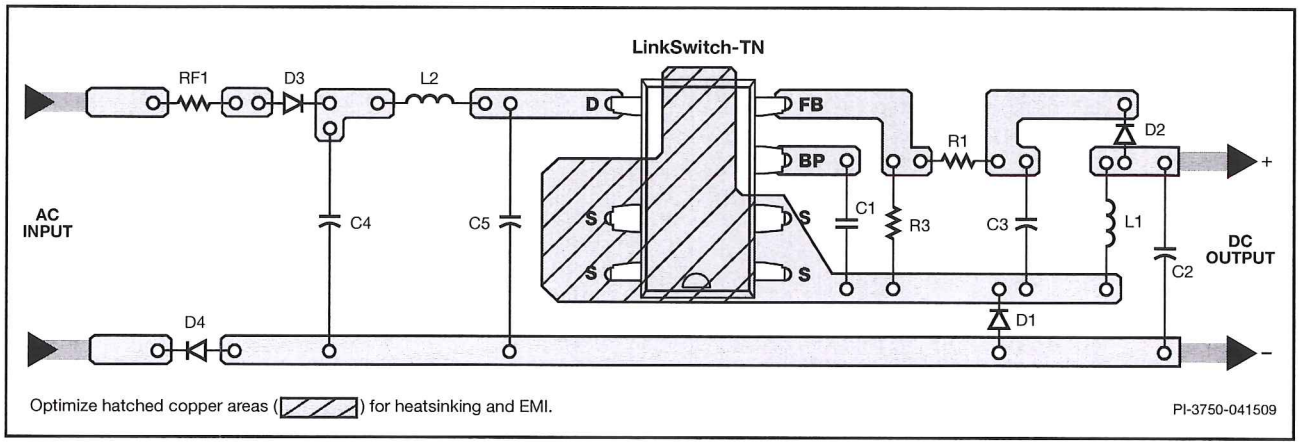

Figure 6a. Recommended Printed Circuit Layout for LinkSwitch-TN in a Buck Converter Configuration using P or G Package.

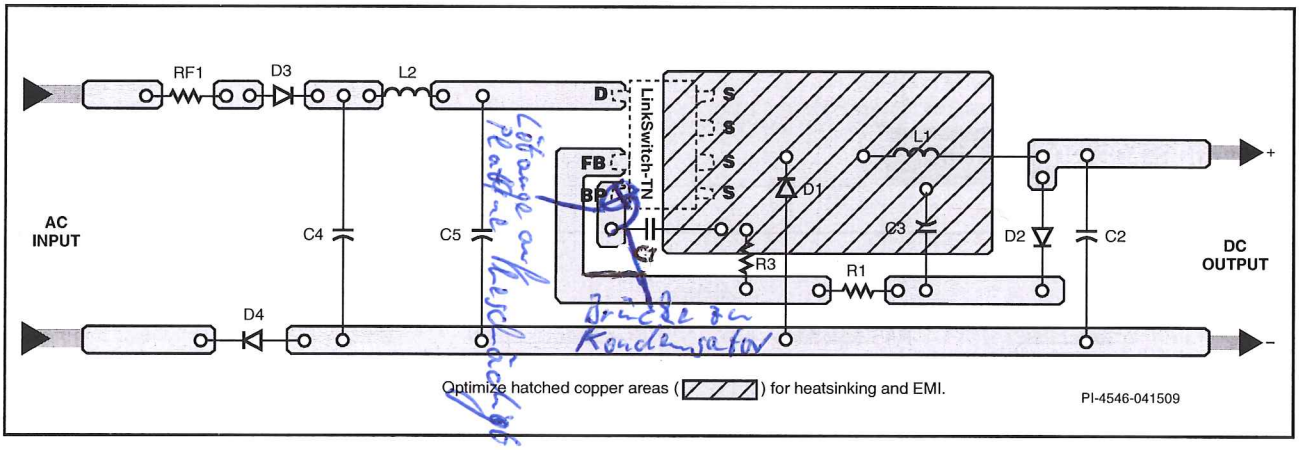

Figure 6b. Recommended Printed Circuit Layout for LinkSwitch-TN in a Buck Converter Configuration using D Package to Bottom Side of the Board.

Key Application Considerations

LinkSwitch-TN Design Considerations

Output Current Table

Data sheet maximum output current table (Table 1) represents the maximum practical continuous output current for both mostly discontinuous conduction mode (MDCM) and continuous conduction mode (CCM) of operation that can be delivered from a given LinkSwitch-TN device under the following assumed conditions:

1. Buck converter topology.
2. The minimum DC input voltage is ≥70 V. The value of input capacitance should be large enough to meet this criterion.
3. For CCM operation a KRP* of 0.4.
4. Output voltage of 12 VDC.
5. Efficiency of 75%.
6. A catch/freewheeling diode with t_{RR} ≤75 ns is used for MDCM operation and for CCM operation, a diode with t_{RR} ≤35 ns is used.
7. The part is board mounted with SOURCE pins soldered to a sufficient area of copper to keep the SOURCE pin temperature at or below 100 °C.

*KRP is the ratio of ripple to peak inductor current.

LinkSwitch-TN Selection and Selection Between MDCM and CCM Operation

Select the LinkSwitch-TN device, freewheeling diode and output inductor that gives the lowest overall cost. In general, MDCM provides the lowest cost and highest efficiency converter. CCM designs require a larger inductor and ultrafast (t_{RR} ≤35 ns) freewheeling diode in all cases. It is lower cost to use a larger LinkSwitch-TN in MDCM than a smaller LinkSwitch-TN in CCM because of the additional external component costs of a CCM design. However, if the highest output current is required, CCM should be employed following the guidelines below.

Topology Options

LinkSwitch-TN can be used in all common topologies, with or without an optocoupler and reference to improve output voltage tolerance and regulation. Table 2 provide a summary of these configurations. For more information see the Application Note – LinkSwitch-TN Design Guide.