

# 93417 ✓

## ISOPLANAR SCHOTTKY TTL MEMORY 256×4-BIT PROGRAMMABLE READ ONLY MEMORY

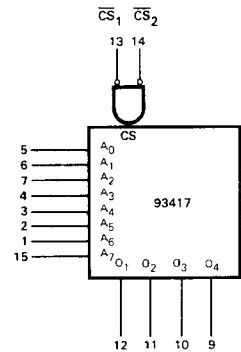
**DESCRIPTION** – The 93417 is a fully decoded high-speed 1024-bit field Programmable ROM organized 256 words by four bits per word. The 93417 has uncommitted collector outputs. The outputs are disabled when either  $\overline{CS}_1$  or  $\overline{CS}_2$  are in the HIGH state. The 93417 is supplied with all bits stored as logic "1"s and can be programmed to logic "0"s by following the field programming procedure.

- FULL MIL AND COMMERCIAL RANGES
- FIELD PROGRAMMABLE
- ORGANIZED 256 X 4 BITS PER WORD
- UNCOMMITTED COLLECTORS
- FULLY DECODED – ON-CHIP ADDRESS DECODER AND BUFFER
- CHIP SELECT INPUTS PROVIDE EASY MEMORY EXPANSION
- WIRED-OR CAPABILITY
- STANDARD 16-PIN DUAL IN-LINE PACKAGE
- NICHROME FUSE LINKS – FOR HIGH RELIABILITY

### PIN NAMES

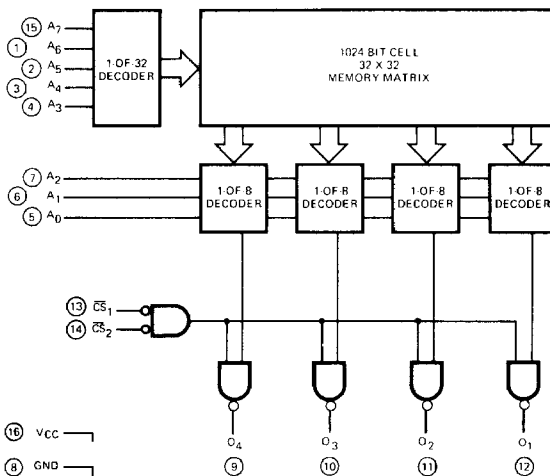
$A_0 - A_7$  Address Inputs  
 $\overline{CS}_1, \overline{CS}_2$  Chip Select Inputs  
 $O_1 - O_4$  Data Outputs

### LOGIC SYMBOL

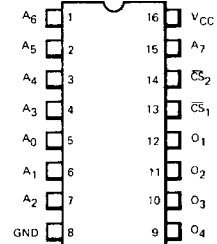


$V_{CC}$  – Pin 16  
 GND – Pin 8

### LOGIC DIAGRAM



### CONNECTION DIAGRAM DIP (TOP VIEW)



**NOTE:**  
 The Flatpak version has the same pinouts (Connection Diagram) as the Dual In-Line Package.

# FAIRCHILD ISOPLANAR SCHOTTKY TTL MEMORY • 93417

**FUNCTIONAL DESCRIPTION** - The 93417 is a bipolar field Programmable Read Only Memory (PROM) organized 256 words by four bits per word. Open collector outputs are provided for use in wired-OR systems. Chip Selects are active LOW; conversely, a HIGH (logic "1") on the CS<sub>1</sub> or CS<sub>2</sub> will disable all outputs.

The read function is identical to that of a conventional bipolar ROM. That is, a binary address is applied to the A<sub>0</sub> through A<sub>7</sub> inputs, the chip is selected, and data is valid at the outputs after t<sub>AA</sub> nanoseconds.

Programming (selectively opening nichrome fuse links) is accomplished by following the sequence outlined below.

**PROGRAMMING** - The 93417 is manufactured with all bits in the logic "1" state. Any desired bit (output) can be programmed to a logic "0" state by following the procedure shown in Chapter 6, page 6-14.

## ABSOLUTE MAXIMUM RATINGS

Storage Temperature	-65°C to +150°C
Temperature (Ambient) Under Bias	-55°C to +125°C
V <sub>CC</sub>	-0.5 V to +7.0 V
Input Voltages	-0.5 V to +5.5 V
Current into Output Terminal	100 mA
Output Voltages	-0.5 V to +5.5 V

## GUARANTEED OPERATING RANGES

PART NUMBER	SUPPLY VOLTAGE (V <sub>CC</sub> )			AMBIENT TEMPERATURE
	MIN	TYP	MAX	
93417XC	4.75 V	5.0 V	5.25 V	0°C to +75°C
93417XM	4.50 V	5.0 V	5.50 V	-55°C to +125°C

X = package type; F for Flatpak, D for Ceramic DIP, P for Plastic DIP. See Package Information on this data sheet.

## DC CHARACTERISTICS: Over guaranteed operating ranges unless otherwise noted.

SYMBOL	CHARACTERISTIC	LIMITS			UNITS	CONDITIONS
		MIN	TYP (Note 1)	MAX		
I <sub>CEX</sub>	Output Leakage Current			50	μA	V <sub>CC</sub> = 5.25 V, V <sub>CES</sub> = 4.95 V, 0°C to +75°C Address any HIGH Output
I <sub>CEX</sub>	Output Leakage Current			100	μA	V <sub>CC</sub> = 5.5 V, V <sub>CES</sub> = 5.2 V, -55°C to +125°C Address any HIGH Output
V <sub>OL</sub>	Output LOW Voltage		0.30	0.45	V	V <sub>CC</sub> = MIN, I <sub>OL</sub> = 16 mA, A <sub>0</sub> = +10.8 V A <sub>1</sub> through A <sub>7</sub> = HIGH
V <sub>IH</sub>	Input HIGH Voltage	2.0			V	Guaranteed Input HIGH Voltage for All Inputs
V <sub>IL</sub>	Input LOW Voltage			0.8	V	Guaranteed Input LOW Voltage for All Inputs
I <sub>F</sub>	I <sub>FA</sub> (Address Inputs)		-160	-250	μA	V <sub>CC</sub> = MAX, V <sub>F</sub> = 0.45 V
	I <sub>FCS</sub> (Chip Select Inputs)		-160	-250	μA	
I <sub>R</sub>	Input HIGH Current					V <sub>CC</sub> = MAX, V <sub>R</sub> = 2.4 V
	I <sub>RA</sub> (Address Inputs)			40	μA	
	I <sub>RCS</sub> (Chip Select Input)			40	μA	
I <sub>CC</sub>	Power Supply Current		85	110	mA	V <sub>CC</sub> = MAX, Outputs open Inputs Grounded and Chip Selected
C <sub>O</sub>	Output Capacitance		7		pF	V <sub>CC</sub> = 5.0 V, V <sub>O</sub> = 4.0 V, f = 1.0 MHz
C <sub>IN</sub>	Input Capacitance		4		pF	V <sub>CC</sub> = 5.0 V, V <sub>O</sub> = 4.0 V, f = 1.0 MHz
V <sub>C</sub>	Input Clamp Diode Voltage			-1.2	V	V <sub>CC</sub> = MIN, I <sub>A</sub> = -18 mA

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**AC CHARACTERISTICS:**  $T_A = 0^\circ\text{C}$  to  $+75^\circ\text{C}$ ,  $V_{CC} = 5.0\text{ V} \pm 5\%$ .

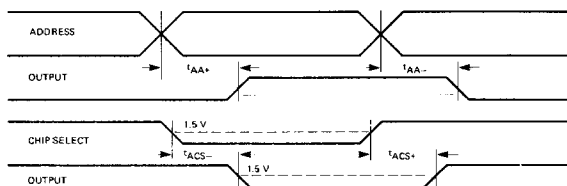
SYMBOL	CHARACTERISTIC	LIMITS			UNITS	CONDITIONS
		MIN	TYP (Note 1)	MAX		
$t_{AA-}$	Address to Output Access Time		25	45	ns	See Waveforms and Test Circuits
$t_{AA+}$			25	45	ns	
$t_{ACS-}$	Chip Select Access Time		12	20	ns	
$t_{ACS+}$			12	20	ns	

**AC CHARACTERISTICS:**  $T_A = -55^\circ\text{C}$  to  $+125^\circ\text{C}$ ,  $V_{CC} = 5.0\text{ V} \pm 10\%$ .

SYMBOL	CHARACTERISTIC	LIMITS			UNITS	CONDITIONS
		MIN	TYP (Note 1)	MAX		
$t_{AA-}$	Address to Output Access Time		25	60	ns	See Waveforms and Test Circuits
$t_{AA+}$			25	60	ns	
$t_{ACS-}$	Chip Select Access Time		12	30	ns	
$t_{ACS+}$			12	30	ns	

Note 1: Typical values are at  $V_{CC} = 5.0\text{ V}$ ,  $+25^\circ\text{C}$  and max loading.

### AC WAVEFORMS



### AC TEST OUTPUT LOAD

