

Get rid of Linear Power Supply Ultra Low Noise Switching Power Supply

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Daitron Inc.
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Background

Current Situation using Switching Power Supply

- Switching Power Supply
 - Advantage
 - Small size, Low cost
 - Disadvantage
 - Large Ripple Noise
 - Requires Filter Circuit
 - Large capacitance
 - Leakage Current -> Isolation Transformer will be needed
 - Low Efficiency (because of High Switching loss)

Background

Current Situation using Linear Power Supply

- Linear Power Supply
 - Advantage
 - Low noise
 - Disadvantage
 - Expensive
 - Heavy
 - Large Foot print
 - Low Efficiency (Hot)

Still eager to use linear power supply ?

Switching Power Supply vs Linear Power Supply

	Linear Power Supply	Switching Power Supply	<i><u>Ideal Power Supply</u></i>
Noise	Very Low	High	Very Low
Leakage Current	Very Low	High	Very Low
Size	Big	Small	Small
Weight	Heavy	Light	Light
Component Count	Low	High	Low
Price	High	Low	Competitive

Get rid of linear power supply!

Background

Daitron Power Supply History / Resources

- Developed in-house low noise switching power supplies for visual market.
- Fully staffed, dedicated Tokyo based power supply design center
 - Fabless production
 - UL certified factory in Japan



**R&D and Marketing HQ,
Power Supply Division
Machida, Tokyo Japan**

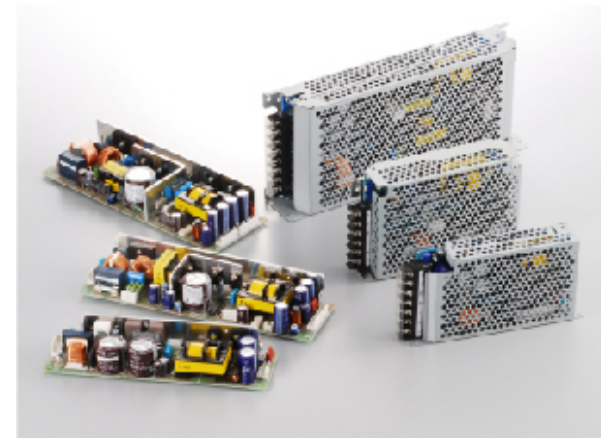
Ideal Solution for Noise Sensitive Applications

- Ultra Low Ripple Noise
 - 3-5 mV range – Ultra Low Noise series
 - 50mV range – Low Noise series
- Low Component Count
 - Low Ripple Noise = Less Filter Circuits
 - Small Capacitance = Low Leakage Current
- High Efficiency
 - High Efficiency because of low Switching loss

Requires only;

- Small switching FET on Primary side
- Low Peak Voltage diode on Secondary side

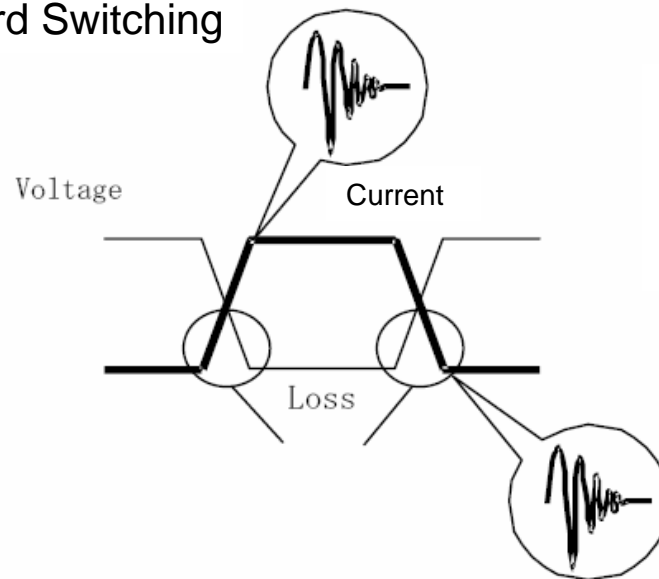
- Green Technology
 - RoHS Compliant, Vinyl Chloride Free, Halogen Free PCB
 - High Efficiency
- Certified to industry standards
 - UL File No. E237238
 - EN61000-4-2,3,4,5,6,8,11, 60950-1, CSA-C22.2, EN55022-B, FCC-B, VCCI-B



Reason Why Daitron use Soft Switching

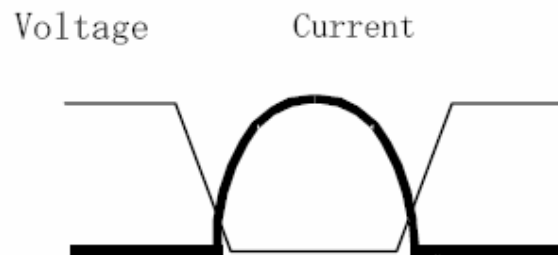
- Hard vs Soft Switching

Hard Switching



Raising and lowering edge of the current wave form generates noise at the zero cross point (ringing noise) & negatively affects efficiency.

Soft Switching (Daitron)



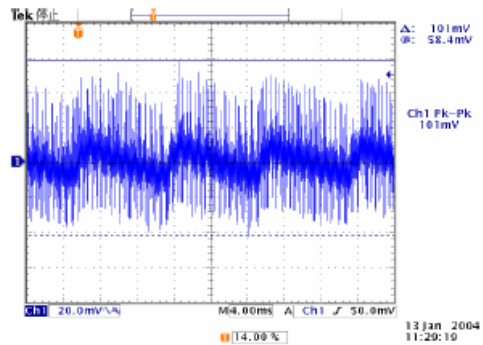
Current has sine wave form, thereby reducing noise.

Minimum current & voltage overlap further reduces noise while increasing efficiency.

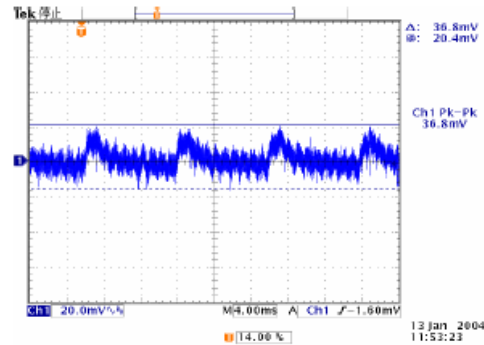
Comparison Data – Ripple Noise -

AC input Ripple Noise

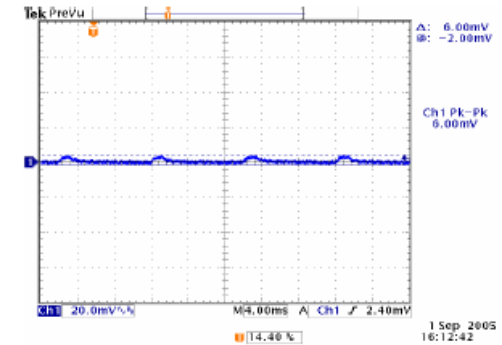
Hard Switching Type 50W-12V



Daitron DFS series 50W-12V

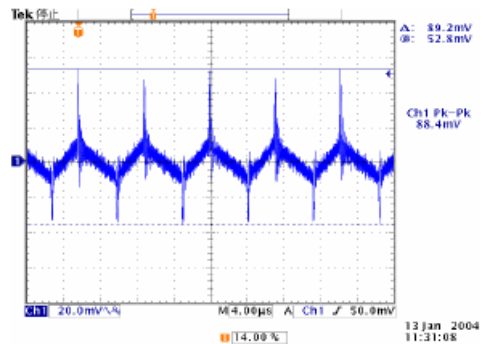


Daitron HFS Ultra low noise 50W-12V

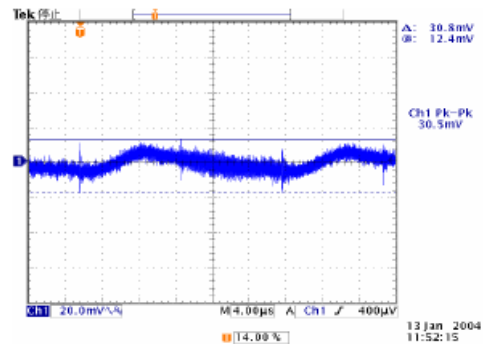


Ripple Noise on Switching Frequency

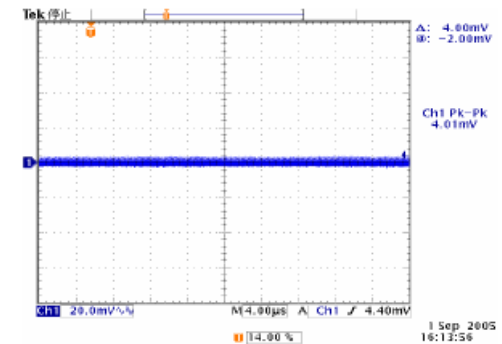
Hard Switching Type 50W-12V



Daitron DFS series 50W-12V



Daitron HFS Ultra low noise 50W-12V



Product Series

- HFS series
 - Ultra Low Noise < 3 - 5mVp-p >
 - Wide Input Range < 85 to 264Vac >
 - 30W & 50W
 - Single output
- HFD series
 - Ultra Low Noise < 3 - 5mVp-p >
 - Wide Input Range < 85 to 264Vac >
 - 30W
 - Dual output

Product Series

- **DFS series**
 - Very Low Noise < 30 - 50mVp-p >
 - Wide Input Range < 85 to 264Vac >
 - 30W, 100W & 150W
 - Single output
- **DLS series**
 - Low Noise < 30 – 120mVp-p >
 - Wide Input Range < 85 to 264Vac >
 - 100W & 150W
 - Single output

Product Series

- **MFS50 series**
 - Ultra Low Noise < 3 - 5mV >
 - Medical Standard
 - Certified : UL60601-1 File No. : E320635
 - “ Power Supplies, Medical and Dental Certified – Component “ (In US & Canada)
 - Wide Input Range < 85-264Vac >
 - 50W
 - Single output

- **HFS150A series**
 - Ultra Low Noise < 3 - 5mV >
 - Medical Standard
 - Certified : UL60601-1 File No. : E320635
 - “ Power Supplies, Medical and Dental Certified – Component “ (In US & Canada)
 - Wide Input Range (85-264Vac)
 - 150W
 - Single output

See [product selection guide](#) for more info

DTR – Daitron Incorporated

US Operation of Daito Electron Group

<http://www.daitron.com>

<http://www.daitron.co.jp/english/>

HQ Location : Wilsonville, OR USA

- Semiconductor Equipment Sales and Support
- Vision System Products Sales
- Electronic Components
- Founded: Sep 23rd, 1986
- Number of Employee: 48
- Location:
Lincoln, Nebraska

— Reliable & Heavy duty cable assembly manufacturer specific for Rail road application



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