APPLICATION NOTE

TEA3717 TEA3718 Evaluation Board

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The TEA3717, TEA3718 µSPDS board (PSAL 03-09) is designed to be used in conjunction with the µSPDS-6219 software to drive a bipolar stepper motor or two DC motors. The board supports the TEA3718SDP, TEA3718DP, TEA3717DP and PBL3717A devices in DIP package. The schematic of the board is shown in Figure 2.

When used with the µSPDS-6219 the board can drive a bipolar stepper in Full Step or Half Step operation.

The peak motor current in each of the two bridges is selected by a combination of the logic inputs I0 and I1, the sense resistors selected by jumpers on the board, and the V_{REF} voltage set by R1. The logic inputs select one of three current levels, high, medium or low. These levels correspond to a voltage applied to the current sense comparator input of 0.42V, 0.25V and 0.08V when V_{REF} is 5.0V. V_{REF} can be set between 0 and 5V by adjusting R1. Jumpers JP1-JP8 are used to select the sense resistors connected in the circuit. The equivalent resistance of the sense resistor and the peak current for each current setting with various combinations of jumpers is shown in Table 1.

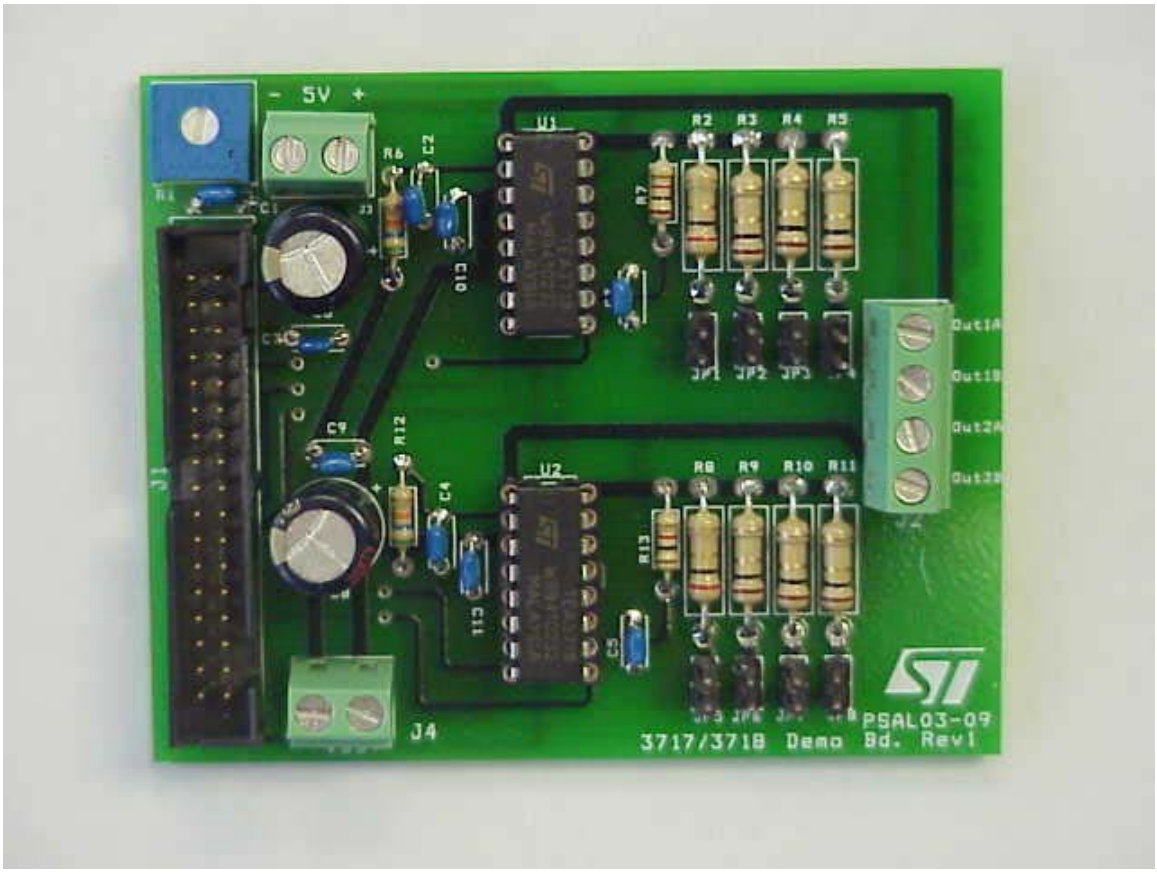

Figure 1: TEA3717, TEA3718 Evaluation Board

JP1 JP5	JP2 JP6	JP3 JP7	JP4 JP8	Equivalent Sense Resistance	Current Setting [1]		
					High V_C=0.42	Medium V_C=0.25	Low V_C=0.08
X	X	X	X	0.286	1.470	0.875	0.280
	X	X	X	0.333	1.260	0.750	0.240
X		X	X	0.400	1.050	0.625	0.200
		X	X	0.500	0.840	0.500	0.160
X			X	0.667	0.630	0.375	0.120
			X	1.000	0.420	0.250	0.080
X				2.000	0.210	0.125	0.040
				Not Allowed, R_{SENSE} is open			

X = Jumper connected

[1] V_C = Comparator Threshold with V_{REF} = 5.0 V, R1 turned to maximum

Table 1: Peak Output current

Power Supply

The TEA3717, TEA3718 μSPDS board requires 2 power supplies, one supply for the logic and one for the motor. The range of allowable range of operating voltage for the two supplies, summarized in Table 2, is the same as the device specifications. The Vs (5V) supply also provided 5V for the ST7 interface board. Jumper WJ1 must be installed on the ST7 interface board.

Supply				Min	Max
Vss	Logic supply	J3		4.75	5.25
Vs	Motor supply	J4	TEA3718	10	45
			TEA3717	10	40
			PBL3717	10	46

Table 2: Power Supply Voltage

Interface Board Settings

Jumper WJ1 must be installed on the ST7 interface board. The settings for jumpers JP1, JP2 and potentiometer R18 on the ST7 have no effect with the TEA3717, TEA3718 μSPDS board.

References

BIPOLAR STEPPER MOTOR CONTROL, AN266, Pierre PAYET BURIN, Jan. 1989, STMicroelectronics

STEPPER MOTOR DRIVES, COMMON PROBLEMS AND SOLUTIONS, AN460, T. Hopkins, March 1992, STMicroelectronics

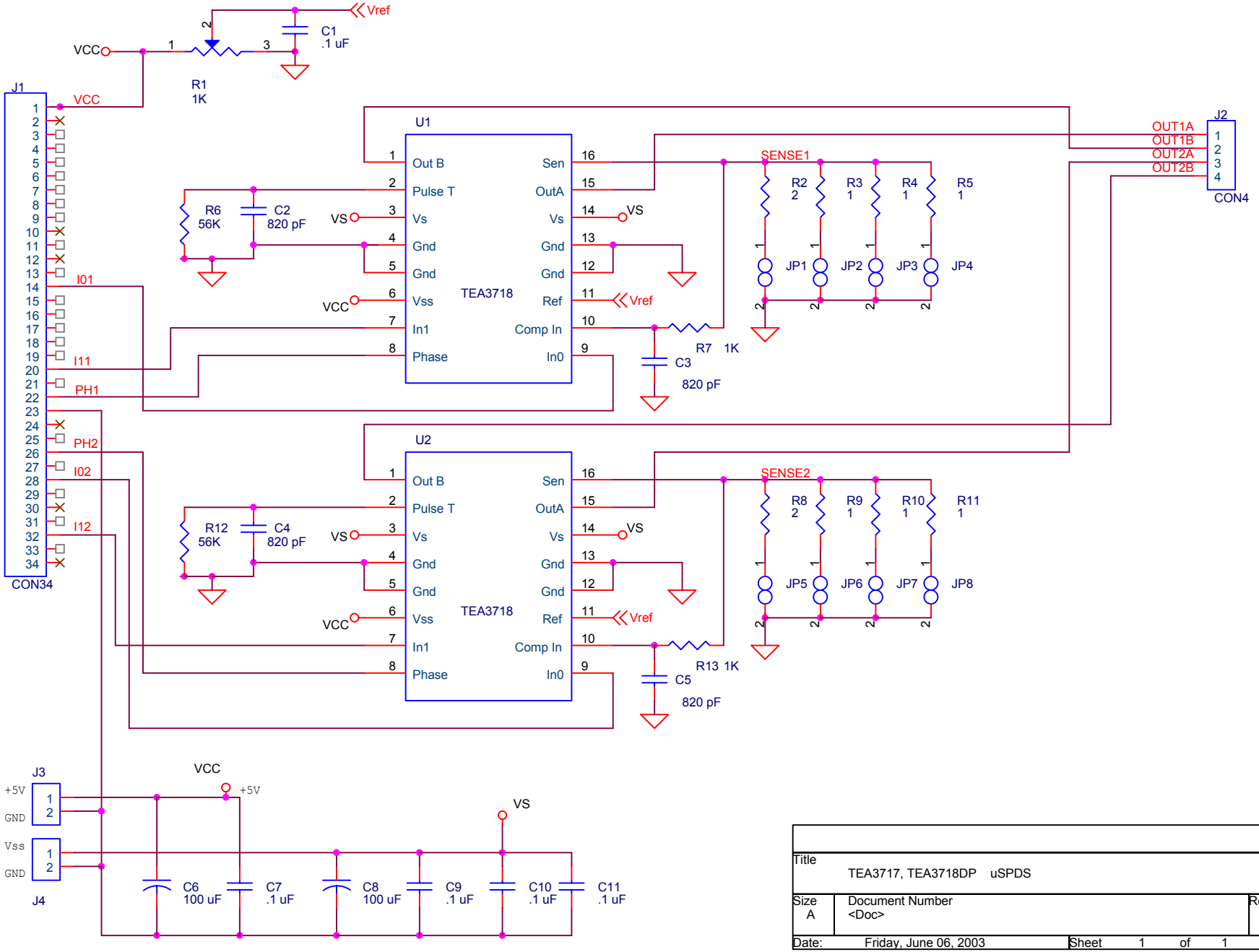

Figure 2: TEA3717, TEA3718 µSPDS DIP Package Demo Board Schematic