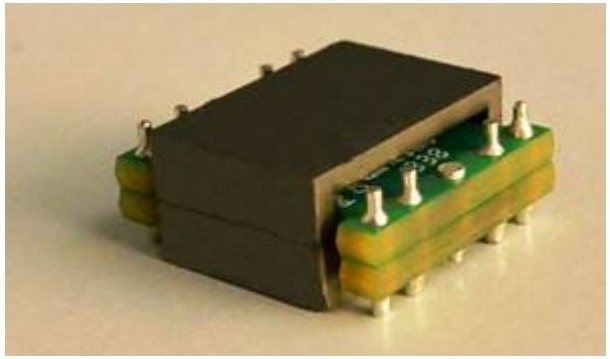
Champs Technologies Support of Linear Technology DC1317A Reference Designs



G45 Series

- Forward Active Clamp Topology -- Highest Efficiency attributable to Planar Design.
- Aggressive Interleave by design results in lowest achievable Leakage Inductance.
- Multilayer PCB optimization for lowest AC resistance and Proximity Effect.
- Click on Part Number in Table below for the Data Sheet.
- Wide variety of Turns Ratios in stock but not shown in Table.
- Contact Us for Module Design and SM Assy of Converter

Table I: G45 Series Recommended Part Numbers and Data Sheets

Ref Design	Vin (Min)	Vin (Max)	Vout	Io	Champs PN	Output Inductor
DC1317A-B (5V)	18	72	5	25.0	G45R2-0502-05	
DC1317A-C	18	72	12	8.0	G45R2-0405-05	PQI2050-10-LTC
DC1317A-D	18	72	24	5.0	G45R2-0408-04	PQI2050-27-LTC
DC1317A-E	36	72	5	12.0	G45R2-0702-05	
DC1317A-F	9	36	3.3	20.0	G45R2-0302-07	
DC1317A-F (5V)	9	36	5	20.0	G45R2-0202-05	
DC1317A-G	9	36	12	8.0	G45R2-0306-06	PQI2050-16-LTC

DC1317A-G (15V)	9	36	15	7.0	G45R2-0205-04	PQI2050-27-LTC
DC1317A-G (18V)	9	36	18	6.0	G45R2-0207-05	PQI2050-27-LTC
DC1317A-G (19.5V)	9	32	19.5	5.0	G45R2-0207-05	PQI2050-57-LTC
DC1317A-H	9	36	48	1.5	G45R2-0324-06	PQA2050-220-LTC
DC1317A-H (24V)	9	36	24	3.0	G45R2-0312-06	PQA2050-100-LTC

Table II: G45 Series Equivalent Part Numbers and Data Sheets

Ref Design	Vin (Min)	Vin (Max)	Vout	Io	Champs PN	Output Inductor
DC1317A-A	34	75	3.3	30.0	G45R2-0601-04	PQL2050-0R650-HX
DC1317A-H	9	36	48	1.5	G45R2-0218-04	PQA2050-220-LTC
DC1317A-H (24V)	9	36	24	4.0	G45R2-0209-05	PQA2050-100-LTC

Notes:
1. Consult Linear Tech Ref Design BOM and Schematic for exact device as specified for use by Linear in that Reference Design.
2. In all cases Champs Technologies makes no representation as to suitability of the Reference Design itself as that is the design responsibility and Intellectual Property of Linear Technology.
3. Champs Technologies responsibility is limited to the use of its component as described in the Data Sheet and any warranty express or implied is limited to component replacement if found defective.

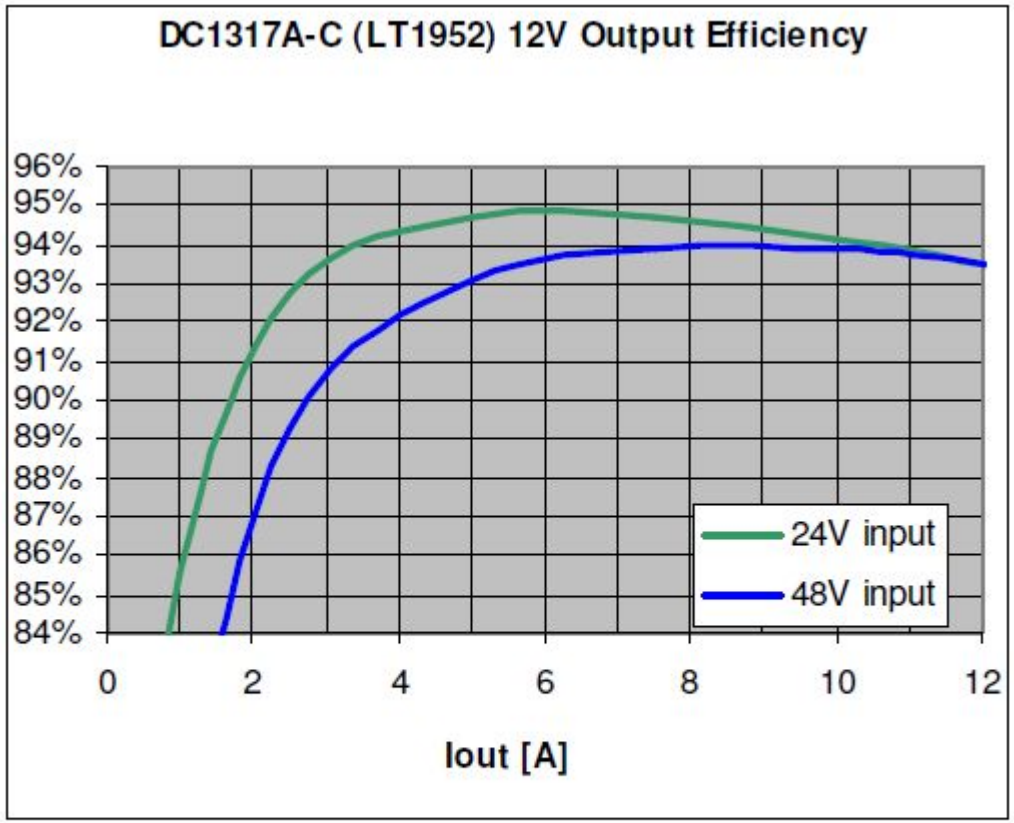
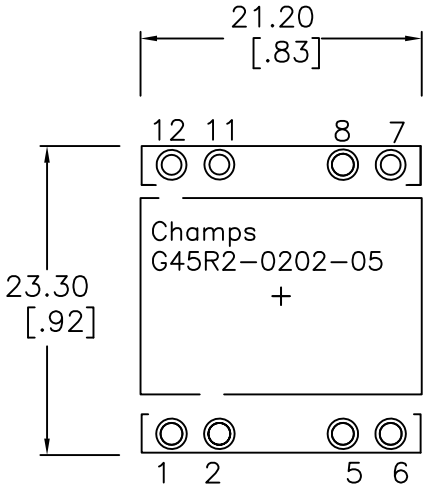


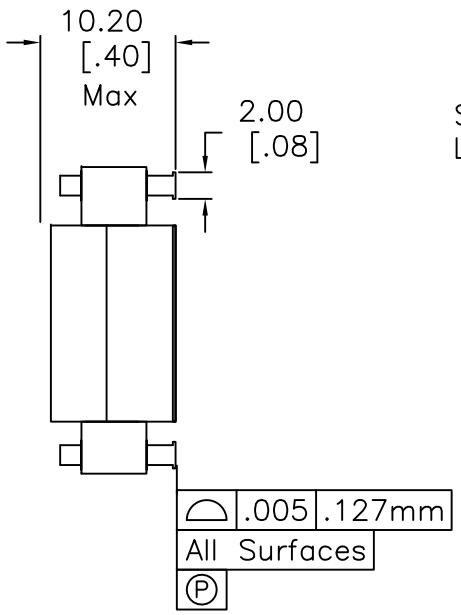
Figure 3. High efficiency of DC1317A-C allows the board to be used in thermally critical applications

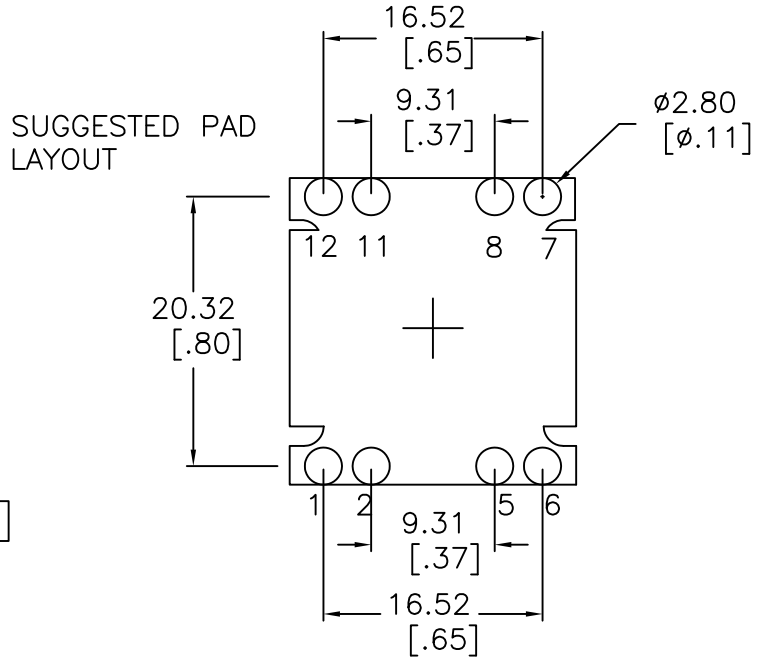
Options supplied as discrete component or integrated into a complete DC-DC Converter Module:

1. Surface Mount Discrete Component Design (as per above Data Sheets).
2. Discrete Component Implemented in Pad-to-Pad Mounting.
3. Component implemented as Half-Embedded Design + SM Assembly of all components required of DC-DC Converter.
4. Implemented as a Fully Embedded Design + SM Assembly of all components required of DC-DC Converter.

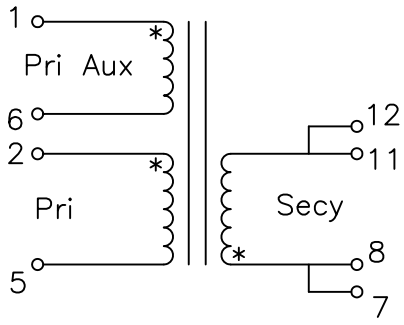
- SMT Component Assembly of PCB Including Planar Magnetics Inclusive of Converter Testing. Volume capacity 100K per month.







Schematic



NOTES:
1. TURNS RATIO [2–5] : [7,8 – 11,12] = 1.00 +/–2% || [2–5] : [1–6] = 0.40 +/–2%
2. DCR [2–5]= 0.80 mohm Nom., [7,8 – 11,12]= 0.80 mohm Nom., [1–6]= 60 mohm Max
3. Inductance [2–5]= 10.3 uH Nom, 8.80 Min at 10KHz, 0.1 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7,8–11,12] = 0.03uH Max, 0.05 uH Max @100 KHz
5. Dielectric Strength [2–5] to [7–11] 1750 VDC | [1–6] to [2–5] 500Vrms 60 Hz
[1–6],[2–5] to CORE 1750 VDC, [7–11] to CORE 500 VDC
6. Capacitance [2:7] = 600 pF Nom, 800 Max
7. Weight 16.8 grams Nom | RoHS Compliant | Pin Composition Sn/Ag 96/4

ORDERING INFORMATION:
1. Order Per Part # G45R2–0202–05. Parts ship in trays unless otherwise specified.
2. For Tape & Reel packaging append "R" to PN, e.g. G45R2–0202–05–R.
Tape & Reel packaging is in accordance with Champs Dwg T40–4600014.
3. Std 180 parts per reel | 40 parts per tray.

No.	DESCRIPTION REVISIONS	DATE	APPR

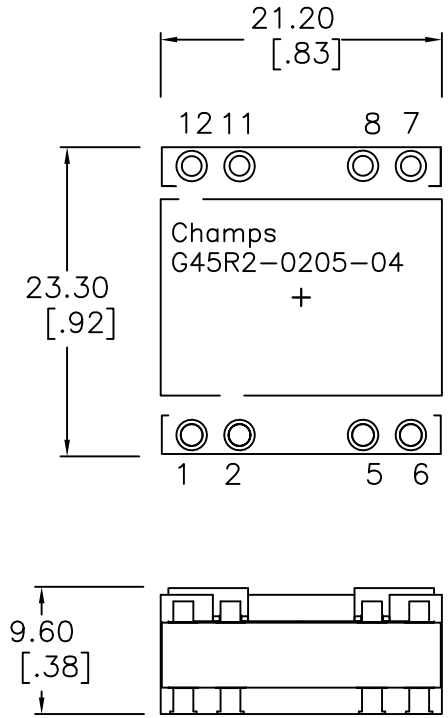
THIRD ANGLE PROJECTION

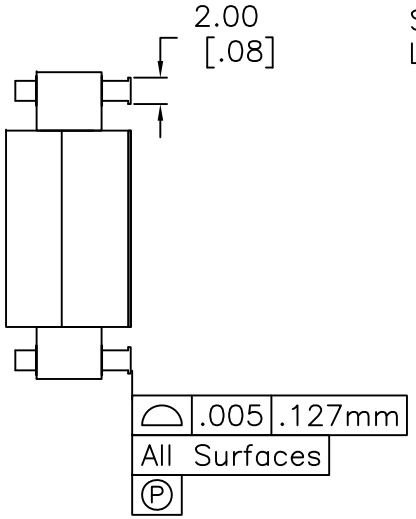
CHAMPS TECHNOLOGIES

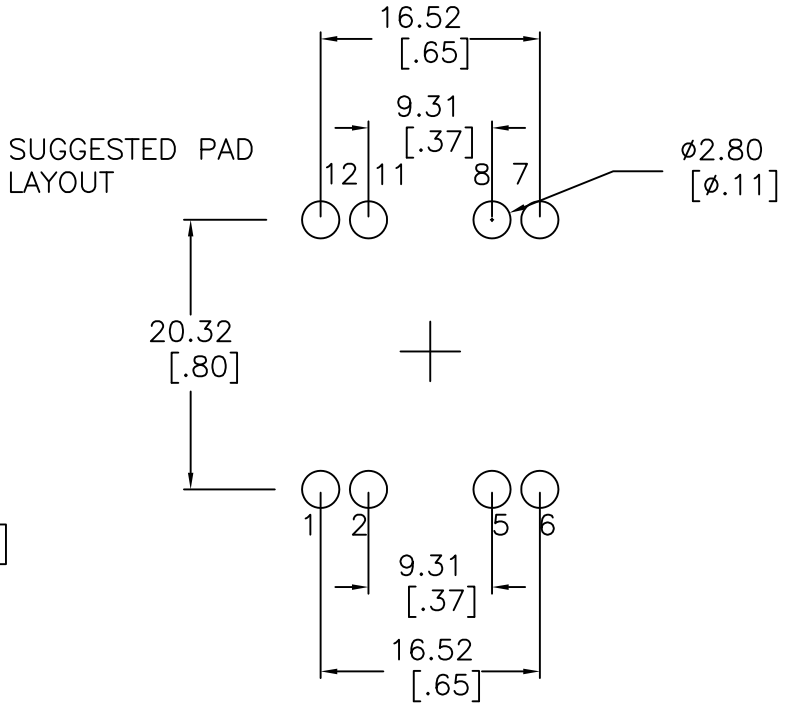
TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED
.XXX ±.254 MM
.XX ±.76 MM
.X
ANGLE ±

	SIGN	DATE
DRAWN		11/27/08
CHKD		11/27/08
APPR		11/27/08

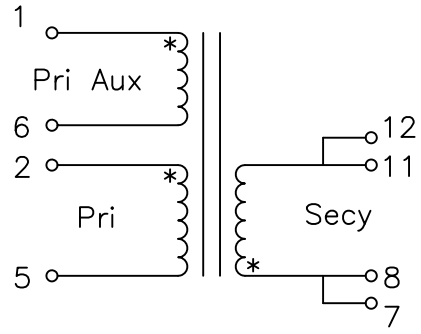
Champs No. G45R2 0202–05
Customer Part #:
ISSUE A
REV 00
SIZE
SCALE 2:1







Schematic



NOTES:

1. TURNS RATIO [2–5] : [7,8 – 11,12] 0.40 +/–2% || [2–5] : [1–6] = 0.50 +/–2%
2. DCR [2–5]= 0.90 mohm Nom., [7,8 – 11,12]= 5.38 mohm Nom., [1–6]= 100 mohm Max
3. Inductance [2–5]= 13.5 uH Nom, 11.2 Min at 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7,8–11,12] = 20 nH Nom, 28 nH Max @100 KHz
5. Dielectric Strength [2–5] to [7–11] 1750 VDC | [1–6] to [2–5] 500Vrms 60 Hz
   [1–6],[2–5] to CORE 1750 VDC, [7–11] to CORE 500 VDC
6. Capacitance [2:7] = 225 pF Nom, 350 Max
7. Weight 16.8 grams Nom | RoHS Compliant | Pin Composition Sn/Ag 96/4

ORDERING INFORMATION:

1. Order Per Part # G45R2–0205–04. Parts ship in trays unless otherwise specified.
2. For Tape & Reel packaging append "R" to PN, e.g. G45R2–0205–04–R.
   Tape & Reel packaging is in accordance with Champs Dwg T40–4600014.
3. Std 180 parts per reel | 40 parts per tray.

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED

.XXX ± .254 MM
.XX ± .76 MM
.X
ANGLE ±

CHAMPS TECHNOLOGIES

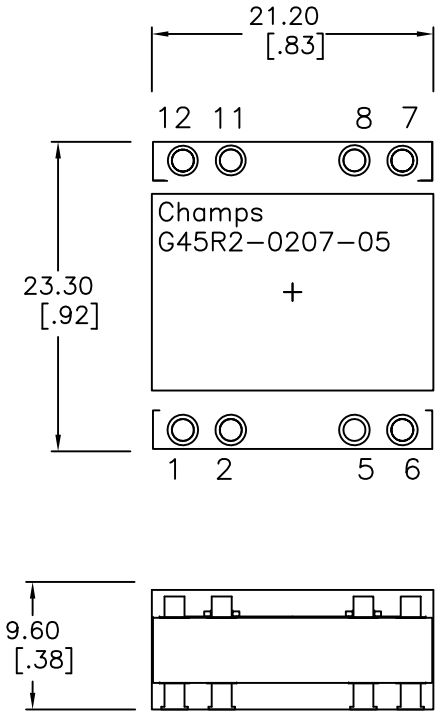
	SIGN	DATE
DRAWN		
CHKD		
APPR	HE	7/24/09

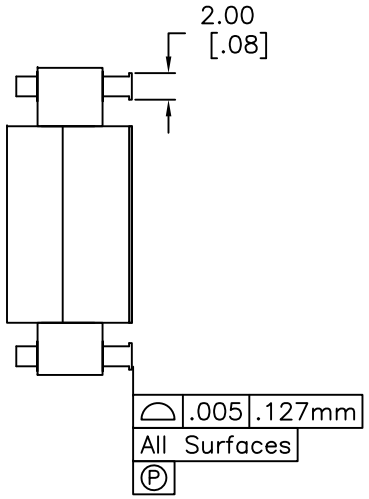
Champs No. G45R2 0205–04

Customer Part #:

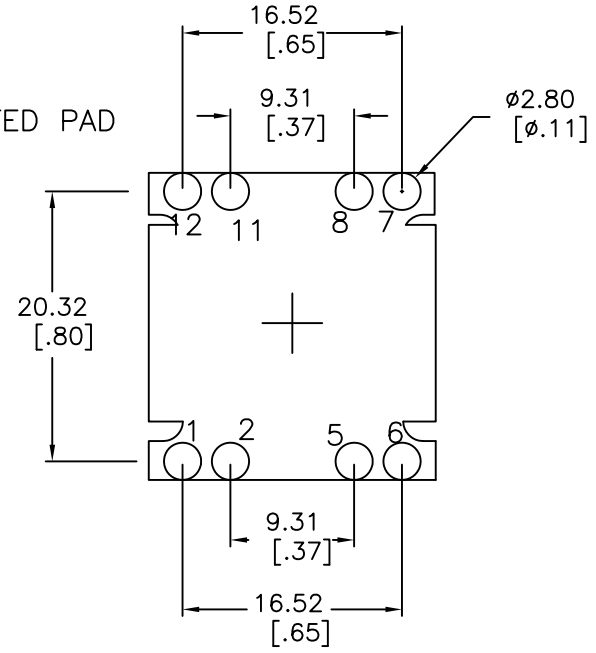
ISSUE A | REV 00

SIZE | SCALE 2:1

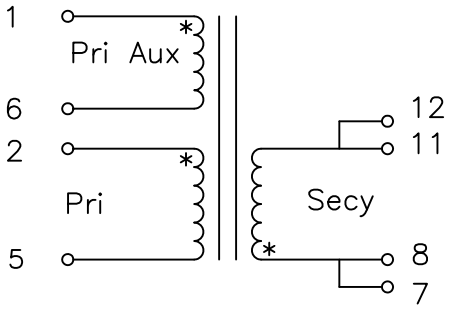




SUGGESTED PAD LAYOUT



Schematic



NOTES:
1. TURNS RATIO [2–5] : [7,8 – 11,12] = 0.286 +/–2% || [2–5] : [1–6] = 0.40 +/–2%
2. DCR [2–5]= 1.0 mohm Nom., [7,8 – 11,12]= 10.5 mohm Nom., [1–6]= 30 mohm Max
3. Inductance [2–5]= 13 uH Nom, 10.8 Min at 10KHz, 0.1 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7,8–11,12] = 40 nH Nom, 100 nH Max @100 KHz
5. Dielectric Strength [2–5] to [7–11] 1750 VDC | [1–6] to [2–5] 500Vrms 60 Hz
[1–6],[2–5] to CORE 1750 VDC, [7–11] to CORE 500 VDC
6. Capacitance [2:7] = 550 pF Nom, 650 Max
7. Weight 16.8 grams Nom | RoHS Level 6/6 Compliant | Pin Composition Sn/Ag 96/4
8. Operating Temperature –40C to +85C

ORDERING INFORMATION:
1. Order Per Part # G45R2–0207–05. Parts ship in trays unless otherwise specified.
2. For Tape & Reel packaging append "R" to PN, e.g. G45R2–0207–05–R.
Tape & Reel packaging is in accordance with Champs Dwg T40–4600014.
3. Std 180 parts per reel | 40 parts per tray.

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED
.XXX ±.254 MM
.XX ±.76 MM
.X
ANGLE ±

CHAMPS TECHNOLOGIES

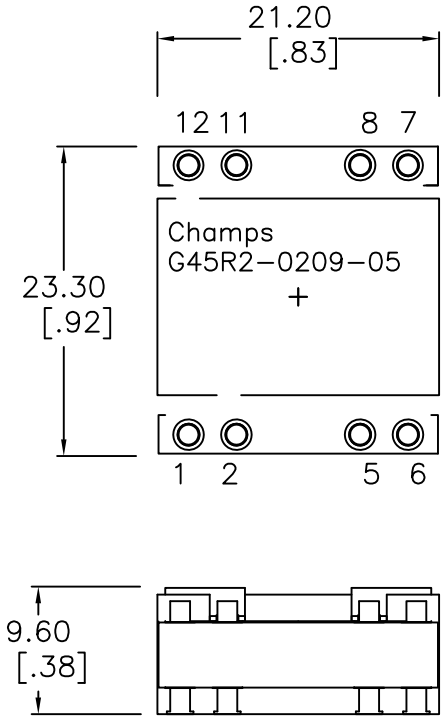
	SIGN	DATE
DRAWN		
CHKD		
APPR	HE	10/23/09

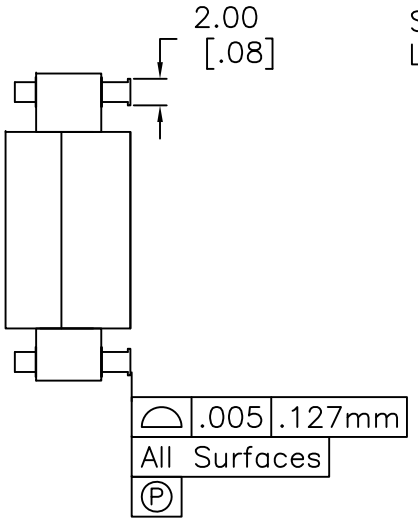
Champs No. G45R2 0207–05

Customer Part #:

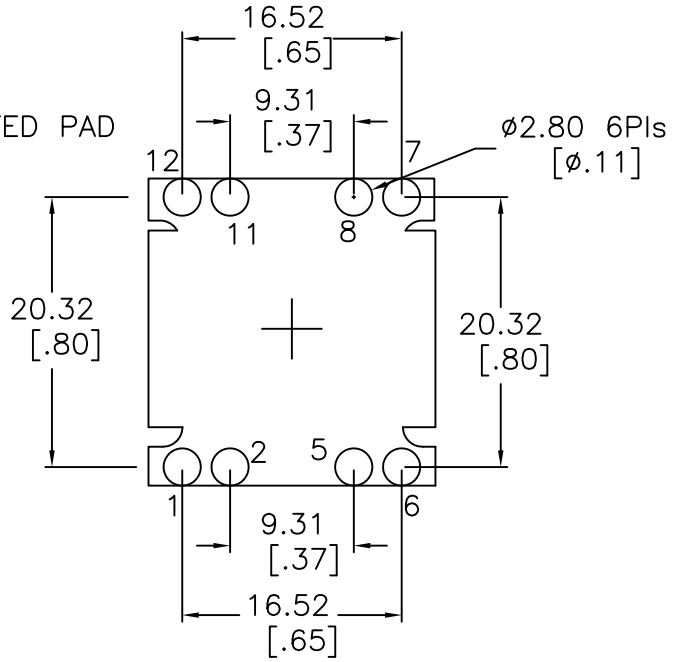
ISSUE A | REV 00

SIZE | SCALE 2:1

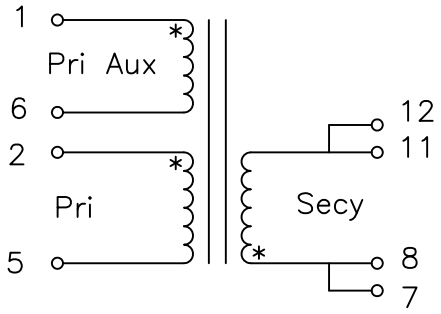




SUGGESTED PAD LAYOUT



Schematic



NOTES:

1. TURNS RATIO [2–5] : [7,8 – 11,12] = 0.22 +/–2% || [2–5] : [1–6] =0.40 +/–2%
2. DCR [2–5]= 1.3 mohm Nom., [7,8 – 11,12]= 16.0 mohm Nom., [1–6]= 100 mohm Max
3. Inductance [2–5]= 12 uH Nom, 10.2 Min at 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7,8–11,12] = 25 nH Nom, 40 nH Max @100 KHz
5. Dielectric Strength [2–5] to [7–11] 1750 VDC | [1–6] to [2–5] 500Vrms 60 Hz
   [1–6],[2–5] to CORE 1750 VDC, [7–11] to CORE 500 VDC
6. Capacitance [2:7] = 225 pF Nom, 350 Max
7. Weight 16.8 grams Nom | RoHS Compliant | Pin Composition Sn/Ag 96/4

ORDERING INFORMATION:

1. Order Per Part # G45R2–0209–05. Parts ship in trays unless otherwise specified.
2. For Tape & Reel packaging append "R" to PN, e.g. G45R2–0209–05–R.
   Tape & Reel packaging is in accordance with Champs Dwg T40–4600014.
3. Std 180 parts per reel | 40 parts per tray.

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED
.XXX ±.254 MM
.XX ±.76 MM
.X
ANGLE ±

CHAMPS TECHNOLOGIES

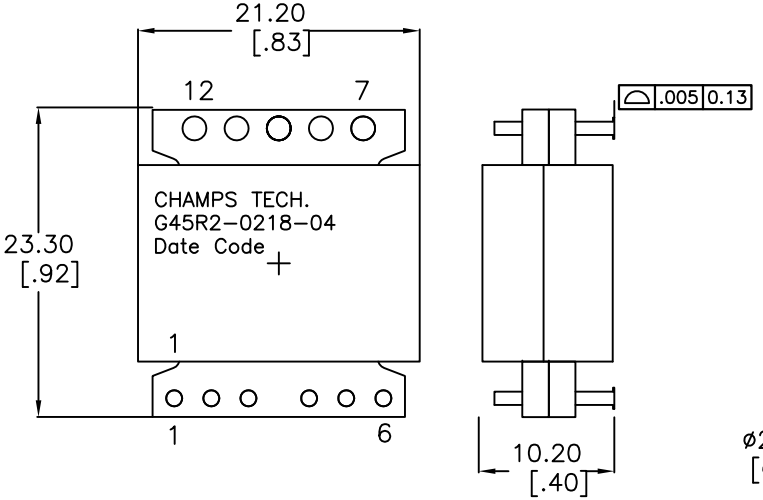
	SIGN	DATE
DRAWN		
CHKD		
APPR	HE	1/29/10

Champs No. G45R2 0209–05

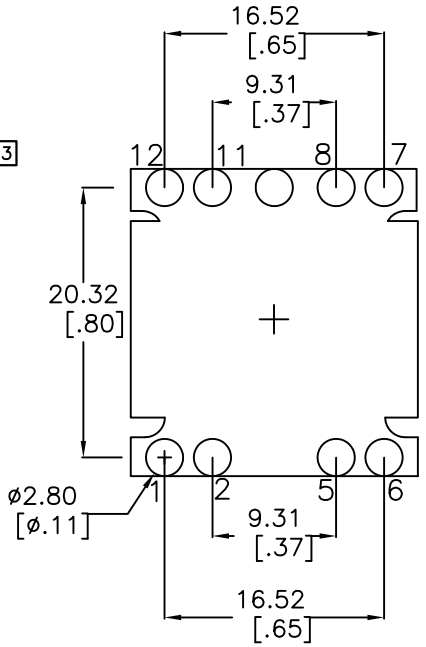
Customer Part #:

ISSUE A | REV 00

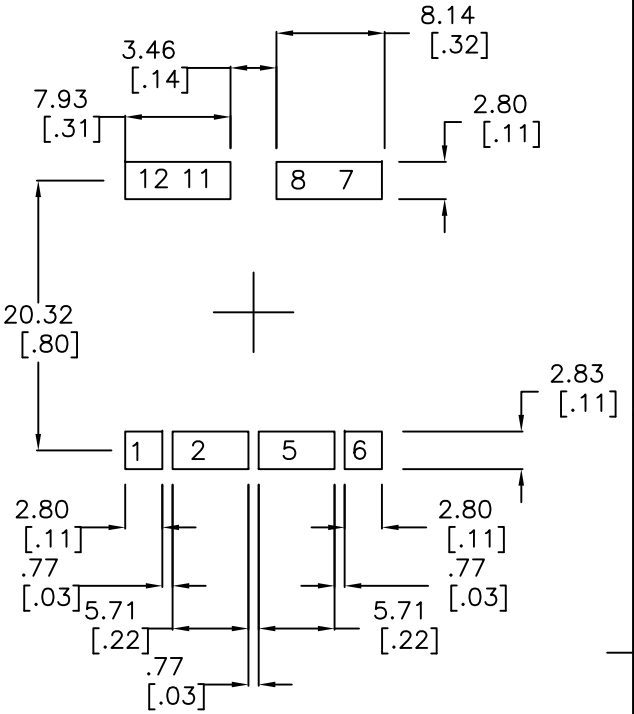
SIZE | SCALE 2:1



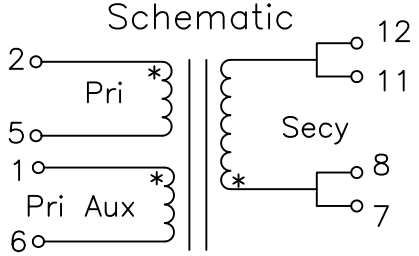
SUGGESTED PAD LAYOUT



G45R2 UNIVERSAL PAD LAYOUT



Schematic



NOTES:

1. TURNS RATIO [2–5] : [7,8–11,12] = 0.111 +/–2% || [2–5] : [1–6] = 0.50 +/–2%
2. DCR [2–5]=1.3 mohm Nom, [7–12]=74 mohm Nom, [1–6]= 300 mohm Max
3. Inductance [2–5] = 10.4 uH Nom, 8.5 uH Min 10KHz, 0.1 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7–12] = 22 nH Nom 25 Max @100 KHz
5. Dielectric Strength [2,5] to [7–12] 1750 VDC,
   [1–6] to [2–5] 500VAC | [1–6],[2–5] to CORE 1750 VDC, [7–12] to CORE 500 VDC
6. Weight 14 grams Max | RoHS Compliant

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED

.XXX ±
.XX ±
.X
ANGLE ±

CHAMPS TECHNOLOGIES

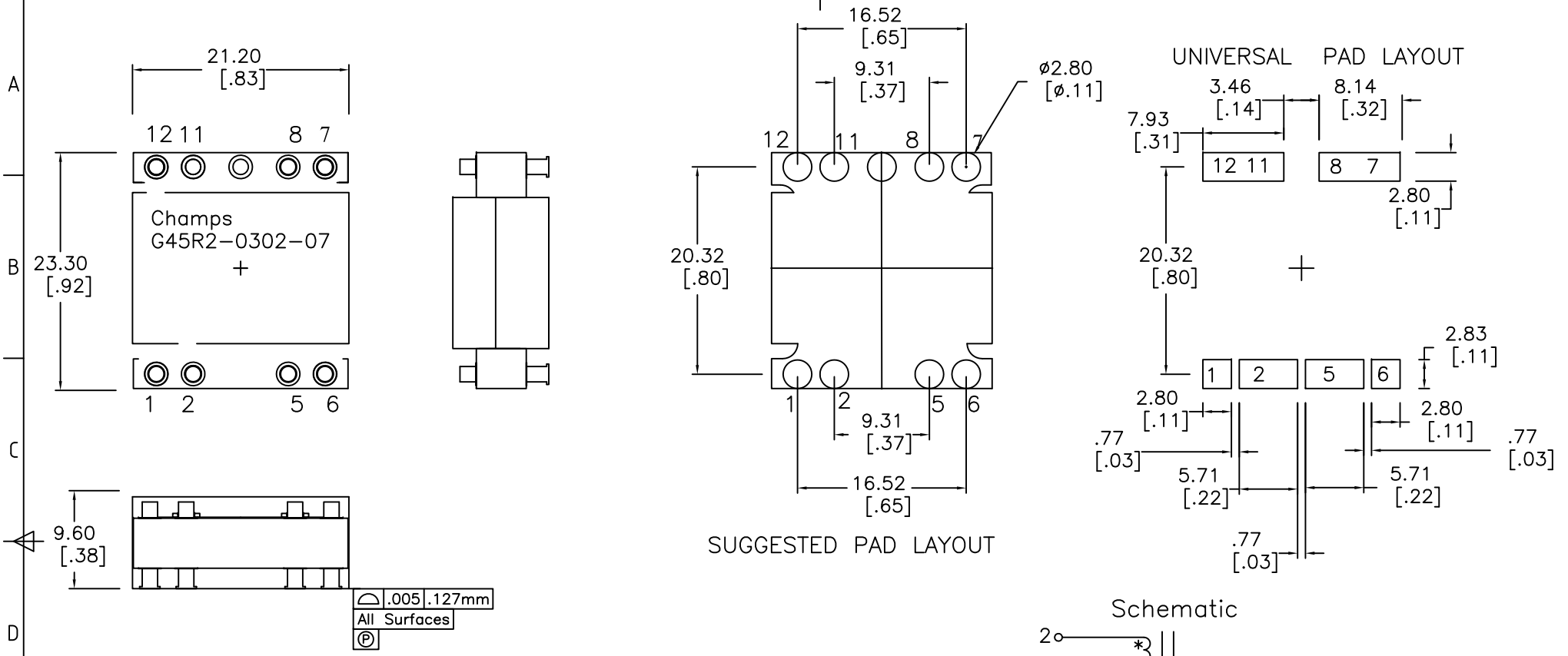
	SIGN	DATE
DRAWN	E.L.	9/04/08
CHKD	J.L.	9/04/08
APPR	HE	9/04/08

Champs No. G45R2-0218-04

Customer Part #:

ISSUE A | REV 00

SIZE A4 | SCALE 2:1



NOTES:

1. TURNS RATIO [7,8–11,12] : [2–5] = 0.667 +/–2% || [2–5] : [1–6] = 0.428 +/–2%
2. DCR [2–5]= 2.1 mohm Nom., [7,8 – 11,12]= 0.80 mohm Nom., [1–6]= 100 mohm Max
3. Inductance [2–5]= 25 uH Nom, 21 Min at 10KHz, 0.1 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7,8–11,12] = 0.03uH Max, 0.10 uH Max @100 KHz
5. Dielectric Strength [2–5] to [7–11] 1750 VDC | [1–6] to [2–5] 500Vrms 60 Hz
   [1–6],[2–5] to CORE 1750 VDC, [7–11] to CORE 500 VDC
6. Capacitance [2:7] = 600 pF Nom, 800 Max
7. Weight 16.8 grams Nom | RoHS Compliant | Pin Composition Sn/Ag 96/4

ORDERING INFORMATION:

1. Order Per Part # G45R2–0302–07. Parts ship in trays unless otherwise specified.
2. For Tape & Reel packaging append "R" to PN, e.g. G45R2–0302–07–R.
   Tape & Reel packaging is in accordance with Champs Dwg T40–4600014.
3. Std 180 parts per reel | 40 parts per tray.

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED

.XXX ± .254 MM
.XX ± .76 MM
.X
ANGLE ±

CHAMPS TECHNOLOGIES

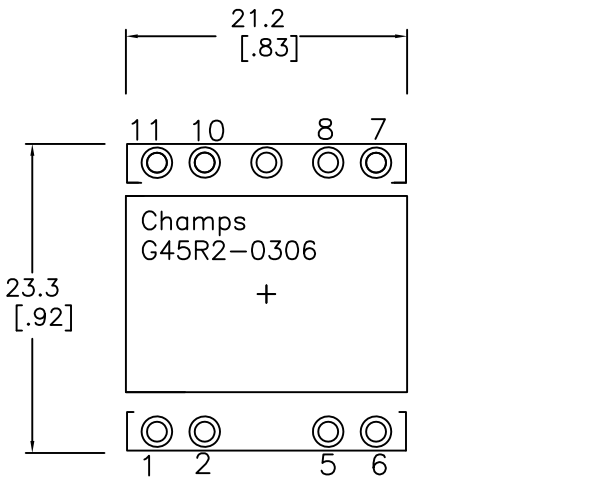
	SIGN	DATE
DRAWN		
CHKD		
APPR	HE	7/24/09

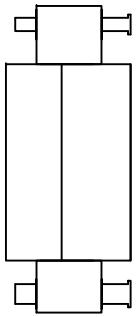
Champs No. G45R2 0302–07

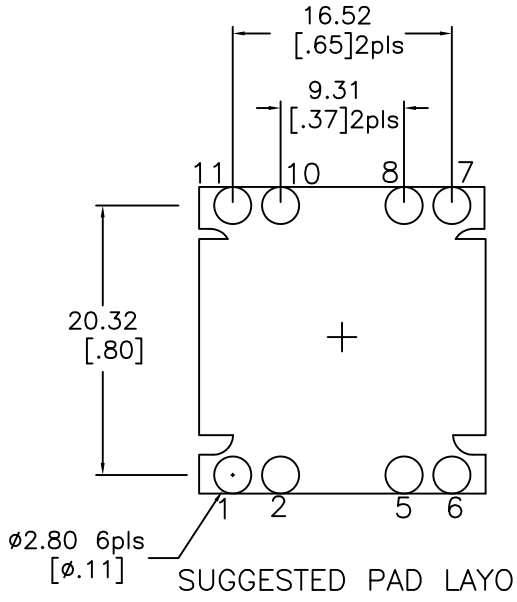
Customer Part #:

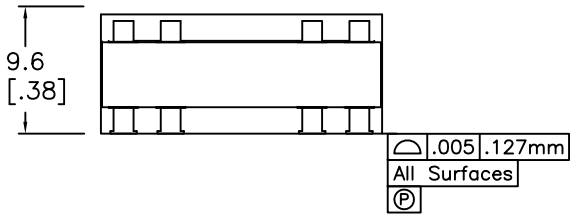
ISSUE A | REV 00

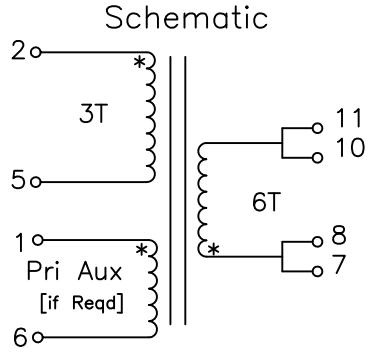
SIZE | SCALE 2:1











NOTES:

1. DCR [2–5]= 2.1 mohm Nom., [7,8 – 10,11]= 8.6 mohm Nom., [1–6]= xx mohm Nom
2. Inductance [2–5]= 27 uH +–25% 100KHz, 1.0 VRMS @ 25C
3. Leakage Inductance [2–5] Short [7,8–10,11] = 100nH Nom, 150nH Max @100 KHz
4. Dielectric Strength [2–5] to [7–11] 1750 VDC | [1–6] to [2–5] 500Vrms 60 Hz
   [1–6],[2–5] to CORE 1750 VDC, [7–11] to CORE 500 VDC
5. Weight 16.8 grams Nom | RoHS Level 6/6 Compliant | Pin Composition Sn/Ag 96/4
7. Operating Temperature –55C to +130C [Inclusive of Temp Rise]

ORDERING INFORMATION:

1. Order Per Part # G45R2–0306. Parts ship in trays unless otherwise specified.
2. For Tape & Reel packaging append "R" to PN, e.g. G45R2–0306–R.
   Tape & Reel packaging is in accordance with Champs Dwg T40–4600014.
3. Std 180 parts per reel | 40 parts per tray.

No.	DESCRIPTION REVISIONS	DATE	APPR
01	Inductance [2–5] was 20.5uH	5/14/13	HE

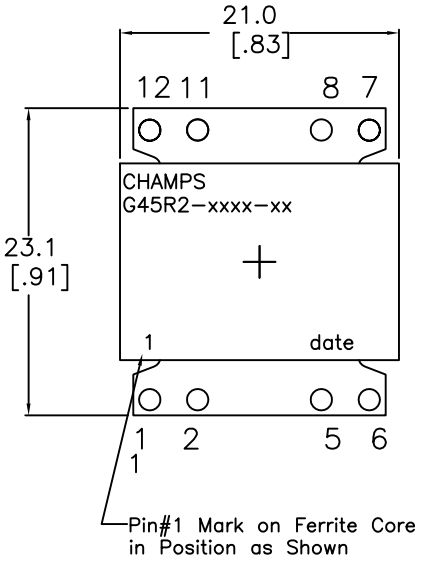
THIRD ANGLE PROJECTION

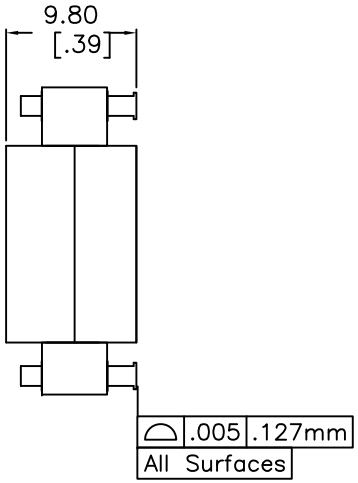
TOLERANCES/UNITS in MM UNLESS OTHERWISE INDICATED
.XXX ± .254 MM
.XX ± 0.38
.X 1.0
ANGLE ±

CHAMPS TECHNOLOGIES

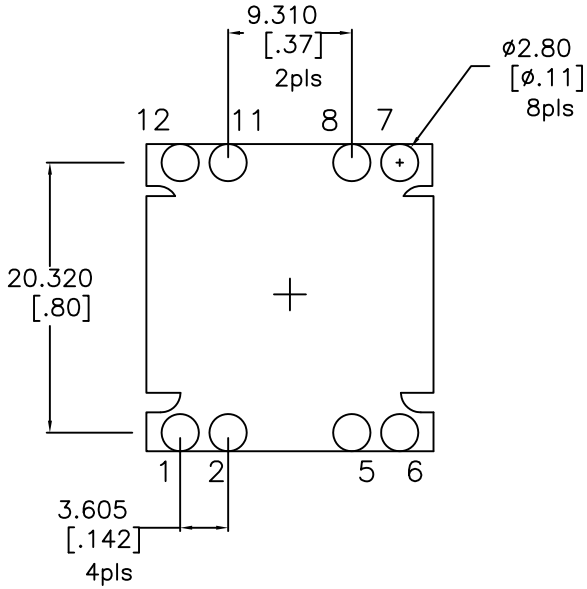
	SIGN	DATE
DRAWN		
CHKD		
APPR	HE	9/18/12

Champs–Tech PN G45R2 0306
Customer Part #:
ISSUE A
REV 01
SIZE
SCALE 2:1

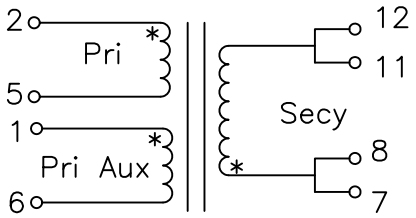




SUGGESTED PAD LAYOUT [PCB TOP VIEW]



Schematic



NOTES:

1. TURNS RATIO [2–5] : [7,8–11,12] = 0.25 ±2% || [2–5] : [1–6] = 0.50 ±2%
2. DCR [2–5]=2.4 mohm Nom, [7–11]=80 mohm Nom, [1–6]= 300 mohm Max
3. Inductance [2–5] = 24.4 uH Nom, 18 uH Min 10KHz, 0.1 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7–11] = 28 nH Nom 35 Max @100 KHz
5. Dielectric Strength [2,5] to [7–11] 1750 VDC,
   [1–6] to [2–5] 500VAC | [1–6],[2–5] to CORE 1750 VDC, [7–11] to CORE 500 VDC
6. Weight 14 grams Max | RoHS Compliant
7. Operating Ambient Temp Range: –55C to +130C [Inclusive of Temp Rise]

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES/UNITS in MM UNLESS OTHERWISE INDICATED

.XXX ± 0.254
.XX ± 0.38
.X ± 0.58
ANGLE ±

CHAMPS TECHNOLOGIES

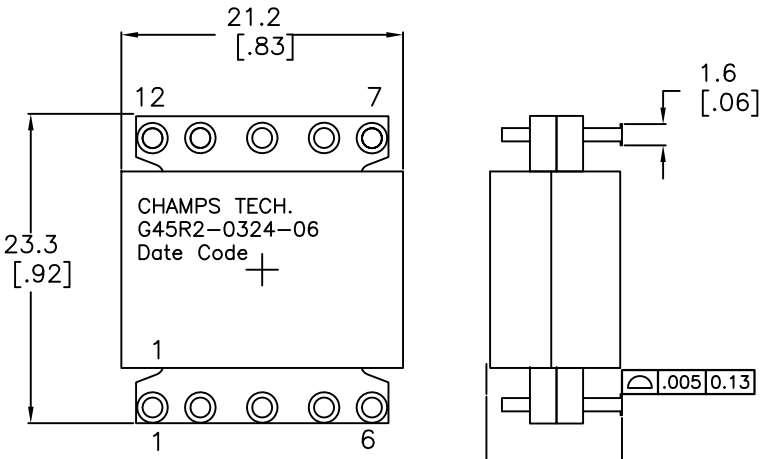
	SIGN	DATE
DRAWN	E.L.	10.06.17
CHKD	J.L.	
APPR	HE	

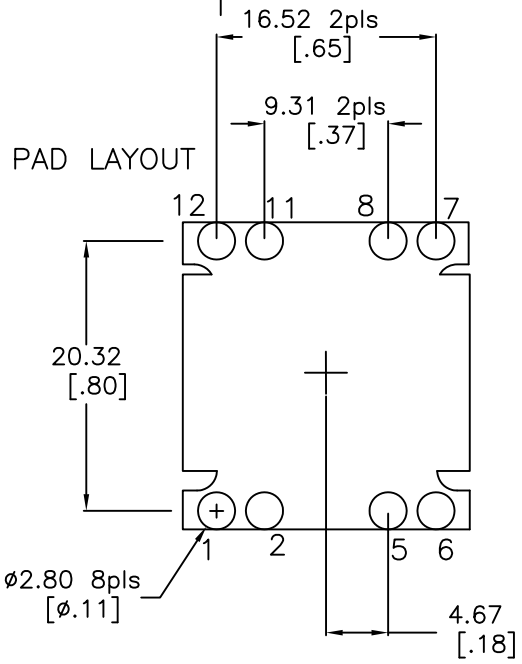
Champs-Tech PN G45R2-0312-06

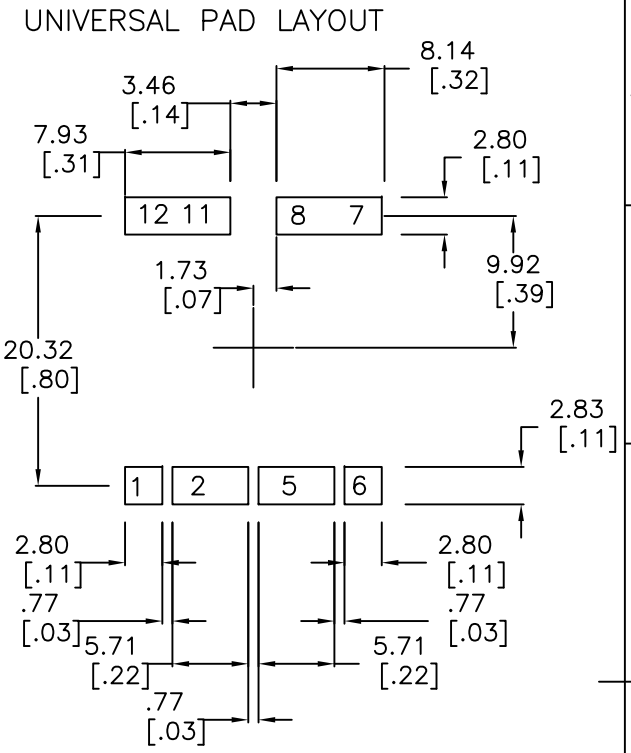
Customer Part #:

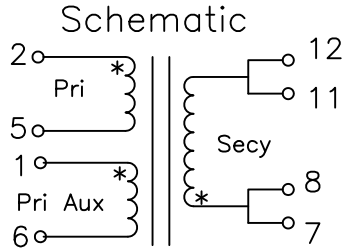
ISSUE A | REV 00

SIZE A4 | SCALE 2:1









NOTES:

1. TURNS RATIO [2–5] : [7,8–11,12] = 0.125 +/–2% || [2–5] : [1–6] = 0.50 +/–2%
2. DCR [2–5]=2.4 mohm Nom, [7–11]=160 mohm Nom, [1–6]= 300 mohm Max
3. Inductance [2–5] = 24.4 uH Nom, 18 uH Min 10KHz, 0.1 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7–11] = 28 nH Nom 35 Max @100 KHz
5a. Dielectric Strength – Basic Insulation Rating [2,5],[1,6] to [7–11] to Core > 1750 VDC, [1–6] to [2–5] > 500VDC, [7–11] to CORE > 500 VDC
5b. Dielectric Strength – Reinforced Insulation Rating – Append –R to Part Number [2,5],[1,6] to [7,11] to Core > 1500Vrms 60Hz 1 Min, [2.5] to [1,6] > 500 Vdc
6. Weight 14 grams Max | RoHS Compliant
7. Operating Ambient Temp Range: –55C to +130C [Inclusive of Temp Rise]

ORDERING INFORMATION:

1. Order Per Part # G45R2–0324–06. Parts ship in trays unless otherwise specified.
2. For Tape & Reel packaging append "TR" to PN, e.g. G45R2–0324–TR.
   Tape & Reel packaging is in accordance with Champs Dwg T40–4600014.
3. Std 180 parts per reel | 40 parts per tray.

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED
.XXX ±0.15mm
.XX ±0.25mm
.X ±0.8mm
ANGLE ±

CHAMPS TECHNOLOGIES

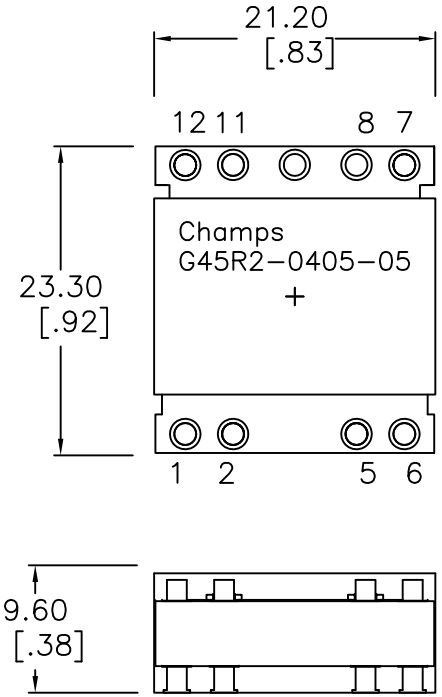
	SIGN	DATE
DRAWN	E.L.	09.17.12
CHKD	J.L.	
APPR	HE	

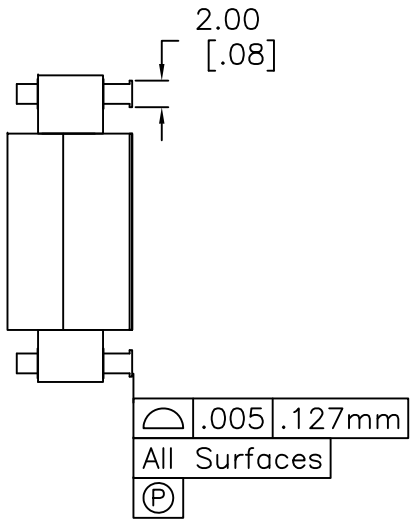
Champs No. G45R2-0324-06

Customer Part #:

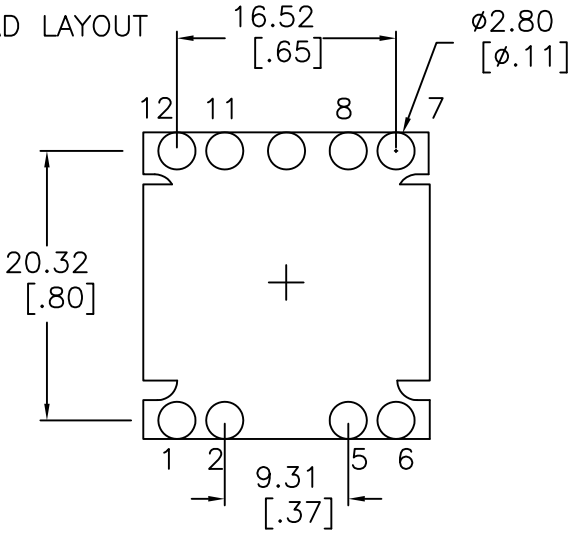
ISSUE A | REV 00

SIZE A4 | SCALE 2:1

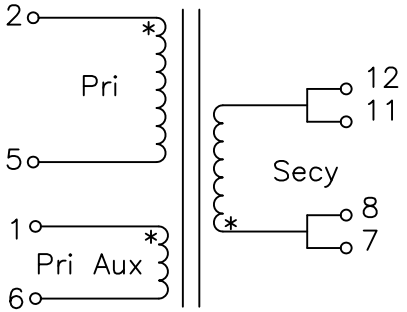




SUGGESTED PAD LAYOUT



Schematic



NOTES:

1. TURNS RATIO [2–5] : [7,8–11,12] = 0.80 +/–2% || [2–5] : [1–6] = 0.80 +/–2%
2. DCR [2–5]=3.0 mohm Nom, [7–11]=6.0 mohm Nom, [1–6]= 300 mohm Max
3. Inductance [2–5] = 50 uH Nom, 38 uH Min 10KHz, 0.1 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7–11] = 50 nH Nom @100 KHz
5. Dielectric Strength [2,5] to [7–11] 1750 VDC,
   [1–6] to [2–5] 500VAC | [1–6],[2–5] to CORE 1750 VDC, [7–11] to CORE 500 VDC
6. Weight 16 grams Max || Pin Composition is 96/4 Sn–Ag.
7. Certified RoHS Level 6/6 & REACH Compliant in materials used and construction.
8. Temperature Range: –55C to +130C operating [Inclusive of Temp Rise]
9. Max [Non–Operating] Temp Range: –55C to +155C || Materials Rated to +180C Max

ORDERING INFORMATION:

1. Order Per Part # G45R2–0405–05 Parts ship in trays unless otherwise specified.
2. For Tape & Reel packaging append "R" to PN, e.g. G45R2–0405–05–R.
   Tape & Reel packaging is in accordance with Champs Dwg T40–4600014.
3. Std 180 parts per reel | 40 parts per tray.

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED
.XXX ± .254 MM
.XX ± .76 MM
.X
ANGLE ±

CHAMPS TECHNOLOGIES

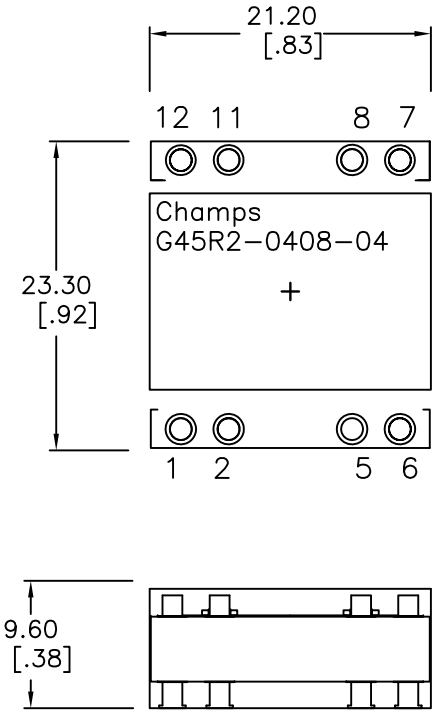
	SIGN	DATE
DRAWN		
CHKD		
APPR	HE	10/26/09

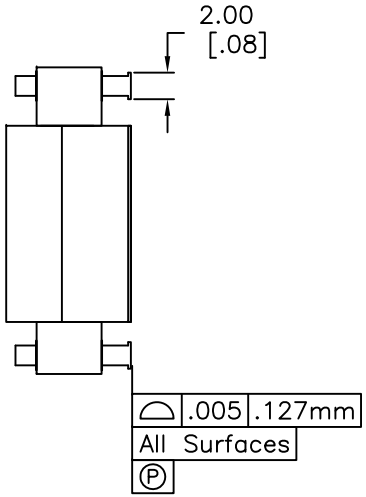
Champs No. G45R2 0405–05

Customer Part #:

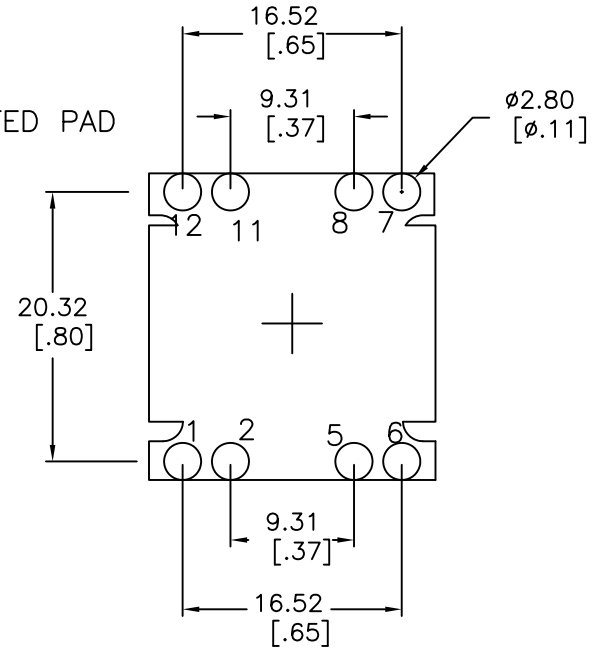
ISSUE A | REV 00

SIZE | SCALE 2:1

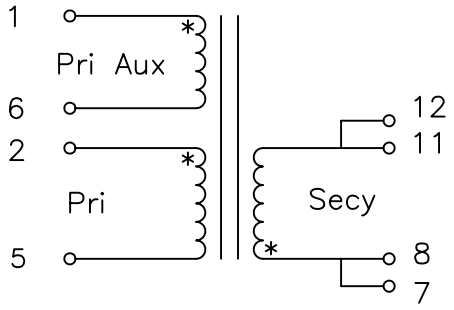




SUGGESTED PAD LAYOUT



Schematic



NOTES:

1. TURNS RATIO [2–5] : [7,8–11,12] = 0.50 +/–2% || [1–6] : [2–5] = 1.00 +/–2%
2. DCR [2–5]= 3.60 mohm Nom., [7,8 – 11,12]= 7.0 mohm Nom., [1–6]= 130 mohm Nom
3. Inductance [2–5]= 41 uH +–25% 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7,8–11,12] = 0.08uH Nom, 0.10 uH Max @100 KHz
5. Dielectric Strength [2–5] to [7–11] 1750 VDC | [1–6] to [2–5] 500Vrms 60 Hz
   [1–6],[2–5] to CORE 1750 VDC, [7–11] to CORE 500 VDC
6. Weight 16.8 grams Nom | RoHS Compliant | Pin Composition Sn/Ag 96/4

ORDERING INFORMATION:

1. Order Per Part # G45R2–0408–04. Parts ship in trays unless otherwise specified.
2. For Tape & Reel packaging append "R" to PN, e.g. G45R2–0408–04–R.
   Tape & Reel packaging is in accordance with Champs Dwg T40–4600014.
3. Std 180 parts per reel | 40 parts per tray.

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/– 1.0 UNLESS OTHERWISE INDICATED

.XXX ±.254 MM
.XX ±.76 MM
.X
ANGLE ±

CHAMPS TECHNOLOGIES

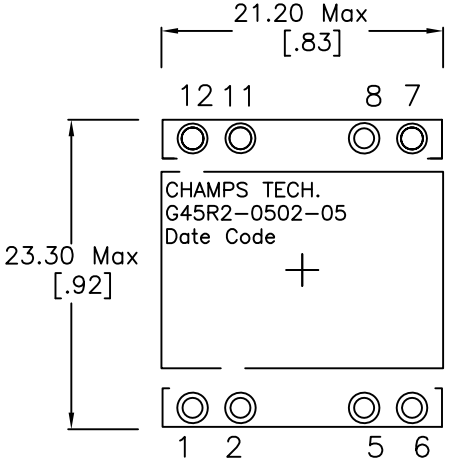
	SIGN	DATE
DRAWN		
CHKD		
APPR	HE	10/23/09

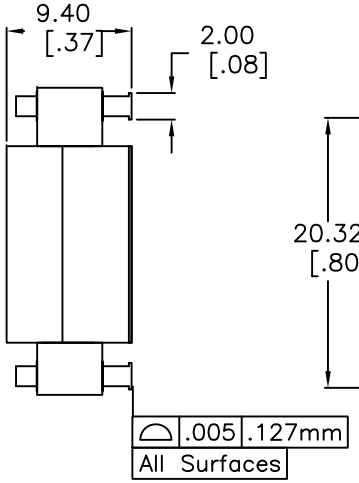
Champs No. G45R2 0408–04

Customer Part #:

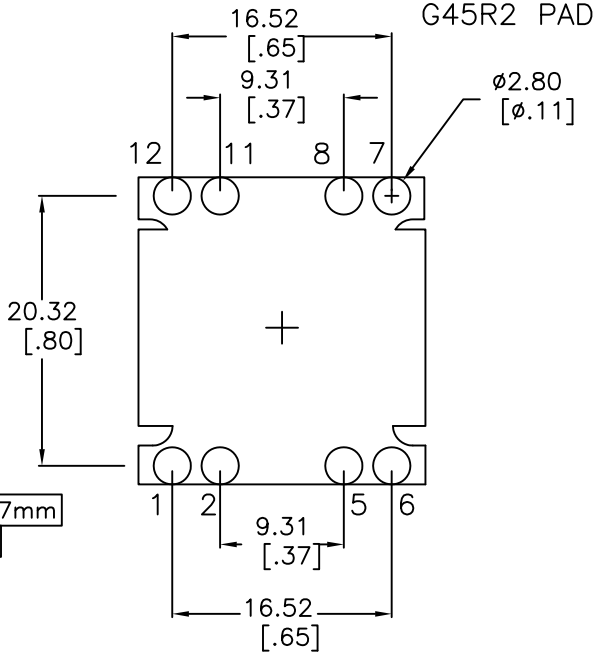
ISSUE A | REV 00

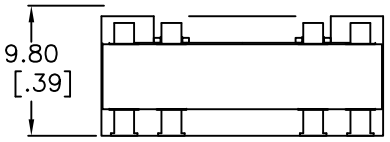
SIZE | SCALE 2:1



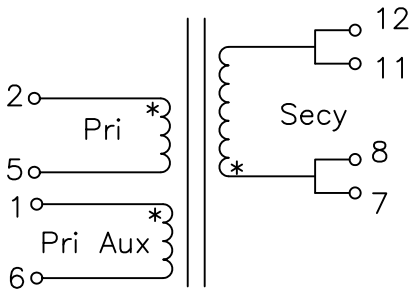


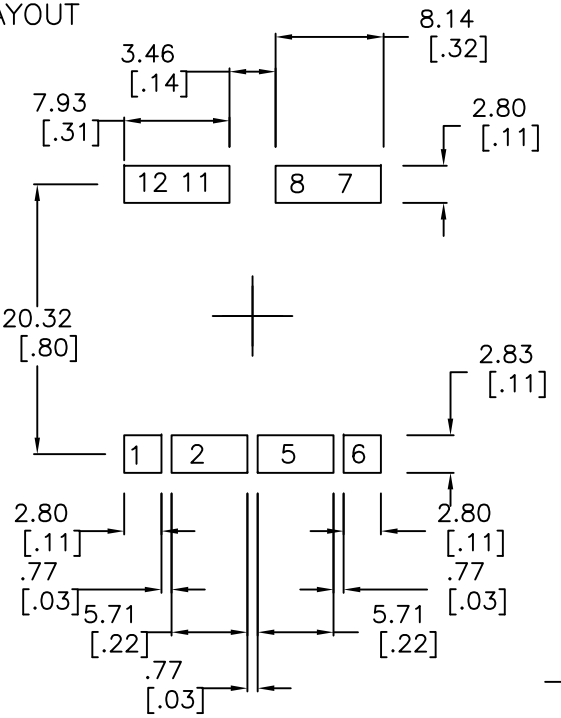
G45R2 PAD LAYOUT





Schematic





UNIVERSAL PAD LAYOUT

NOTES:

1. TURNS RATIO [7,8–11,12] : [2–5] = 0.40 +/–2% || [1–6] : [2–5] = 1.00 +/–2%
2. DCR [2–5]= 7 mohm Nom, [7,8 – 11,12]= 1.2 mohm Nom || [1–6] = 300 mohm Max
3. Inductance [2–5]=60 uH Min 10KHz, 0.1 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7,8–11,12] = 40nH Nom, 65 Max Max @100 KHz
5. Dielectric Strength [2,5] to [7,12] 1750 VDC,
   [1–6] to [2–5] 500VDC | [1–6],[2–5] to CORE 1750 VDC, [7–12] to CORE 500 VDC
6. Weight 14 grams Max | RoHS Compliant
7. Temp Rating –55C to +130C [Inclusive of Temp Rise]

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED

.XXX ±
.XX ±
.X ±
ANGLE ±

CHAMPS TECHNOLOGIES

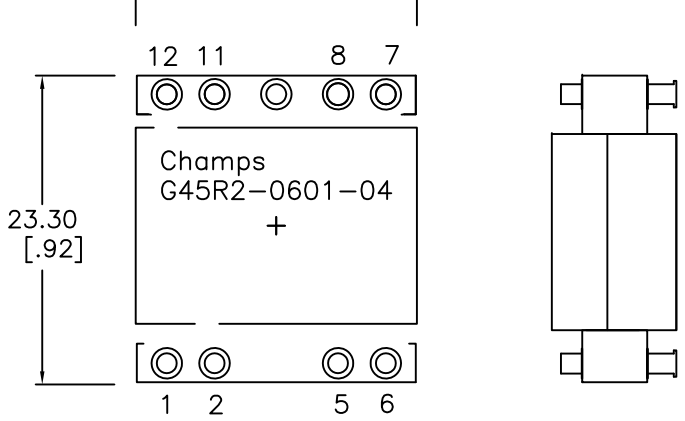
	SIGN	DATE
DRAWN	E.L.	7/30/08
CHKD	J.L.	7/30/08
APPR	HE	7/30/08

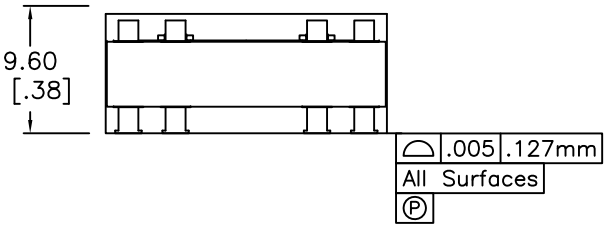
Champs No. G45R2-0502-05

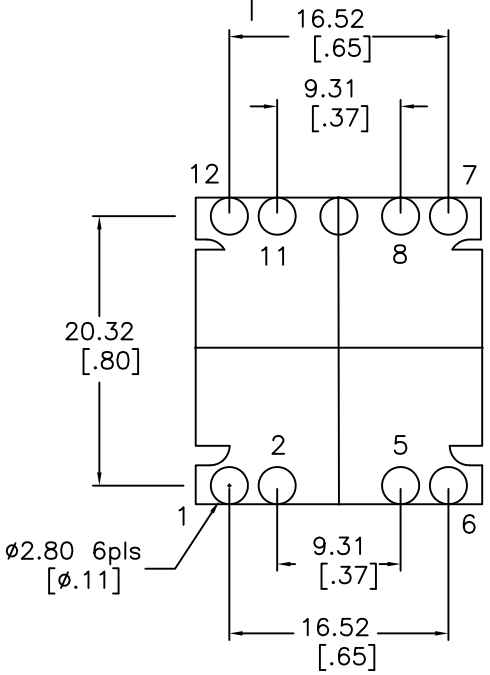
Customer Part #:

ISSUE A | REV 00

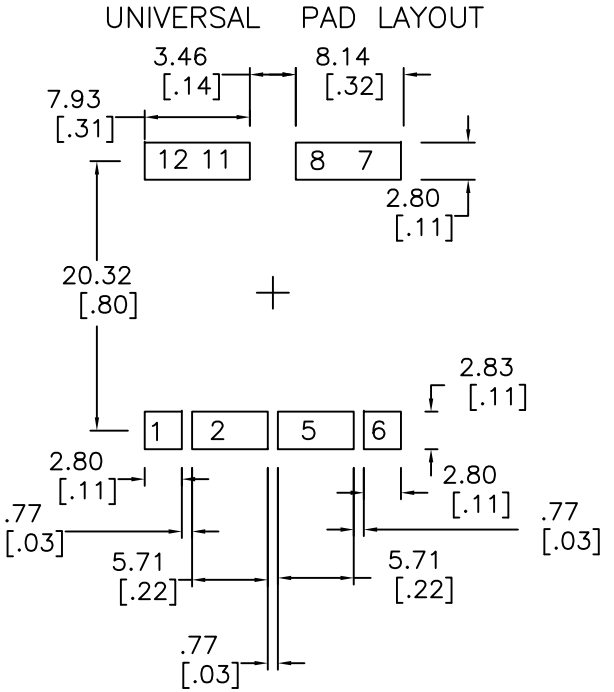
SIZE A4 | SCALE 2:1

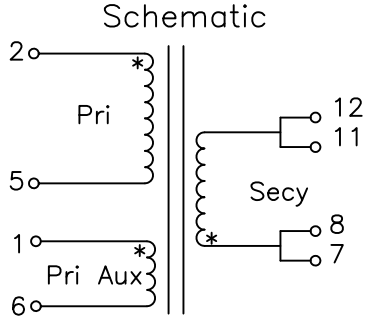






SUGGESTED PAD LAYOUT





NOTES:
1. TURNS RATIO [7,8–11,12] : [2–5] = 0.167 +/–2% || [1–6] : [2–5] = 0.667 +/–2%
2. DCR [2–5]= 10.0 mohm Max [7,8 – 11,12] = 0.45 mohm Max,
3. Inductance [2–5]= 110 uH Nom, 80 uH Min 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7,8,11,12] = 50 nH Nom, 65 Max @100 KHz
5. Dielectric Strength [2–5] to [7,12] 1750 VDC,
   [1–6] to [2–5] 500VDC | [1–6],[2–5] to CORE 500 VDC, [7,12] to CORE 500 VDC
6. Weight 16 grams Max || Pin Composition is 96/4 Sn–Ag.
7. This device is certified RoHS Compliant in materials used and construction.
8. Temperature Range: –55C to +130C operating [Inclusive of Temp Rise]

ORDERING INFORMATION:
1. Order Per Part # G45R2–0601–04 Parts ship in trays unless otherwise specified.
2. For Tape & Reel packaging append "R" to PN, e.g. G45R2–0601–04–R.
   Tape & Reel packaging is in accordance with Champs Dwg T40–4600014.
3. Std 180 parts per reel | 40 parts per tray.

No.	DESCRIPTION REVISIONS	DATE	APPR

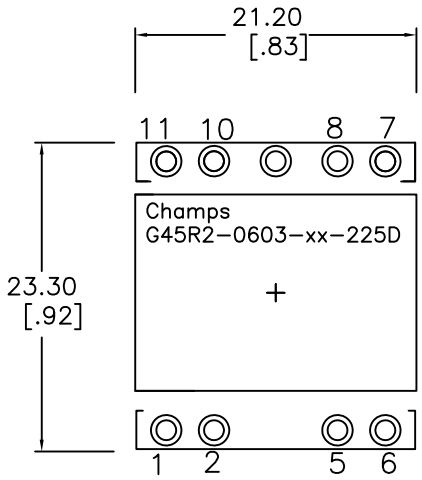
THIRD ANGLE PROJECTION

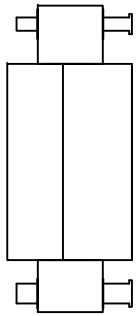
TOLERANCES +/– 1.0 UNLESS OTHERWISE INDICATED
.XXX ± .254 MM
.XX ± .76 MM
.X
ANGLE ±

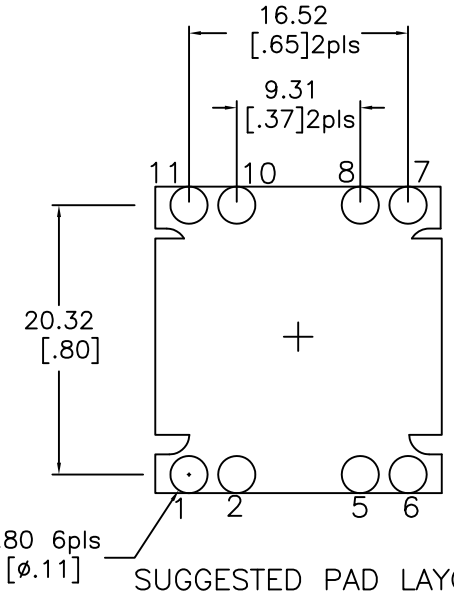
CHAMPS TECHNOLOGIES

	SIGN	DATE
DRAWN		
CHKD		
APPR	HE	3/24/11

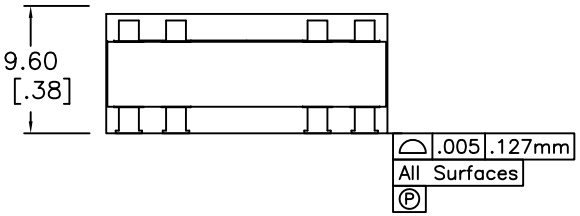
Champs No. G45R2–0601–04
Customer Part #:
ISSUE A | REV 00
SIZE | SCALE 2:1



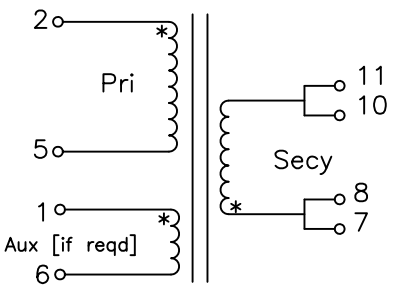




SUGGESTED PAD LAYOUT



Schematic



NOTES:
1. Turns Ratio [7,8–10,11] : [2–5] = 0.50 +/–2%
2. DCR [2–5]= 8.6 mohm Nom., [7,8 – 10,11]= 2.1 mohm Nom.
3. Inductance [2–5]= 108 uH +–25% 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7,8–10,11] = 100nH Nom, 150nH Max @100 KHz
5. Dielectric Strength [2–5] to [7–11] 2250 VDC
   [2–5] to CORE 2250 VDC, [7–11] to CORE 500 VDC
6. Weight 16.8 grams Nom | RoHS Level 6/6 Compliant | Pin Composition Sn/Ag 96/4
7. Operating Temperature –55C to +130C [Inclusive of Temp Rise]

ORDERING INFORMATION:
1. Order Per Part # G45R2–0603–xx–225D. Parts ship in trays unless otherwise specified.
2. For Tape & Reel packaging append "R" to PN, e.g. G45R2–0603–xx–225D–R.
   Tape & Reel packaging is in accordance with Champs Dwg T40–4600014.
3. Std 180 parts per reel | 40 parts per tray.

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES/UNITS in MM UNLESS OTHERWISE INDICATED
.XXX ±.254 MM
.XX ±.76 MM
.X
ANGLE ±

CHAMPS TECHNOLOGIES

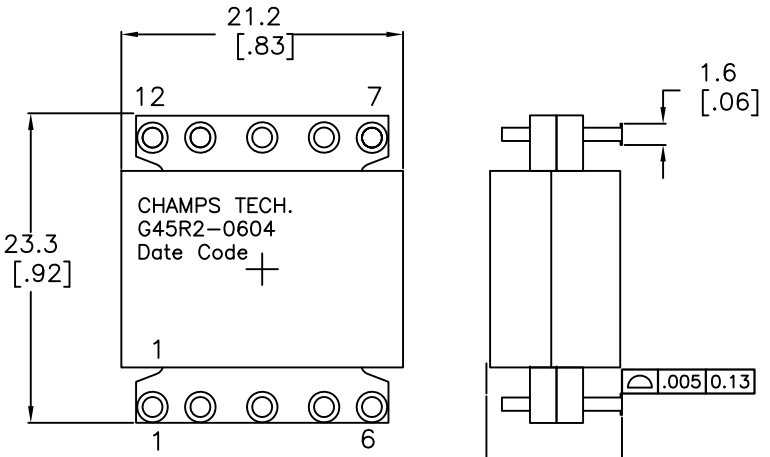
	SIGN	DATE
DRAWN		
CHKD		
APPR	HE	9/18/12

Champs–Tech PN G45R2 0603–xx–225D

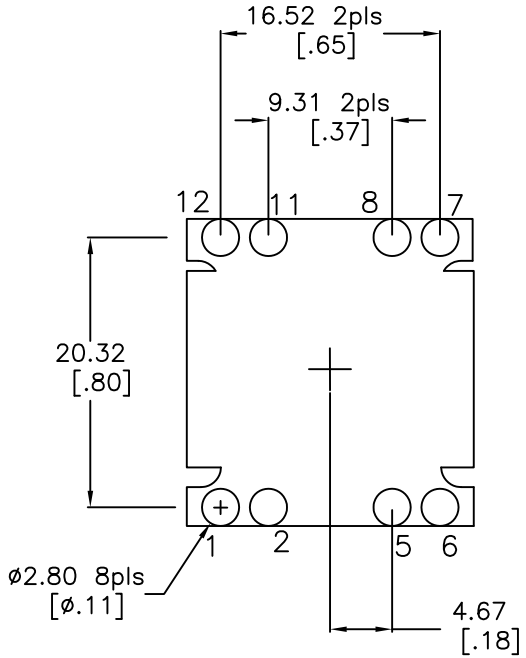
Customer Part #:

ISSUE A | REV 00

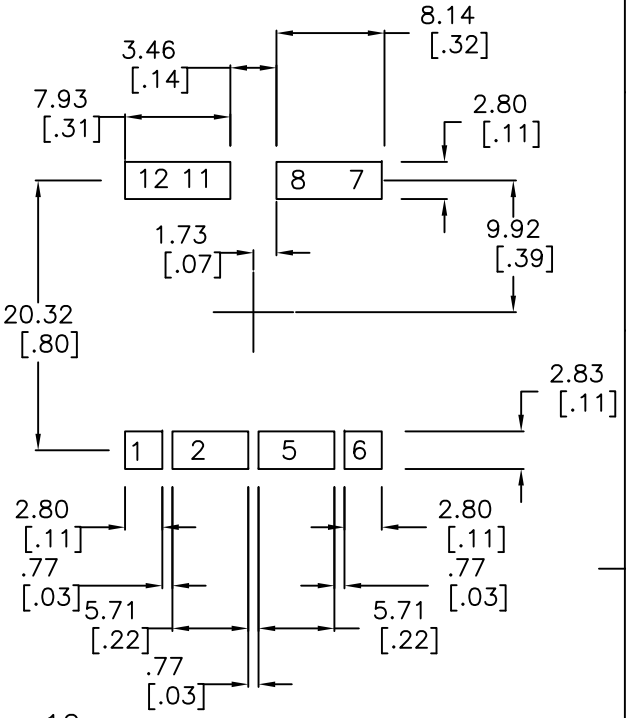
SIZE | SCALE 2:1



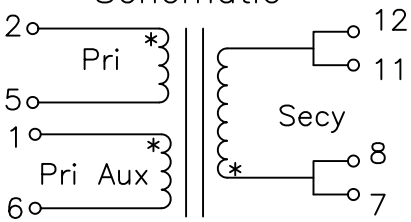
PAD LAYOUT



UNIVERSAL PAD LAYOUT



Schematic



NOTES:

1. TURNS RATIO [7,8–11,12] : [2–5] = 0.667 +/–2%
2. DCR [2–5] = 9.0 mohm Nom, [7–11] = 3.8 mohm Nom, [1–6]= 100 mohm Max
3. Inductance [2–5] = 115 uH Nom, 86 uH Min 10KHz, 0.1 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7–11] = 35 nH Nom @100 KHz
5. Dielectric Strength [2,5] to [7–11] 1750 VDC,
   [1–6] to [2–5] 500VAC | [1–6],[2–5] to CORE 1750 VDC, [7–11] to CORE 500 VDC
6. Weight 16 grams Max || Pin Composition is 96/4 Sn–Ag.
7. Certified RoHS Level 6/6 & REACH Compliant in materials used and construction.
8. Temperature Range: –55C to +130C operating [Inclusive of Temp Rise]
9. Max [Non–Operating] Temp Range: –55C to +155C || Materials Rated to +180C Max

ORDERING INFORMATION:

1. Order Per Part # G45R2–0604 Parts ship in trays unless otherwise specified.
2. For Tape & Reel packaging append "R" to PN, e.g. G45R2–0604–R.
   Tape & Reel packaging is in accordance with Champs Dwg T40–4600014.
3. Std 180 parts per reel | 40 parts per tray.

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED

.XXX ±0.15mm
.XX ±0.25mm
.X ±0.8mm
ANGLE ±

CHAMPS TECHNOLOGIES

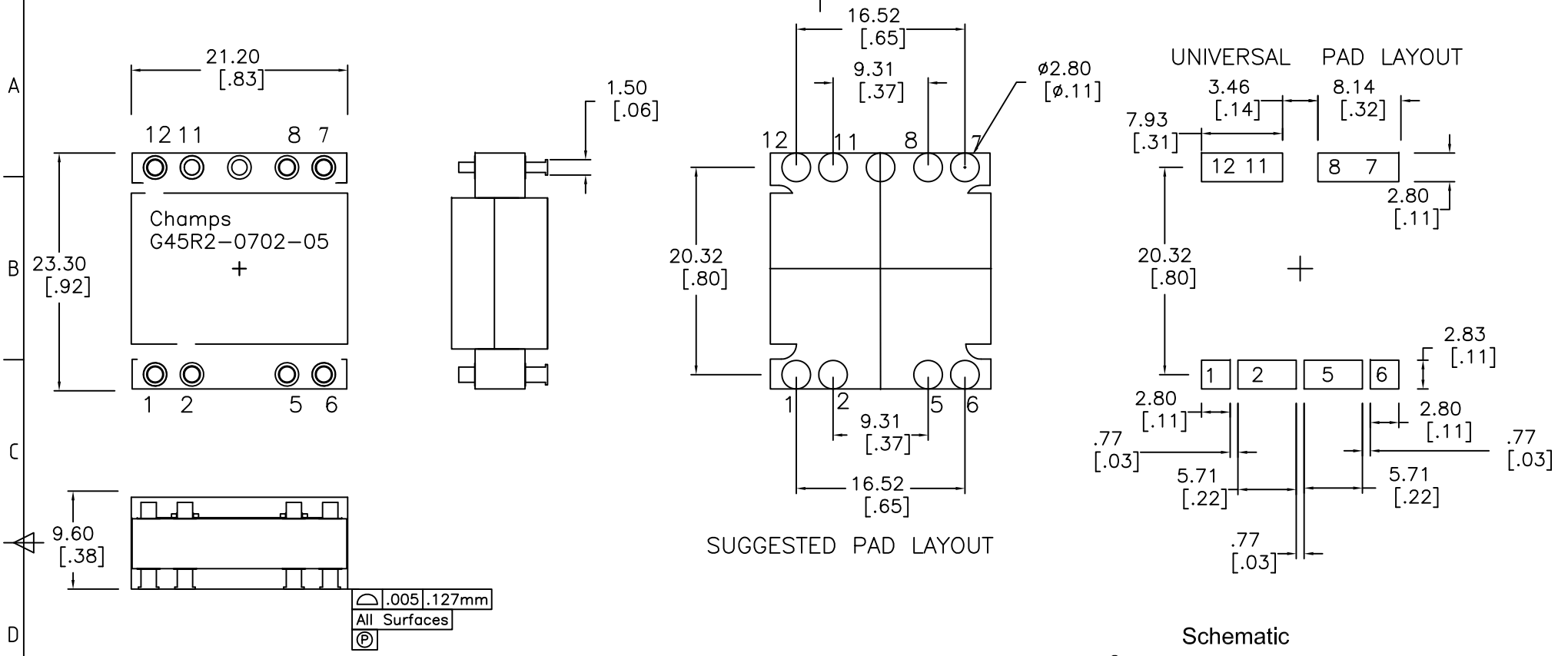
	SIGN	DATE
DRAWN	E.L.	09.17.12
CHKD	J.L.	
APPR	HE	

Champs No. G45R2-0604

Customer Part #:

ISSUE A | REV 00

SIZE A4 | SCALE 2:1



NOTES:

1. TURNS RATIO [7,8–11,12] : [2–5] = 0.285 +/–2% || [1–6] : [2–5] = 0.714 +/–2%
2. DCR [2–5] = 10.5 mohm Nom., [7,8 – 11,12]= 1.0 mohm Nom., [1–6]= 30 mohm Max
3. Inductance [2–5]= 150 uH Nom, 110 Min at 10KHz, 0.1 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7,8–11,12] = 40 nH Nom, 100 nH Max @100 KHz
5. Dielectric Strength [2–5] to [7–11] 1750 VDC | [1–6] to [2–5] 500Vrms 60 Hz
   [1–6],[2–5] to CORE 1750 VDC, [7–11] to CORE 500 VDC
6. Capacitance [2:7] = 550 pF Nom, 650 Max
7. Weight 16.8 grams Nom | RoHS Level 6/6 Compliant | Pin Composition Sn/Ag 96/4
8. Operating Temperature –55C to +130C [Inclusive of Temp Rise]

ORDERING INFORMATION:

1. Order Per Part # G45R2–0702–05. Parts ship in trays unless otherwise specified.
2. For Tape & Reel packaging append "R" to PN, e.g. G45R2–0702–05–R.
   Tape & Reel packaging is in accordance with Champs Dwg T40–4600014.
3. Std 180 parts per reel | 40 parts per tray.

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED

.XXX ±.254 MM
.XX ±.76 MM
.X
ANGLE ±

CHAMPS TECHNOLOGIES

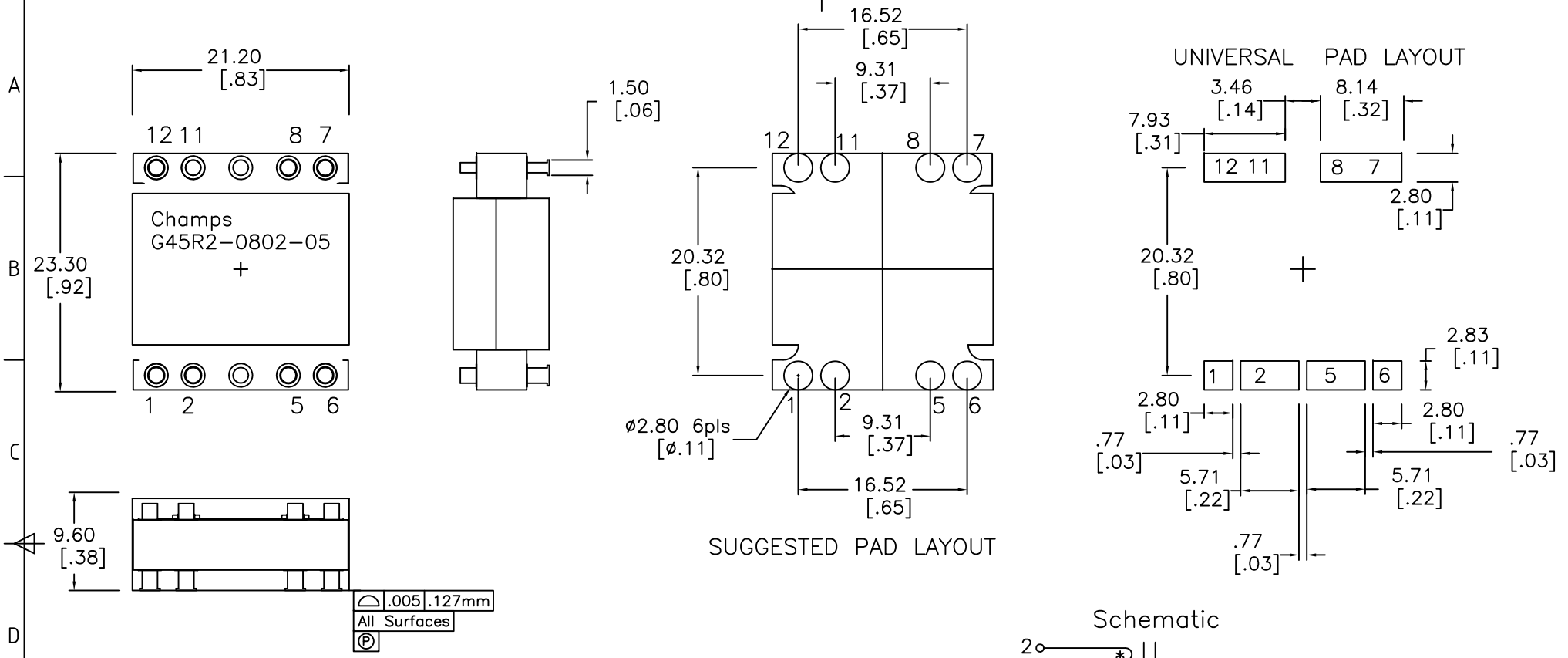
	SIGN	DATE
DRAWN		
CHKD		
APPR	HE	7/24/09

Champs No. G45R2 0702–05

Customer Part #:

ISSUE A | REV 00

SIZE | SCALE 2:1



NOTES:

1. TURNS RATIO [7,8 – 11,12] : [2–5] = 0.25 +/–2% || [1–6] : [2–5] = 0.625 +/–2%
2. DCR [2–5] = 14 mohm Nom., [7,8 – 11,12]= 1.3 mohm Nom., [1–6]= 100 mohm Max
3. Inductance [2–5]= 192 uH Nom at 10KHz, 0.1 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7,8–11,12] = 120 nH Nom, 160 nH Max @100 KHz
5. Dielectric Strength [2–5] to [7–11] 1750 VDC | [1–6] to [2–5] 500Vrms 60 Hz
   [1–6],[2–5] to CORE 1750 VDC, [7–11] to CORE 500 VDC
6. Capacitance [2:7] = 550 pF Nom, 650 Max
7. Weight 16.8 grams Nom | RoHS Level 6/6 Compliant | Pin Composition Sn/Ag 96/4
8. Operating Temperature –55C to +130C [Inclusive of Temp Rise]

ORDERING INFORMATION:

1. Order Per Part # G45R2–0802–05. Parts ship in trays unless otherwise specified.
2. For Tape & Reel packaging append "R" to PN, e.g. G45R2–0802–05–R.
   Tape & Reel packaging is in accordance with Champs Dwg T40–4600014.
3. Std 180 parts per reel | 40 parts per tray.

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED
.XXX ±.254 MM
.XX ±.76 MM
.X
ANGLE ±

CHAMPS TECHNOLOGIES

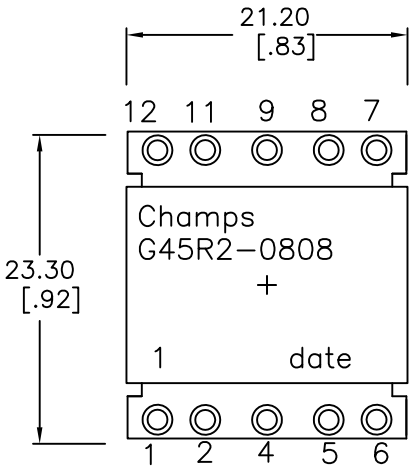
	SIGN	DATE
DRAWN		
CHKD		
APPR	HE	09.14.12

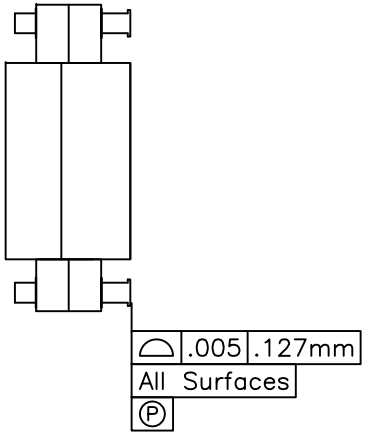
Champs No. G45R2–0802–05

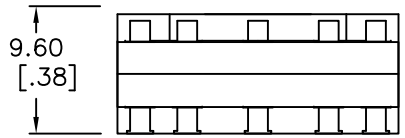
Customer Part #:

ISSUE A | REV 00

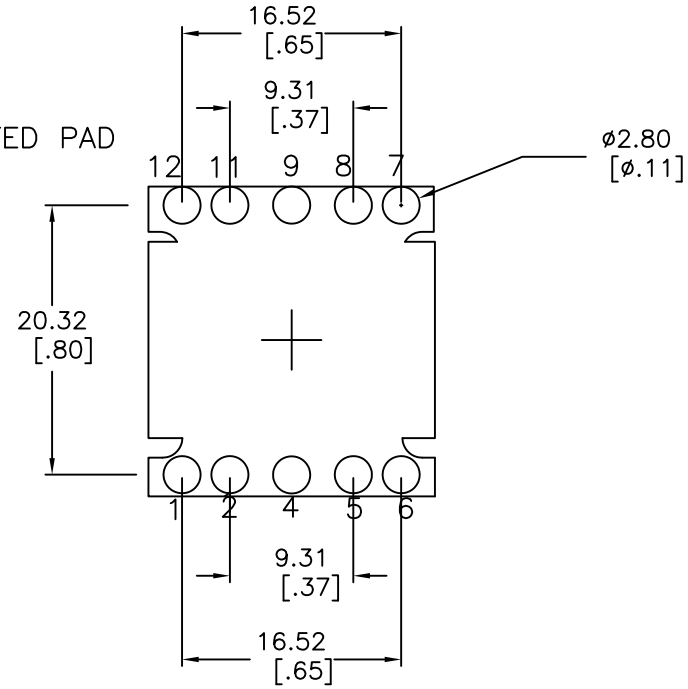
SIZE | SCALE 2:1



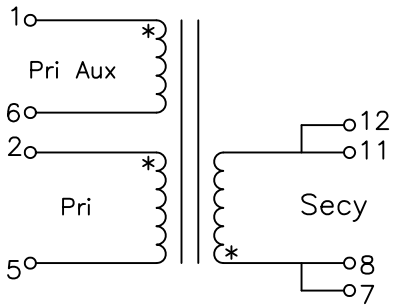




SUGGESTED PAD LAYOUT



Schematic



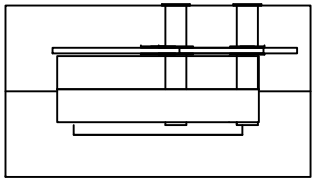
NOTES:

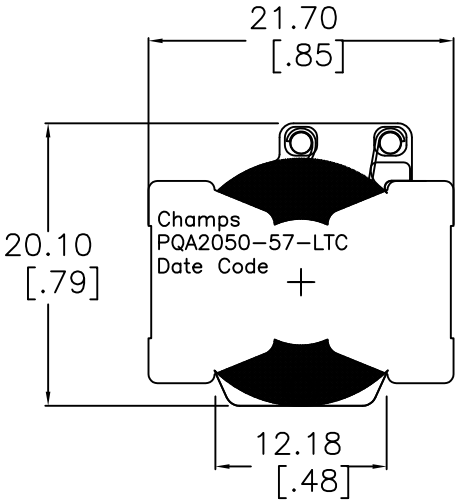
1. TURNS RATIO [7,8–11,12] : [2–5] = 1.00 +/–2%
2. DCR [2–5]= 13 mohm Nom., [7,8 – 11,12]= 13 mohm Nom.
3. Inductance [2–5]= 220 uH Nom 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2–5] Short [7,8–11,12] = 80 nH Nom@100 KHz
5. Dielectric Strength [2–5] to [7–12] 1500 VDC
   [2–5] to CORE 1500 VDC, [7–12] to CORE 500 VDC
6. Weight 16.8 grams Nom | RoHS Compliant | Pin Composition Sn/Ag 96/4

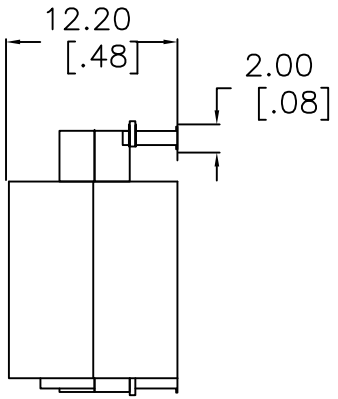
ORDERING INFORMATION:

1. Order Per Part # G45R2–0808 Parts ship in trays unless otherwise specified.
2. 25 pcs per tray. 160 pcs per reel.

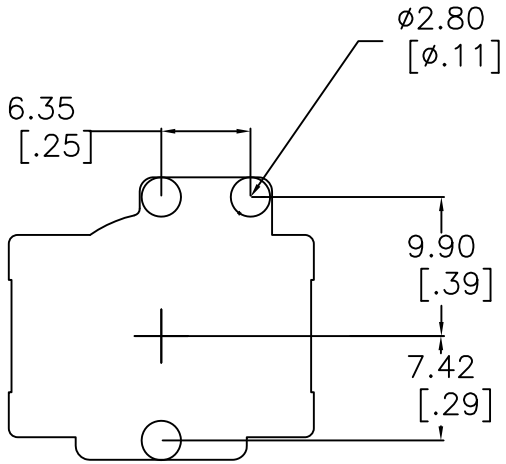
No.	DESCRIPTION REVISIONS	DATE	APPR
THIRD ANGLE PROJECTION	CHAMPS TECHNOLOGIES		
TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED .XXX ± 0.180 .XX ± 0.38 .X ± 1.5 ANGLE ±	DRAWN SIGN: DATE: 10.29.15 CHKD APPR	Champs No. G45R2–0808 Customer Part #:	ISSUE A REV 00
		SIZE SCALE 2:1	

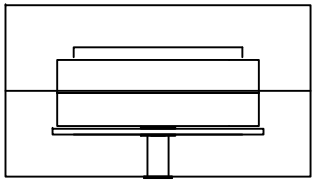




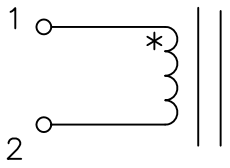


SUGGESTED
PAD
LAYOUT
Rounded
Pad





Schematic



INDUCTANCE [1–2] = 57uH Nom, 51 Min. @10kHz/0.1V 5.8Adc
DCR [1–2] = 34 mohms Nom, 38 Max
DIELECTRIC ISOLATION > 500 VDC [1–2] : CORE
SATURATION CURRENT @25C = 6.6Adc | @85C = 5.8Adc
HEATING CURRENT FOR 40C RISE AT 25C AMBIENT = 6.5Adc
RoHS Level 6/6 Compliant
Operating termperature –40C to +85C

No.	DESCRIPTION REVISIONS	DATE	APPR

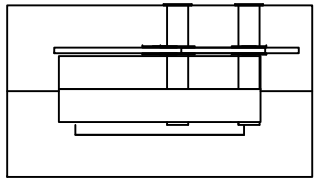
THIRD ANGLE PROJECTION

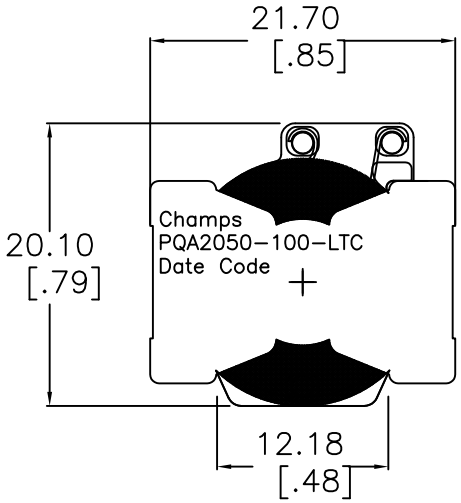
TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED
.XXX ±
.XX ±
.X ±
ANGLE ±

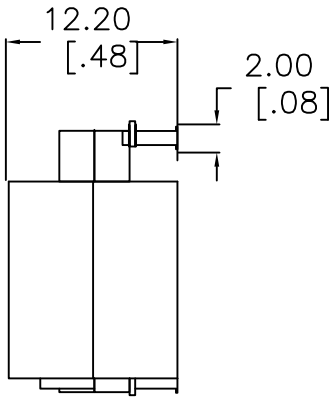
CHAMPS TECHNOLOGIES

	SIGN	DATE
DRAWN	HE	8/20/08
CHKD		
APPR		

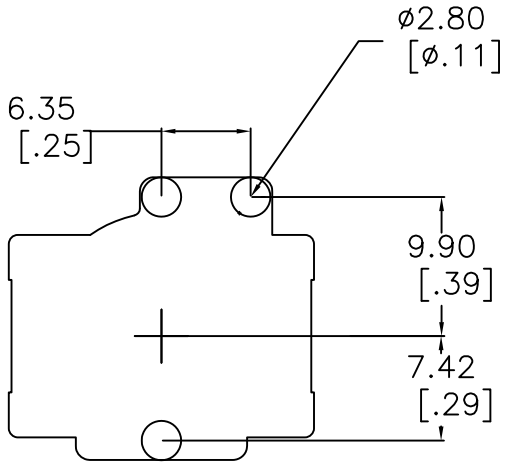
Champs No. PQA2050-57-LTC
Customer Part #: INDUCTOR
ISSUE A
REV 00
SIZE
SCALE 2:1

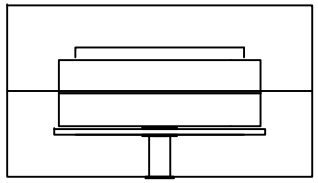




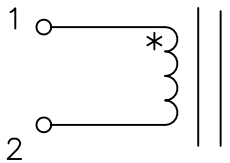


SUGGESTED
PAD
LAYOUT
Rounded
Pad





Schematic



INDUCTANCE [1-2] = 100uH Nom, 92 Min. @10kHz/0.1V 4.8 Adc
INDUCTANCE [1-2] = 85 uH Min @10kHz/0.1V 5.8 Adc
DCR [1-2] = 56 mohms Nom +/-10%
DIELECTRIC ISOLATION > 500 VDC [1-2] : CORE
SATURATION CURRENT @25C = 5.8 Adc | @85C = 5.2 Adc
HEATING CURRENT FOR 40C RISE AT 25C AMBIENT = 5.8 Adc

No.	DESCRIPTION REVISIONS	DATE	APPR

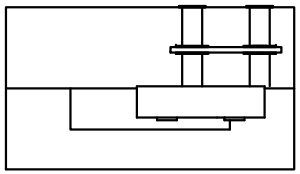
THIRD ANGLE PROJECTION

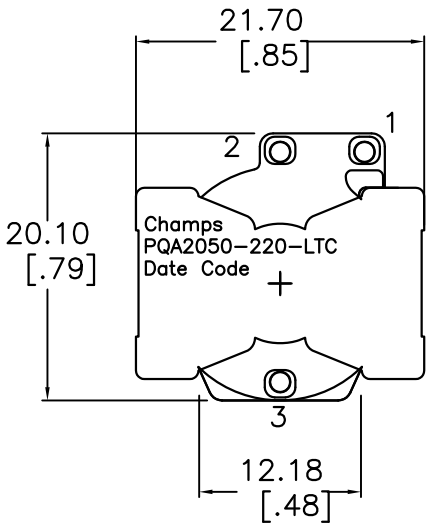
TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED
.XXX ±
.XX ±
.X
ANGLE ±

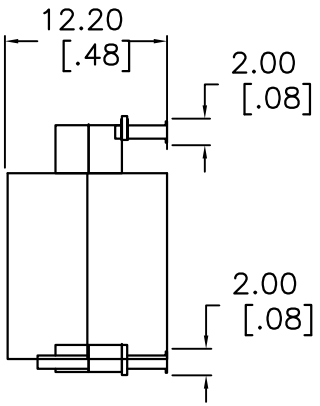
CHAMPS TECHNOLOGIES

	SIGN	DATE
DRAWN	HE	8/20/08
CHKD		
APPR		

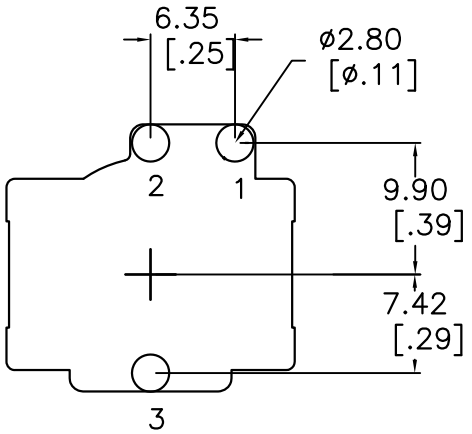
Champs No. PQA2050-100-LTC
Customer Part #: INDUCTOR
ISSUE A
REV 00
SIZE
SCALE 2:1



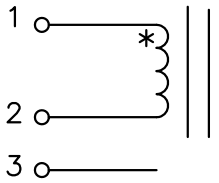




SUGGESTED
PAD
LAYOUT
Rounded
Pad



Schematic



ELECTRICAL INFORMATION:

1. INDUCTANCE [1–2] = 220uH Nom, 200 Min. @100kHz/1V 2.35 Adc
2. DCR [1–2] = 58 mohms Nom, 68 Max
3. DIELECTRIC ISOLATION > 500 VDC [1–2] : CORE
4. SATURATION CURRENT @25C = 2.90 Adc | @85C = 2.75Adc
5. HEATING CURRENT FOR 40C RISE AT 25C AMBIENT = 5.0 Adc
6. Operating Ambient Temp. Range –40C to +85C
7. Non–Operating (Storage) Temp Range –55 to +130C
8. RoHS Level 6/6 Compliant

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0
UNLESS OTHERWISE INDICATED

.XXX ±
.XX ±
.X
ANGLE ±

CHAMPS TECHNOLOGIES

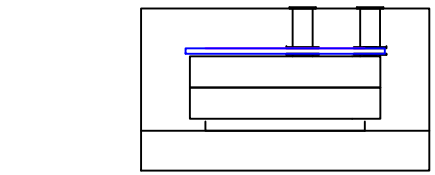
	SIGN	DATE
DRAWN	HE	8/20/08
CHKD		
APPR		

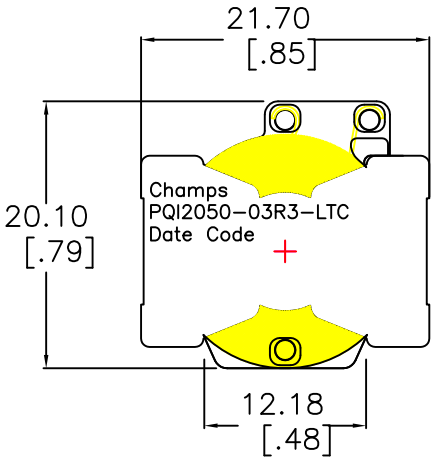
Champs No. PQA2050–220–LTC

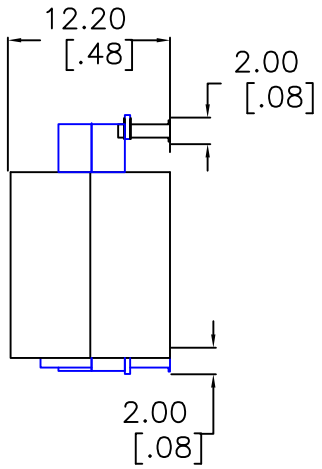
Customer Part #: INDUCTOR

ISSUE A | REV 00

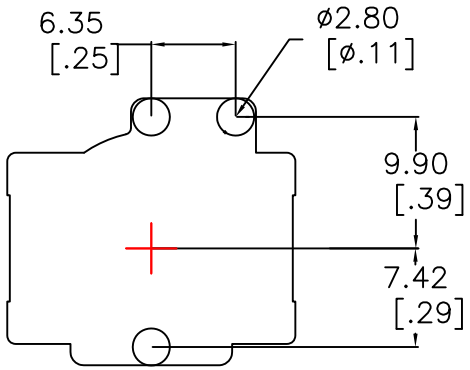
SIZE | SCALE 2:1

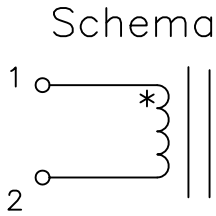






SUGGESTED PAD LAYOUT





INDUCTANCE [1-2] = 3.3uH Nom, 2.90 Min. @100kHz 1.0V 28Adc
INDUCTANCE [1-2] = 2.70 uH Min @100kHz 1.0V 33Adc
DCR [1-2] = 2.35 mohms Nom, 2.75 Max
DIELECTRIC ISOLATION > 500 VDC [1-2] : CORE
SATURATION CURRENT @25C = 33.0Adc | @85C = 30.0Adc
HEATING CURRENT FOR 40C RISE AT 25C AMBIENT = 30 Adc

No.	DESCRIPTION REVISIONS	DATE	APPR

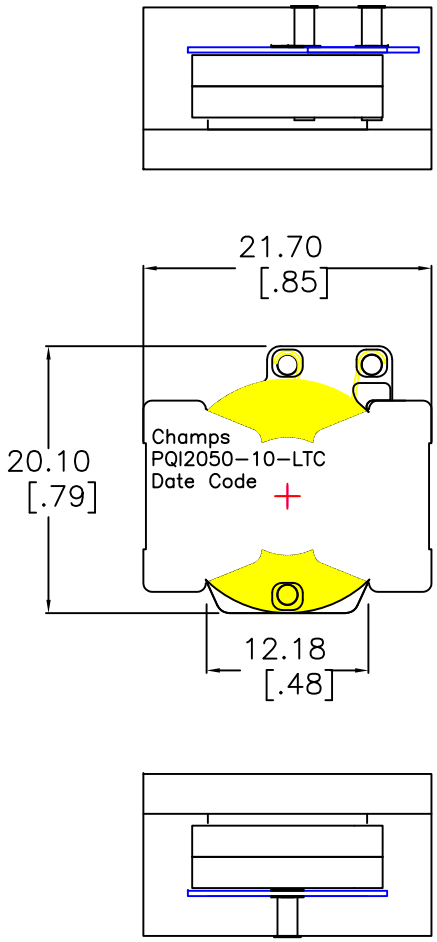
THIRD ANGLE PROJECTION

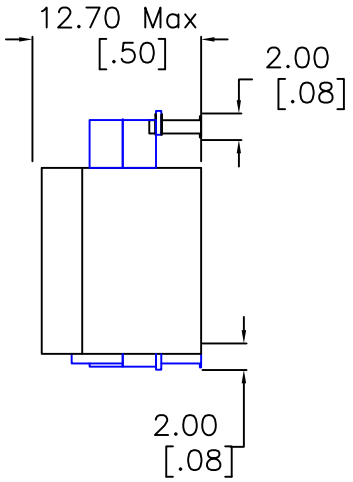
TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED
.XXX ±
.XX ±
.X
ANGLE ±

CHAMPS TECHNOLOGIES

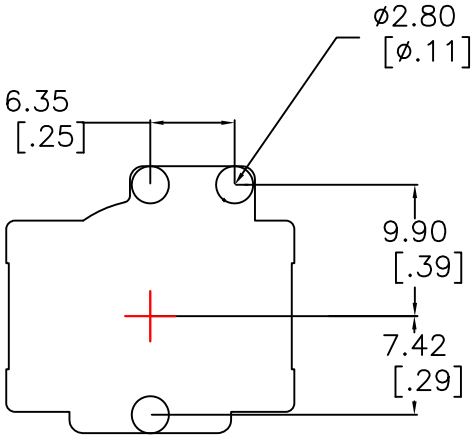
	SIGN	DATE
DRAWN	HE	8/20/08
CHKD		
APPR		

Champs No. PQI2050-03R3-LTC
Customer Part #: INDUCTOR
ISSUE A
REV 00
SIZE
SCALE 2:1

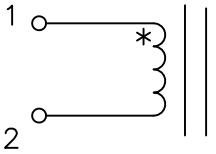




SUGGESTED
PAD
LAYOUT



Schematic



INDUCTANCE [1-2] = 10.2uH Nom, 9.1 Min. @10kHz/0.1V 14.5Adc
INDUCTANCE [1-2] = 8.1uH Min @10kHz/0.1V 16Adc
DCR [1-2] = 4.8 mohms Nom, 5.5 Max
DIELECTRIC ISOLATION > 500 VDC [1-2] : CORE
SATURATION CURRENT @25C = 17.0Adc | @85C = 15.0Adc
HEATING CURRENT FOR 45C RISE AT 25C AMBIENT = 21Adc

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED
.XXX ±
.XX ±
.X ±
ANGLE ±

CHAMPS TECHNOLOGIES

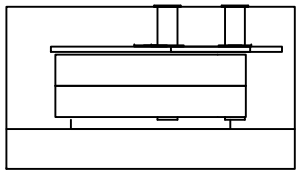
	SIGN	DATE
DRAWN	DK	8/20/08
CHKD		
APPR	HE	8/27/13

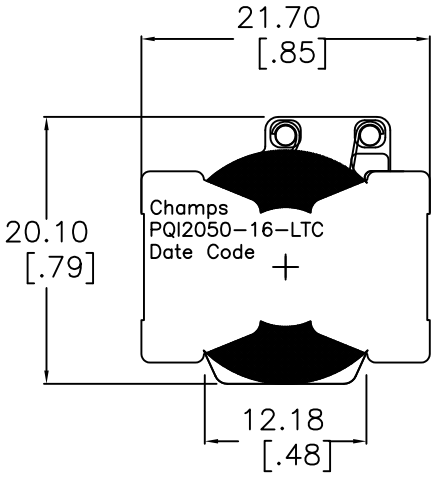
Champs No. PQI2050-10-LTC

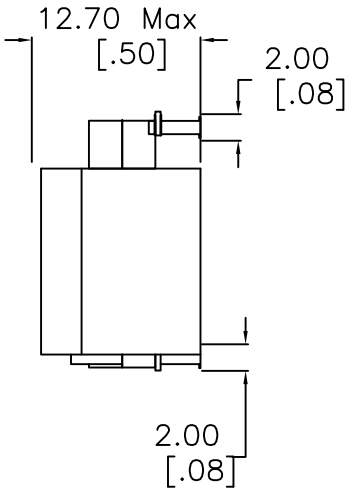
Customer Part #: INDUCTOR

ISSUE A | REV 00

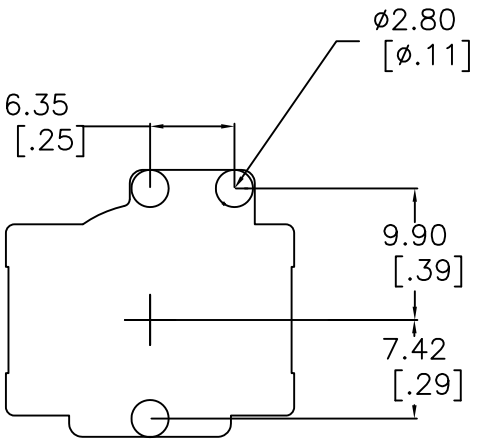
SIZE | SCALE 2:1

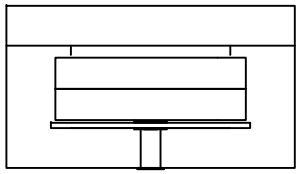






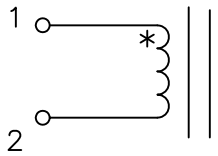
SUGGESTED
PAD
LAYOUT





INDUCTANCE [1-2] = 16.0uH Nom, 14.4 Min. @10kHz/0.1V 12 Adc
INDUCTANCE [1-2] = 13.6 uH Min @10kHz/0.1V 14Adc
DCR [1-2] = 6.30 mohms Nom, 7.1 Max
DIELECTRIC ISOLATION > 500 VDC [1-2] : CORE
SATURATION CURRENT @25C = 14.0Adc | @85C = 13.0Adc
HEATING CURRENT FOR 40C RISE AT 25C AMBIENT = 19 Adc

Schematic



THIRD ANGLE PROJECTION

± ±
.X

DESCRIPTION REVISIONS

CHAMPS TECHNOLOGIES

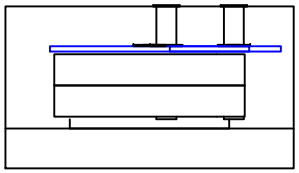
PQI2050-16-LTC

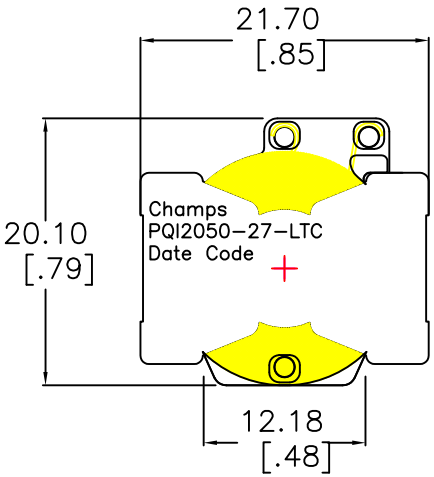
DK 8/20/08

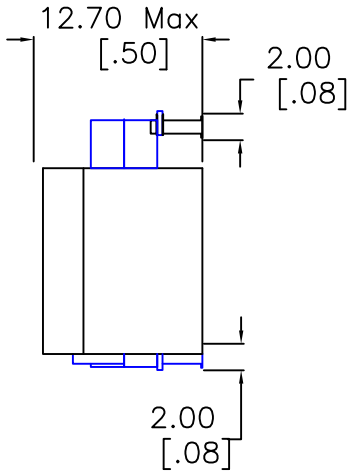
Part #: | INDUCTOR A 00

HE 8/27/13

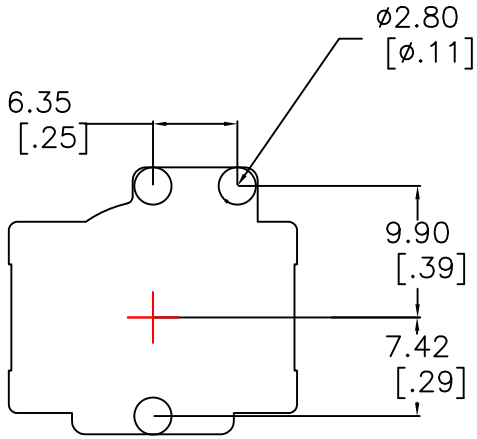
2:1

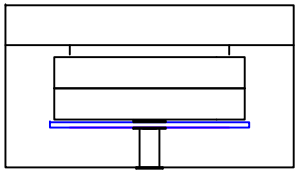




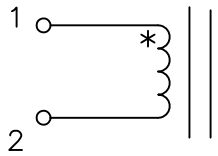


SUGGESTED
PAD
LAYOUT





Schematic



INDUCTANCE [1-2] = 27.0uH Nom, 24.3 Min. @10kHz/0.1V 8.0 Adc
INDUCTANCE [1-2] = 21.6 uH Min @10kHz/0.1V 9.8Adc
DCR [1-2] = 8.70 mohms Nom, 9.6 Max
DIELECTRIC ISOLATION > 500 VDC [1-2] : CORE
SATURATION CURRENT @25C = 9.8Adc | @85C = 8.8Adc
HEATING CURRENT FOR 40C RISE AT 25C AMBIENT = 15 Adc

No.	DESCRIPTION REVISIONS	DATE	APPR

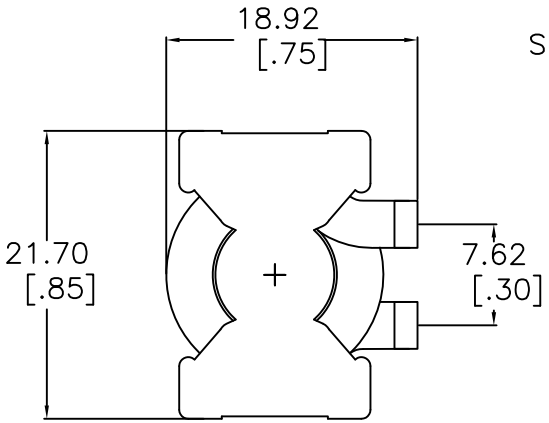
THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED
.XXX ±
.XX ±
.X ±
ANGLE ±

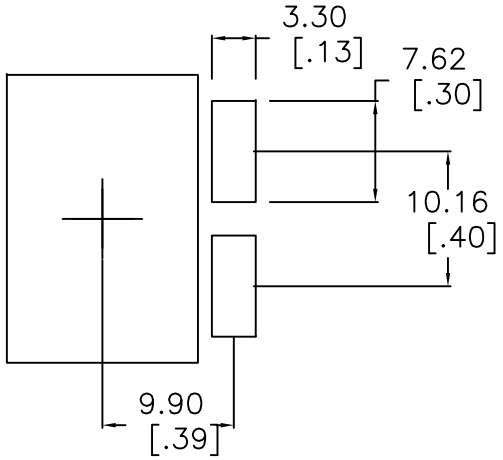
CHAMPS TECHNOLOGIES

	SIGN	DATE
DRAWN	DK	8/20/08
CHKD		
APPR	HE	8/27/13

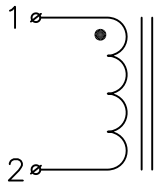
Champs No. PQI2050-27-LTC
Customer Part #: INDUCTOR
ISSUE A
REV 00
SIZE
SCALE 2:1

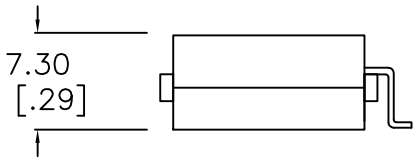


SUGGESTED PAD LAYOUT



Schematic





NOTES:

1. INDUCTANCE [1–2] = 0.65 uH ±15% @100kHz 1.0V @56 Adc
2. INDUCTANCE [1–2] = 0.50 uH ±15% @Isat 65 Adc
3. DCR [1–2] = 0.80 mohms Max
4. DIELECTRIC ISOLATION > 500 VDC [1–2] : CORE
5. SATURATION CURRENT @25C = 65 Adc | @100C = 58 Adc
6. HEATING CURRENT FOR 45C RISE AT 25C AMBIENT = 56 Adc
7. Operating Ambient Temperature: −40C to +100C
8. RoHS Level 6/6 Compliance || 96/4 Sn/Ag Pin Composition

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED

.XXX ±
.XX ±
.X ±
ANGLE ±

CHAMPS TECHNOLOGIES

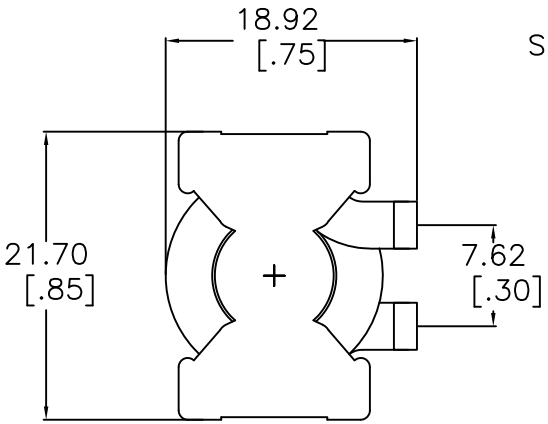
	SIGN	DATE
DRAWN	HE	08.05.14
CHKD		
APPR		

Champs No. PQL2050−0R650−HX

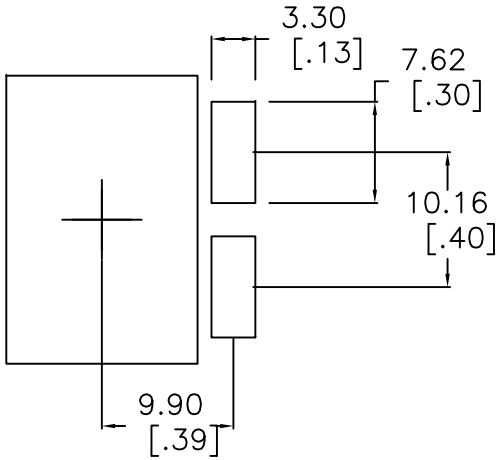
Customer Part #:

ISSUE A | REV 00

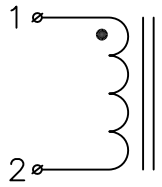
SIZE | SCALE 2:1

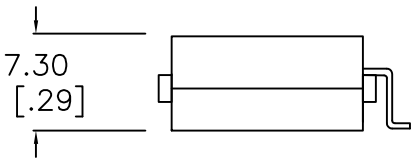


SUGGESTED PAD LAYOUT



Schematic





NOTES:

1. INDUCTANCE [1–2] = 1.90 uH ±15% @100kHz 1.0V @28 Adc
2. INDUCTANCE [1–2] = 1.60 uH ±15% @Isat 33 Adc
3. DCR [1–2] = 1.20 mohms Max
4. DIELECTRIC ISOLATION > 500 VDC [1–2] : CORE
5. SATURATION CURRENT @25C = 33 Adc | @100C = 33 Adc
6. HEATING CURRENT FOR 45C RISE AT 25C AMBIENT = 40 Adc
7. Operating Ambient Temperature: –40C to +100C
8. RoHS Level 6/6 Compliance || 96/4 Sn/Ag Pin Composition

No.	DESCRIPTION REVISIONS	DATE	APPR

THIRD ANGLE PROJECTION

TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED

.XXX ±
.XX ±
.X
ANGLE ±

CHAMPS TECHNOLOGIES

	SIGN	DATE
DRAWN	HE	08.05.14
CHKD		
APPR		

Champs No. PQL2050–1R9–HX

Customer Part #:

ISSUE A | REV 00

SIZE | SCALE 2:1