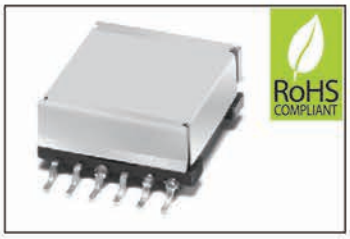


Hexa-Path Magnetics

Formulas used to calculate electrical characteristics

Connecting windings in series

Inductance = $Inductance_{table}$ × (number of windings)^2
DCR = DCR_{table} × number of windings
Isat = ($Isat_{table}$ × 6) ÷ number of windings connected in series
Irms = $Irms_{table}$

Connecting windings in parallel

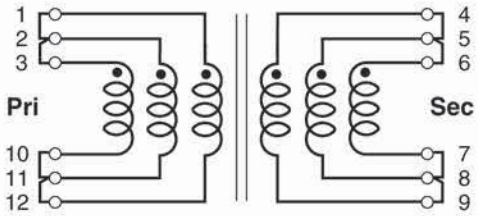
Inductance = $Inductance_{table}$
DCR = 1 ÷ [number of windings × (1 ÷ DCR_{table})]
Isat = ($Isat_{table}$ × 6) ÷ number of windings connected in series
Irms = $Irms_{table}$ × number of windings

Create a 130 Watt, 1 : 1, two switch forward converter transformer

Choose HPH6-2400L

Vin = 36 – 57 Vdc; Vout = 12 V, 10.8 A

Part number	Inductance (µH)	DCR max (Ohms)	Volt-time product (V-µsec)	Peak energy storage (µJ)	Isat (A)	Irms (A)
YCEFD25-2401	194 ±25%	0.030	131.9	N/A	N/A	2.90



Primary:
L = 194 µH
DCR = 0.01Ω
Irms = 8.7 A
VT = 131.9 V-µsec

Secondary:
DCR = 0.01Ω
Irms = 8.7 A

Connecting primary windings in parallel

When primary windings (W_{pri}) are connected in parallel, DCR decreases, Irms increases, and inductance and volt-time product remain the same.

Example: For HPH6-2400L, connect three primary windings in parallel:

Inductance = $Inductance_{table}$
= 194 µH

DCR = 1 ÷ [W_{pri} × (1 ÷ DCR_{table})]
= 1 ÷ [(3 × (1 ÷ 0.030]) = 0.010 Ohms

VT = VT_{table}
= 131.9 V-µsec

Irms = $Irms_{table}$ × W_{pri}
= 2.90 × 3 = 8.70 A

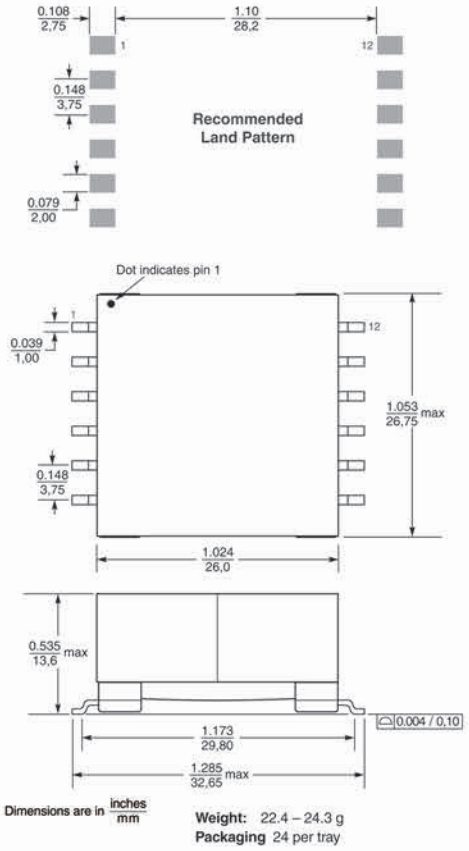
Connecting secondary windings in parallel

When secondary windings (W_{sec}) are connected in parallel, DCR decreases and Irms increases.

Example: For HPH6-2400L, connect three secondary windings in parallel:

DCR = 1 ÷ [W_{sec} × (1 ÷ DCR_{table})]
= 1 ÷ [(3 × (1 ÷ 0.030)] = 0.010 Ohms

Irms = $Irms_{table}$ × W_{sec}
= 2.90 × 3 = 8.70 A



Weight: 22.4 – 24.3 g
Packaging 24 per tray

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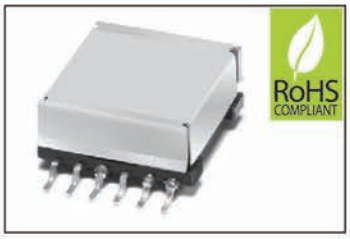


Hexa-Path Magnetics

Formulas used to calculate electrical characteristics

Connecting windings in series

Inductance = $Inductance_{table} \times (number\ of\ windings)^2$
DCR = $DCR_{table} \times$ number of windings
Isat = $(Isat_{table} \times 6) \div$ number of windings connected in series
Irms = $Irms_{table}$

Connecting windings in parallel

Inductance = $Inductance_{table}$
DCR = $1 \div [number\ of\ windings \times (1 \div DCR_{table})]$
Isat = $(Isat_{table} \times 6) \div$ number of windings connected in series
Irms = $Irms_{table} \times$ number of windings

Create a 100 Watt, 1 : 2, half bridge forward converter transformer with center tapped secondary

Choose HP6-2400L

Vin = 36 – 57 Vdc; Vout = 24 V, 4.2 A

Part number	Inductance (µH)	DCR max (Ohms)	Volt-time product (V-µsec)	Peak energy storage (µJ)	Isat (A)	Irms (A)
YCEFD25-2402	194 ±25%	0.030	131.9	N/A	N/A	2.90

Connecting primary windings in parallel

When primary windings (W_{pri}) are connected in parallel, DCR decreases, current ratings increase, and inductance and volt-time product remain the same.

Example: For HPH-2400L, connect two primary windings in parallel:

Inductance = $Inductance_{table}$
= 194 µH

DCR = $1 \div [W_{pri} \times (1 \div DCR_{table})]$
= $1 \div [(2 \times (1 \div 0.030)]$ = 0.015 Ohms

VT = VT_{table}
= 131.9 V-µsec

Irms = $Irms_{table} \times W_{pri}$
= 2.90×2 = 5.8 A

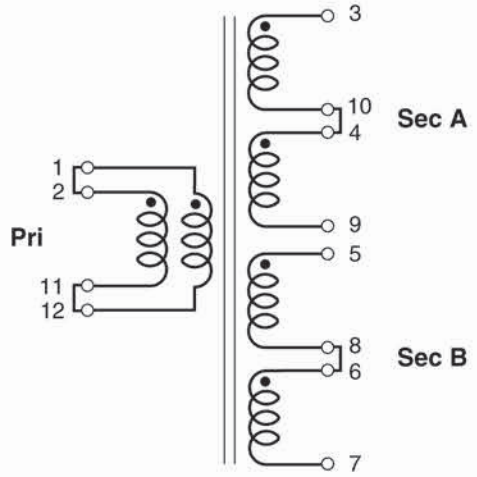
Connecting secondary windings in series

When secondary windings (W_{sec}) are connected in series, Irms remains the same, but DCR increases.

Example: For HP6-2400L, connect four secondary windings in series, creating a center tap at pins 9 and 5. For each half of the secondary:

DCR = $DCR_{table} \times W_{sec}$
= 0.030×2 = 0.060 Ohms

Irms = $Irms_{table}$
= 2.9 A



Primary:
L = 194 µH
DCR = 0.015Ω
Irms = 5.8 A
VT = 131.9 V-µsec

Each half secondary; Sec A (3-9), Sec B (5-7):
DCR = 0.06Ω
Irms = 2.9 A