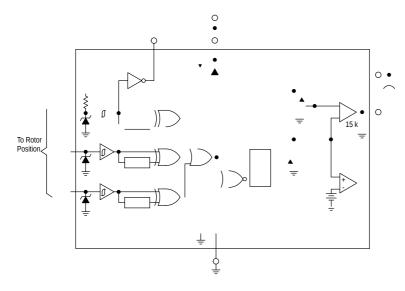
Clo ed Loop Br. hle Mo or Adap er

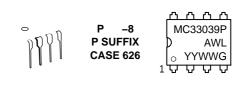
The MC33039 is a high performance closed-loop speed control adapter specifically designed for use in brushless DC motor control systems. Implementation will allow precise speed regulation without the need for a magnetic or optical tachometer. This device contains three input buffers each with hysteresis for noise immunity, three digital edge detectors, a programmable monostable, and an internal shunt regulator. Also included is an inverter output for use in systems that require conversion of sensor phasing. Although this device is primarily intended for use with the MC33035 brushless motor controller, it can be used cost effectively in many other closed-loop speed control applications.

Features

- Digital Detection of Each Input Transition for Improved Low Speed Motor Operation
- TTL Compatible Inputs With Hysteresis
- Operation Down to 5.5 V for Direct Powering from MC33035 Reference
- Internal Shunt Regulator Allows Operation from a Non–Regulated Voltage Source
- Inverter Output for Easy Conversion between 60°/300° and 120°/240° Sensor Phasing Conventions
- Pb-Free Packages are Available



Representative Block Diagram





SOIC-8 D SUFFIX

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
V _{CC} Zener Current	I _{Z(V_{CC})}	30	mA
Logic Input Current (Pins 1, 2, 3)	I _{IH}	5.0	mA
Output Current (Pins 4, 5), Sink or Source	I _{DRV}	20	mA
Power Dissipation and Thermal Characteristics Maximum Power Dissipation @ $T_A = +85^{\circ}C$ Thermal Resistance, Junction–to–Air	P _D R _{θJA}	650 100	mW °C/W
Operating Junction Temperature	TJ	+150	°C
Operating Ambient Temperature Range MC33039 NCV33039	T _A	-40 to +85 -40 to +125	°C
Storage Temperature Range	T _{stg}	-65 to +150	°C

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

ELECTRICAL CHARACTERISTICS (V_{CC} = 6.25 V, R_T = 10 k, C_T = 22 nF, T_A = 25°C, unless otherwise noted)

Characteristic	Symbol	Min	Тур	Max	Unit
LOGIC INPUTS	·				
Input Threshold Voltage					V
High State	V _{IH}	2.4	2.1	-	
Low State	V _{IL}	-	1.4	1.0	
Hysteresis	V _H	0.4	0.7	0.9	
Input Current	I _{IH}				μA
High State (V _{IH} = 5.0 V)					
фд		- 40	- 60	- 80	
φ _B , φ _C		-	- 0.3	- 5.0	
Low State ($V_{IL} = 0 V$)	IIL				
φ _A		- 190	- 300	- 380	
Φ Β, Φ C		-	- 0.3	- 5.0	

MONOSTABLE AND OUTPUT SECTIONS

Output Voltage

High State

fout (Isaur Stats File MA)2.0252 041.874 53m4.13859 Tc(ut) Tj8 Co

 $\phi_{\overline{A}}$ (I_{source} = 2.0 mA)

Low State

f_{out (I}

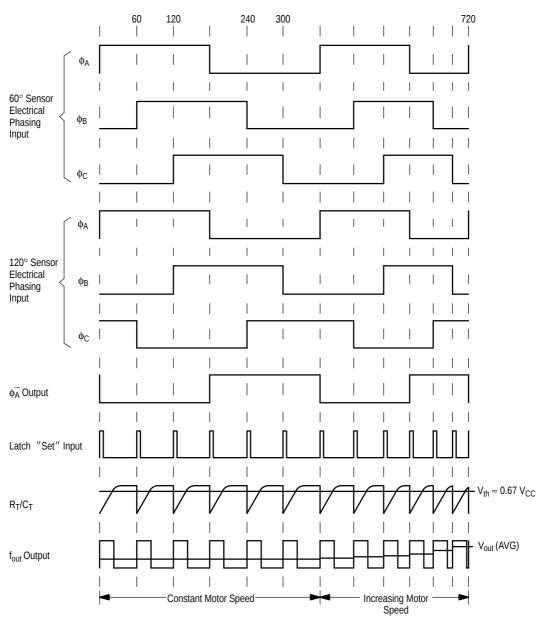


Figure 1. Typical Three Phase, Six Step Motor Application

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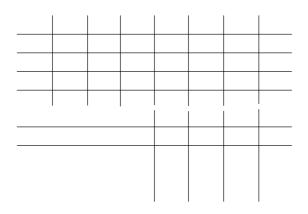
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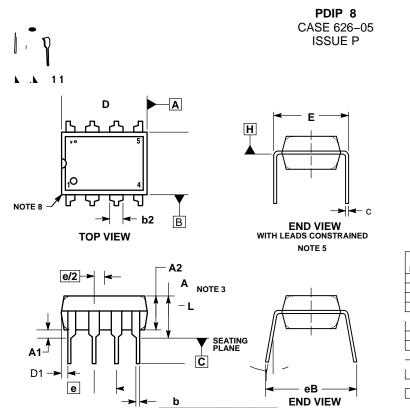


ORDERING INFORMATION

Device

Operating Temperature Range

Shipping[†]



0.010

SIDE VIEW

CAMBM

NOTE 6

	INCHES			
DIM	MIN	MAX		
Α		0.210		
A1	0.015			
A2	0.115	0.195	2.92	4.95
b	0.014	0.022		
С	0.008	0.014		
D	0.355	0.400		
D1	0.005			
Е	0.300	0.325		
е	0.100	BSC		
L	0.115	0.150	2.92	3.81
		0		0

DATE 22 APR 2015

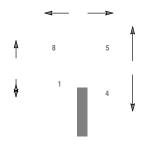
GENERIC MARKING DIAGRAM*

Ь	Д	Д	Т
XX	хх>	κxx	XX
Þ		A١	NL
0	Y١	ſWV	VG
T	Ъ	Ъ	Г

- XXXX = Specific Device Code
- A = Assembly Location
- WL = Wafer Lot
- YY = Year
- WW = Work Week
- G = Pb–Free Package



DATE 16 FEB 2011



SEATING PLANE



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