LSI/CSI

APPLICATION NOTE 104

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SINGLE PHASE BRUSHLESS DC MOTOR CONTROLLER USING THE LS7261/7262

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The LS7261or LS7262 Brushless DC Motor Controllers can easily be used to drive a single phase center-tapped brushless DC motor using a half-bridge. Figure 1 illustrates the use of field effect transistors while Figure 2 illustrates the use of bipolar transistors. Any of the controllers can be used in either application. All the features indigenous to the motor controller ICs are applicable to the single phase motor controller including ENABLE, BRAKE, OVERCURRENT SENSE, SPEED CONTROL using PWM and DIRECTION (FWD/REV). When using the brake function, an additional transistor must be added. It disconnects the power from the motor. The application of the brake function will cause O_5 and O_4 to turn on and short the motor windings together.

TABLE 1 indicates the output commutation sequence for single phase operation. The single Hall Effect input is applied to all three Sense inputs (Pins 15, 16, 17) in parallel. Commutation Select inputs (Pins 1 and 20) are left floating but are pulled internally to a logic zero.

TABLE 1
OUTPUT COMMUTATION SEQUENCE
SINGLE PHASE OPERATION
CS1 = CS2 = 0 AND OUTPUTS ENABLED

S1,S2,S3	FWD/$\overline{REV}$ = 1	FWD/$\overline{REV}$ = 0
0	O_5	O_4
1	O_4	O_5

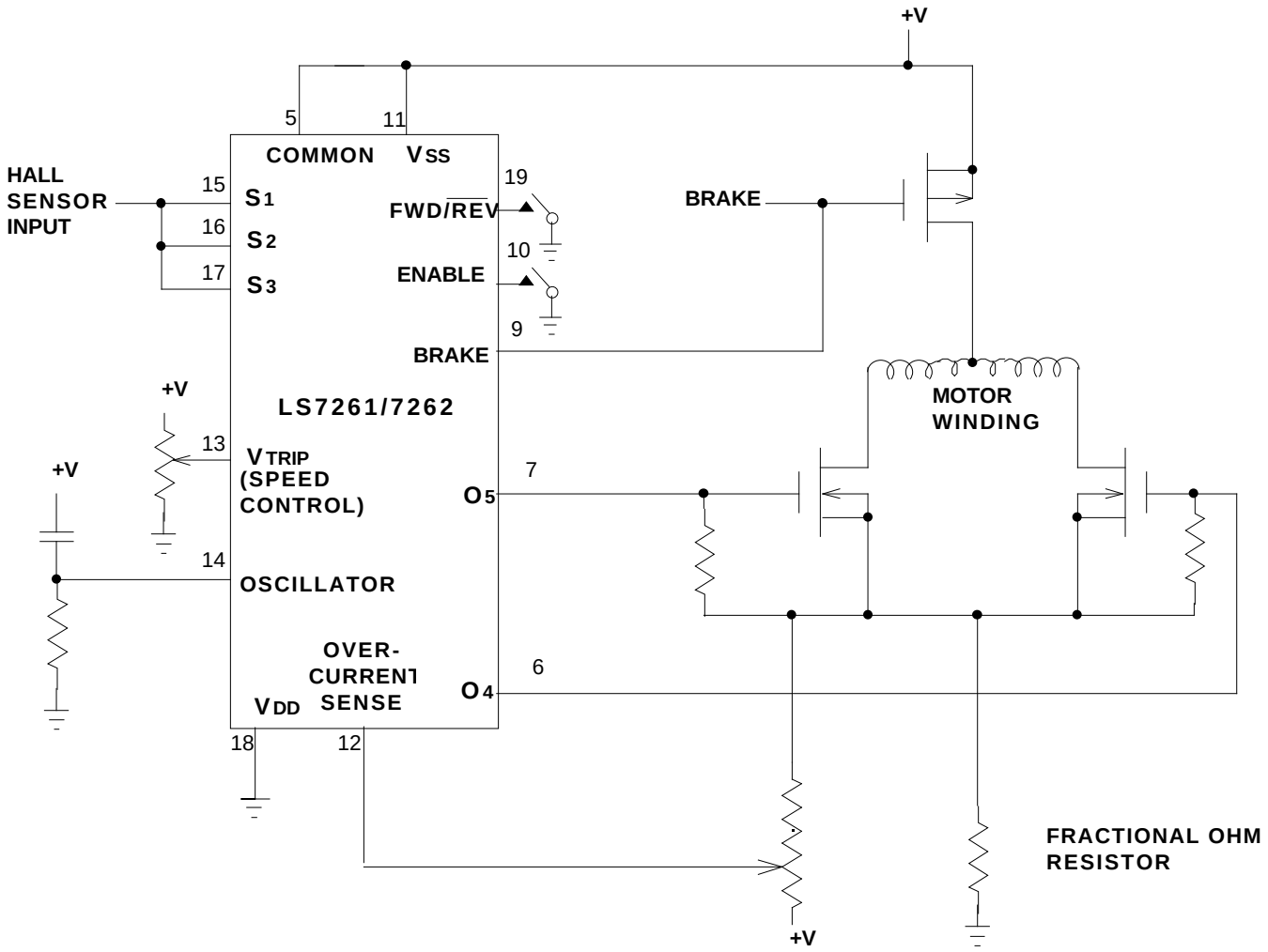

FIGURE 1. LS7261/LS7262 DRIVING A FET HALF-BRIDGE

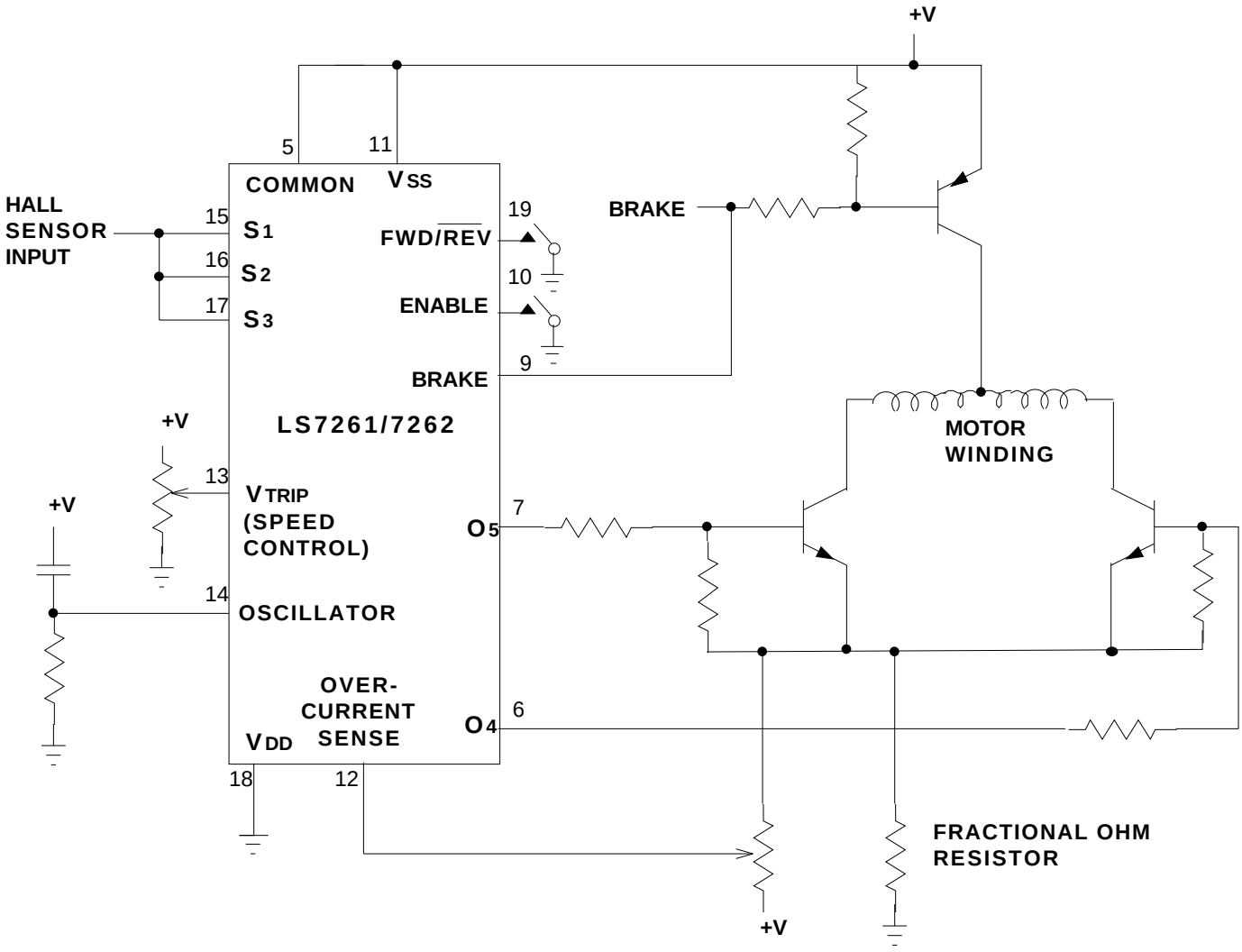

FIGURE 2. LS7261/LS7262 DRIVING A BIPOLAR HALF-BRIDGE