19-0419; Rev 1; 9/95

MAXIM

MAX688-4A Evaluation Kit

Evaluates: MAX688/MAX689

General Description

The MAX688-4A evaluation kit (EV kit) provides a regulated 3.3V output voltage while operating on input voltages from 3.5V to 11V. It delivers up to 4A output current from a 4.5V to 5.5V input, with low dropout.

The MAX688-4A EV kit is a fully assembled and tested printed circuit board. The board comes with a 3.3V-output MAX688 IC installed, but can also be used to evaluate the MAX689 (3.0V output).

Features

- ♦ **3.5V to 11V Input Supply Range**
- ♦ **3.3V Output Voltage**
- ♦ **Up to 4A Output Current**
- ♦ **<0.02µA/MAX688 Shutdown Supply Current**
- ♦ **150µA Quiescent Current**
- ♦ **External PNP Pass Transistor**
- ♦ **Adjustable Current Limit**
- ♦ **Fully Assembled and Tested**

Component List

DESIGNATION	QTY	DESCRIPTION
C3	1	1µF ceramic capacitor Marcon THCR30E1E105M
C4	1	4.7µF, 16V tantalum capacitor Sprague 595D475X0016A2B
C1, C2	2	150µF, 35V aluminum electrolytic caps. Nichicon UPL1V151MPH6 or Sanyo 35MV150GX
C16	1	0.01µF ceramic capacitor
C5	1	1200µF, 16V aluminum electrolytic cap. Nichicon UPL1C122MRH6 or Sanyo 16MV1200GX OR 1000µF, 25V aluminum electrolytic cap. Sanyo 25MV100GX
R4	1	10Ω, 5% resistor
R1	1	100kΩ, 5% resistor
R3	1	1kΩ, 5% resistor
Q1	1	PNP power transistor (TO-220) Motorola TIP42A
Q2	1	PNP transistor, Motorola 2N4403
None	1	Heatsink, Thermalloy 6072B
U1	1	Maxim MAX688CSA (8-pin SO)
JU1	1	3-pin header
JU2	1	2-pin header
None	2	Shunt
None	1	PC board
None	1	MAX688 data sheet

Ordering Information

PART	TEMP. RANGE
MAX688EVKIT-4A	0°C to +70°C

Component Suppliers

SUPPLIER	PHONE	FAX
AVX	(803) 946-0238	(803) 626-3123
IRC	(213) 772-2000	(213) 772-9028
Marcon	(708) 913-9980	(708) 913-1150
Sanyo	(619) 661-6835	(619) 661-1055
Sprague	(508) 339-8900	(508) 339-5063

Quick Start

The MAX688-4A EV kit is a fully assembled and tested board. Follow these steps to verify board operation. **Do not turn on the power supply until all connections are completed.**

1) Connect a 5V power supply to the pad marked VIN. The ground connects to the GND pad.
2) Connect a voltmeter and load (if any) to the VOUT pad.
3) Place one shunt across JU1 pins 2 and 3 and the other shunt across JU2 for normal operation.
4) Turn on the power and verify that the output voltage is 3.3V.

Instructions for modifying the board for a 3.0V output appear in the section *Evaluating the MAX689*.

Call toll free 1-800-998-8800 for free samples or literature.

Detailed Description

Shutdown Function

The MAX688 has an active-low shutdown control input to turn its output on or off at any time. The 3-pin header JU1 selects the shutdown mode. Remove the shunt when driving shutdown with an external signal. Table 1 lists the jumper selectable options.

Table 1. Jumper JU1 Functions

SHUNT LOCATION	$\overline{SHDN}$ PIN	MAX688 OUTPUT
2 & 3	Connected to VIN	MAX6884A Enabled, V_{OUT} = 3.3V
2 & 1	Connected to GND	Shutdown Mode, V_{OUT} = 0V

Evaluating the MAX689

The MAX688 can be replaced with a MAX689 to generate a 3.0V output voltage with output current up to 4A. The only modification required is to replace the IC.

Base-Current Limiting

The output current can be limited by installing a current-limiting resistor, R2, between BASE (pin 7) and BLIM (pin 6) of U1. This EV kit comes with a shunt across JU2, which limits base current to 20mA.

For lower base current limit, refer to the MAX687/MAX688/MAX689 data sheet for instructions on selecting the current-limiting resistor value.

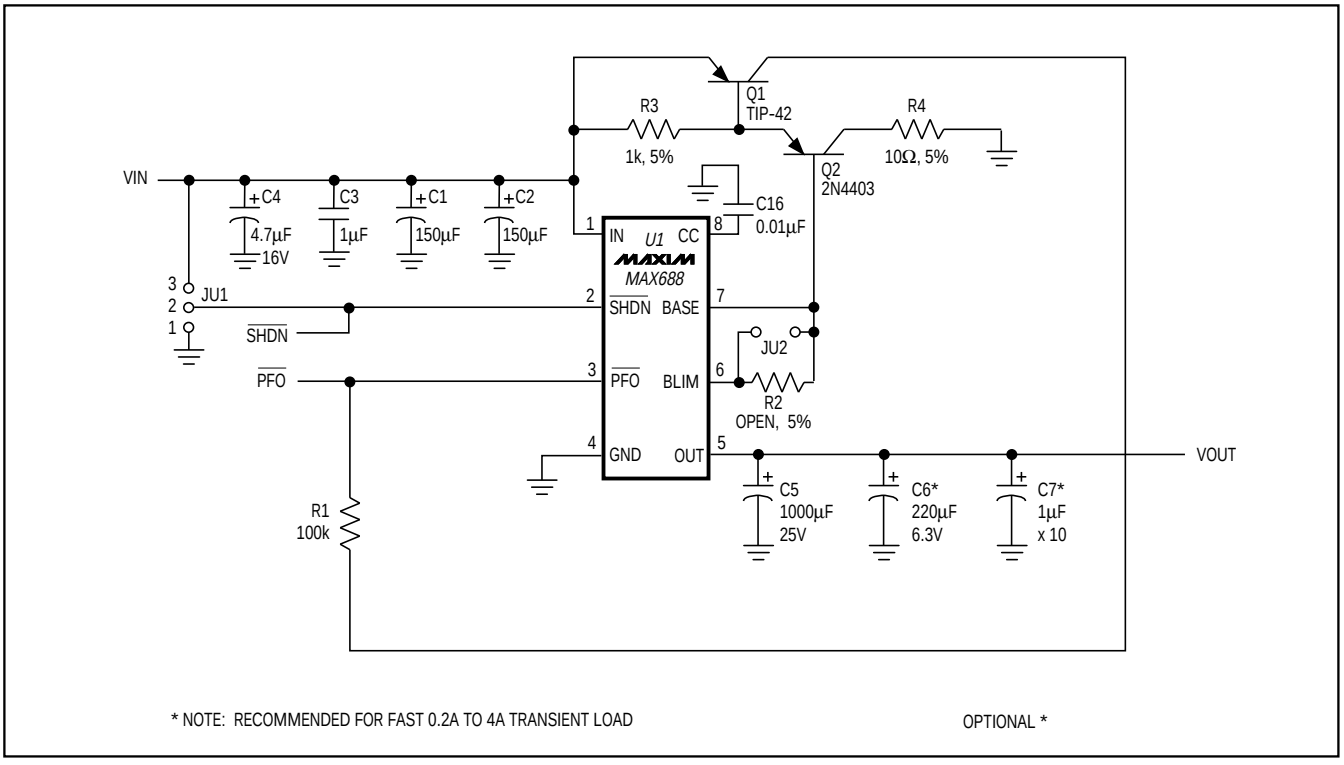

Figure 1. MAX688-4A EV Kit Schematic Diagram

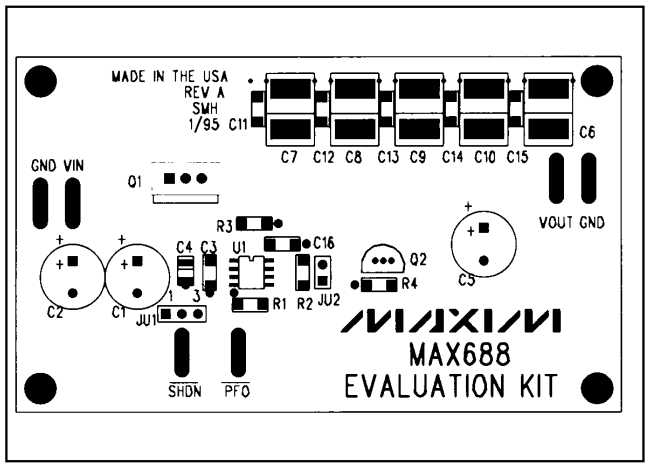

Figure 2. Component Placement Guide—Component Side

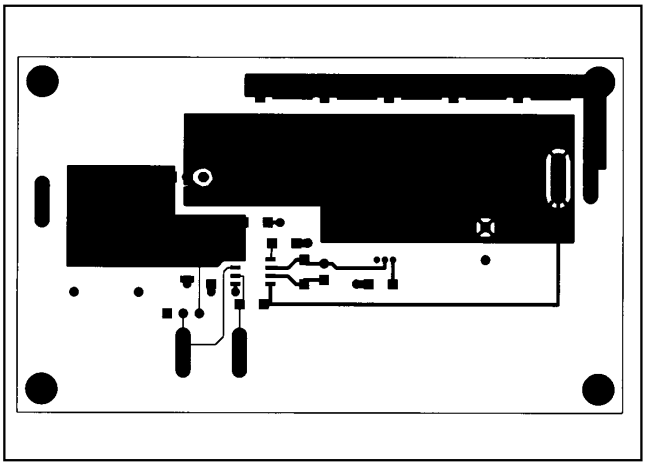

Figure 3. PC Board Layout—Component Side

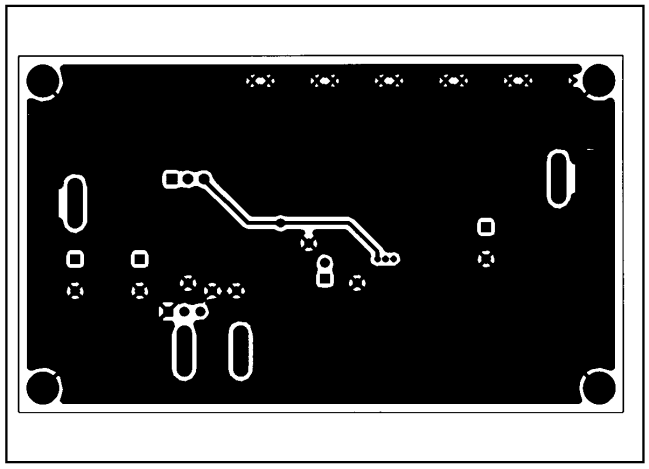

Figure 4. PC Board Layout—Solder Side

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