UM2107
User manual

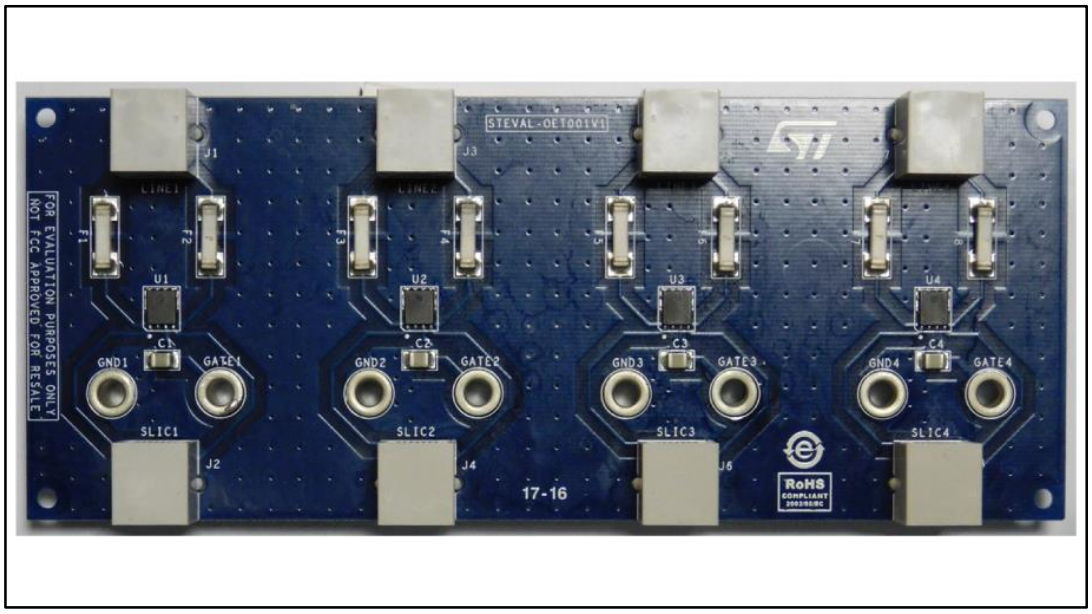
Getting started with STEVAL-OET001V1 LCP154DJF evaluation board to validate lightning protection for SLIC transceivers

Introduction

The STEVAL-OET001V1 board is designed to validate lightning protection for SLIC transceivers.

The board complies with ITU-T K20/21/45 and GR1089-Core associated with the Cooper Bussmann telecom circuit protector fuse (TCP 1.25 A).

Figure 1: STEVAL-OET001V1 evaluation board



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1 Board purpose, use and connections

The goal of this evaluation board is to validate lightning protection for SLIC transceivers.

The board is able to protect four POTS lines. Several boards can be used if the number of POTS lines is higher than four.

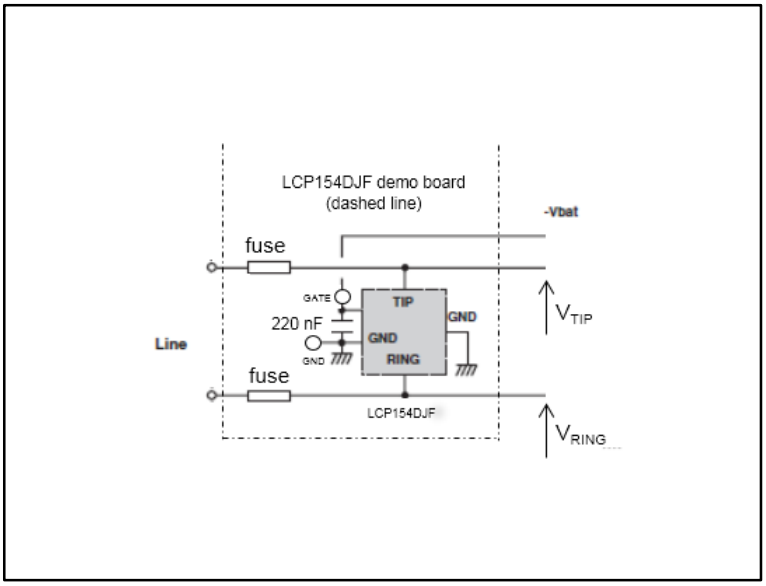
To use the board:

- connect the lines in female RJ11 “LINEx” connectors (LINE1, LINE2, LINE3 and LINE4)
- plug cables to the “SLICx” connectors (RJ11 plug 6P4C) (cables are not provided)
- plug the other end of the cable to the RJ11 SLIC transceiver
- connect -Vbat from SLIC between GATE (GATE1, GATE2, GATE3 and GATE4) and GND (GND1, GND2, GND3 and GND4); e.g., VGATE-GND = -Vbat = -48 V

In *Figure 1: "STEVAL-OET001V1 evaluation board"*, each POTS line has a LCP154DJF and a 220 nF capacitor connected between GND and GATE, a female RJ11 to be connected to the line (LINE1, LINE2, LINE3 and LINE4) and a female RJ11 to be connected to the SLIC (SLIC1, SLIC 2, SLIC3 and SLIC4).

The following figure shows the LCP154DJF connection schematic for one line.

Figure 2: One POTS line connection

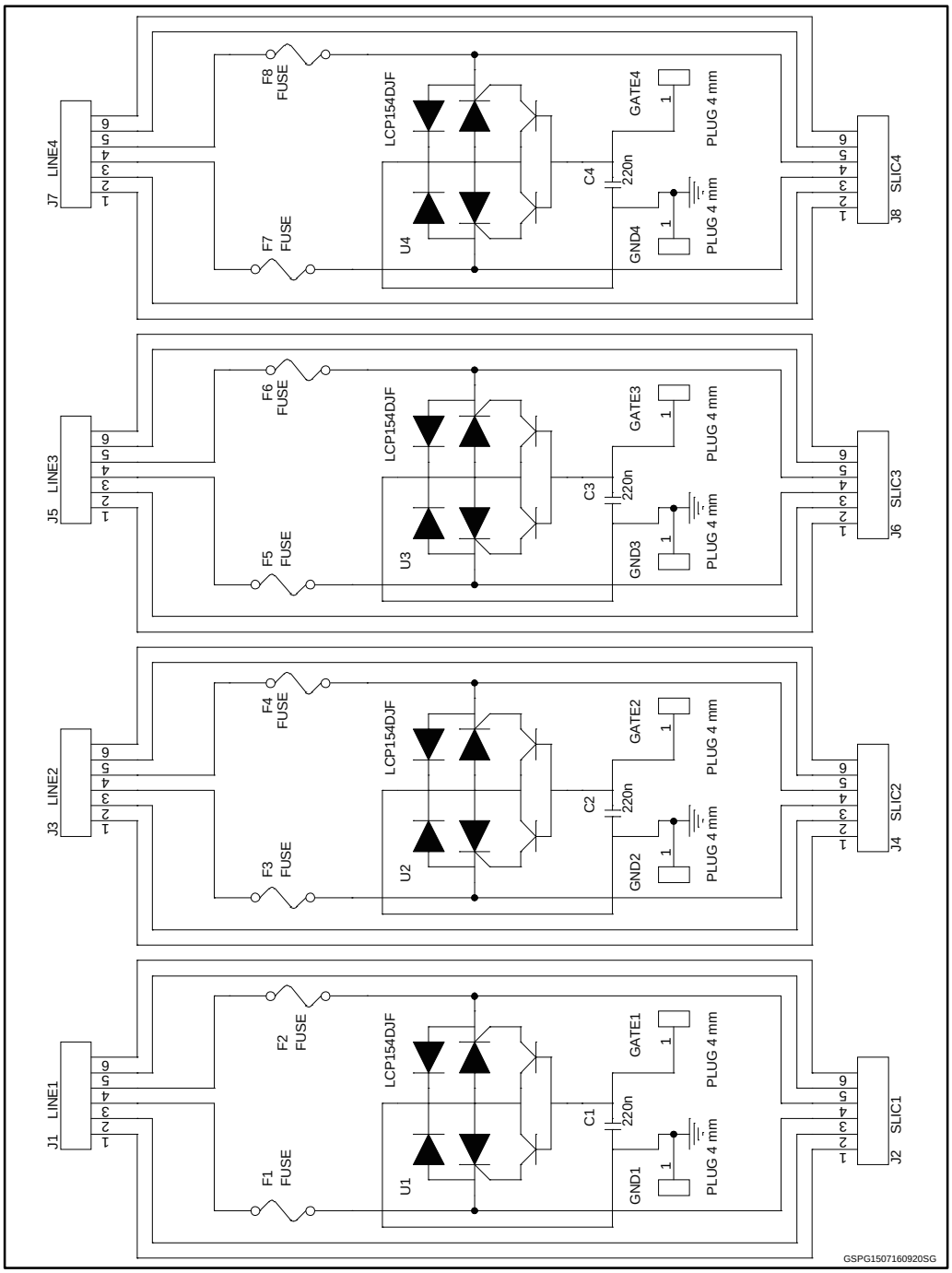


All GND are connected.

2 Schematic diagrams

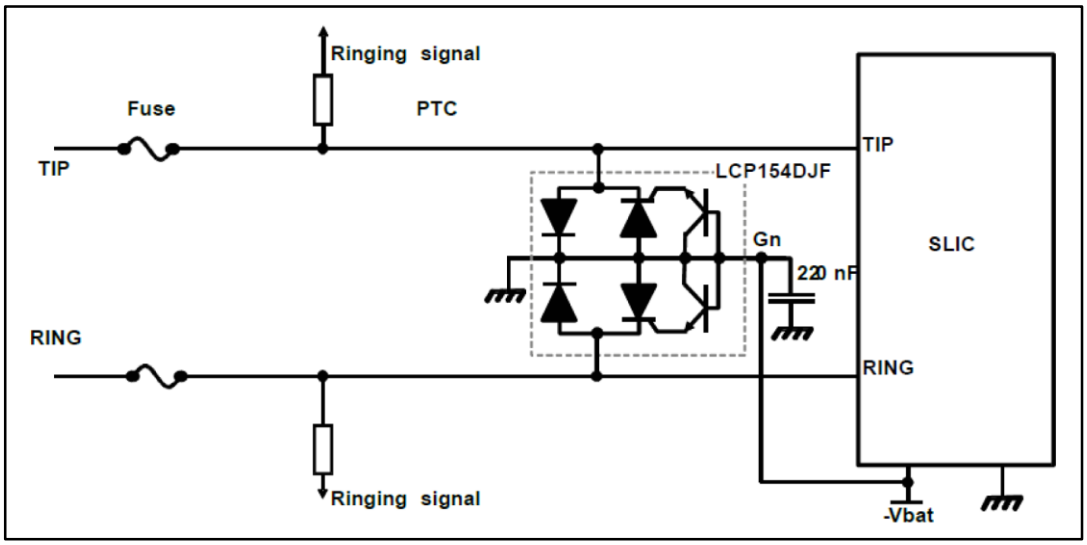
The following figure shows the board schematic. Each line has 1 x LCP154DJF, 1 x 220 nF capacitor connected between GND and GATE, 1 female RJ11 to be connected to the line (labelled: LINE1, LINE2, LINE3 and LINE4) and 1 female RJ11 to be connected to the SLIC (labelled: SLIC1, SLIC 2, SLIC3 and SLIC4).

Figure 3: STEVAL-OET001V1 circuit schematic



The figure below shows the connection of LCP154DJF associated with a SLIC.

Figure 4: LCP154DJF connections



See application note AN4876 on www.st.com for further LCP154DJF implementation and performance details.

3 Bill of materials

Table 1: STEVAL-OET001V1 bill of materials

Item	Q.ty	Reference	Value	Description	Order code	Manufacturer
1	4	C1, C2, C3, C4	1210 X7R 200 V 220 nF	220nF SMD capacitor	MC1210B224K201CT	Multicomp
2	8	F1, F2, F3, F4, F5, F6, F7, F8	1.25 A	Fuse Cooper-Bussmann	TR2/TCP1.25-R	Eaton/ Bussmann
3	8	J1, J2, J3, J4, J5, J6, J7, J8		RJ11 female plugs	331-6409	R.S.
4	8	GND1, GND2, GND3, GND4, GATE1, GATE2, GATE3, GATE4	plug 4 mm	4 mm connectors		
5	4	U1, U2, U3, U4		Programmable transient voltage suppressor	LCP154DJF	ST

4 Revision history

Table 2: Document revision history

Date	Revision	Changes
31-Aug-2016	1	Initial release
01-Sep-2016	2	Minor text changes

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