 10.07.13 | Customer                    |
| .XX ±   | CHKD        |           |          | Part #:                     |
| .X ANGLE ±                                    | APPR        |           |          | ISSUE A                     |
|   |             |           |          | REV 00                      |
|   |             |           | SIZE     | SCALE 3:1                   |

SUGGESTED PAD LAYOUT



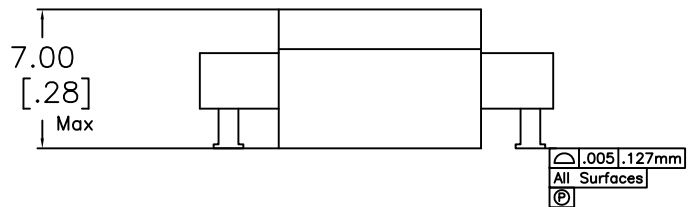
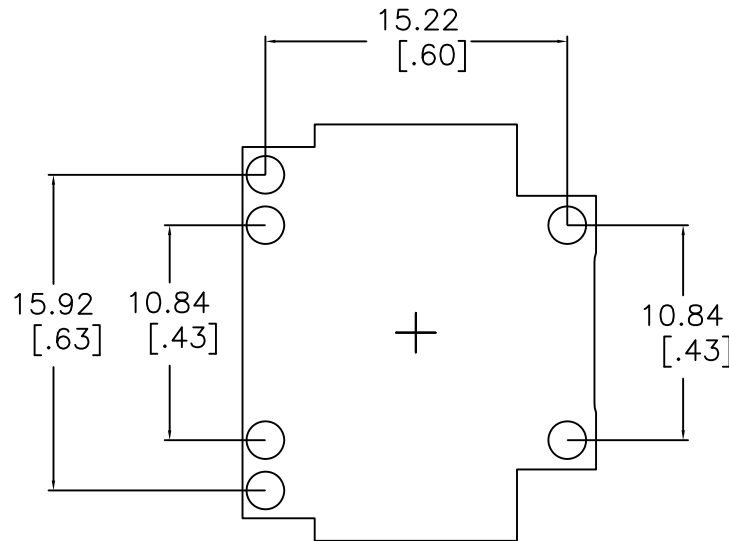
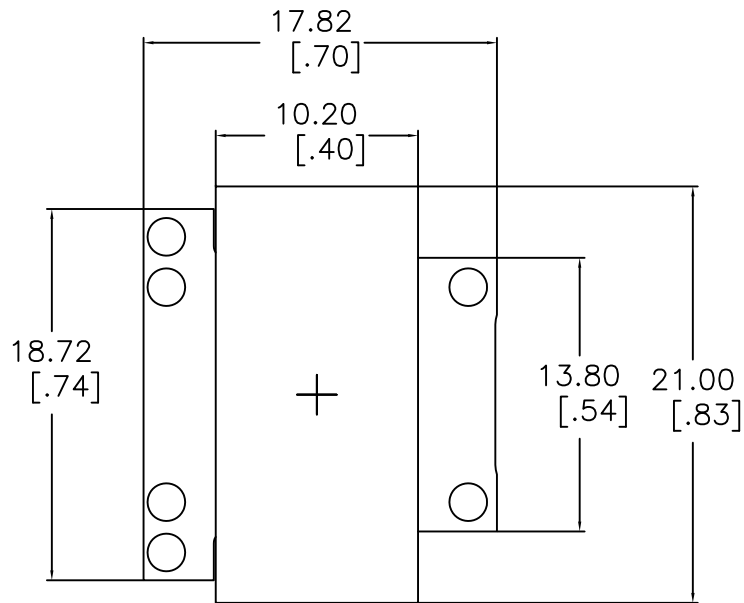
Schematic



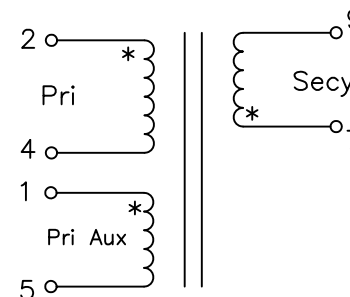
- NOTES:
1. TURNS RATIO [7-9] : [2-4] = 0.33 +/--2% || [1-5] : [2-4] = 1.167
  2. DCR [2-4]=14.5 mohm Nom, [7-9]= 1.3 mohm Nom.[1-5]=30 mohm Max.
  3. Inductance [2-4]= 4.0 uH Nom, 100KHz, 1.0 VRMS @ 25C
  4. Leakage Inductance [2-4] Short [7-9] = 50nH Nom @100 KHz
  5. Dielectric Strength [2,4-1,5] to [7-9] 1500 VDC, [2-4] to CORE 1500 VDC, [7-9] to CORE 500 VDC
  6. Weight 6.8 grams Max | RoHS & REACH Compliant

|   |    |             |          |                             |       |      |
|---|----|-------------|----------|-----------------------------|-------|------|
| No.   |    | DESCRIPTION |          | REVISIONS                   | DATE  | APPR |
| THIRD ANGLE PROJECTION                        |    |             |          |                             |       |      |
| CHAMPS TECHNOLOGIES                           |    |             |          |                             |       |      |
| TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED |    | SIGN        | DATE     | Champs No. 20F1-0602-07-4R0 |       |      |
| DRAWN   | HE | 10.07.13    | Customer |                             | ISSUE | REV  |
| CHKD  |    |             | Part #:  |                             | A     | 00   |
| APPR  |    |             | SIZE     | SCALE 3:1                   |       |      |

SUGGESTED PAD LAYOUT



Schematic

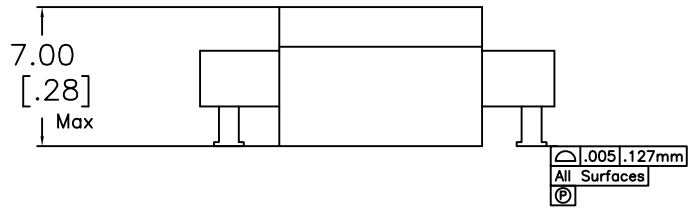
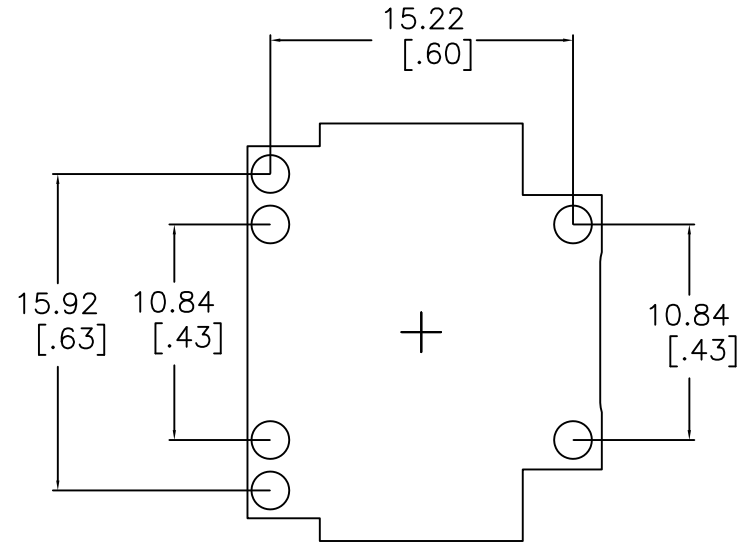
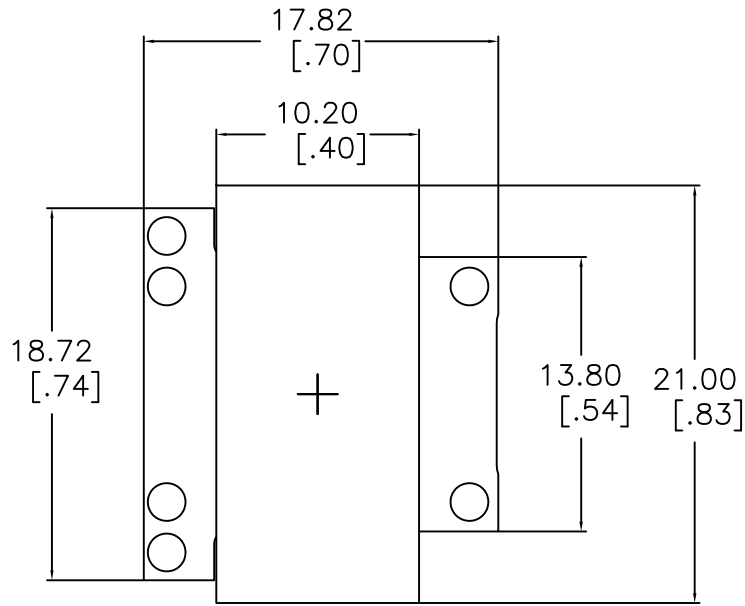


NOTES:

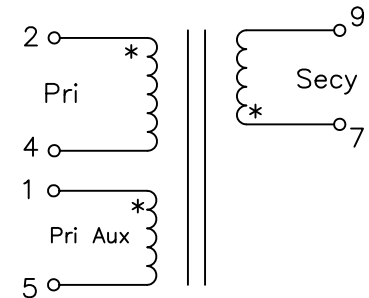
1. TURNS RATIO [7-9] : [2-4] = 0.50 +/-2% || [1-5] : [2-4] = 1.167
2. DCR [2-4]=14.5 mohm Nom, [7-9]= 3.3 mohm Nom.[1-5]=30 mohm Max.
3. Inductance [2-4]= 4.0 uH Nom, 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2-4] Short [7-9] = 50nH Nom @100 KHz
5. Dielectric Strength [2,4-1,5] to [7-9] 1500 VDC, [2-4] to CORE 1500 VDC, [7-9] to CORE 500 VDC
6. Weight 6.8 grams Max | RoHS & REACH Compliant

|                     |  |             |          |                             |       |      |
|---------------------|--|-------------|----------|-----------------------------|-------|------|
| No.                 |  | DESCRIPTION |          | REVISIONS                   | DATE  | APPR |
| CHAMPS TECHNOLOGIES |  |             |          |                             |       |      |
| DRAWN               |  | SIGN        | DATE     | Champs No. 20F1-0603-07-4R0 |       |      |
| CHKD                |  | HE          | 10.07.13 | Customer                    | ISSUE | REV  |
| APPR                |  |             |          | Part #:                     | A     | 00   |
|                     |  | SIZE        |          | SCALE 3:1                   |       |      |

SUGGESTED PAD LAYOUT



Schematic



NOTES:

1. TURNS RATIO [2-4] : [7-9] = 0.857 +/-2% || [1-5] : [7-9] = 1.0
2. DCR [2-4]=14.5 mohm Nom, [7-9]= 19 mohm Nom.[1-5]=30 mohm Max.
3. Inductance [2-4]= 4.5 uH Nom, 100KHZ, 1.0 VRMS @ 25C
4. Leakage Inductance [2-4] Short [7-9] = 50nH Nom @100 KHZ
5. Dielectric Strength [2,4-1,5] to [7-9] 1500 VDC, [2-4] to CORE 1500 VDC, [7-9] to CORE 500 VDC
6. Weight 6.8 grams Max | RoHS & REACH Compliant

| No.                 | DESCRIPTION | REVISIONS | DATE     | APPR                        |
|---------------------|-------------|-----------|----------|-----------------------------|
| CHAMPS TECHNOLOGIES |             |           |          |                             |
| DRAWN               |             | SIGN      | DATE     | Champs No. 20F1-0607-07-4R5 |
| CHKD                |             | HE        | 10.07.13 | Customer                    |
| APPR                |             |           |          | Part #: ISSUE A REV 00      |
|                     |             |           |          | SIZE SCALE 3:1              |