

- 1 Magnetics for ON Semiconductor ML4824 Switcher
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GENERAL APPLICATION ML4824-1

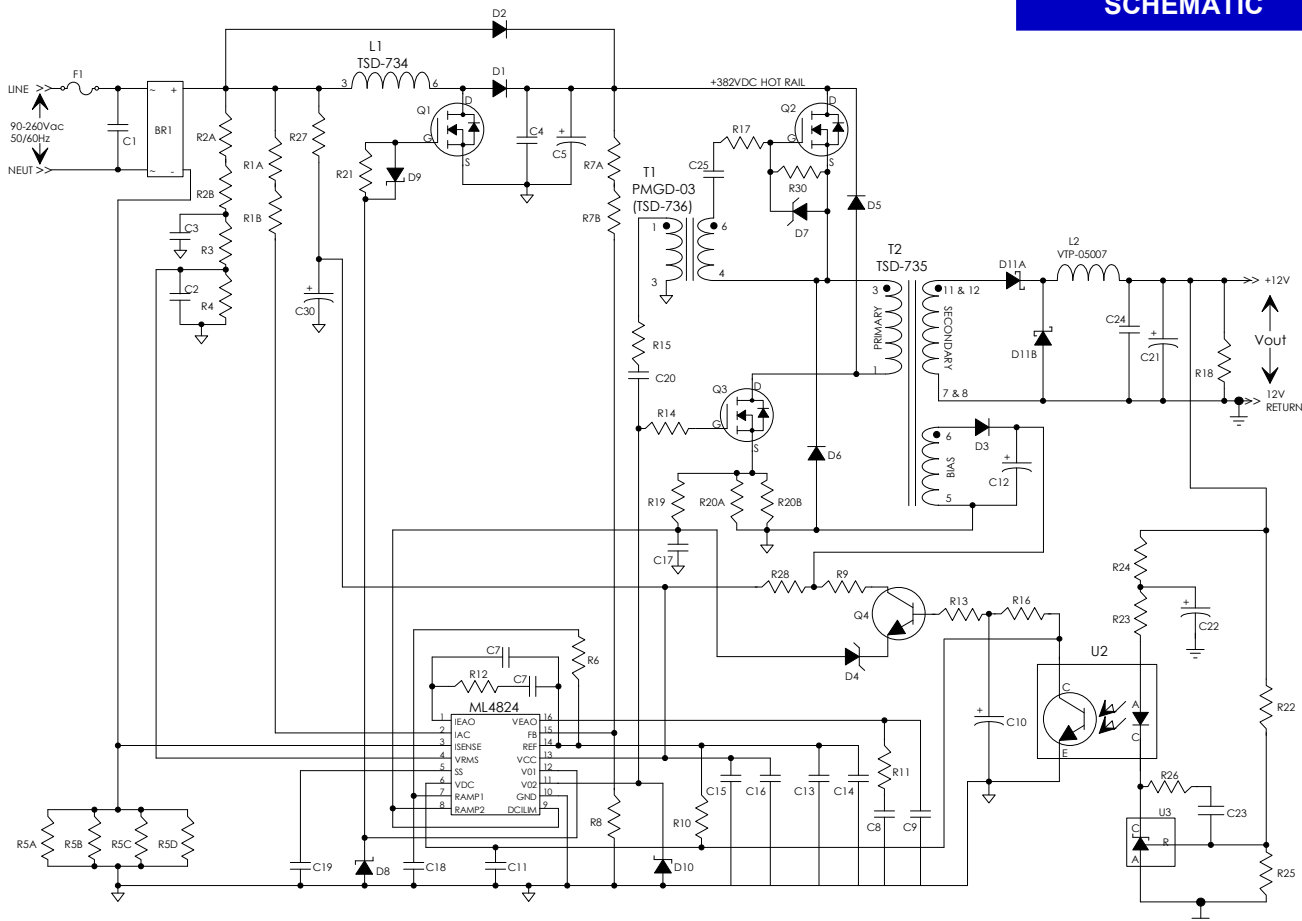
100WATT PFC UNIVERSAL OFF-LINE SWITCHING MAGNETICS

Premier Magnetics' TSD-735 Switch Mode Transformer was designed for use with ON Semiconductor ML4824-1 PFC/PWM Combination off-line controller IC, in the Two Transistor Single-Ended Forward Converter Configuration. This converter topology can provide isolated multiple outputs with efficiencies up to 90%. Premier's TSD-735 transformer has been optimized to provide maximum power throughput and to provide the necessary bias voltage for the ML4824-1 and its auxiliary circuitry.

The ML4824-1 from ON Semiconductor is highly integrated power supply controller, incorporating a PFC front end operating at 100KHz, and a synchronized PWM switching regulator running @ 50KHz. This combination provides all necessary functions for a Universal-Input, Power Factor Corrected DC power supply in the 50 to 500W output range. The TSD-734 boost inductor and TSD-735 output transformer are critical to the performance of the circuit. Together they define the harmonic reduction, efficiency, output power and the size of the Power Factor Correction and DC output stages.

Below is a typical universal input, high precision application circuit utilizing ON Semiconductor ML4824-1 PFC/PWM control IC. The AC mains voltage is power factor corrected and boosted to 382VDC by the PFC half of the ML4824-1 and the TSD-734 PFC boost inductor. The PWM half of the ML4824-1 and the PMGD-03 gate drive transformer then provide the MOSFET gate drives for operating the TSD-735 output transformer which converts the 382VDC hot rail to a regulated 12VDC, 100W output. Recommended component values can be obtained from ON Semiconductor ML4824-1 application notes. Evaluation boards are available from ON.

SCHEMATIC



Specifications subject to change without notice.

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SUPPORT PRODUCTS FOR ON SEMICONDUCTOR

GENERAL ELECTRICAL SPECIFICATIONS AT 25°C - OPERATING TEMPERATURE RANGE 0°C TO +70°C

The following magnetics have been designed for use with a variety of ON (MICRO LINEAR'S) semiconductors.

To receive complete specifications & application information, please contact the factory or fill out our [Literature Request](#) form to receive the respective part number detail data sheet.

| PART NUMBER | Micro Linear I.C. Part Number | APPLICATION INFORMATION | Package |
|-------------|-------------------------------|--|-----------|
| TSD-734 | ML4824 | PFC Boost Inductor, ML4824-1 EVAL, 100W @ 50KHz | E375 |
| TSD-735 | ML4824 | Main Switching Transformer, ML4824-1 EVAL, 100W @ 100KHz | EE30 |
| TSD-1047 | ML4824 | PFC Boost Inductor, ML4824-2 EVAL, 100W @ 100KHz | E375 |
| TSD-1048 | ML4824 | Main Switching Transformer, ML4824-2 EVAL, 100W @ 200KHz | EI33/29 |
| PMGD-03 | ML4824 | Gate Drive Transformer (formerly TSD-736), ML4824-1 EVAL | EP7 |
| TSD-845 | ML4826 | PFC Boost Inductor, ML4826 @ 500W | E55/21 |
| TSD-835 | ML4826 | Main Switching Transformer, ML4826, 500W Multiple Outputs | ETD-49 |
| TSD-939 | ML4826 | PFC Boost Inductor, ML4826 @ 650W | E55/21 |
| TSD-938 | ML4826 | Main Switching Transformer, ML4826, 650W Multiple Outputs | E55/21 |
| TSD-746 | ML4831 | Boost Inductor, T1 on ML4831 220V EVAL Board | EF25-VERT |
| TSD-917 | ML4831 | Boost Inductor, T1 HORZ version on ML4831 220V EVAL Board | EF25-HORZ |
| PMGD-04 | ML4831 | Gate Drive, T2 on ML4831 220V EVAL Board (formerly TSD-747) | EP10 |
| TSD-748 | ML4831 | Main Switching Transformer, T4 on ML4831 220V EVAL Board | EF25-VERT |
| TSD-749 | ML4831 | Current Sense Transformer, T5 on ML4831 220V EVAL Board | EF25-VERT |
| TSD-789 | ML4821 | T1 on ML4821-EVAL, PFC Controller | PQ40 |
| TSD-780 | ML4831 | Main Switching Transformer, T4 on ML4831 277V EVAL Board | EF25-VERT |
| TSD-843 | ML4831 | Main Switching Transformer, T4 HORZ version ML4831 277V EVAL | EF25-HORZ |
| TSD-800 | ML4831 | Main Switching Transformer, T3 on ML4831 220V Low Cost EVAL | EF25-VERT |
| TSD-801 | ML4831 | Power Transformer, T3 Variation on ML4831 220V EVAL Board | EF25-VERT |
| TSD-918 | ML4831 | Power Transformer, T3 HORZ version Variation on ML4831 220V | EF25-HORZ |
| TSD-802 | ML4831 | Main Transformer, T4 Variation on ML4831 220V EVAL | EF25-VERT |
| TSD-919 | ML4831 | Main Transformer, T4 HORZ version Variation on ML4831 220V | EF25-HORZ |
| TSD-831 | ML4831 | Boost Inductor, T1 on ML4831 120V EVAL Board | EF25-VERT |
| TSD-844 | ML4831 | Boost Inductor, T1 HORZ version ML4831 120V EVAL | EF25-HORZ |
| TSD-902 | ML4831 | 100KHz ZVS PFC Boost Inductor | E42/20 |
| TSD-903 | ML4831 | 100KHz ZVS PFC Resonant Inductor | E2425 |
| TSD-882 | ML4832 | Boost Inductor, T1 on ML4832 220V EVAL Board | EF25-VERT |
| TSD-965 | ML4833 | Boost Inductor, T1 on ML4833 220V Dimming EVAL Board | EF25-VERT |
| TSD-1086 | ML4833 | Boost Inductor, T1 HORZ version, ML4833 220V Dimming EVAL | EF25-HORZ |
| TSD-1082 | ML4833 | Boost Inductor, T1 on ML4833 120V Dimming EVAL Board | EF25-VERT |
| TSD-1087 | ML4833 | Boost Inductor, T1 HORZ version, ML4833 120V Dimming EVAL | EF25-HORZ |
| TSD-892 | ML4833 | Boost Inductor, T4 on ML4833 220V Dimming EVAL Board | EF25-VERT |
| TSD-1085 | ML4833 | Boost Inductor, T4 HORZ version, ML4833 220V Dimming EVAL | EF25-HORZ |
| TSD-756 | ML4863 | Flyback Transformer, Vin = 3.3V, Vout= 3.3V, 5.0V & 12V | EF25-VERT |
| TSD-904 | ML4900 | 15A Powdered Iron inductor, 1.4uHy | Toroid |

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