

Two-Channel Modulation IC for Laser Diode

FEATURES

- 5V Single supply voltage
- Two output channels, suitable for different wavelength laser diodes
- Oscillator frequency is adjustable in both channels simultaneously
- Oscillator amplitude is adjustable for each output separately up to 130mA
- Operates two grounded laser diodes
- Small DFN 2 x 3mm package



APPLICATION

- DVD-ROM or DVD-Video applications utilizing twin laser diodes

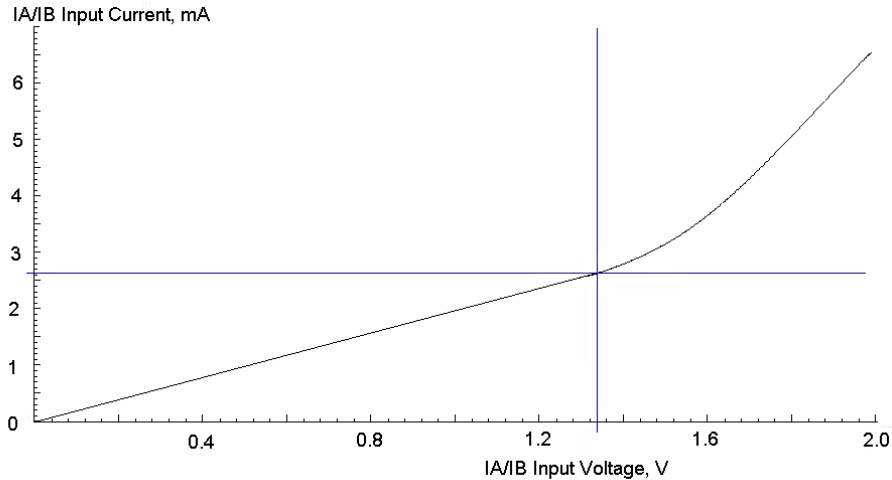
GENERAL DESCRIPTION

The SP8110 is a Two-Channel Modulation IC utilizing high frequency current to suppress the noise of grounded laser diodes. Modulation frequency is adjusted in both channels simultaneously by an external resistor R_f tied to the ground. The amplitude of the high frequency current is set for each channel separately by a DC input current applied to the appropriate input pin (IA or IB for Laser A or Laser B, respectively). Current gain from input to output is 100mA/mA (typical).

The input current at pins IA and IB is monitored to determine which channel is active. In the event input current in both channels is below the active threshold level (approximately 2.65mA), the SP8110 will enter Power Save mode. In the event a valid input current above the active threshold level is present on both inputs, an Error mode is assumed and the outputs of both channels are disabled. Supply current levels in Power Save and Error modes are below 0.2 and 0.8 mA respectively (maximum values).

The SP8110 is manufactured in 0.5/0.6 μm CMOS technology.

INPUT CHARACTERISTICS: IA/IB INPUT CURRENT VS INPUT VOLTAGE



MODE SELECTION

IA current	IB current	Mode
> 2.65 mA	< 2.5 mA	LD_A output active
< 2.5 mA	> 2.65 mA	LD_B output active
> 2.65 mA	> 2.65 mA	Error
< 2.5 mA	< 2.5 mA	Power Save

PIN ASSIGNMENTS

Pin No.	Pin Name	Function
1	IA	Amplitude setting for output LD_A
2	IB	Amplitude setting for output LD_B
3	R _{Freq}	Modulation Frequency adjusting pin (An external resistor is connected between this pin and ground.)
4	Vcc	Power supply pin
5	LD_B	Output pin of channel B (Anode of laser diode is connected with this pin.)
6	GND	Ground pin
7	LD_A	Output pin of channel A (Anode of laser diode is connected with this pin.)
8	Vcc_out	Power supply for LD_A and LD_B outputs

BOARD LAYOUT AND GROUNDING

To obtain the best performance from the SP8110, a printed circuit board with ground plane is required. High quality, low series resistance ceramic 0.1µF bypass capacitors should be used at the Vcc and Vcc_out pins (pins 4 and 8). Pin 8 should also have a 0.1µF bypass capacitor. These capacitors must be located as close to the pins as possible. The traces connecting the pins and the bypassing capacitors must be kept short and should be made as wide as possible.

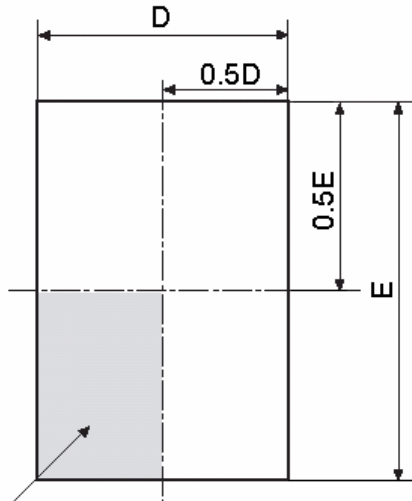
Rev 0.1 (12-03-03): SP8110 – Two-Channel Modulation IC

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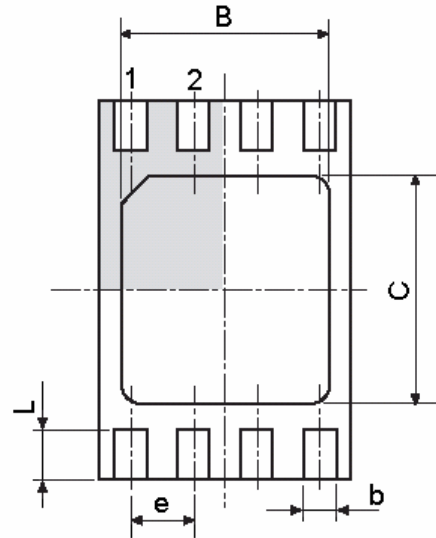
DFN 8-PIN PACKAGE DIMENSIONS

Top View

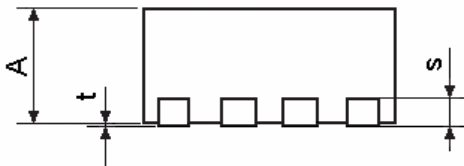


Pin 1 identifier to be located within this shaded area

Bottom View



Side View



Symbol	Dimensions in (mm)		
	MIN	NOM	MAX
A	0.80	0.90	1.00
B	1.50		1.75
C	1.60		1.90
D		2.00	
E	3.00 BSC		
L	0.30	0.40	0.50
b	0.18	0.25	0.30
e		0.50	
s		0.20	
t	0	0.02	0.05

ORDERING INFORMATION

Part number	Temperature range	Package Type
SP8110ER	-40 to +85°C	DFN 2 x 3 mm 8-pin

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