

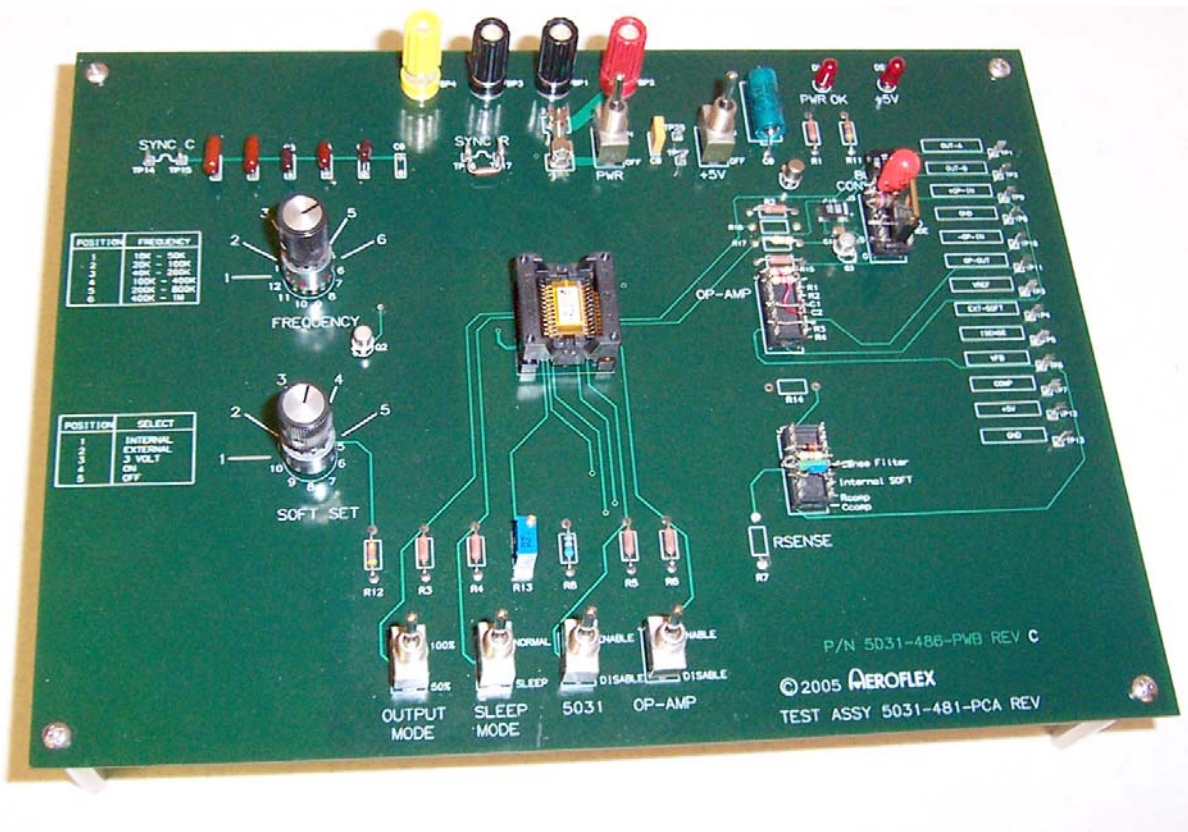
# Application Note

# Note



## High Speed Pulse Width Modulator Controller Evaluation Board

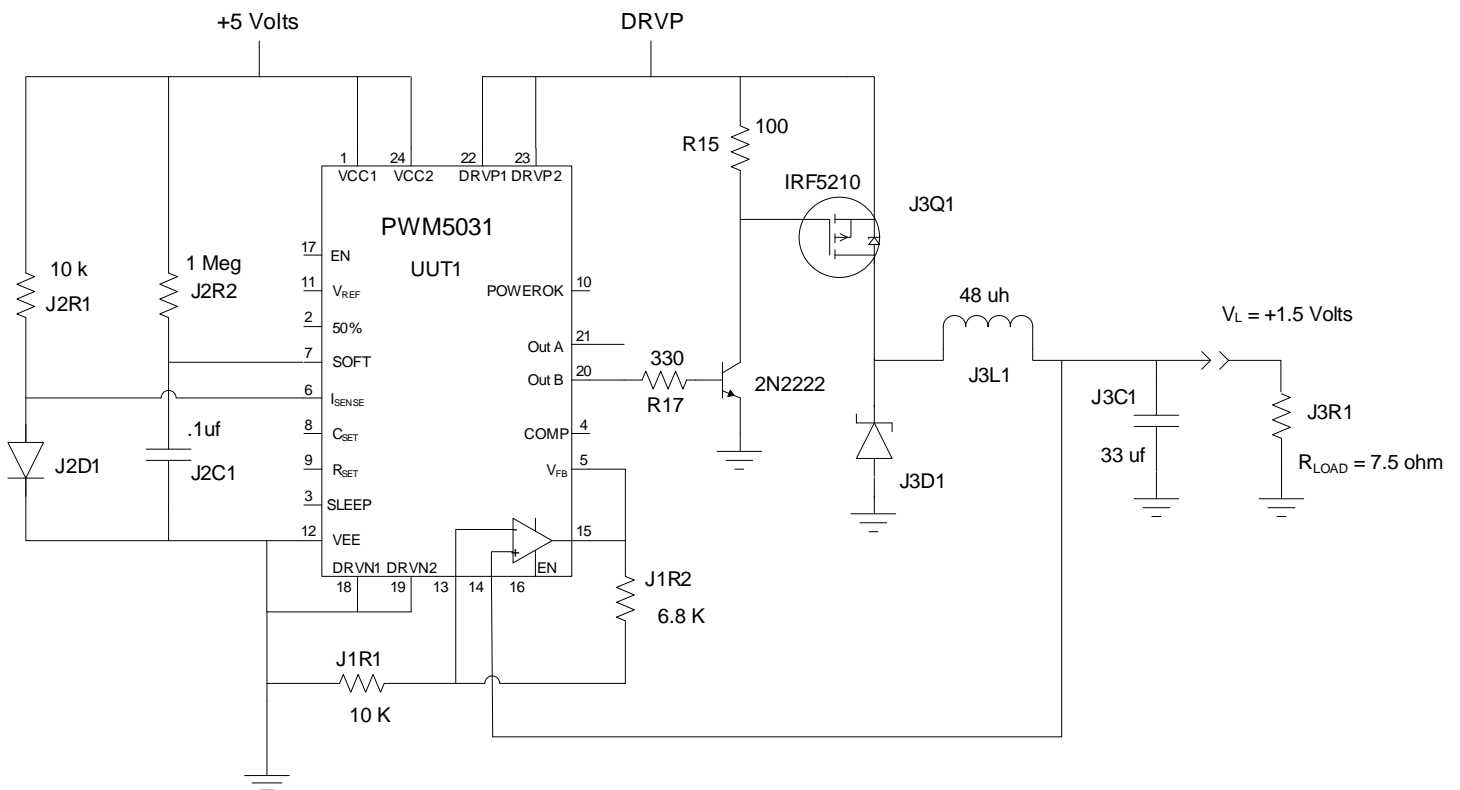
### PWM5031-EVAL/PWM5032-EVAL



## PWM5031 / 5032 Evaluation Board Application Note

The PWM5031/5032 Evaluation board (Aeroflex part number PWM5031-EVAL/PWM5032-EVAL) provides a convenient way for customers to evaluate the PWM5031 /PWM5032 for their application. The board comes initially configured with a basic Buck Converter with a +1.5 Volt output (See Figure 1). This can be conveniently reconfigured for a wide variety of configurations using three 16 pin dip carriers (J1, J2, J3) and test points that can provide additional circuit configurations.

The schematic PWM5031-411 (See Figure 2) shown on page 4 provides all the connection information for the Evaluation Board with the component configuration on J1, J2, and J3 for Buck Converter configuration. The drawing below provides a schematic for the interconnection of the Buck Converter that is configured on J1, J2, and J3.



**Figure 1 – PWM5031-EVAL Board Buck Converter Configuration**

The Evaluation Board has been designed to provide circuit configuration flexibility and room around the PWM5031 chip to allow an Air Jet to be used for testing at various temperatures. For this reason this Evaluation Board will not have an optimum layout for parametrics, noise, and stability.

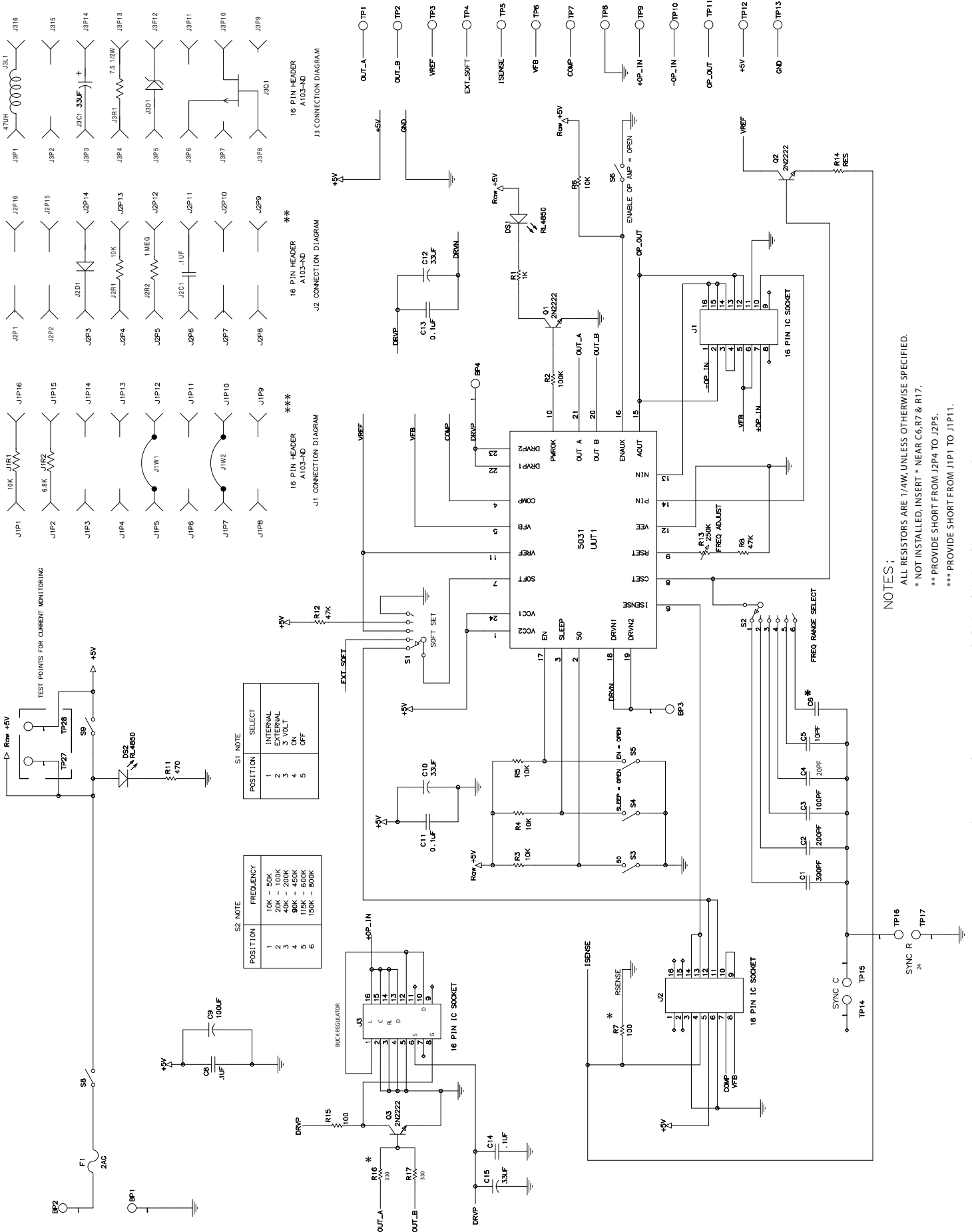
## **5031/5032 Standard Controls**

S1	Soft Set	This is a 5 position switch that selects the origin of the signal supplied to pin 7 (Soft), the selections are; 1) Internal, which is determined by components installed on J2. 2) External, which is available from test point TP4. 3) 3 Volt reference. 4) ON, which is connected to +5 Volts. 5) OFF, which is connected to ground.
S2	Frequency	This is a 6 position switch that selects the capacitor that controls the frequency of operation. Once the frequency range is selected the variable resistor R13 can be used to sweep the range of frequencies selected. Note: Due to the stray capacitance in the layout the higher frequencies will not be obtainable.
S3	Output Mode	Selects 100% or 50% mode of operation
S4	Sleep Mode	Selects Normal or Sleep mode
S5	5031 Enable	Toggles Enable or Disable operation for the chip
S6	OP-AMP	Toggles Enable or Disable of Auxiliary Op-Amp

<b><u>Test Points</u></b>	<b><u>Signal Name</u></b>	<b><u>Connected To</u></b>
TP1	Out_A	UUT pin 21
TP2	Out_B	UUT pin 20
TP3	Vref	UUT pin 11
TP4	EXT_SOFT	S1 pin 2
TP5	Isense	J2 pin 4
TP6	Vfb	UUT pin 5
TP7	COMP	UUT pin 4
TP8	GND	
TP9	+OP_IN	J1 pin 7
TP10	-OP_IN	J1 pin 1
TP11	OP_OUT	UUT pin 15
TP12	+5 Volts	
TP13	GND	

## **Component Headers**

J1	Used to condition the Error Amp and Op Amp
J2	Used to condition Isense, Error Amp
J3	Used to implement Buck Regulator



S1 NOTE

POSITION	SELECT
1	INTERNAL
2	EXTERNAL
3	3 VOLT
4	ON
5	OFF

S2 NOTE

POSITION	FREQUENCY
1	10K - 50K
2	20K - 100K
3	40K - 200K
4	80K - 400K
5	150K - 800K

J1 CONNECTION DIAGRAM  
16 PIN HEADER A103-ND  
\*\*\*

J2 CONNECTION DIAGRAM  
16 PIN HEADER A103-ND  
\*\*

J3 CONNECTION DIAGRAM  
16 PIN HEADER A103-ND  
\*\*

NOTES:  
ALL RESISTORS ARE 1/4W, UNLESS OTHERWISE SPECIFIED.  
\* NOT INSTALLED, INSERT \* NEAR C6,R7 & R17.  
\*\* PROVIDE SHORT FROM J2P4 TO J2P5.  
\*\*\* PROVIDE SHORT FROM J1P1 TO J1P11.

Figure 2 – PWM5031-411 Schematic

## Additional Information

- PWM5031 DSCC SMD# 5962-06251
- Reference - PWM5031 / PWM5032 data sheet at [www.aeroflex.com/RadHard](http://www.aeroflex.com/RadHard)
- PWM5031-EVAL is supplied with a PWM5031-EM component
- PWM5032-EVAL is supplied with a PWM5032-EM component
- Board Size - 8" x 11" x 3.25"ht
- Contact factory or sales office nearest you for Evaluation Board Availability

### PLAINVIEW, NEW YORK

Toll Free: 800-THE-1553  
Fax: 516-694-6715

### INTERNATIONAL

Tel: 805-778-9229  
Fax: 805-778-1980

### NORTHEAST

Tel: 603-888-3975  
Fax: 603-888-4585

### SE AND MID-ATLANTIC

Tel: 321-951-4164  
Fax: 321-951-4254

### WEST COAST

Tel: 949-362-2260  
Fax: 949-362-2266

### CENTRAL

Tel: 719-594-8017  
Fax: 719-594-8468

***[www.aeroflex.com](http://www.aeroflex.com) [info-ams@eroflex.com](mailto:info-ams@eroflex.com)***

As we are always seeking to improve our products, the information in this document gives only a general indication of the product capacity, performance and suitability, none of which shall form part of any contract. We reserve the right to make design changes without notice. All trademarks are acknowledged. Parent company Aeroflex, Inc. ©Aeroflex 2003.



Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused