# UCC3913 or UCC3921 Hot Swap Power Manager Evaluation Board

Power Management Products

1   Evaluation Board Operation

This user's guide highlights the UCC3913/ UCC3921 evaluation board in a typical −48-Vdc, 1-A application circuit.

Many battery-powered and telecommunications power supplies use some form of protection to prevent high currents from flowing during a short-circuit or overload condition. This function is often performed by a self-resetting circuit breaker as opposed to a fuse, which requires manual replacement whenever triggered. Circuit breakers can be implemented in a number of different ways, but the most popular approach is to use a MOSFET transistor, which can be switched on and off as required. Load current is typically sensed with a low value resistor and compared to a reference level to determine when an overcurrent condition exists. This function can be achieved with discrete circuitry or with a fully-integrated solution, such as the UCC3913 and the UCC3921 negative voltage hot swap power manager.
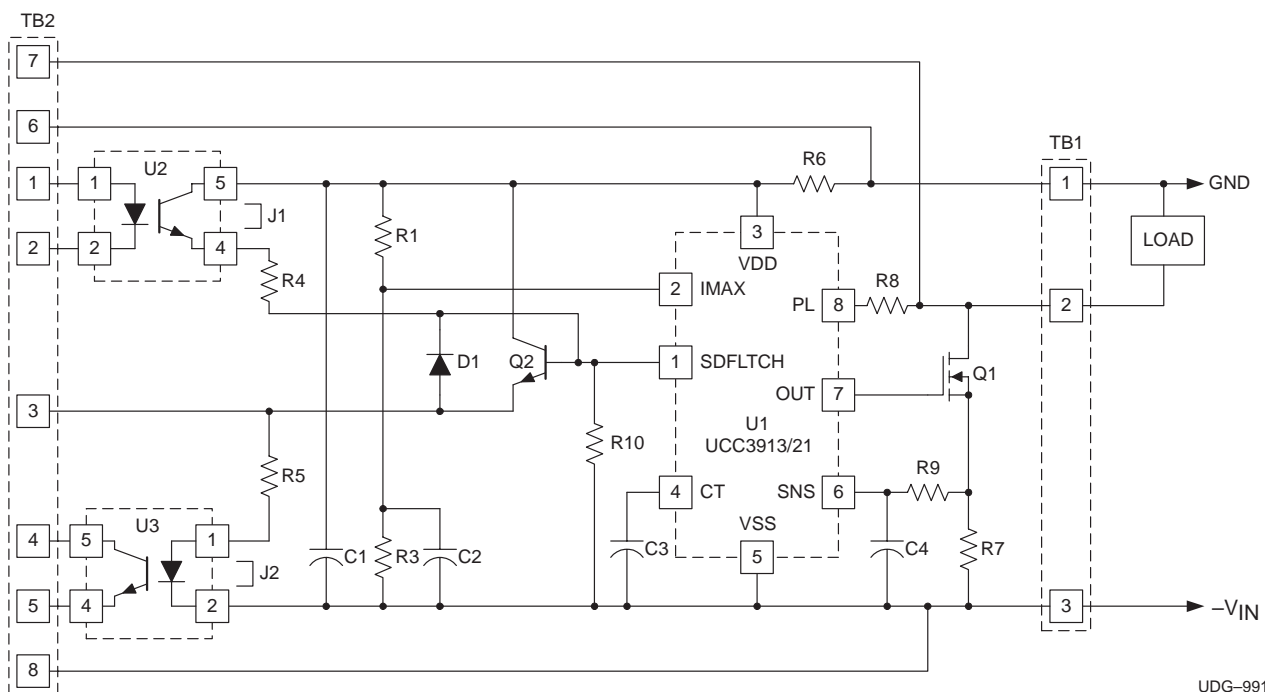
UDG−99127

Figure 1. Evaluation Board Schematic

2 Evaluation Board Bill of Materials

Table 1. Bill of Materials

Description	Reference	Qty	Value/Type Number	Manufacturer	Part Number
Capacitors	C1	1	1 µF, 16 Vdc		
	C2	1	not used – open circuit		
	C3	1	1.5 nF, 16 V dc		
	C4	1	not used – open circuit		
Diodes	D1	1			1N4148
Resistors	R1	1	23.7 kΩ, 1/4 W		
	R3	1	511 Ω, 1/4 W		
	R4	1	47 kΩ, 1/4 W		
	R5	1	1 kΩ, 1/4 W		
	R6	1	3.3 kΩ, 5%, 1W, SMD2512 or leaded metal film		
	R7	1	Shunt, 50 mΩ, 1%		
	R8	1	330 kΩ, 1/4 W		
	R9	1	0 Ω, jumper		
	R10	1	82 kΩ, 1/4 W		
MOSFETs	Q1	1	200 V, 5 A	Int'l Rectifier	IRF630 or IRF630S
Transistor	Q2	1	NPN, small signal		PN2222/A
Integrated Circuits	U1	1	Negative hot swap power manager IC	Texas Instruments	UCC3913 or UCC3921
	U2, U3	2	Optocoupler	QT Optoelectronics or Toshiba	4N29

The following equipment is needed for the operation of the UCC3913/UCC3921 evaluation board:

- Power Supply: 48 Vdc/1.5 Adc

- Electronic load-to-sink 1.5 A at 48 Vdc

3 References

For complete details and various features of the devices mentioned in this User's Guide, see the following datasheets.

1. UCC3913 *Negative Voltage Hot Swap Power Manager*, Texas Instruments, Literature No. SLUS274.
2. UCC3921 *Latchable Negative Floating Hot Swap Power Manager*, Texas Instruments, Literature No. SLUS207.

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