

## Champs Technologies DC2324A Reference Designs

### G45 and Z40R2 Planar Series

#### Self-Driven Secondary Side Synchronous Rectification

- 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 Assembly of Converter

**Table I: Planar Series Ref Design and Part Numbers**

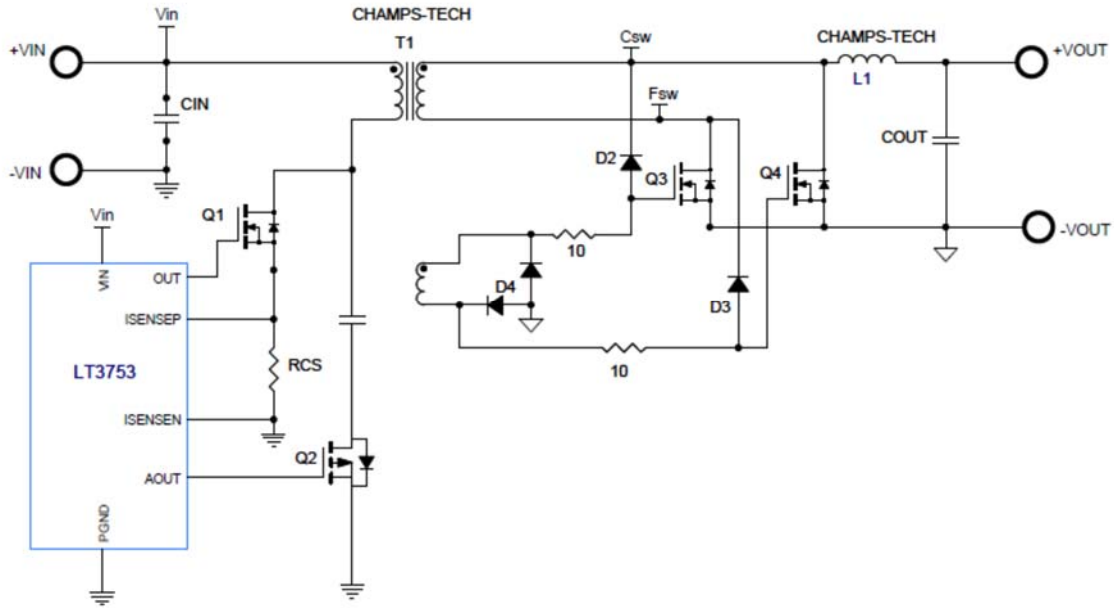
Ref Design	Vin (Min)	Vin (Max)	Vout	Io	Champs PN	Output Inductor
DC2324A-A	36	72	24	5.0	G45R2-0808-S01-80R	PQA2050-39-LTC
DC2324A-B	18	36	24	5.0	G45R2-0408-S01-25R	PQA2050-39-LTC
DC2324A-C	9	18	24	4.0	G45R2-0208-S01-8R	PQA2050-39-LTC

**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.

1. DC2324A-A - LT3753EFE Demo Board Isolated Forward,  
36V ≤ VIN ≤ 72V; VOUT = 24V @ 5A <http://www.linear.com/solutions/7298>
2. DC2324A-B - LT3753EFE Demo Board | Isolated Forward,  
18V ≤ VIN ≤ 36V; VOUT = 24V @ 5A <http://www.linear.com/solutions/7300>
3. DC2324A-C - LT3753EFE Demo Board | Isolated Forward,  
9V ≤ VIN ≤ 18V; VOUT = 24V @ 4A <http://www.linear.com/solutions/7301>

## Self-Driven Ref Design Schematic



## DC2324 A Ref Design Efficiency

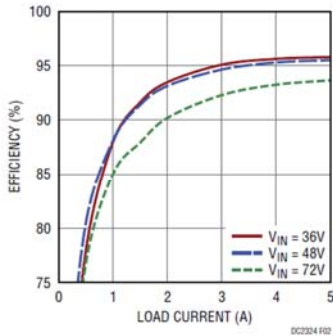


Figure 2. DC2324A-A Efficiency

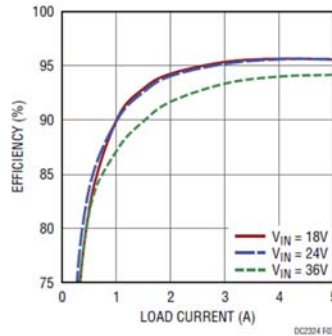


Figure 3. DC2324A-B Efficiency

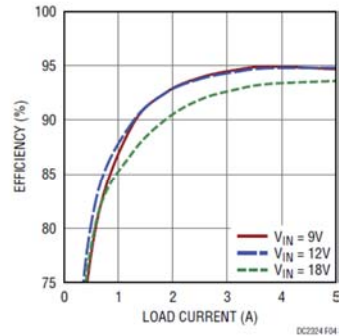
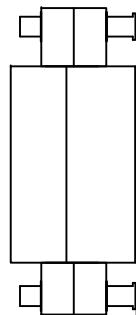
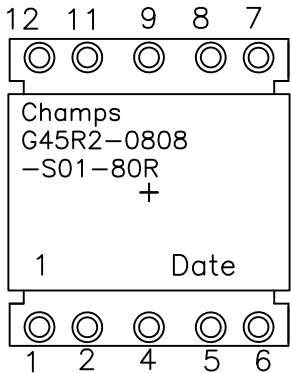
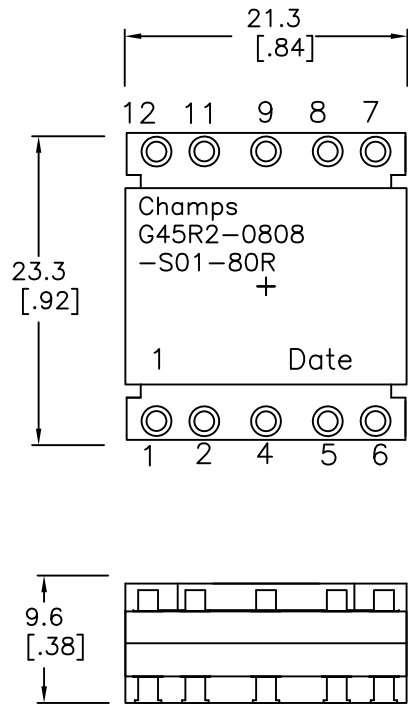


Figure 4. DC2324A-C Efficiency

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

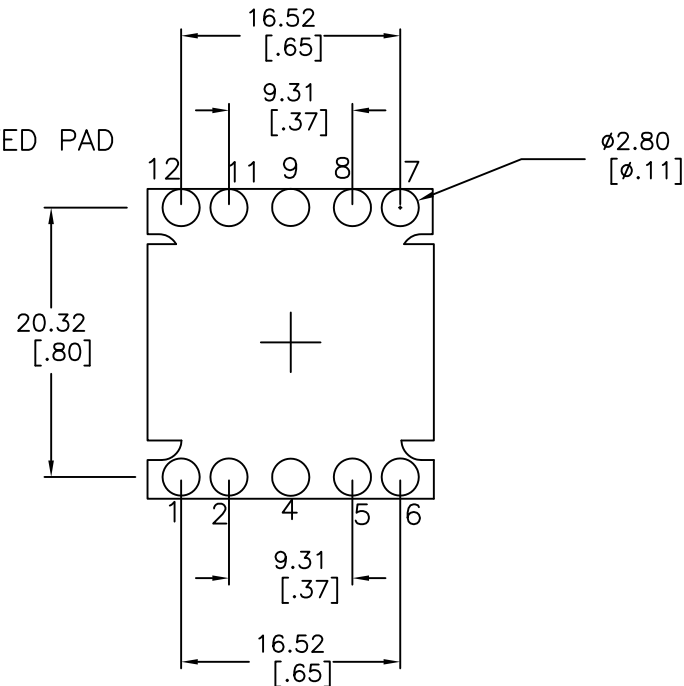
1 2 3 4 5 6 7 8

A  
B  
C  
D  
E  
F

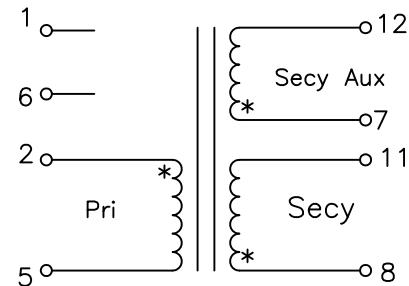


⌒ .005 .127mm  
All Surfaces  
Ⓟ

SUGGESTED PAD LAYOUT



Schematic



NOTES:

1. TURNS RATIO [8-11] : [2-5] = 1.00 +/-2% || [7-12] : [8-11] = 0.125 +/-2%
2. DCR [2-5]= 13 mohm Nom., [8-11]= 13 mohm Nom., [7-12] = 300 mohm Max
3. Inductance [2-5]= 80 uH Nom +/-10% at 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2-5] Short [8,11] = 80 nH Nom@100 KHz
5. Dielectric Strength [2-5] to [8,11] & [7,12] > 1500 VDC  
[2,5] to CORE > 1500 VDC, [7,8] to CORE > 500 VDC
6. Weight 16.8 grams Nom | RoHS & REACH Compliant | Pin Composition Sn/Ag 96/4
7. Temperature Rating: -55C to +130C [Inclusive of Temp Rise]

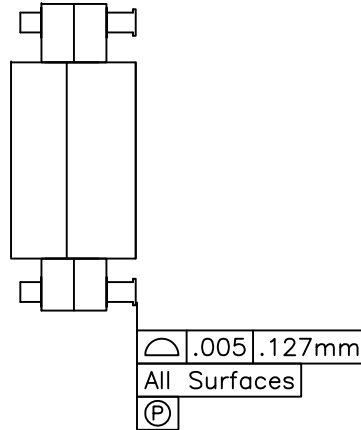
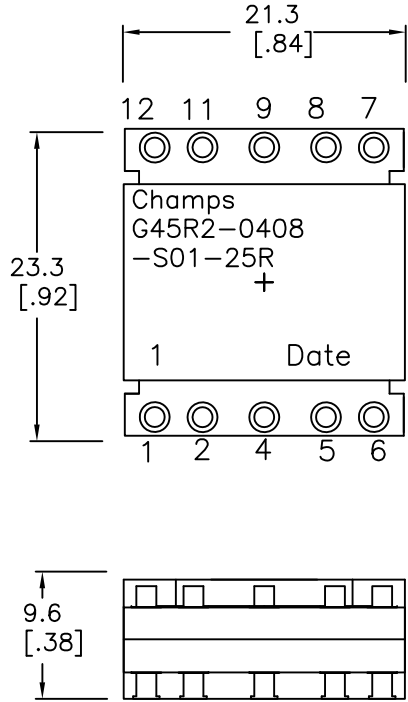
ORDERING INFORMATION:

1. Order Per Part # G45R2-0808-S01-80R Parts ship in trays unless otherwise specified.
2. 25 pcs per tray. 160 pcs per reel.

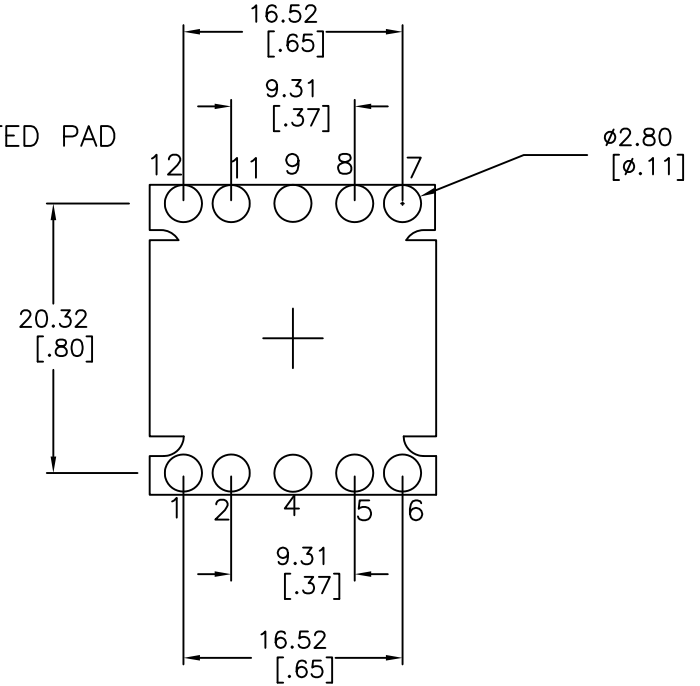
No.		DESCRIPTION		REVISIONS	DATE	APPR
THIRD ANGLE PROJECTION						
CHAMPS TECHNOLOGIES						
TOLERANCES/UNITS in MM UNLESS OTHERWISE INDICATED		SIGN	DATE	Champs-Tech PN G45R2-0808-S01-80R0		
.XXX ± 0.180	DRAWN		11.01.15	Customer	ISSUE	REV
.XX ± 0.25	CHKD			Part #:	A	00
.X ± 0.78	APPR			SIZE	SCALE 2:1	
ANGLE ±						

1 2 3 4 5 6 7 8

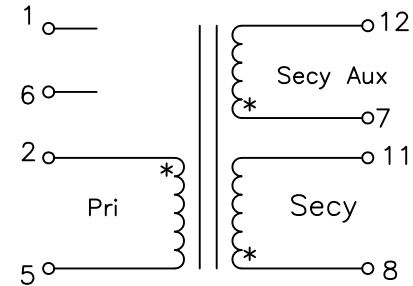
A  
B  
C  
D  
E  
F



SUGGESTED PAD LAYOUT



Schematic



NOTES:

1. TURNS RATIO [8-11] : [2-5] = 2.00 +/-2% || [7-12] : [8-11] = 0.125 +/-2%
2. DCR [2-5]= 4 mohm Nom., [8-11]= 13 mohm Nom., [7-12] = 300 mohm Max
3. Inductance [2-5]= 25 uH Nom +/-10% at 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2-5] Short [8,11] = 80 nH Nom@100 KHz
5. Dielectric Strength [2-5] to [8,11] & [7,12] > 1500 VDC  
[2,5] to CORE > 1500 VDC, [7,8] to CORE > 500 VDC
6. Weight 16.8 grams Nom | RoHS Compliant | Pin Composition Sn/Ag 96/4

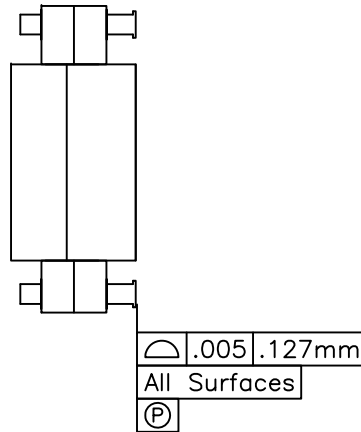
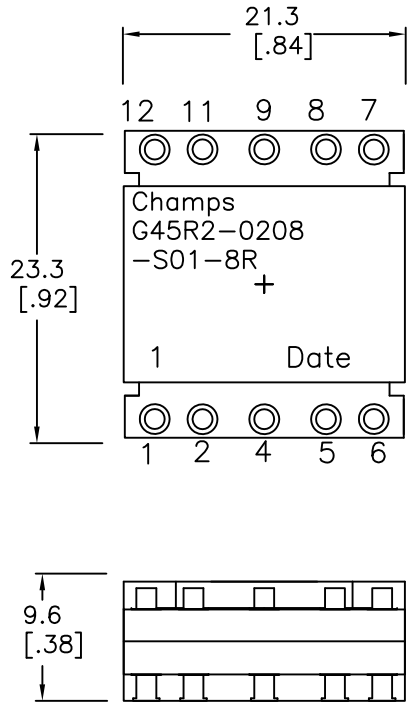
ORDERING INFORMATION:

1. Order Per Part # G45R2-0408-S01-25R Parts ship in trays unless otherwise specified.
2. 25 pcs per tray. 160 pcs per reel.

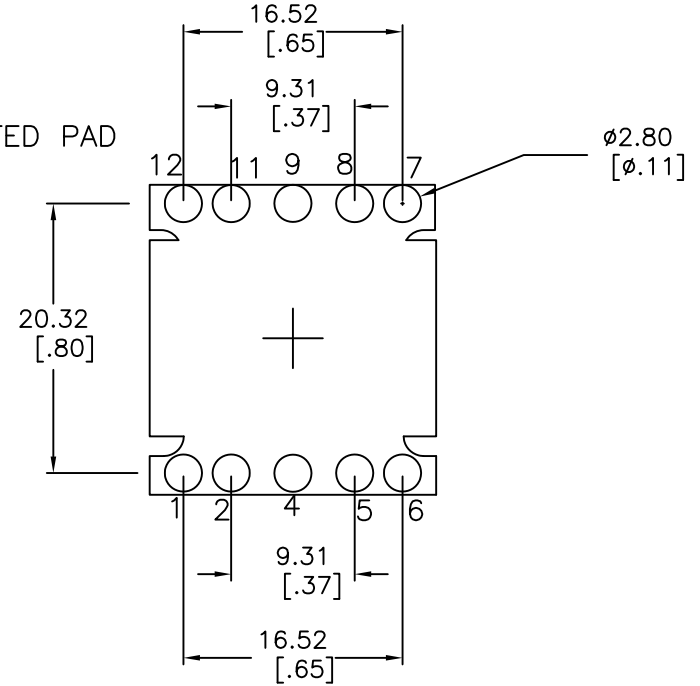
No.		DESCRIPTION		REVISIONS	DATE	APPR
CHAMPS TECHNOLOGIES						
THIRD ANGLE PROJECTION						
TOLERANCES/UNITS in MM UNLESS OTHERWISE INDICATED		SIGN	DATE	Champs-Tech PN G45R2-0408-S01-25R		
.XXX ± 0.180	.XX ± 0.25	DRAWN	11.01.15	Customer		ISSUE
.X ANGLE ±		CHKD		Part #:		REV
		APPR		SIZE	SCALE 2:1	00

1 2 3 4 5 6 7 8

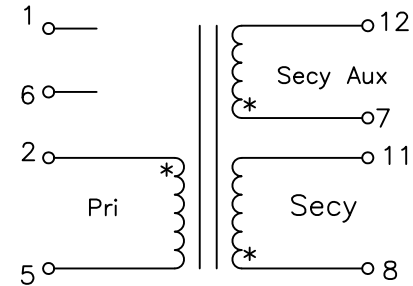
A  
B  
C  
D  
E  
F



SUGGESTED PAD LAYOUT



Schematic



NOTES:

1. TURNS RATIO [8-11] : [2-5] = 4.00 +/-2% || [7-12] : [8-11] = 0.125 +/-2%
2. DCR [2-5]= 1 mohm Nom., [8-11]= 13 mohm Nom., [7-12] = 300 mohm Max
3. Inductance [2-5]= 8 uH Nom +/-10% at 100KHz, 1.0 VRMS @ 25C
4. Leakage Inductance [2-5] Short [8,11] = 80 nH Nom@100 KHz
5. Dielectric Strength [2-5] to [8,11] & [7,12] > 1500 VDC [2,5] to CORE > 1500 VDC, [7,8] to CORE > 500 VDC
6. Weight 16.8 grams Nom | RoHS Compliant | Pin Composition Sn/Ag 96/4

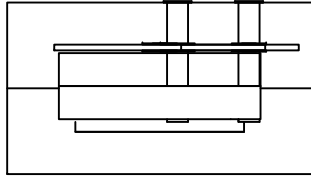
ORDERING INFORMATION:

1. Order Per Part # G45R2-0208-S01-8R Parts ship in trays unless otherwise specified.
2. 25 pcs per tray. 160 pcs per reel.

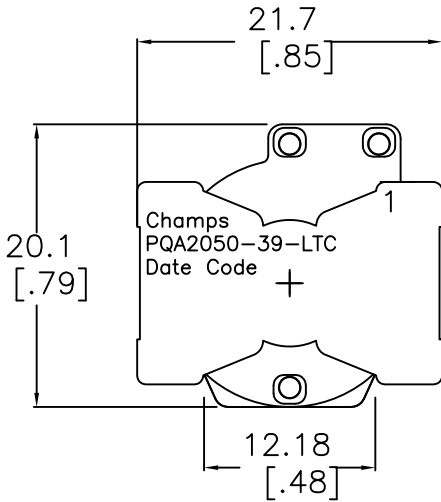
No.		DESCRIPTION		REVISIONS	DATE	APPR
CHAMPS TECHNOLOGIES						
THIRD ANGLE PROJECTION						
TOLERANCES/UNITS in MM UNLESS OTHERWISE INDICATED		SIGN	DATE	Champs-Tech PN G45R2-0208-S01-8R		
.XXX ± 0.180	DRAWN		11.01.15	Customer		ISSUE
.XX ± 0.25	CHKD			Part #:		A
.X ± 0.78	APPR			SIZE	SCALE 2:1	REV 00
ANGLE ±						

1 2 3 4 5 6 7 8

A



B

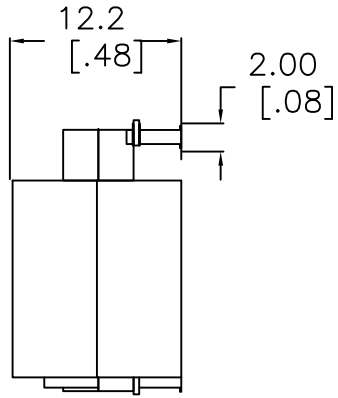


C

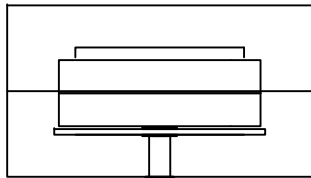
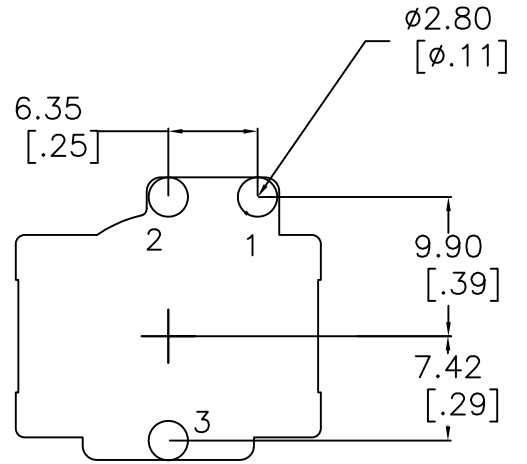
D

E

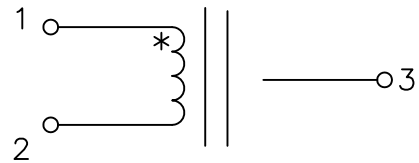
F



SUGGESTED  
PAD  
LAYOUT  
Rounded  
Pad



Schematic



NOTES:

1. INDUCTANCE [1-2] = 39.0uH Nom, 36.0 Min. @10kHz/0.1V 6.5Adc
2. INDUCTANCE [1-2] = 35 uH Min @10kHz/0.1V 7.5Adc
3. DCR [1-2] = 14 mohms Nom 17 Max
4. DIELECTRIC ISOLATION > 500 VDC [1-2] : CORE
5. SATURATION CURRENT @25C = 8.5 Adc | @85C = 7.5 Adc
6. HEATING CURRENT FOR 40C RISE AT 25C AMBIENT = 10.0 Adc
7. Temp Rating -55C to +130C [Inclusive of Temp Rise]
8. RoHS Level 6/6 Compliant || REACH Compliant

No.		DESCRIPTION		REVISIONS	DATE	APPR
THIRD ANGLE PROJECTION						
CHAMPS TECHNOLOGIES						
TOLERANCES +/- 1.0 UNLESS OTHERWISE INDICATED		SIGN	DATE	Champs No. PQA2050-39-LTC		
DRAWN	HE	8/20/08	Customer	INDUCTOR		ISSUE A
CHKD			Part #:			REV 00
APPR			SIZE	SCALE 2:1		