



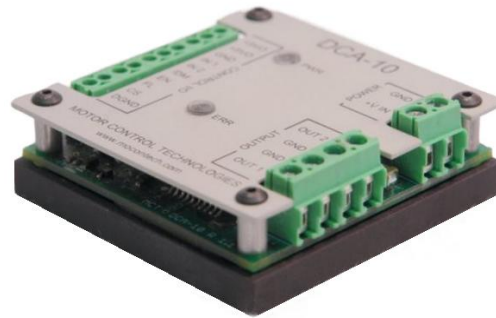
DCA-10

DC Brushed Motor Drive

Motor Control Technologies, LLC
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The DCA-10 is a four quadrant brushed DC motor drive based on a monolithic H-bridge power IC. The DCA-10 is capable of sourcing up to five amps continuous current at 24V. A simplified control scheme utilizes one PWM signal and one digital line to control the speed and direction of a motor. The DCA-10 is fully compatible with +3.3V and +5V logic levels, making it easy to integrate with standard data acquisition hardware and micro controller technologies.

Additional feedback and control options enhance DCA-10 control capabilities. An analog voltage feedback signal provides real-time load current monitoring. A digital output reports errors detected by the drive. Other available features include current limiting (5 Amps), short circuit detection, over temperature shutdown, +5V supply output, and drive enable/disable capabilities. The DCA-10 also has an expanded operating mode to control up to two inductive or resistive loads. This feature allows the user to control power to loads such as solenoids, small DC heaters, or individual phases on a stepper motor.



Every DCA-10 comes assemble with a sturdy anodized aluminum heat sink and enclosure. The integrated heat sink eliminates the need for additional heat sinking hardware. A small physical footprint (2.38" x 2.38" x 0.80") makes this unit easy to mount in the tightest of locations.

DCA-10 Physical Characteristics

Characteristic	Symbol	Min	Typ	Max	Unit
Supply Voltage	+V _S	9	--	24	V
Motor Output Voltage	OUT _n	--	+V _S - 0.5	--	V
Continuous Output Current ⁽¹⁾	I _{OUT}	0	--	5	A
Current Limiting Threshold	I _{LIM}	5.0	6.5	7.8	A
Over temperature Shutdown ⁽²⁾	T _{MAX}	175	--	225	C
Peripheral Power (+5V) ⁽³⁾⁽⁴⁾ I _{out} = 0 A I _{out} = 50 mA I _{out} = 100 mA	+5V0	4.8 4.2 3.5	5.0 4.6 4.3	5.2 5.1 5.0	V V V
Quiescent Current Drive Enabled (EN = 1) +V _S = 9V +V _S = 24V Drive Disabled (EN = 0) +V _S = 9V +V _S = 24V	I _Q	-- --	15 17	-- --	mA mA mA mA
Control I/O input limits	V _I	-7	--	7	V
Control I/O logic levels High level input voltage Low level input voltage	V _{IH} V _{IL}	2 --	-- --	-- 0.8	V V
PWM Frequency	f _{PWM}	0	--	10	KHz
Bridge Resistance ⁽⁵⁾	R _{BR}	--	240	--	mΩ
Bridge Current Feedback I _{BRIDGE} = 0 A I _{BRIDGE} = 0.5 A I _{BRIDGE} = 1.5 A I _{BRIDGE} = 3.0 A I _{BRIDGE} = 6.0 A	V _{FB}	-- 106 356 713 1.43	-- 133 400 800 1.60	61 170 467 933 1.87	mV mV mV mV V
Operating Temperature Range	T _{OP}	-40	--	85	°C

- 1) Inability to adequately dissipate heat from the drive unit will result in lower continuous current limit due to over temperature shutdown limits.
- 2) Power IC junction temperature.
- 3) Current sourcing above 100 mA from +5V0 will result in excessive voltage drop and heat generation within the unit. Thermal shutdown of +5V output can result.
- 4) Minimum output value represents the worst-case scenario immediately after the protection fuse resets. The output voltage will return to typical values once the fuse temperature returns to normal working temperature.
- 5) R_{BR} value with the junction temperature at 25 C.
- 6) This is an abridged version of the DCA-10 specification sheet. A complete specification sheet is located in the product manual.