

HIGH-SPEED 2K × 8 REGISTERED CMOS PROM

KEY FEATURES

- **Ultra-Fast Access Time**
 - 20 ns Setup
 - 10 ns Clock to Output
- **Low Power Consumption**
 - 225 mW Active Power
- **Fast Programming**
- **Programmable Synchronous or Asynchronous Output Enable**
- **Pin Compatible with AM27S45 and CY7C245**
- **Immune to Latch-Up**
 - Up to 200 mA
- **ESD Protection Exceeds 2000V**
- **Programmable Asynchronous Initialize Register**

2

GENERAL DESCRIPTION

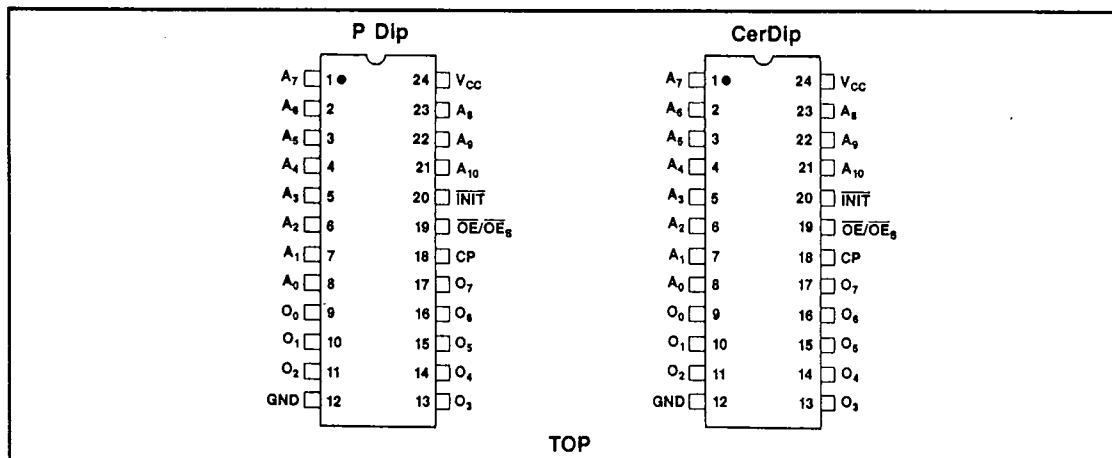
The WS57C45 is an extremely HIGH PERFORMANCE 16K Registered CMOS PROM. It is a direct drop-in replacement for such devices as the AM27S45 and CY7C245.

To meet the requirements of systems which execute and fetch instructions simultaneously, an 8-bit parallel data register has been provided at the output which allows PROM data to be stored while other data is being addressed.

An asynchronous initialization feature has been provided which allows a user programmable 2049th word to be placed on the outputs independent of the system clock. This feature can be used to force an initialize word or provide a preset or clear function.

A further advantage of the WS57C45 over Bipolar PROM devices is the fact that it utilizes a proven EPROM technology. Unlike devices which cannot be erased, every WS57C45 is 100% tested with worst case test patterns, switching characteristics, and functionality before assembly.

PIN CONFIGURATION



PRODUCT SELECTION GUIDE

PARAMETER	WS57C45-20	WS57C45-25	WS57C45-35
Address Access Time (Max)	20 ns	25 ns	35 ns
Output Enable Time (Max)	10 ns	12 ns	15 ns

T-46-13-25

ABSOLUTE MAXIMUM RATINGS*

Storage Temperature -65°C to +150°C
Voltage on any pin with respect to GND -0.6V to +7V
VPP with respect to GND -0.6V to +14.0V
ESD Protection >2000V

*Notice: Stresses above those listed here may cause permanent damage to the device. This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operational sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods of time may affect device reliability.

OPERATING RANGE

Range	Temperature	Vcc
Comm'l.	0° to +70° C	+5V ± 5%
Military	-55° to +125° C	+5V ± 10%

DC READ CHARACTERISTICS Over Operating Range. (See above)

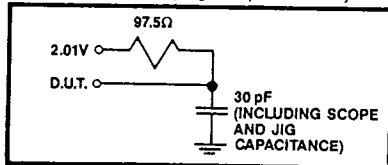
SYMBOL	PARAMETER	TEST CONDITIONS	MIN	MAX	UNITS
VOL	Output Low Voltage	IoL = 16mA		0.4	V
VOH	Output High Voltage	IoH = -4mA	2.4		
Icc1	Vcc Active Current (CMOS)	Notes 1 and 3	Comm'l.	30	mA
			Military	35	
Icc2	Vcc Active Current (TTL)	Notes 2 and 3	Comm'l.	40	mA
			Military	40	
ILI	Input Load Current	VIN = 5.5V or Gnd	-10	10	µA
ILO	Output Leakage Current	VOU = 5.5V or Gnd	-10	10	

NOTES: 1) CMOS Inputs: GND ± 0.3V or VCC ± 0.3V. 3) A.C. Power component adds 3 mA/MHz.
2) TTL Inputs: VIL < 0.8V, VIH > 2.0V.

AC READ CHARACTERISTICS Over Operating Range. (See Above)

PARAMETER	SYMBOL	WS57C45-20		WS57C45-25		WS57C45-35		UNITS
		MIN	MAX	MIN	MAX	MIN	MAX	
Address Setup to Clock HIGH	tSA	20		25		35		ns
Address Hold From Clock HIGH	tHA	0		0		0		
Clock HIGH to Valid Output	tCO		10		12		15	
Clock Pulse Width	tPWC	12		15		20		
OE _S Setup to Clock HIGH	tSOES	10		12		15		
OE _S Hold From Clock HIGH	tHOES	5		5		5		
Delay From $\overline{\text{INIT}}$ to Valid Output	tDI		20		20		20	
$\overline{\text{INIT}}$ Recovery to Clock HIGH	tRI	15		15		20		
$\overline{\text{INIT}}$ Pulse Width	tPWI	15		15		20		
Active Output From Clock HIGH	tLZC		15		15		20	
Inactive Output From Clock HIGH	tHZC		15		15		20	
Active Output From OE LOW	tLZOE		15		15		20	
Inactive Output From OE HIGH	tHZOE		15		15		20	

TEST LOAD (High Impedance Systems)

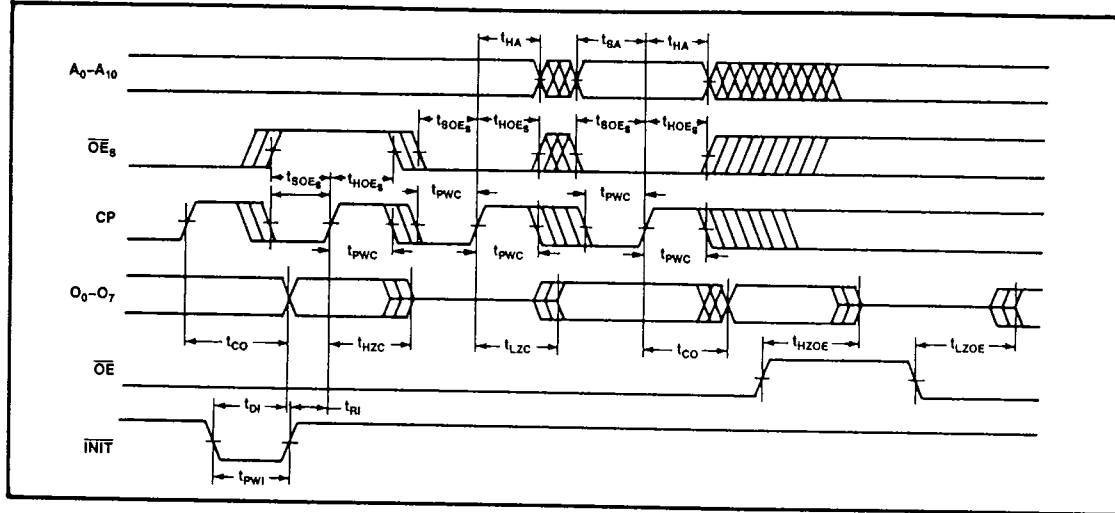


TIMING LEVELS

Input Levels: 0 and 3V
Reference Levels: 0.8 and 2.0V

T-46-13-25

AC READ TIMING DIAGRAM



2

PROGRAMMERS

Data I/O Unipak 2 or 2B; WSI's MagicPro™ IBM PC Compatible Engineering Programmer.

ORDERING INFORMATION

PART NUMBER	SPEED (ns)	PACKAGE TYPE	PACKAGE DRAWING	OPERATING TEMPERATURE RANGE	WSI MANUFACTURING PROCEDURE
WS57C45-20S	20	24 Pin Plastic DIP, 0.3"	S1	Comm'l	Standard
WS57C45-20K	20	24 Pin Cerdip, 0.3"	K1	Comm'l	Standard
WS57C45-25S	25	24 Pin Plastic DIP, 0.3"	S1	Comm'l	Standard
WS57C45-25K	25	24 Pin Cerdip, 0.3"	K1	Comm'l	Standard
WS57C45-25KMB	25	24 Pin Cerdip, 0.3"	K1	Military	MIL-STD-883C
WS57C45-35S	35	24 Pin Plastic DIP, 0.3"	S1	Comm'l	Standard
WS57C45-35K	35	24 Pin Cerdip, 0.3"	K1	Comm'l	Standard
WS57C45-35KMB	35	24 Pin Cerdip, 0.3"	K1	Military	MIL-STD-883C