



Planar Transformer P20F2 40-60W No-Opto Isolated BCM Flyback

1. Input Voltage Range 32-72. BCM Flyback.

Champs PN	Vin (Min)	Vin (Max)	Vout	Iout (A dc)	Pout (Watts)	Freq (KHz)	Ipk [Rated]	Ipk [Max]	Mode
P20F2-0801-04-25R0	32	72	3.3	10.0	33.0	140-240	5.0	7.3	BCM
P20F2-0802-05-20R5	32	72	5.0	7.0	35.0	110-170	5.9	9.0	BCM
P20F2-0803-03-20R5	32	72	12.0	4.0	48.0	130-230	6.0	9.0	BCM
P20F2-0803-03-22R0	36	60	12.0	5.0	60.0	105-180	7.7	9.0	BCM
Note: At Vin < 36V the above PNs will operate with a de-rated Power Rating									

2. Input Voltage Range 16-60. BCM Flyback.

Champs PN	Vin (Min)	Vin (Max)	Vout	Iout (A dc)	Pout (Watts)	Freq (KHz)	Ipk [Rated]	Ipk [Max]	Mode
P20F2-0401-5R2	16	60	3.3	12.0	40.0	102-350	13.0	18.0	BCM
P20F2-0502-6R0	16	60	5.0	8.0	40.0	90-230	13.0	19.0	BCM
P20F2-0504-6R0	16	60	12.0	4.0	48.0	88-300	14.3	19.0	BCM
Note: At Vin < 18V the Power Rating decreases to that shown in Table 3 below									



Planar Transformer P20F2 40-60W No-Opto Isolated BCM Flyback

3. Input Voltage Range 9-36. BCM Flyback.

Champs PN	Vin (Min)	Vin (Max)	Vout	Iout (A _{dc})	Pout (Watts)	Freq (KHz)	I _{pk} [Rated]	I _{pk} [Max]	Mode (BCM/CCM)
P20F2-0402-3R3	9	36	3.3	8.0	26.4	84-200	17.0	28.0	BCM
P20F2-0503-4R5	9	36	5.0	6.0	30.0	65-180	17.0	26.0	BCM
P20F2-0406-3R3	9	36	12.0	3.0	36.0	68-180	20.5	28.0	BCM
Note: At Vin > 18V the Power Rating increases to that shown in Table 2 above									

4. Input Voltage Range 18-60. BCM Flyback.

Champs PN	Vin (Min)	Vin (Max)	Vout	Iout (A _{dc})	Pout (Watts)	Freq (KHz)	I _{pk} [Rated]	I _{pk} [Max]	Mode (BCM/CCM)
P20F2-0506-01-7R2	18	60	48.0	1.50	72.0	118-440	14.0	16.0	BCM

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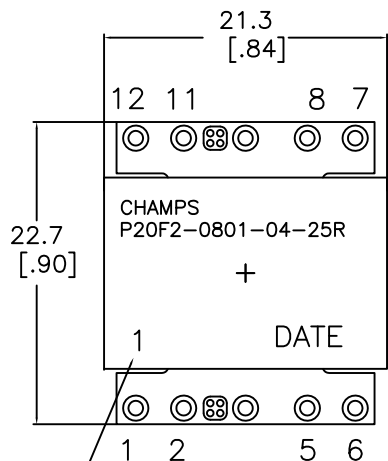
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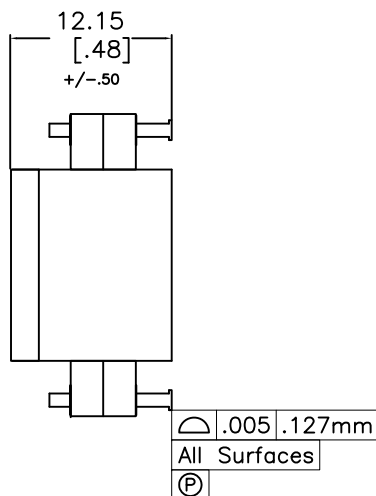
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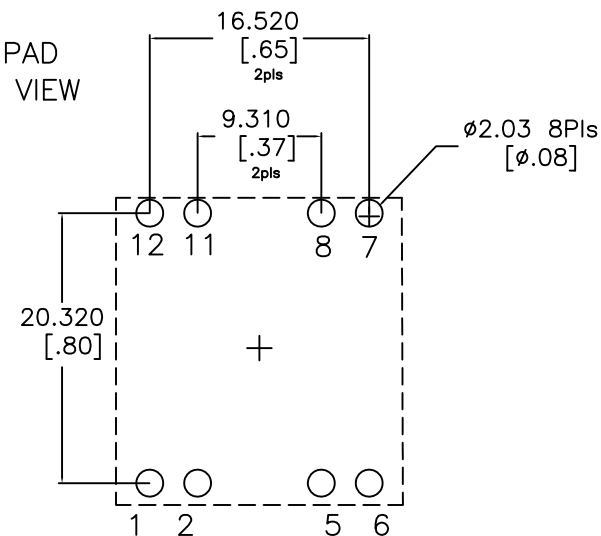
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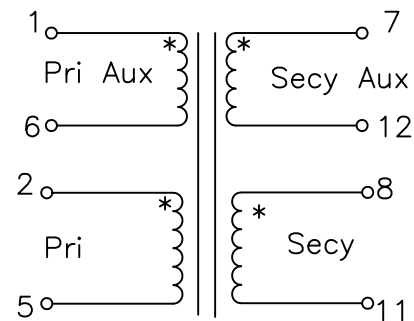
Mark #1 Pin Position on Core



SUGGESTED PAD LAYOUT/TOP VIEW



Schematic



NOTES:

1. DCR [2-5] = 19.5 mohm Nom. [8-11] = 0.35 mohm Nom., [1-6] = 300 mohm Max
2. Inductance [2-5] = 25 uH Nom, ±10% 100KHz, 1.0 VRMS @ 25C
3. Leakage Inductance [2-5] Short [8-11] = 60 nH Nom, @100 KHz
4. Dielectric Strength [2-5], [1-6] to [8-11] > 1500 VDC
[2-5], [1-6] to CORE > 1500 VDC, [8-11] to CORE > 500 VDC
5. Ipk rating [2-5] = 5.5 A Nom, 7.5 A Max
6. Irms Rating [2-5] = 7 Arms Max || [8-11] = 40 Arms Max
7. RoHS Compliant | Pin Composition Sn/Ag 96/4
8. Operating Temp Range: -55C to +130C [Inclusive of Temp Rise]

No.	DESCRIPTION	REVISIONS	DATE	APPR
THIRD ANGLE PROJECTION				
CHAMPS TECHNOLOGIES				
TOLERANCES/UNITS in MM UNLESS OTHERWISE INDICATED		SIGN	DATE	Champs-Tech PN P20F2-0801-04-25R
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.XX ± 0.38	CHKD			Part #:
.X ± 0.78	APPR			SIZE
ANGLE ±				SCALE 2:1
				ISSUE A
				REV 00

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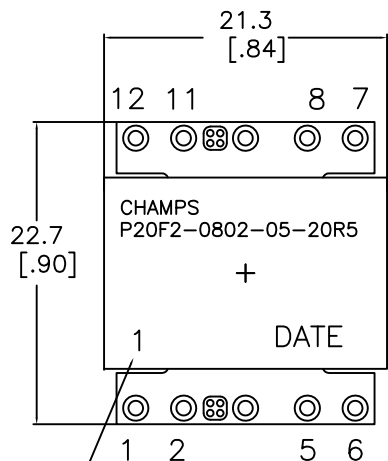
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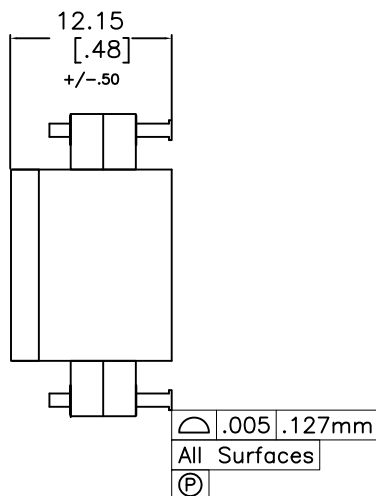
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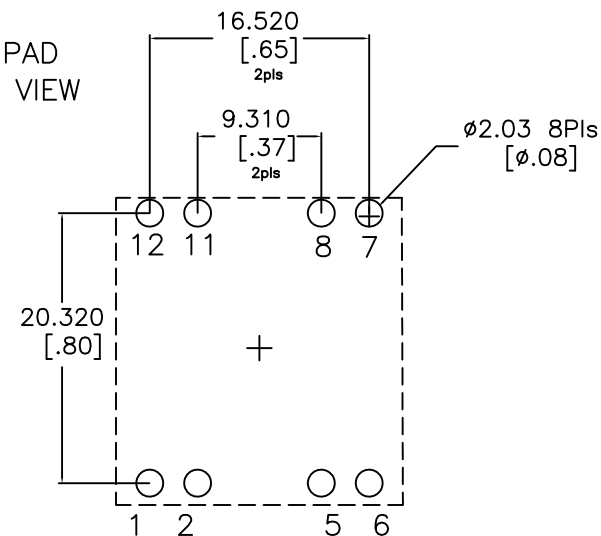
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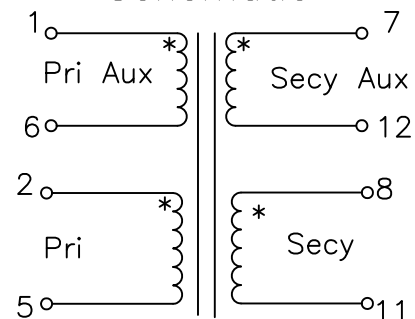
Mark #1 Pin Position on Core



SUGGESTED PAD LAYOUT/TOP VIEW



Schematic



NOTES:

1. DCR [2-5] = 19.5 mohm Nom. [8-11] = 1.6 mohm Nom., [1-6] = 300 mohm Max
2. Inductance [2-5] = 20.5 uH Nom, ±10% 100KHz, 1.0 VRMS @ 25C
3. Leakage Inductance [2-5] Short [8-11] = 60 nH Nom, @100 KHz
4. Dielectric Strength [2-5] [1-6] to [8-11] > 1500 VDC
[2-5] [1-6] to CORE > 1500 VDC, [8-11] to CORE > 500 VDC
5. Ipk rating [2-5] = 7.0 A Nom, 9.0 A Max
6. Irms Rating [2-5] = 7 Arms Max || [8-11] = 22 Arms Max
7. RoHS Compliant | Pin Composition Sn/Ag 96/4
8. Operating Temp Range: -55C to +130C [Inclusive of Temp Rise]

No.	DESCRIPTION	REVISIONS	DATE	APPR
THIRD ANGLE PROJECTION				
CHAMPS TECHNOLOGIES				
TOLERANCES/UNITS in MM UNLESS OTHERWISE INDICATED		SIGN	DATE	Champs-Tech PN P20F2-0802-05-20R5
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.XX ± 0.38	CHKD			Part #:
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ANGLE ±				ISSUE A REV 00

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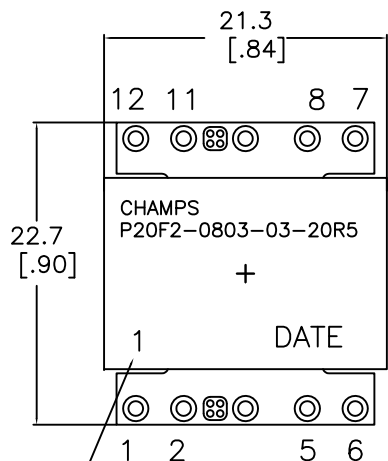
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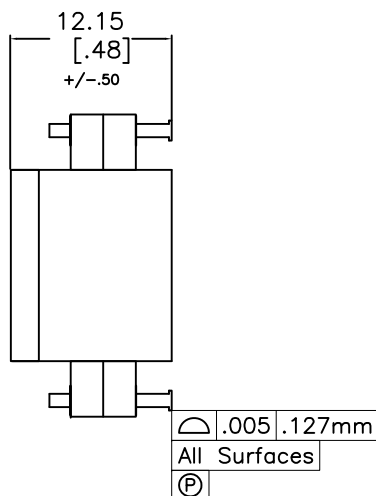
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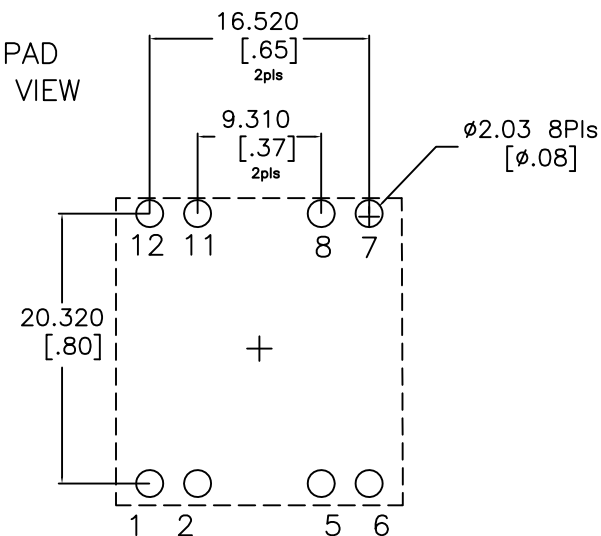
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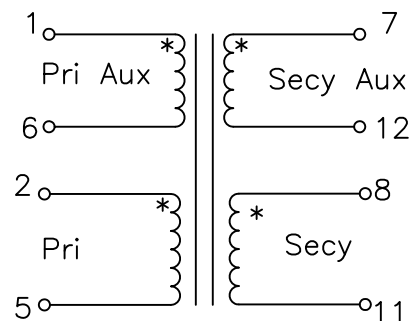
Mark #1 Pin Position on Core



SUGGESTED PAD LAYOUT/TOP VIEW



Schematic



NOTES:

1. TURNS RATIO [8-11] & [1-6] : [2-5] = .375 ±2%

2. DCR [2-5]= 19.5 mohm Nom. [8-11]= 3.8 mohm Nom., [1-6] = 300 mohm Max

3. Inductance [2-5]= 20.5 uH Nom, ±10% 100KHz, 1.0 VRMS @ 25C

4. Leakage Inductance [2-5] Short [8-11] = 60 nH Nom,@100 KHz

5. Dielectric Strength [2-5], [1-6] to [8-11] > 1500 VDC

[2-5], [1-6] to CORE > 1500 VDC, [8-11] to CORE > 500 VDC

6. Ipk rating [2-5] = 7.0 A Nom, 9.0 A Max

7. Irms Rating [2-5] = 7Arms Max || [8-11] = 16Arms Max

8. RoHS Compliant | Pin Composition Sn/Ag 96/4

9. Operating Temp Range: -55C to +130C [Inclusive of Temp Rise]

No.	DESCRIPTION	REVISIONS	DATE	APPR
THIRD ANGLE PROJECTION				
CHAMPS TECHNOLOGIES				
TOLERANCES/UNITS in MM UNLESS OTHERWISE INDICATED		SIGN	DATE	Champs-Tech PN P20F2-0803-03-20R5
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.XX ± 0.38	CHKD			Part #:
.X ± 0.78	APPR			SCALE 2:1
ANGLE ±				ISSUE A REV 00

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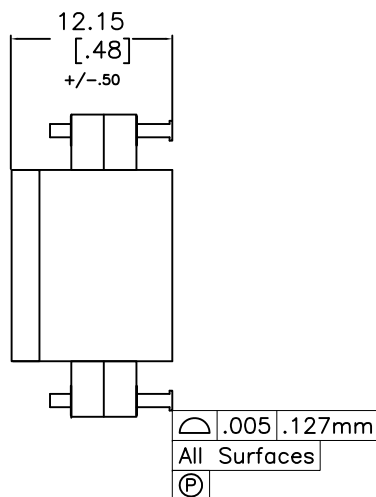
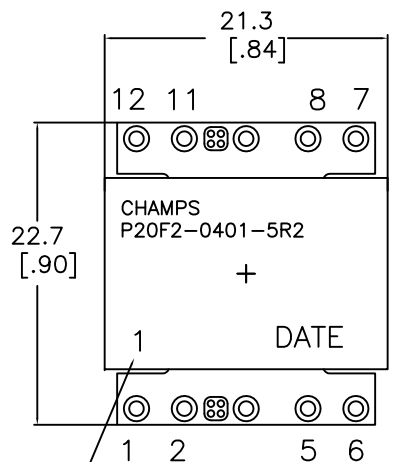
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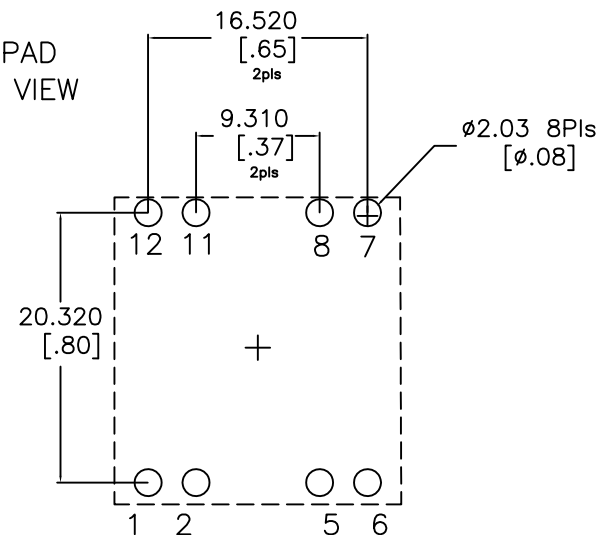
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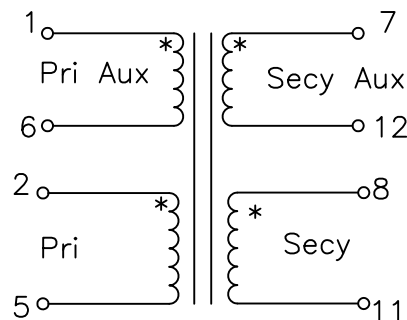
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SUGGESTED PAD LAYOUT/TOP VIEW



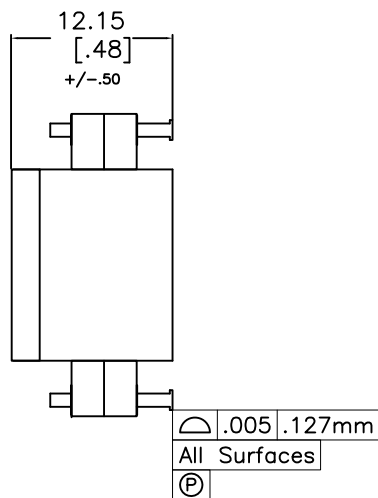
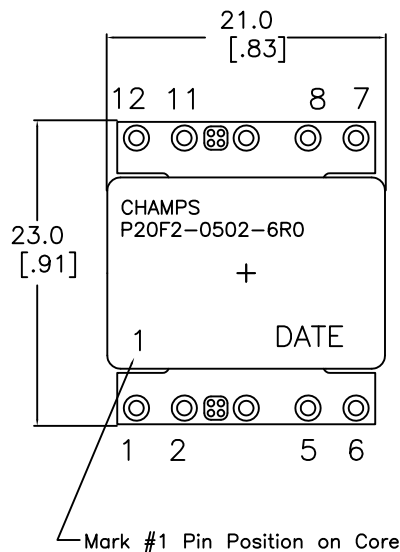
Schematic



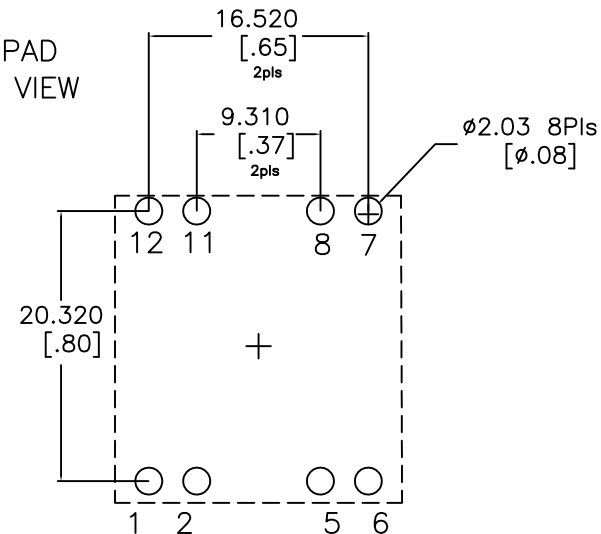
NOTES:

1. DCR [2-5] = 5.6 mohm Nom. [8-11] = 0.35 mohm Nom., [1-6] = 300 mohm Max
2. Inductance [2-5] = 5.2 uH Nom, ±10% 100KHz, 1.0 VRMS @ 25C
3. Leakage Inductance [2-5] Short [8-11] = 30 nH Nom, @100 KHz
4. Dielectric Strength [2-5], [1-6] to [8-11] > 1500 VDC
[2-5], [1-6] to CORE > 1500 VDC, [8-11] to CORE > 500 VDC
5. Ipk rating [2-5] = 13 A Nom, 18 A Max
6. Irms Rating [2-5] = 12Arms Max || [8-11] = 36Arms Max
7. RoHS Compliant | Pin Composition Sn/Ag 96/4
8. Operating Temp Range: -55C to +130C [Inclusive of Temp Rise]

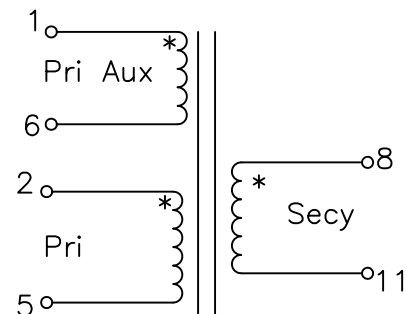
No.	DESCRIPTION	REVISIONS	DATE	APPR
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CHAMPS TECHNOLOGIES				
TOLERANCES/UNITS in MM UNLESS OTHERWISE INDICATED		SIGN	DATE	Champs-Tech PN P20F2-0401-5R2
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.XX ± 0.38	CHKD			Part #:
.X ± 0.78	APPR			SIZE SCALE 2:1
				ISSUE A REV 00



SUGGESTED PAD LAYOUT/TOP VIEW



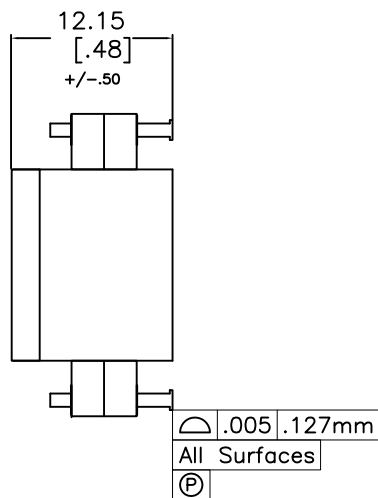
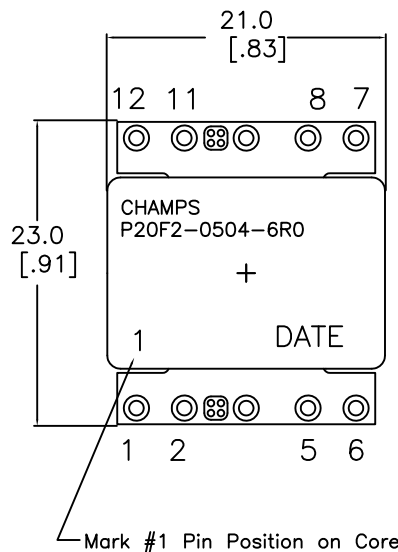
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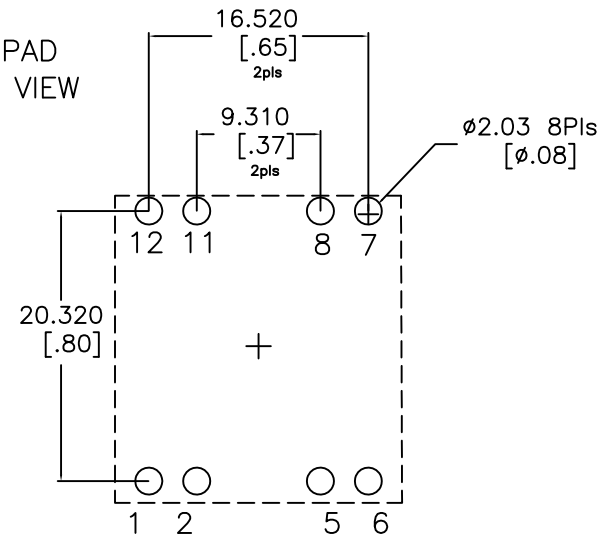
NOTES:

1. DCR [2-5] = 8.6 mohm Nom. [8-11] = 1.8 mohm Nom. [1-6] = 300 mohm Max.
2. Inductance [2-5] = 6.0 uH Nom, $\pm 10\%$ 100KHz, 1.0 VRMS @ 25C
3. Leakage Inductance [2-5] Short [8-11] = 45 nH Nom, @100 KHz
4. Dielectric Strength [2-5], [1,6] to [8-11] = 1500 VDC
[2-5] to CORE 1500 VDC, [8-11] : [1-6] to CORE 500 VDC
5. Ipk rating [2-5] = 13A Nom, 19 A Max
6. Irms Rating [2-5] = 10Arms Max || [8-11] = 20Arms Max
7. RoHS Compliant | Pin Composition Sn/Ag 96/4
8. Operating Temp Range: -55C to +130C [Inclusive of Temp Rise]

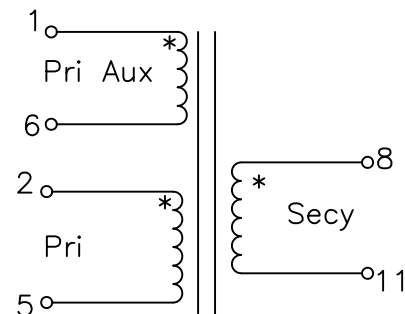
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CHAMPS TECHNOLOGIES				
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	APPR			Part #:
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.XXX $\pm$ 0.254				ISSUE A
.XX $\pm$ 0.38				REV 00
.X ANGLE $\pm$ 0.78				



SUGGESTED PAD LAYOUT/TOP VIEW



Schematic



NOTES:

1. DCR [2-5] = 8.6 mohm Nom. [8-11] = 5.6 mohm Nom. [1-6] = 300 mohm Max.
2. Inductance [2-5] = 6.0 uH Nom, $\pm 10\%$ 100KHz, 1.0 VRMS @ 25C
3. Leakage Inductance [2-5] Short [8-11] = 45 nH Nom, @100 KHz
4. Dielectric Strength [2-5], [1,6] to [8-11] = 1500 VDC
[2-5] to CORE 1500 VDC, [8-11] : [1-6] to CORE 500 VDC
5. Ipk rating [2-5] = 14A Nom, 19 A Max
6. Irms Rating [2-5] = 10Arms Max || [8-11] = 12Arms Max
7. RoHS Compliant | Pin Composition Sn/Ag 96/4
8. Operating Temp Range: -55C to +130C [Inclusive of Temp Rise]

No.	DESCRIPTION	REVISIONS	DATE	APPR
THIRD ANGLE PROJECTION				
CHAMPS TECHNOLOGIES				
TOLERANCES/UNITS in MM UNLESS OTHERWISE INDICATED	DRAWN	SIGN	DATE	Champs-Tech PN P20F2-0504-6R0
	CHKD		06.21.16	Customer
	APPR			Part #:
				SIZE SCALE 2:1
.XXX $\pm$ 0.254				ISSUE A
.XX $\pm$ 0.38				REV 00
.X ANGLE $\pm$ 0.78				

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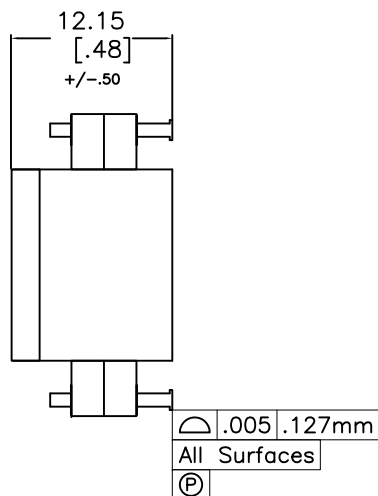
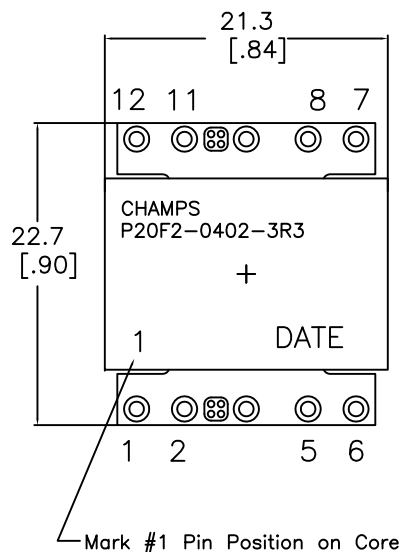
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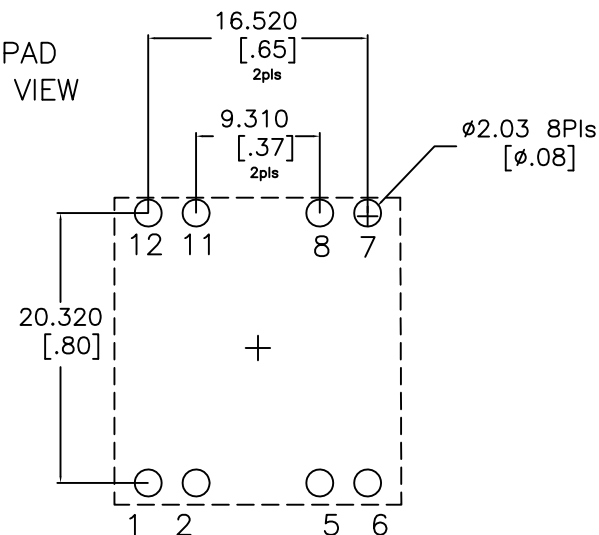
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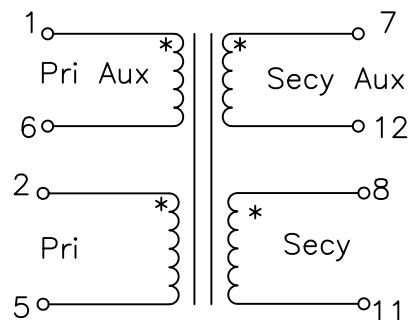
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SUGGESTED PAD LAYOUT/TOP VIEW



Schematic



NOTES:

1. DCR [2-5] = 5.6 mohm Nom. [8-11] = 1.8 mohm Nom., [1-6] = 300 mohm Max
2. Inductance [2-5] = 3.3 uH Nom, ±10% 100KHz, 1.0 VRMS @ 25C
3. Leakage Inductance [2-5] Short [8-11] = 30 nH Nom, @100 KHz
4. Dielectric Strength [2-5], [1-6] to [8-11] > 1500 VDC
[2-5], [1-6] to CORE > 1500 VDC, [8-11] to CORE > 500 VDC
5. Ipk rating [2-5] = 17 A Nom, 28 A Max
6. Irms Rating [2-5] = 12Arms Max || [8-11] = 20Arms Max
7. RoHS Compliant | Pin Composition Sn/Ag 96/4
8. Operating Temp Range: -55C to +130C [Inclusive of Temp Rise]

No.	DESCRIPTION	REVISIONS	DATE	APPR
THIRD ANGLE PROJECTION				
CHAMPS TECHNOLOGIES				
TOLERANCES/UNITS in MM UNLESS OTHERWISE INDICATED				
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.XX ± 0.38	CHKD		10.16.17	Customer
.X ANGLE ± 0.78	APPR			Part #:
				SIZE
				SCALE 2:1
				ISSUE A
				REV 00

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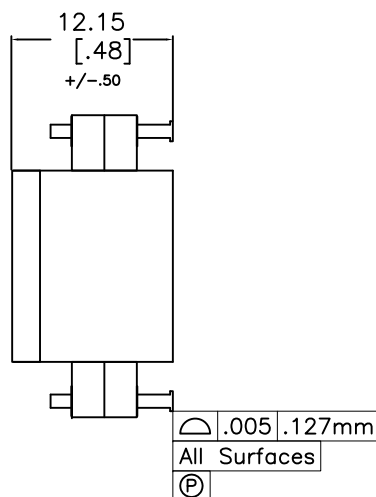
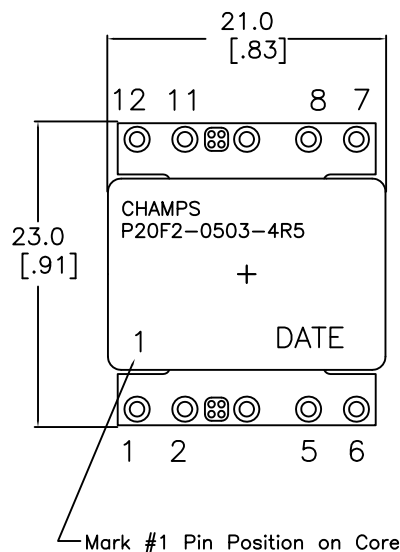
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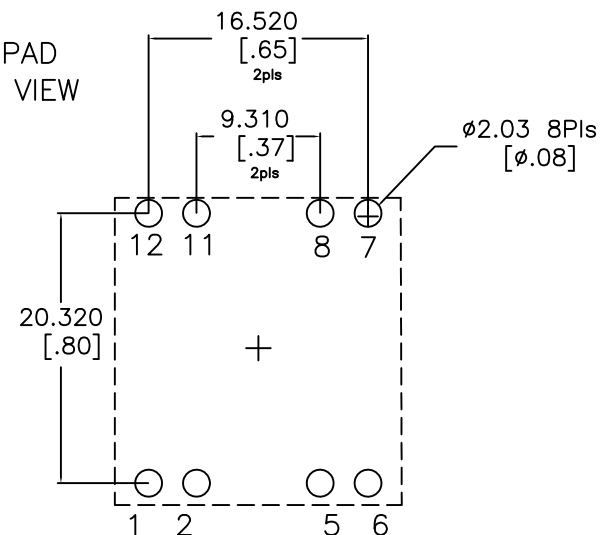
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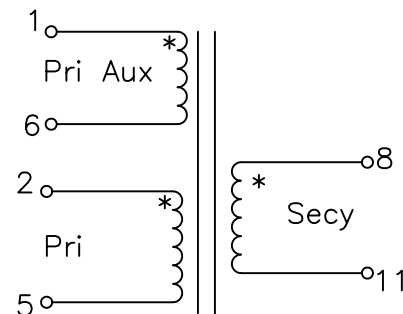
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SUGGESTED PAD LAYOUT/TOP VIEW



Schematic



NOTES:

1. DCR [2-5] = 8.6 mohm Nom. [8-11] = 3.8 mohm Nom. [1-6] = 300 mohm Max.
2. Inductance [2-5] = 4.5 uH Nom, $\pm 10\%$ 100KHz, 1.0 VRMS @ 25C
3. Leakage Inductance [2-5] Short [8-11] = 45 nH Nom, @100 KHz
4. Dielectric Strength [2-5], [1,6] to [8-11] = 1500 VDC
[2-5] to CORE 1500 VDC, [8-11] : [1-6] to CORE 500 VDC
5. Ipk rating [2-5] = 17A Nom, 26 A Max
6. Irms Rating [2-5] = 10Arms Max || [8-11] = 14Arms Max
7. RoHS Compliant | Pin Composition Sn/Ag 96/4
8. Operating Temp Range: -55C to +130C [Inclusive of Temp Rise]

No.	DESCRIPTION	REVISIONS	DATE	APPR
THIRD ANGLE PROJECTION				
CHAMPS TECHNOLOGIES				
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.XX $\pm$ 0.38	CHKD			Part #:
.X ANGLE $\pm$ 0.78	APPR			SIZE
		SCALE 2:1		ISSUE A
				REV 00

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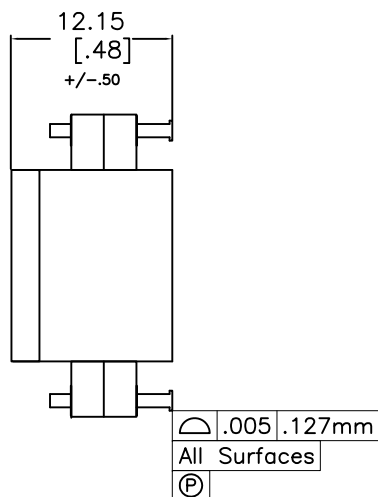
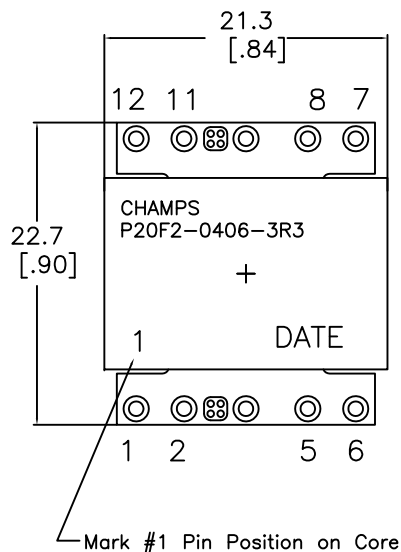
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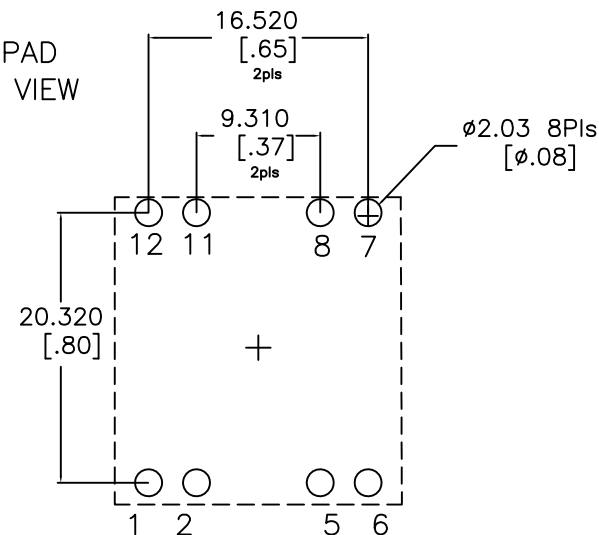
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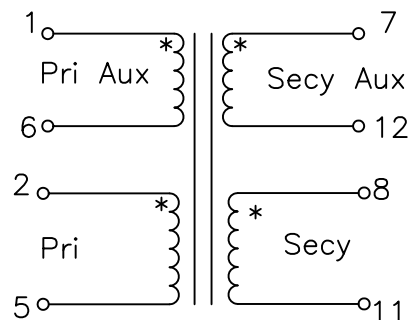
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SUGGESTED PAD LAYOUT/TOP VIEW



Schematic



NOTES:

1. DCR [2-5] = 5.6 mohm Nom. [8-11] = 12.0 mohm Nom., [1-6] = 300 mohm Max
2. Inductance [2-5] = 3.3 uH Nom, ±10% 100KHz, 1.0 VRMS @ 25C
3. Leakage Inductance [2-5] Short [8-11] = 30 nH Nom, @100 KHz
4. Dielectric Strength [2-5], [1-6] to [8-11] > 1500 VDC
[2-5], [1-6] to CORE > 1500 VDC, [8-11] to CORE > 500 VDC
5. Ipk rating [2-5] = 20.5 A Nom, 28 A Max
6. Irms Rating [2-5] = 12 Arms Max || [8-11] = 8.0 Arms Max
7. RoHS Compliant | Pin Composition Sn/Ag 96/4
8. Operating Temp Range: -55C to +130C [Inclusive of Temp Rise]

No.	DESCRIPTION	REVISIONS	DATE	APPR
THIRD ANGLE PROJECTION				
CHAMPS TECHNOLOGIES				
TOLERANCES/UNITS in MM UNLESS OTHERWISE INDICATED		SIGN	DATE	Champs-Tech PN P20F2-0406-3R3
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.XX ± 0.38	CHKD			Part #:
.X ± 0.78	APPR			SIZE
ANGLE ±				SCALE 2:1
				ISSUE A
				REV 00

1 2 3 4 5 6 7 8

A

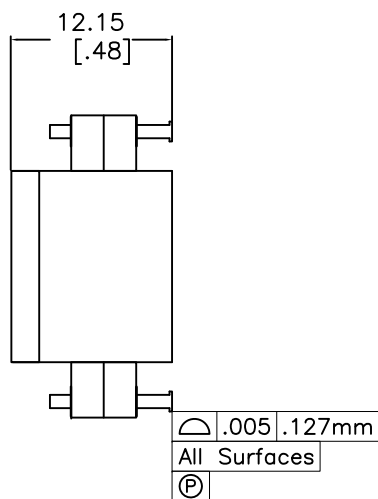
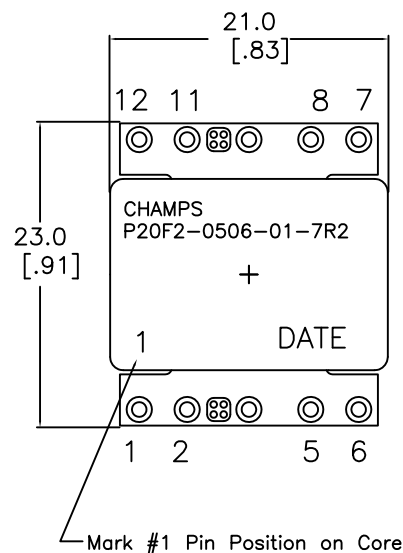
B

C

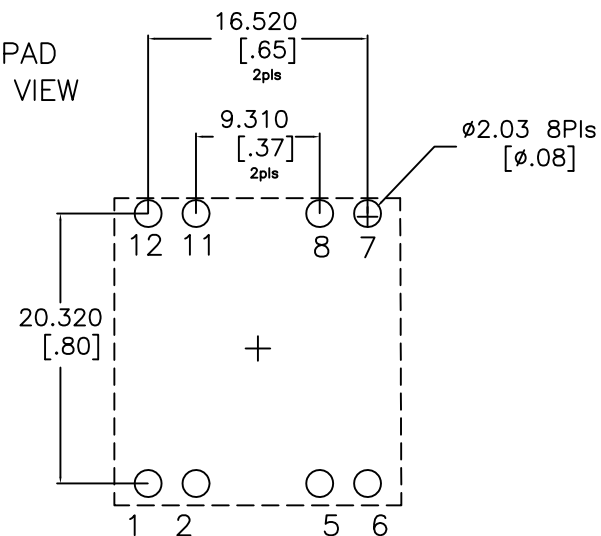
D

E

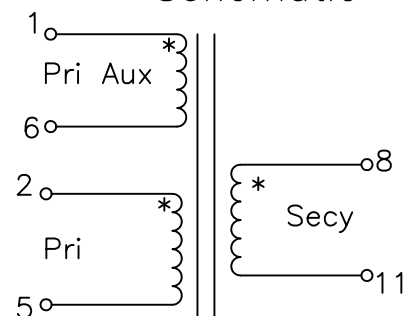
F



SUGGESTED PAD LAYOUT/TOP VIEW



Schematic



NOTES:

1. TURNS RATIO [2-5] : [8-11] = .833 $\pm$ 2% || [1-6] : [8-11] = 0.167 $\pm$ 2%
1. DCR [2-5]= 8.6 mohm Nom. [8-11]= 12 mohm Nom. [1-6]=300 mohm Max.
2. Inductance [2-5]= 7.2 uH Nom, $\pm$ 10% 100KHz, 1.0 VRMS @ 25C
3. Leakage Inductance [2-5] Short [8-11] = 60 nH Nom,@100 KHz
4. Dielectric Strength [2-5],[1,6] to [8-11] = 1500 VDC
[2-5] to CORE 1500 VDC, [8-11] : [1-6] to CORE 500 VDC
5. Ipk rating [2-5] = 14A Nom, 16A Max
6. Irms Rating [2-5] = 8Arms Max || [8-11] = 7Arms Max
7. RoHS Compliant | Pin Composition Sn/Ag 96/4
8. Operating Temp Range: -55C to +130C [Inclusive of Temp Rise]

No.	DESCRIPTION	REVISIONS	DATE	APPR
THIRD ANGLE PROJECTION	CHAMPS TECHNOLOGIES			
TOLERANCES/UNITS in MM UNLESS OTHERWISE INDICATED	DRAWN	SIGN	DATE	Champs-Tech PN P20F2-0506-01-7R2
.XXX $\pm$ 0.254	CHKD		06.21.16	Customer
.XX $\pm$ 0.38	APPR			Part #:
.X $\pm$ 0.78				SIZE
ANGLE $\pm$				SCALE 2:1
				ISSUE A
				REV 00