

# LX1811 EVALUATION KIT USER'S GUIDE

Obsolete



## LX1811 Evaluation Board

### Description

The LX1811 evaluation board implements a typical design using the LX1811 TEC controller driver and is intended to be used to evaluate the performance of that device for various applications and specially temperature of semiconductor lasers used in WDM systems and EDFA amplifiers.

### Electrical connections

Refer to Figure 1 (schematic) and Figure 2 (layout) for reference.

### Power supply

Use +5 VIN and +5 RTN pads for power connection. As per the spec, the supply voltage range is 3V-5V.

### Thermistor

Use NTC and AGN pads for thermistor connection. The board is pretuned for typical 10K $\Omega$  at 25 $^{\circ}$ C thermistors. If a thermistor of different value is used, tune the temperature reference voltage (temperature sitting) accordingly before connecting the thermistor or replace R4 to be of the same resistance as the thermistor. Keep in mind that for better common mode voltage performance, that voltage should be  $\geq 0.8V$ .

Example:

If a 3K $\Omega$  at 25 $^{\circ}$ C thermistor is used, the reference voltage should be trimmed to  $\frac{3}{10+3} \times 2.45V (V_{REF}) = 0.56V$  using the potentiometer R2. Since that voltage is lower than the 0.8V minimum required, R4 (10K $\Omega$ ) should be replaced by a 3K $\Omega$  resistance.

TEC (Thermoelectric cooler):

Use TEC+ and TEC- pads to connect the TEC to the board.

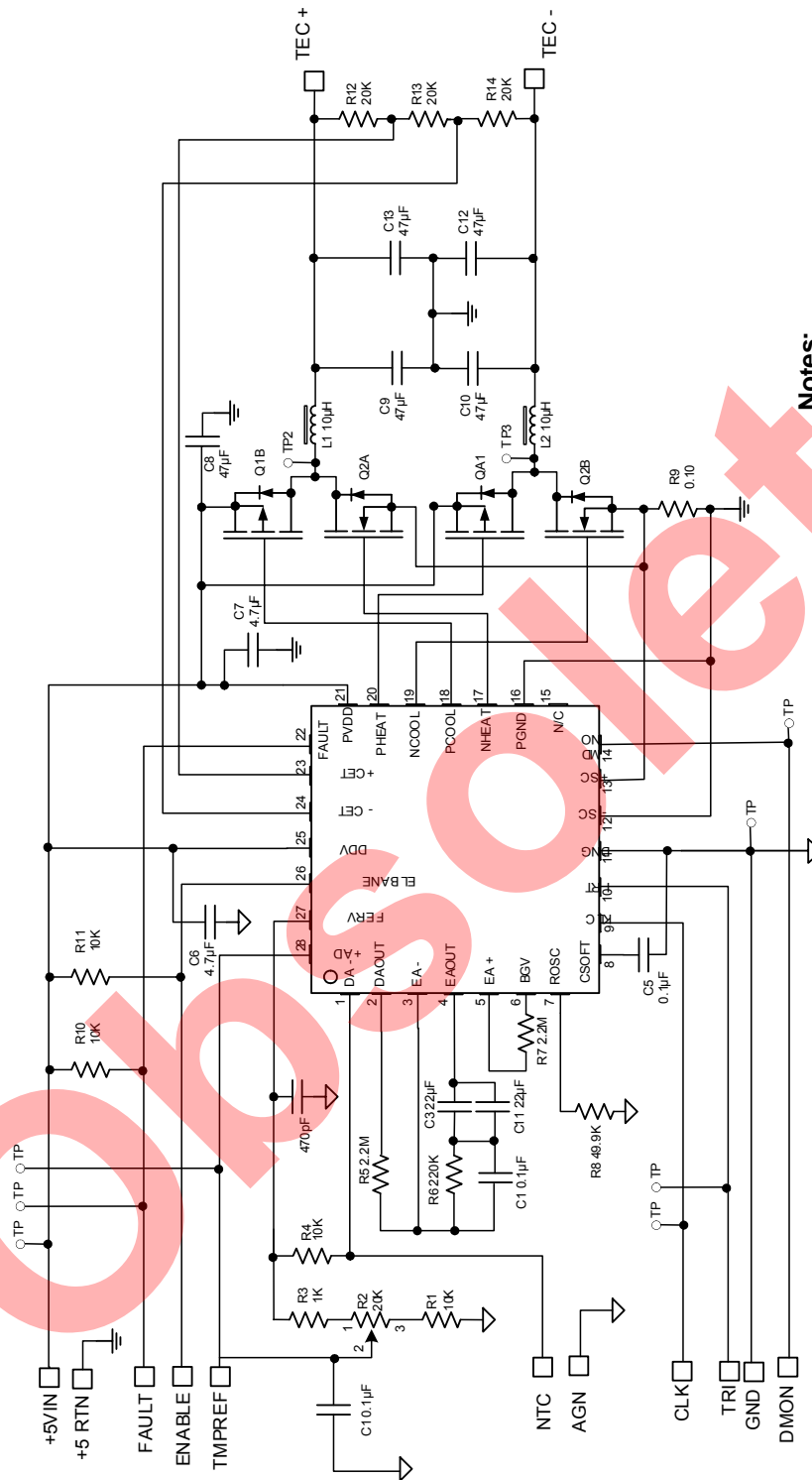
### Monitoring

All the remaining pads are for monitoring purpose only. TP2 and TP3 monitors the outputs of the H bridge.

### Board Performance

The board was evaluated using the TEC and thermistor from Marlow part numbers SP5083 and 217-2228-005 respectively. Figure 3 shows typical loop response for a step change of 5 $^{\circ}$ C on the temperature reference.

APPLICATION SCHEMATIC



- Notes:**
1. C9 and C13 are soldered piggy-back on C9 pads.
  2. C10 and C12 are soldered piggy-back on C10 pads.
  3. C3 and C11 are soldered piggy-back on C3 pads.

Figure 1

FIGURE 1 – LX1811 SCHEMATIC

## BILL OF MATERIALS

## MISCELLANEOUS COMPONENTS

Line Item	Part Description	Manufacturer & Part #	Case	Reference Designators	Qty
1	Int. Ckt, TEC Controller	Microsemi LX1811	MLPQ-28	U1	1
2	FAB, PWM, TEC Controller	Microsemi SGE2832			1
3	Inductor, SMT, 10 $\mu$ h, 4 Amp	Sumida CDRH125-100MC		L1, L2	2
4	Trans, Dual P-Ch, -30V, 95-m $\Omega$ , 5 Amp	Fairchild FDS4953	SO-8	Q1A, Q1B	1
5	Trans, Dual N-Ch, 30V, 55-m $\Omega$ , 5.5 Amp	Fairchild FDS6930A	So-8	Q2A, Q2B	1

## CAPACITORS

Line Item	Part Description	Manufacturer & Part #	Case	Reference Designators	Qty
	0.1 $\mu$ F, 16V, $\pm$ 10%	AVX 00603YC104KAT2A	0603	C1, C5	3
	470pF, 50V, 5%	AVX 006035A471JAT2A	0603	C2	1
	22 $\mu$ F, 6.3V Ceramic	muRata GJ231MF50J226ZD	1206	C3, C11	2
	0.01 $\mu$ F, 50V, $\pm$ 10%	Rohm MCH185CN103KK	0603	C4	1
	4.7 $\mu$ F, 6.3V Ceramic	muRata GRM21BR60J475K	0805	C6, C7	2
	47 $\mu$ F, 6.3V Ceramic	muRata LMK432F476ZM-T	1812	C8-C10, C12, C13	5

## RESISTORS

Line Item	Part Description	Manufacturer & Part #	Case	Reference Designators	Qty
	10.0K, 1%, 1/12W	Rohm MCR03F1002	0603	R1, R13	2
	Trimmer, 20K, 12 Turn Cermet	TOCOS GV4W203-K	SMT	R2	1
	1.00K, 1%, 1/12W	Rohm MCR03F1001	0603	R3	1
	10.0K, 0.1%, 1/12W	Panasonic ERA-3YEB103V	0603	R4	1
	2.2M, 1%, 1/12W	Rohm MCR03F2204	0603	R5, R7	2
	221K, 1%, 1/12W	Rohm MCR03F2213	0603	R6	1
	49.9K, 1%, 1/12W	Rohm MCR03F4492	0603	R8, R10, R11	1
	0.1 Ohm, 5%	Panasonic ERJ-8RSJR10V	1206	R9	1
	4.99K, 1%, 1/12W	Rohm MCR03F4991	0603	R12, R14	2

