PV
T1

Designer Brian Cornell
Program Analysis
Circuit DC Inductor
Design by
Design for PV Charger
File name: chgbal-48v-charger-sepic_continuous-250w-150khz-ind-rm12-58u-r1

Program name ---------- = PV
Circuit symbol---------- = T1
Inductance---------- = 0.0000580 Henrys
DC output current---------- = 8.750 amps
AC durrent delta---------- = 1.712 amps
Number of turns ---------- = 18
Wire size ---------- = 22 AWG
Number of strands ---------- = 4
Ripple frequency ---------- = 150,000.00 hertz
Total gap dimension ---------- = 51.00 mils
Maximum temperature ---------- = 50.00 degrees C
Minimum temperature ---------- = 0.00 degrees C
Permeability of the material ---------- = 2700 mu
Magnetic material---------- = EPCOS N41-2700u

Core Data

Core configuration---------- = RM Core
Core file number---------- = B65815-RM12
Magnetic path length---------- = 5.7000 cm
Window height---------- = 1.6800 cm
Core weight ---------- = 45.00 grams
Copper weight ---------- = 22.26 grams
Mean length turn---------- = 6.1575 cm
Iron area---------- = 1.4600 cm sq
Window area ---------- = 1.0164 cm sq
Area product---------- = 1.483940 cm 4TH
Core geometry---------- = 0.14074000 cm 5TH
Surface area---------- = 47.0840 cm sq
Stacking factor ---------- = 1.0

Window utilization---------- = 0.283
Current density---------- = 676.4 amps/cm sq

Fringing flux ---------- = 1.3490
AC flux density ---------- = 0.0150 tesla
Maximum flux density ---------- = 0.2269 tesla
Watts per kilogram ---------- = 0.2206
Core loss ---------- = 0.0099 watts

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Winding disipation ---------- = 1.1326 watts
Winding weight ---------- = 12.7673 grams
Total loss ---------- = 1.1426 watts
Watt density ---------- = 0.0243 W/cm sq
Temperature rise ---------- = 20.9 degrees C
Magnetizing force ---------- = 38.2218 oersteds
Magnetizing force ---------- = 30.4245 AT/cm

Winding resistance ---------- = 0.0147 ohms
Winding resistance at temp ---------- = 0.0177 ohms
Winding dc voltage drop ---------- = 0.1551 volts
Maximum temperature ---------- = 70.8560 degrees C
Minimum temperature ---------- = 20.8560 degrees C

Core gapped permeability ---------- = 43.30 u
Core material permeability ---------- = 2700 u
Inductance calculated ---------- = 0.0000609 henrys

Program By Kg Magnetics Inc.