Laser-Driver Parametric Calculator

MAXIM High-Frequency/Fiber Communications Group

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Instructions

The attached spreadsheet is designed to aid in determining the resistor values that set the operational parameters on the various Maxim laser drivers. The drivers currently modeled are the MAX3261, the MAX3766, the MAX3867-3869, and the MAX3263. Each laser driver has a separate tab at the bottom of the spreadsheet. The required input data is shown in red, and the outputs are shown in black. Also included are operational flags such as "Good" or "Bad," which indicate that device-operating parameters can be exceeded or are out of range. Descriptions of each of the required inputs are included on each section of the spreadsheet.

This spreadsheet runs using Microsoft Excel97 (or later versions). If this application is available on your system, you can download the spreadsheet (in compressed form) by going to the following web link:

http://pdfserv.maxim-ic.com/arpdf/AppAttachments/5hfan210.zip

For an example, refer to the following table and figure showing the selection of R_{MODSET}, $R_{BIASMAX}$, and R_{APCSET}, given a specific set of parameters.

Table 1. MAX3867-MAX3869 Tab of the Spreadsheet

MAX3867 and MAX3869	
Inputs	
Laser Parameters	
Threshold (25 deg C) ma	22
Monitor Respon (A/W)	0.2
Modulation Eff. u (mW/mA)	0.05
Threshold Temp Var (mA/deg C)	0.286
Operating Conditions	**Input**
Average Power (mW)	1
Extinction Ratio	20
Temp. min. deg. C	-40
Temp. max. deg. C	80

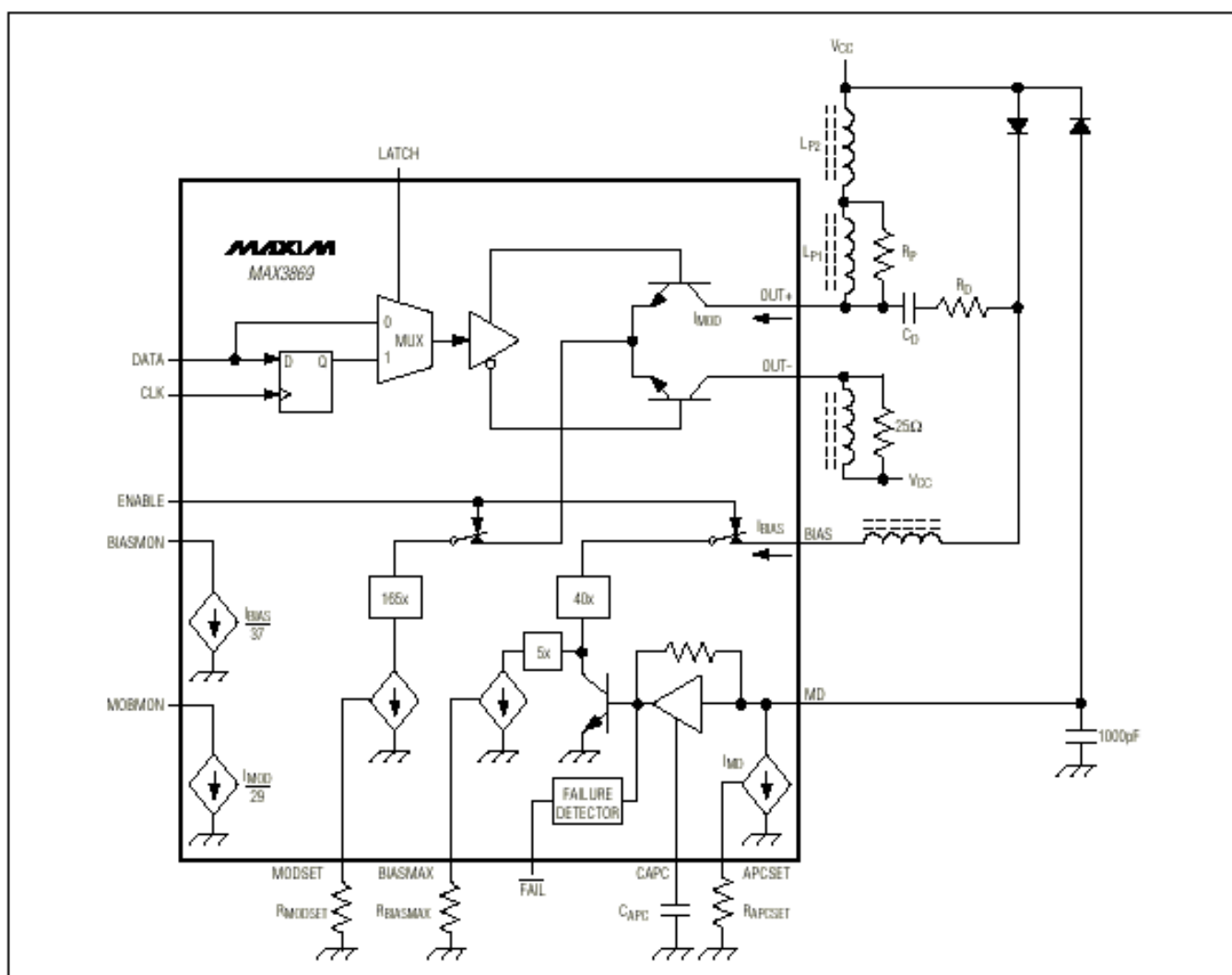| Outputs					
Current Values			**Resistor Values**		
Modulation current (mA)	36.19047619	**Good**			
Bias current Temp Min (mA)	3.41		**Rmod =**	**4570**	**Good**
Bias current Temp Max (mA)	59.73				
Bias set point (mA)	31.57	**Good**	**Rbias =**	**3724**	**Good**
Monitor current (mA)	0.2		**Rapcset =**	**6157**	**Good**

Figure 1. MAX3869 functional diagram