

# MC33035, NCV33035

## Brushless DC Motor Controller

The MC33035 is a high performance second generation monolithic brushless DC motor controller containing all of the active functions required to implement a full featured open loop, three or four phase motor control system. This device consists of a rotor position decoder for proper commutation sequencing, temperature compensated reference capable of supplying sensor power, frequency programmable sawtooth oscillator, three open collector top drivers, and three high current totem pole bottom drivers ideally suited for driving power MOSFETs.

Also included are protective features consisting of undervoltage lockout, cycle-by-cycle current limiting with a selectable time delayed latched shutdown mode, internal thermal shutdown, and a unique fault output that can be interfaced into microprocessor controlled systems.

Typical motor control functions include open loop speed, forward or reverse direction, run enable, and dynamic braking. The MC33035 is designed to operate with electrical sensor phasings of 60°/300° or 120°/240°, and can also efficiently control brush DC motors.

### Features

- 10 to 30 V Operation
- Undervoltage Lockout
- 6.25 V Reference Capable of Supplying Sensor Power
- Fully Accessible Error Amplifier for Closed Loop Servo Applications
- High Current Drivers Can Control External 3-Phase MOSFET Bridge
- Cycle-By-Cycle Current Limiting
- Pinned-Out Current Sense Reference
- Internal Thermal Shutdown
- Selectable 60°/300° or 120°/240° Sensor Phasings
- Can Efficiently Control Brush DC Motors with External MOSFET H-Bridge
- NCV Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q100 Qualified and PPAP Capable
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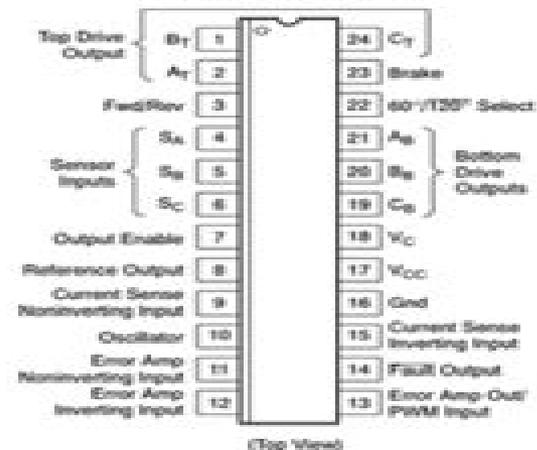
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### PIN CONNECTIONS



### ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 28 of this data sheet.

### DEVICE MARKING INFORMATION

See general marking information in the device marking section on page 28 of this data sheet.

# Mc33035 Brushless Dc Motor Controller

**Sergey Edward Lyshevski**



### **Mc33035 Brushless Dc Motor Controller:**

*Nano- and Micro-Electromechanical Systems* Sergey Edward Lyshevski, 2000-09-28 Society is approaching and advancing nano and microtechnology from various angles of science and engineering The need for further fundamental applied and experimental research is matched by the demand for quality references that capture the multidisciplinary and multifaceted nature of the science Presenting cutting edge information that is applicable to many fields Nano and Micro Electromechanical Systems Fundamentals of Nano and Microengineering Second Edition builds the theoretical foundation for understanding modeling controlling simulating and designing nano and microsystems The book focuses on the fundamentals of nano and microengineering and nano and microtechnology It emphasizes the multidisciplinary principles of NEMS and MEMS and practical applications of the basic theory in engineering practice and technology development Significantly revised to reflect both fundamental and technological aspects this second edition introduces the concepts methods techniques and technologies needed to solve a wide variety of problems related to high performance nano and microsystems The book is written in a textbook style and now includes homework problems examples and reference lists in every chapter as well as a separate solutions manual It is designed to satisfy the growing demands of undergraduate and graduate students researchers and professionals in the fields of nano and microengineering and to enable them to contribute to the nanotechnology revolution

### **Electromechanical Systems, Electric Machines, and Applied Mechatronics**

Sergey Edward Lyshevski, 2018-02-06 Recent trends in engineering show increased emphasis on integrated analysis design and control of advanced electromechanical systems and their scope continues to expand Mechatronics a breakthrough concept has evolved to attack integrate and solve a variety of emerging problems in engineering and there appears to be no end to its application It has become essential for all engineers to understand its basic theoretical standpoints and practical applications Electromechanical Systems Electric Machines and Applied Mechatronics presents a unique combination of traditional engineering topics and the latest technologies integrated to stimulate new advances in the analysis and design of state of the art electromechanical systems With a focus on numerical and analytical methods the author develops the rigorous theory of electromechanical systems and helps build problem solving skills He also stresses simulation as a critical aspect of developing and prototyping advanced systems He uses the MATLAB<sup>TM</sup> environment for his examples and includes a MATLAB<sup>TM</sup> diskette with the book thus providing a solid introduction to this standard engineering tool Readable interesting and accessible Electromechanical Systems Electric Machines and Applied Mechatronics develops a thorough understanding of the integrated perspectives in the design and analysis of electromechanical systems It covers the basic concepts in mechatronics and with numerous worked examples prepares the reader to use the results in engineering practice Readers who master this book will know what they are doing why they are doing it and how to do it

### Micromechatronics

Victor Giurgiutiu, Sergey Edward Lyshevski, 2011-05-19 Focusing on recent developments in engineering science enabling

hardware advanced technologies and software Micromechatronics Modeling Analysis and Design with MATLAB Second Edition provides clear comprehensive coverage of mechatronic and electromechanical systems It applies cornerstone fundamentals to the design of electromechanical systems covers emerging software and hardware introduces the rigorous theory examines the design of high performance systems and helps develop problem solving skills Along with more streamlined material this edition adds many new sections to existing chapters New to the Second Edition Updated and extended worked examples along with the associated MATLAB codes Additional problems and exercises at the end of many chapters New sections on MATLAB New case studies The book explores ways to improve and optimize a broad spectrum of electromechanical systems widely used in industrial transportation and power systems It examines the design and analysis of high performance mechatronic systems energy systems efficient energy conversion power electronics controls induced strain devices active sensors microcontrollers and motion devices The text also enables a deep understanding of the multidisciplinary underpinnings of engineering It can be used for courses in mechatronics power systems energy systems active materials and smart structures solid state actuation structural health monitoring and applied microcontroller engineering

Electronics, Information Technology and Intellectualization Young Min Song, Kyung Sup Kwak, 2015-01-08 The International Conference on Electronics Information Technology and Intellectualization ICEITI2014 was dedicated to build a high level international academic communication forum for international experts and scholars This first conference of an annual series was held in Pengcheng Shenzhen China 16 17 August 2014 Many prestigious experts

Speed Control & Vector Control Design Implementation for Electric Vehicle Project Rami Mourtada, Jaideep Tandon, 1995

**Electric Motors and Control Techniques** Irving Gottlieb, 1994-02-22 Publisher's Note Products purchased from Third Party sellers are not guaranteed by the publisher for quality authenticity or access to any online entitlements included with the product This book will show you how different types of motors operate and how electronic control devices can be used to improve efficiency in a wide range of applications Get greater flexibility reliability and reduced energy consumption from household appliances to automobiles This book will show you how different types of motors operate and how electronic control devices can be used to improve efficiency in a wide range of applications You'll get in depth updated coverage of Electric motor control applications dc and ac motors Digital motors Commutator type motors Noncommutator types motors Electric vehicles

*Electromechanical Systems and Devices* Sergey Edward Lyshevski, 2008-03-26 Integrates comprehensive studies and designs of electromechanical systems and motion devices as well as demonstrates the application of theoretical results in the analysis and design of electromechanical systems This book covers topics such as electromechanical motion devices and power electronics and sensors

**Journal of Dynamic Systems, Measurement, and Control**, 2007

**Motor Control Electronics Handbook** Richard Valentine, 1998-05-22 This book gives you expert design and application help in controlling all types of motors with precise adaptable intelligence Featuring the latest in electronics technology from the best and

brightest in the business this expert guide gives you everything from the fundamentals to cutting edge design tips including real life examples with software code *IC Master*, 2001 *Electronic Products Magazine*, 1989 *Electronic Design*, 1989 *Electrical & Electronics Abstracts*, 1995 *Automotive Electronics Handbook* Ronald K. Jurgen, 1999 This second edition of the widely sold title contains new and updated chapters on areas such as safety features It also includes new sections on adding electronic intelligence to automotive features *Practical Electric Motor Handbook* Irving Gottlieb, 1997-09-24 Experienced product designers are expected to be adept at incorporating a range of components into their designs This book helps engineers and designers to merge the technologies they know with motor technology and hence to incorporate motors into their products It covers a core area and shows how to incorporate motors into electronic products

Speed Control of Sensorless Brushless DC Motor MD Sabbir Ahmed, 2018-11-22 This book is all about running a brushless DC motor using a sensorless technique The target of the work was to make a very simple operating method for a brushless motor and formulate a speed control mechanism Initially the work was started with both considering back EMF and without considering back EMF Because of more complexity in the back EMF sensing method and as our intention was to make a simpler and cost effective operation so finally we assembled our project the without back EMF sensing Even though being a simple and inexpensive machine the performance was quite good However adding back EMF sensing in this machine can give it more dependability

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**Brushless DC Motor Controller** Ahmad Ali Rezaei-Lori,1987      **Brushless motors and controllers** Roland Büchi, In the past few years brushless motors and controllers have made an unparalleled triumphant advance everywhere in model building and in many other areas as well In the meantime they are not just an alternative to brushed motors but have almost completely pushed them out of the market in many places Roland B chi explains how brushless technology works and what the reasons for its success are Applications of various controllers and motors of different power are discussed as practical examples From the content Difference between brushed and brushless motor How the brushless motor works Star winding and delta winding Key figures of the brushless motor Brushless DC controller Maximum current current measurement and temperature measurement The BEC voltage Microcontroller and programming Propeller in model aircraft Pitch controlled model helicopters Ship s propellers Table help for the purchase decision Practical tips for motor installation and wiring Testing different drive combinations Ground fault winding fault short circuit Brushless motors and controllers for multicopters      Brushless DC Motor Controller Jane Layton,1991      Implementation of a Brushless DC Motor Controller Wai-Lun Lee,1992

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