

68332 MONOLITHIC MICROCONTROLLER

- 68020 Monolithic Microcontroller also available. Please call factory for more information.

FEATURES

- 100% CMOS
- 16 MHz Operating Frequency
- Single 5V Operation
- System Integration Module (SIM)
 - External Bus Support
 - Programmable Chip-Select Outputs
 - System Protection Logic
 - Watchdog Timer, Clock Monitor, and Bus Monitor
 - System Protection Logic
 - System Clock Based on 32.768kHz Crystal for Low Power Operation
 - Test/Debug Submodule for Factory/User Test and Development
- Central Processing Unit (CPU)
 - Upward Object Code Compatible
 - New Instructions for Controller Applications
 - 32-Bit Architecture
 - Virtual Memory Implementation
 - Loop Mode of Instruction Execution
 - Table Lookup and Interpolate Instruction
 - Improved Exception Handling for Controller Applications
 - Trace on Change of Flow
 - Hardware Breakpoint Signal, Background Mode
 - Fully Static Operation
- Time Processor Unit (TPU)
 - Dedicated Microengine Operating Independently of CPU32
 - 16 Independent, Programmable Channels and Pins
 - Any Channel can Perform any Time Function
 - Two Timer Count Registers with Programmable Prescalers
 - Selectable Channel Priority Levels
- Queued Serial Module (QSM)
 - Enhanced Serial Communication Interface (SCI), Universal Asynchronous Receiver Transmitter (UART): Modulus Baud Rate, Parity
 - Queued Serial Peripheral Interface (SPI): 80-Byte RAM, Up to 16 Automatic Transfers
 - Dual Function I/O Ports
 - Continuous Cycling, 8-16 Bits per Transfer

- Static RAM Module with TPU Emulation Capability (TPURAM)
 - 2-Kbytes of Static RAM
 - May be Used as Normal RAM or TPU Microcode Emulation RAM
- Operating Temperature Range -55°C to 125°C
- Packaging
 - 132 lead, 24mm (0.950") sq., Hermetic CQFP (Package 505) (shipped with leads cut and formed).

DESCRIPTION

The WC16P332 is a 32-bit microcontroller that includes high performance data manipulation features and peripheral subsystems. The WC16P332 is comprised of standard modules that interface through a common intermodule bus (IMB). The WC16P332 accommodates expedient development of devices which are tailored for specific applications.

The Microcontroller includes a 32-bit CPU (CPU32), a system integration module (SIM), a time processor unit (TPU), a queued serial module (QSM), and a 2Kx8 SRAM module with TPU emulation capability.

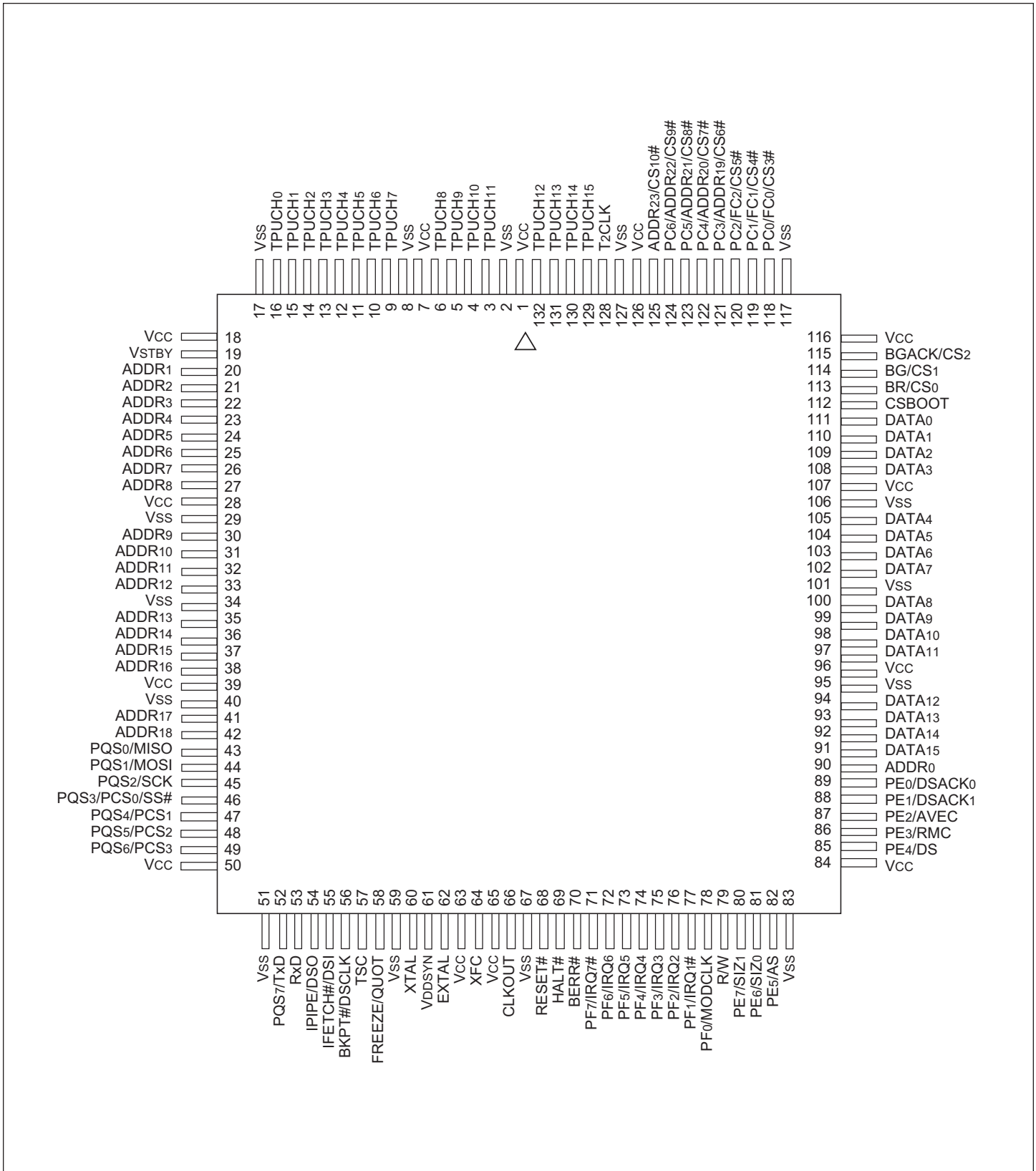
The Microcontroller can either synthesize an internal clock signal from an external reference or use an external clock input directly. Operation with a 32.768kHz reference frequency is standard. System hardware and software allow changes in clock rate during operation. The Microcontroller module operation is fully static, therefore register and memory contents are not affected by clock rate changes.

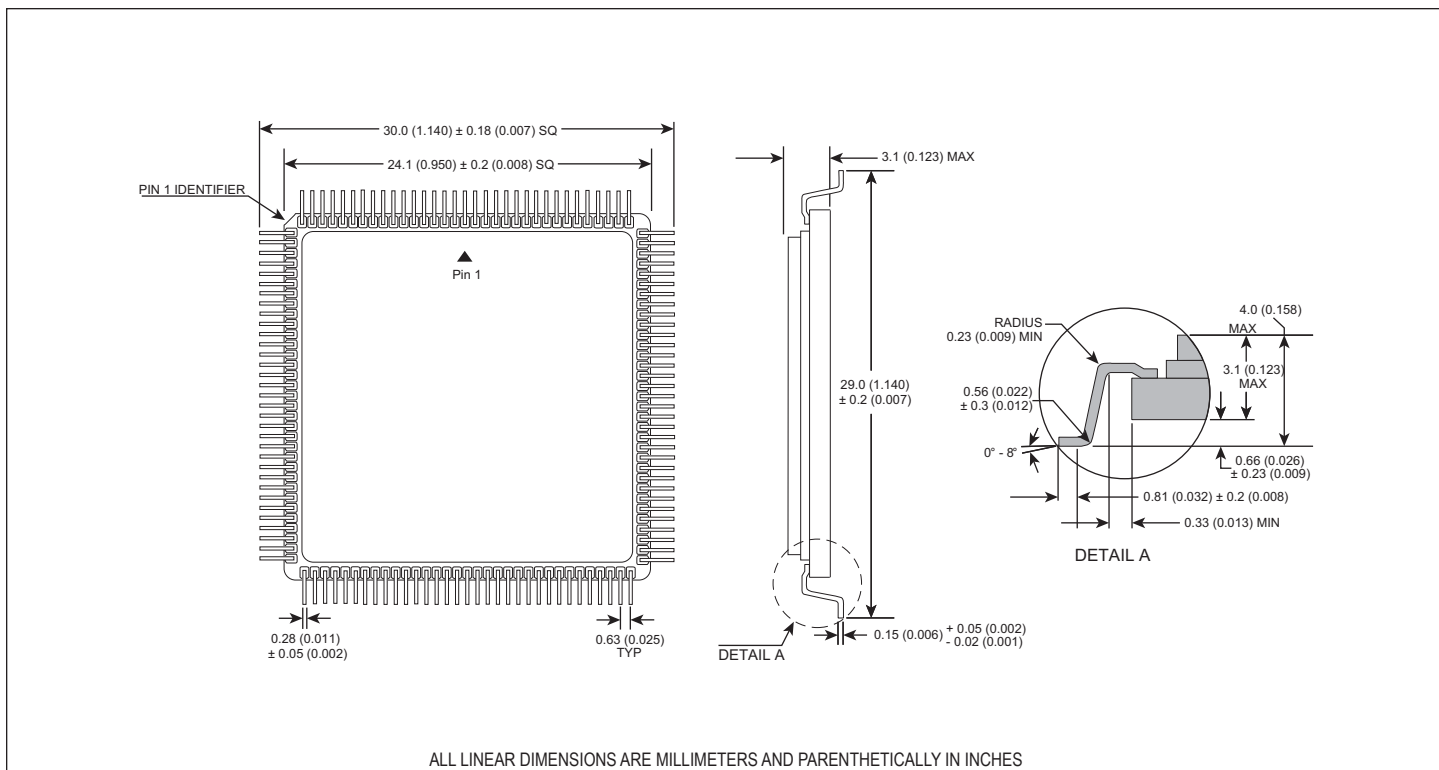
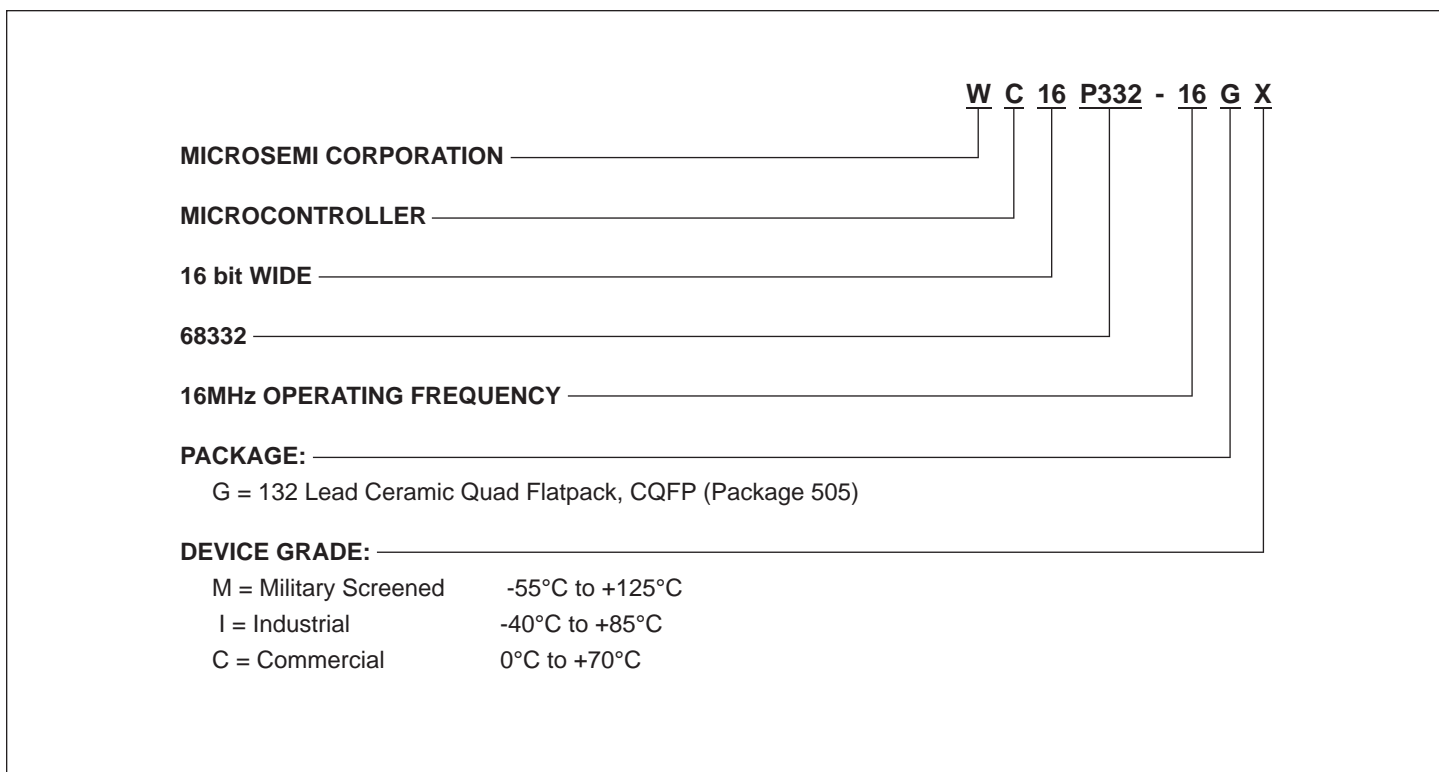
HCMOS technology makes the typical power consumption of the Microcontroller low. Power consumption can be greatly decreased by stopping the system clock. The Microcontroller instruction set includes a low-power stop (LPSTOP) command that easily implements this feature.

* This product is subject to change without notice.

TYPICAL RATINGS

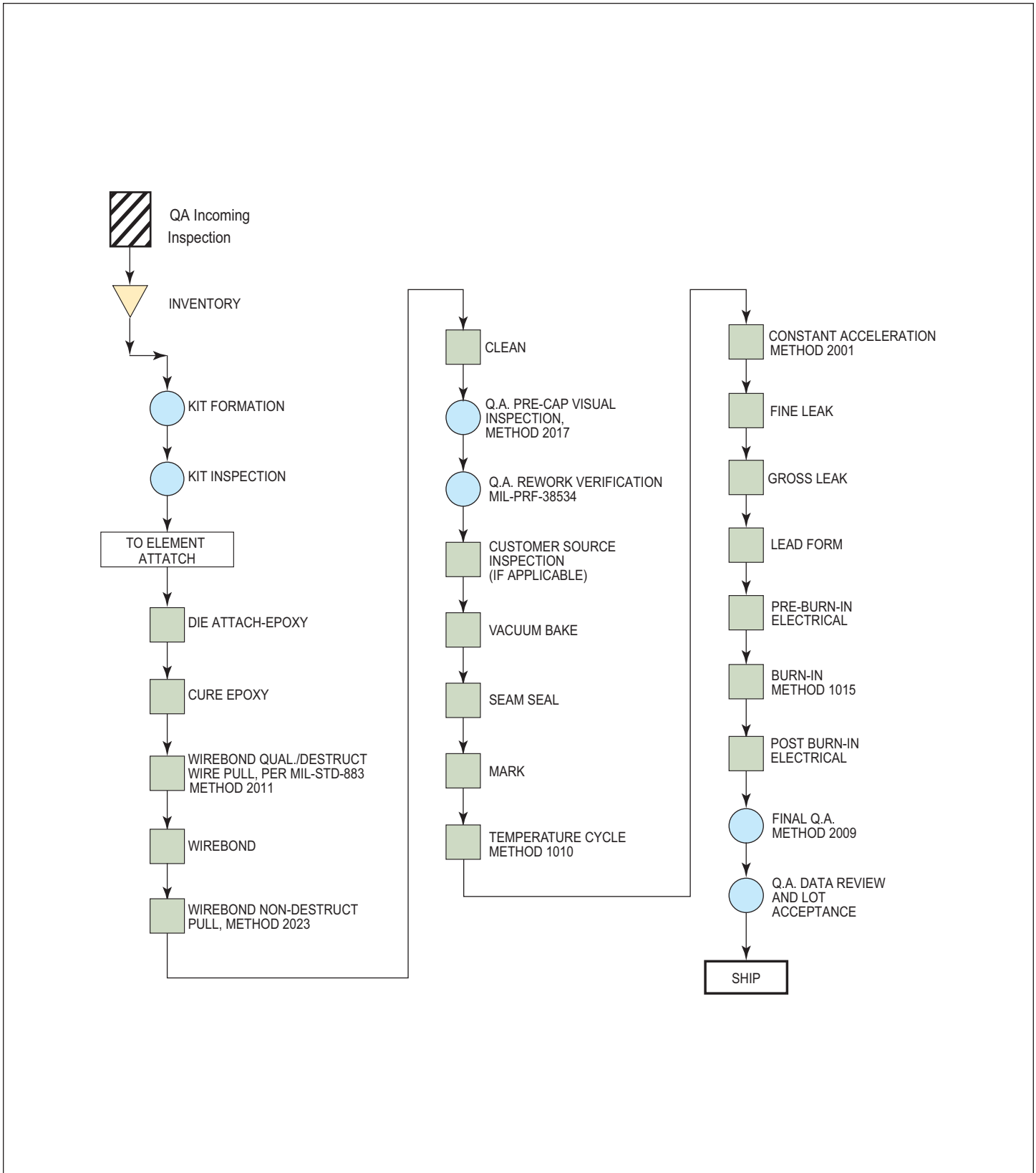
Num	Characteristic	Symbol	Value	Unit
1	Supply Voltage	V _{CC}	5.0	V
2	V _{CC} Supply Current	I _{DD}	75	mA
3	Clock Synthesizer Operating Voltage	V _{CCSYN}	5.0	V
4	V _{CCSYN} Supply Current VCO on, maximum f _{sys} External Clock, maximum f _{sys}	I _{DDSYN}	1.0 4.0	mA mA
5	RAM Standby Voltage	V _{SB}	3.0	V
6	RAM Standby Current Normal RAM operation Standby operation	I _{SB}	7.0 40	μA μA
7	Power Dissipation	P _D	455	mW

FIGURE 1 – PIN CONFIGURATION FOR WC16P332-16GX


PACKAGE 505 – 132 LEAD, CERAMIC QUAD FLAT PACK, CQFP (G)

ORDERING INFORMATION




MANUFACTURING FLOW FOR WC16P332-16GM



**Document Title**

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Revision History

Rev #	History	Release Date	Status
Rev 1	Changes (Pg. 1-5) 1.1 Change document layout from White Electronic Designs to Microsemi 1.2 Add document Revision History page	August 2011	Preliminary
Rev 2	Changes (Pg. 1-5) 2.1 Change data sheet status from Preliminary to Final 2.2 Data sheet marked as "Not Recommended For New Designs"	May 2015	Final