3952

FULL-BRIDGE PWM MOTOR DRIVER

A3952KLB

A3952KB

Dwg. PP-056

Note that the A3952KB (DIP) and the A3952KLB (SOIC) are electrically identical and share a common terminal number assignment.

ABSOLUTE MAXIMUM RATINGS

Load Supply Voltage, V_{BB} ..... **50 V**
Output Current, I_{OUT}
($t_w \le 20$ µs) ..... **±3.5 A**
(Continuous) ..... **±2.0 A**
Logic Supply Voltage, V_{CC} ..... **7.0 V**
Logic Input Voltage Range,
V_{IN} ..... **-0.3 V to V_{CC} + 0.3 V**
Sense Voltage, V_{SENSE} ..... **1.5 V**
Reference Voltage, V_{REF} ..... **15 V**
Operating Temperature Range,
T_A ..... **–40°C to +125°C**
Junction Temperature, T_J ..... **+150°C***
Storage Temperature Range,
T_S ..... **–55°C to + 150°C**

Output current rating may be limited by duty cycle, ambient temperature, heat sinking and/or forced cooling. Under any set of conditions, do not exceed the specified current rating or a junction temperature of +150°C.

* Fault conditions that produce excessive junction temperature will activate device thermal shutdown circuitry. These conditions can be tolerated but should be avoided.

Designed for bidirectional pulse-modulated current control of inductive loads in extended temperature automotive/industrial applications, the A3952K— is capable of continuous output currents to ±2 A and operating voltages to 50 V over a temperature range of -40°C to +125°C. Internal fixed off-time PWM current-control circuitry can be used to regulate the maximum load current to a desired value. The peak load current limit is set by the user's selection of an input reference voltage and external sensing resistor. The fixed OFF-time pulse duration is set by a user-selected external RC timing network. Internal circuit protection includes thermal shutdown with hysteresis, transient suppression diodes, and crossover-current protection. Special power-up sequencing is not required.

Representative electrical characteristics (at an ambient temperature of +25°C) for the commercial type A3952S— are shown in Section 3. Complete, detailed technical information on the A3952K— is available on request. The devices are also available for operation between -40°C and +85°C. To order, change the part number suffix from K— to E—.

The A3952K— is supplied in a choice of four power packages. In all package styles, the batwing/power tab is at ground potential and needs no isolation.

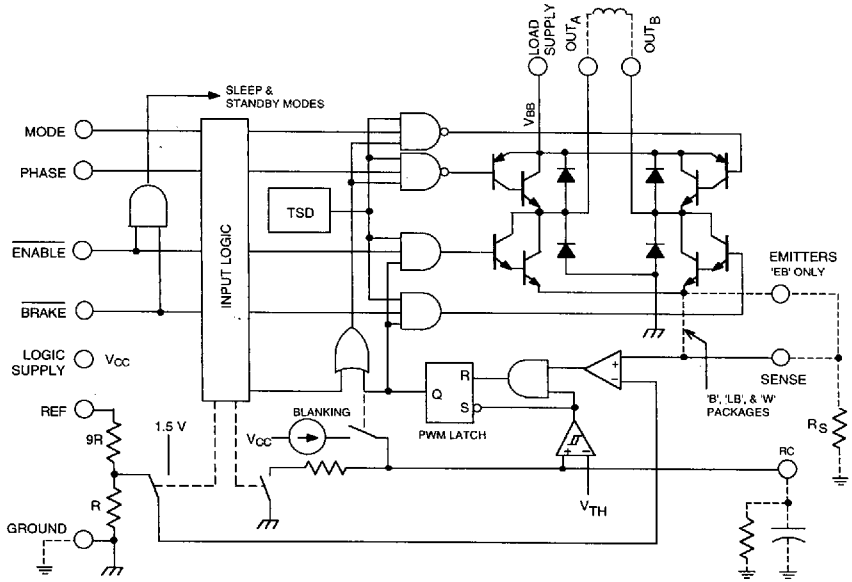
FEATURES

- ±2 A Continuous Output Current Rating
- 50 V Output Voltage Rating
- Internal PWM Current Control
- Fast and Slow Current-Decay Modes
- Sleep (Low Current Consumption) Mode
- Internal Transient Suppression Diodes
- Under-Voltage Lockout
- Internal Thermal Shutdown Circuitry
- Crossover-Current Protection

Always order by complete part number:

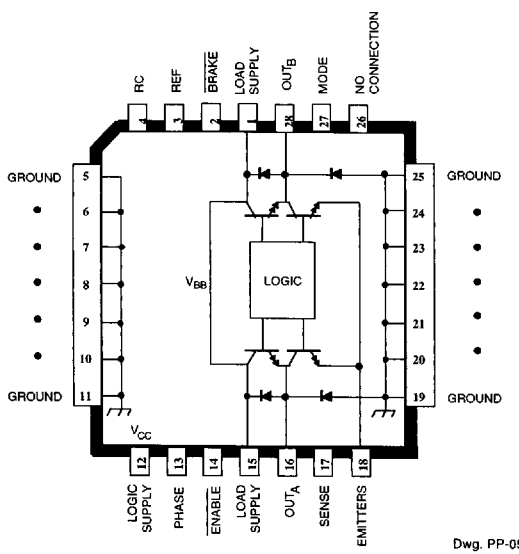
Part Number	Package	$R_{\theta JA}$	$R_{\theta JT}$
A3952KB	16-Pin DIP	43°C/W	6.0°C/W
A3952KEB	28-Lead PLCC	42°C/W	6.0°C/W
A3952KLB	16-Lead SOIC	67°C/W	6.0°C/W
A3952KW	12-Pin Power-Tab SIP	36°C/W	2.0°C/W

FUNCTIONAL BLOCK DIAGRAM



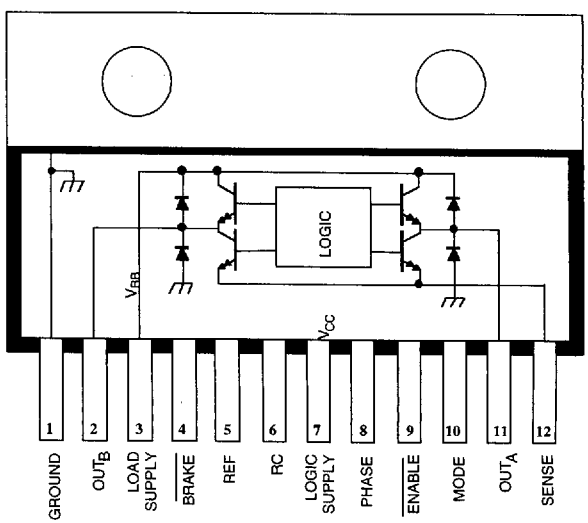
Dwg. FP-036

A3952KEB



Dwg. PP-057

A3952KW



Dwg. PP-058