

EVAL6725

L6725: 20A Demoboard

Data Brief

General description

L6725 demoboard realizes in a four layer PCB a step-down DC/DC converter and shows the operation of the device in a general purpose application. The input voltage can range from 4.5 V to 14 V and the output voltage is at 3.3 V. The module can deliver an output current in excess of 20 A. The switching frequency is set at 250 KHz (controller free-running F_{SW}) but it can be set to 500 KHz acting on the EAREF pin.

Demoboard picture



Features EVAL6725

1 Features

Figure 1. Demoboard schematic

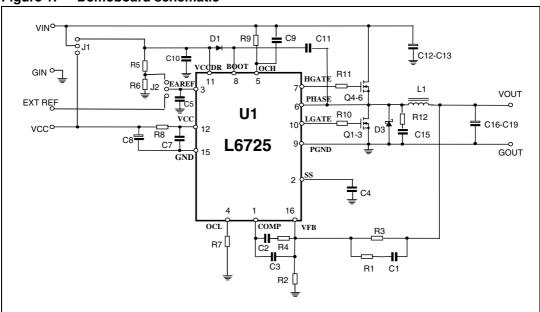


Table 1. Demoboard part list

| Reference | Value | Manufacturer | Package | Supplier |
|-----------|--------|--------------|----------|----------|
| R1 | 1 kΩ | Neohm | SMD 0603 | IFARCAD |
| R2 | 1 kΩ | Neohm | SMD 0603 | IFARCAD |
| R3 | 4. 7kΩ | | | |
| R4 | 2.7 kΩ | Neohm | SMD 0603 | IFARCAD |
| R5 | 0 Ω | Neohm | SMD 0603 | IFARCAD |
| R6 | N.C. | Neohm | SMD 0603 | IFARCAD |
| R7 | 2 kΩ | Neohm | SMD 0603 | IFARCAD |
| R8 | 10 Ω | Neohm | SMD 0603 | IFARCAD |
| R9 | 1.5 kΩ | Neohm | SMD 0603 | IFARCAD |
| R10 | 2.2 Ω | Neohm | SMD 0603 | IFARCAD |
| R11 | 2.2 Ω | Neohm | SMD 0603 | IFARCAD |
| R12 | N.C. | Neohm | SMD 0603 | IFARCAD |
| C1 | 4.7 nF | Kemet | SMD 0603 | IFARCAD |
| C2 | 47 nF | Kemet | SMD 0603 | IFARCAD |
| C3 | 1 nF | Kemet | SMD 0603 | IFARCAD |
| C4 | 100 nF | Kemet | SMD 0603 | IFARCAD |
| C5 | 100 nF | Kemet | SMD 0603 | IFARCAD |

EVAL6725 Features

Table 1. Demoboard part list (continued)

| Reference | Value | Manufacturer | Package | Supplier |
|-----------|-------------|--------------|----------|-------------|
| C6 | N.C. | / | / | / |
| C7 | 100 nF | Kemet | SMD 0603 | IFARCAD |
| C8 | 4.7 μF 20 V | AVX | SMA6032 | IFARCAD |
| C9 | 1 nF | Kemet | SMD 0603 | IFARCAD |
| C10 | 1 μF | Kemet | SMD 0603 | IFARCAD |
| C11 | 220 nF | Kemet | SMD 0603 | IFARCAD |
| C12-13 | 3X 15 μF | / | / | ST (TDK) |
| C15 | N.C. | / | / | / |
| C16-19 | 2X 330 μF | / | / | ST (poscap) |
| L1 | 1.8 μΗ | Panasonic | SMD | ST |
| D1 | STPS1L30M | ST | DO216AA | ST |
| D3 | N.C. | / | / | / |
| Q1-Q2 | STS12NH3LL | ST | SO8 | ST |
| Q4-Q5 | STS25NH3LL | ST | SO8 | ST |
| U1 | L6725 | ST | SO16N | ST |

Table 2. Other inductor manufacturer

| Manufacturer | Series | Inductor value (µH) | Saturation current (A) |
|------------------|-------------------|---------------------|------------------------|
| WURTH ELEKTRONIC | 744318180 | 1.8 | 20 |
| SUMIDA | CDEP134-2R7MC-H | 2.7 | 15 |
| EPCOS | HPI_13 T640 | 1.4 | 22 |
| TDK | SPM12550T-1R0M220 | 1 | 22 |
| токо | FDA1254 | 2.2 | 14 |
| COILTRONICS | HCF1305-1R0 | 1.15 | 22 |
| | HC5-1R0 | 1.3 | 27 |

Table 3. Other capacitor manufacturer

| Manufacturer | Series | Capacitor value(µF) | Rated voltage (V) |
|------------------|----------------|---------------------|-------------------|
| TDK | C4532X5R1E156M | 15 | 25 |
| | C3225X5R0J107M | 100 | 6.3 |
| NIPPON CHEMI-CON | 25PS100MJ12 | 100 | 25 |
| PANASONIC | ECJ4YB0J107M | 100 | 6.3 |

Revision history EVAL6725

Figure 2. Demoboard efficiency

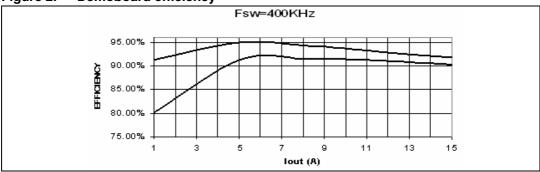
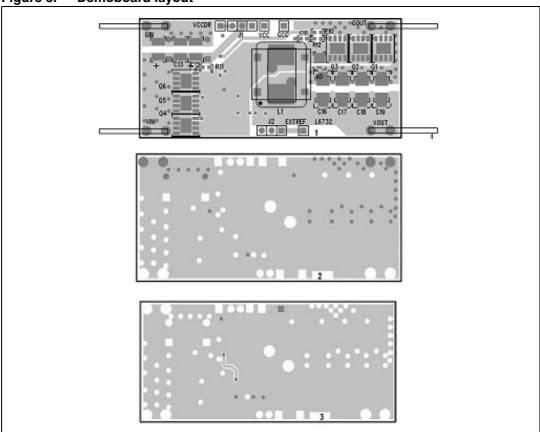


Figure 3. Demoboard layout



2 Revision history

 Table 4.
 Revision history

| Date | Revision | Changes |
|-------------|----------|-------------|
| 03-Jan-2007 | 1 | First issue |

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