

Generic NiCR PROM Family

53/63XXX-1

53/63XXX-2

Features/Benefit

- From 256 Bit to 8192 Bit memory
- 4-bit-wide and 8-bit-wide for byte oriented applications
- -1 series for standard performance
- -2 series for enhanced performance
- Reliability proven nichrome fusible links (qualified for MIL-M-38510)
- PNP inputs for low input current
- Compatible pin configurations for upward expansion

Application

- Microprogram store
- Microprocessor program store
- Look up table
- Character generator
- Random logic
- Code converter

Description

The 53/63XX series generic PROM family offers a wide selection of size and organizations. The 4-bit wide PROMs range from 256x4 to 2048x4 and feature upward/downward pin out compatibility in the space saving 16 and 18 pin packages. The 8-bit wide PROMs range from 32x8 to 1024x8 in a wide selection of package size including the space saving SKINNYDIP™ 24-pin .300 inch wide package. ALL PROMs have the same programming specifications allowing a single generic programmer.

The family features low input current PNP inputs, full Schottky clamping, three-state and open collector outputs. The nichrome fuses store a logical high and are programmed to the low state. Special on chip circuitry and extra fuses provide preprogramming tests which assure high programming yields and high reliability.

The 63 series is specified for operation over the commercial temperature and voltage range. The 53 series is specified for the military ranges.

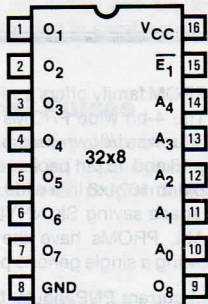
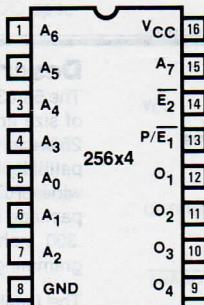
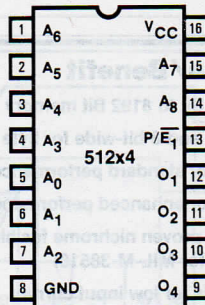
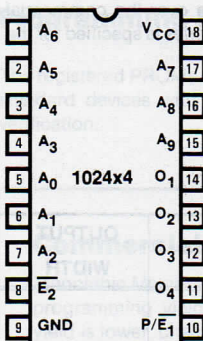
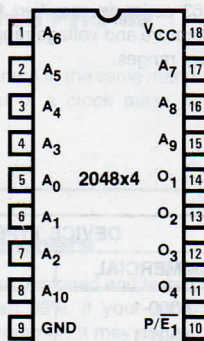
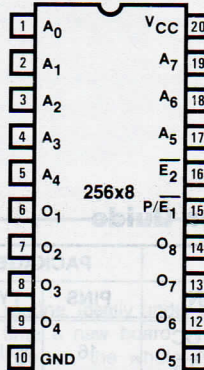
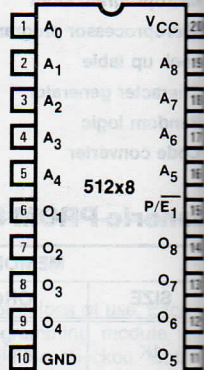
3

Generic PROM Selection Guide

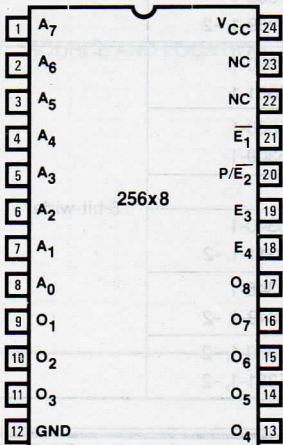
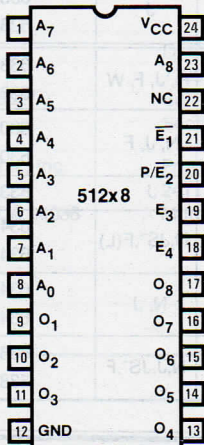
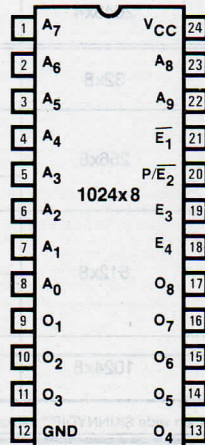
MEMORY			PACKAGE		DEVICE TYPE		OUTPUT WIDTH	
SIZE	ORGANIZATION		PINS	TYPE	COMMERCIAL	MILITARY		
1K	256x4	OC	16	N, J, F, W	6300-1	5300-1	4-bit-wide	
		TS			6301-1	5301-1		
2K	512x4	OC	16	N, J, F, W	6305-1	5305-1		
		TS			6306-1	5306-1		
4K	1024x4	OC	18	N, J	6352-1	5352-1		
		TS			6353-1, -2	5353-1, -2		
8K	2048x4	OC	18	J	6388-1	5388-1		
		TS			6389-1, -2	5389-1, -2		
¼K	32x8	OC	16	N, J, F, W	6330-1	5330-1		8-bit-wide
2K	256x8	TS			20	N, J, F		
		TS	24	J			6309-1	
		4K			512x8	OC	24 (28)	
TS	20		N, J	6341-1, -2		5341-1, -2		
OC				24		N,J,JS*,F	6348-1	
TS	6349-1, -2	5349-1, -2						
8K	1024x8	OC	24	N,J,JS*,F	6380-1, -2	5380-1, -2		
		TS			6381-1, -2	5381-1, -2		

* JS is the .300 inch wide SKINNYDIP™ package.

Pin Configurations

53/6330-1
53/6331-153/6300-1
53/6301-153/6305-1
53/6306-153/6352-1
53/6353-1, -253/6388-1
53/6389-1, -253/6308-1
53/6309-153/6348-1
53/6349-1, -2

6336-2

53/6340-1
53/6341-1, -253/6380-1, -2
53/6381-1, -2

Absolute Maximum Ratings

Supply voltage V_{CC}	-0.5V to 7V
Input voltage	-1.5V to 7V
Off-state output voltage	-0.5V to 5.5V
Storage temperature range	-65° C to + 150° C

Operating Conditions

SYMBOL	PARAMETER	MILITARY			COMMERCIAL			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V_{CC}	Supply voltage	4.5	5	5.5	4.75	5	5.25	V
T_A	Operating free-air temperature	-55		125	0		75	°C

3

Electrical Characteristics Over Operating Conditions

SYMBOL	PARAMETER	TEST CONDITIONS	-1 SERIES		-2 SERIES		UNIT	
			MIN	MAX	MIN	MAX		
V_{IL}	Low-level input voltage			0.8		0.8	V	
V_{IH}	High-level input voltage		2		2		V	
V_{IC}	Input clamp voltage	$V_{CC} = \text{MIN}$		-1.5		-1.5	V	
I_{IL}	Low-level input current	$V_{CC} = \text{MAX}$		-0.25		-0.25	mA	
I_{IH}	High-level input current	$V_{CC} = \text{MAX}$		40		40	μA	
V_{OL}	Low-level output voltage	$V_{CC} = \text{MIN}$ $V_{IL} = 0.8\text{V}$ $V_{IH} = 2\text{V}$	MIL $I_{OL} = 12\text{mA}$	0.5	0.5	0.5	V	
		COM $I_{OL} = 16\text{mA}$						
V_{OH}	High-level output voltage *	$V_{CC} = \text{MIN}$ $V_{IL} = 0.8\text{V}$ $V_{IH} = 2\text{V}$	MIL $I_{OH} = -2\text{mA}$	2.4	2.4	2.4	V	
		COM $I_{OH} = -3.2\text{mA}$						
I_{OZL}	Off-state output current *	$V_{CC} = \text{MAX}$	$V_O = 0.5\text{V}$	-100	-40	μA		
I_{OZH}			$V_O = 2.4\text{V}$	100	40	μA		
I_{CEX}	Open collector output current	$V_{CC} = \text{MAX}$	$V_O = 2.4\text{V}$	100	40	μA		
			$V_O = 5.5\text{V}$		100			
I_{OS}	Output short-circuit current*†	$V_{CC} = 5\text{V}$	$V_O = 0\text{V}$	-20	-90	-20	-90	mA
I_{CC}	Supply current	$V_{CC} = \text{MAX}$ All inputs grounded. All outputs open	'30, '31	125				
			'00, '01	130				
			'05, '06	130				
			'08, '09, '36	155	155			
			'40, '41, '48, '49	MIL	155	175		
				COM	155	155		
			'52, '53	175	140			
			'88, '89	MIL	170	170		
				COM	170	155		
			80, 81	MIL	175	175		
COM	175	170						

* Thre-state only.

† Not more than one output should be shorted at a time and duration of the short-circuit should not exceed one second.

Switching Characteristics

Over Commercial Operating Conditions

DEVICE TYPE	t_{AA} (ns) ADDRESS ACCESS TIME	t_{EA} AND t_{ER} (ns) ENABLE ACCES AND RECOVERY TIME	CONDITIONS (See standard test load)	
	MAX	MAX	R1 (Ω)	R2 (Ω)
6300-1, 6301-1	55	30	300	600
6305-1, 6306-1	60	30		
6308-1, 6309-1	70	30		
6330-1, 6331-1	50	30		
6336-2	70	30		
6340-1, 6341-1	70	30		
6341-2	55	30		
6348-1, 6349-1	70	30		
6349-2	55	30		
6352-1, 6353-1	60	30		
6353-2	50	30		
6388-1, 6389-1	70	30		
6389-2	55	30		
6380-1, 6381-1	90	40		
6380-2	70	30		
6381-2	55	30		

Over Military Operating Conditions

DEVICE TYPE	t_{AA} (ns) ADDRESS ACCESS TIME	t_{EA} AND t_{ER} (ns) ENABLE ACCES AND RECOVERY TIME	CONDITIONS (See standard test load)	
	MAX	MAX	R1 (Ω)	R2 (Ω)
5300-1, 5301-1	75	40	375	750
5305-1, 5306-1	75	40		
5308-1, 5309-1	80	40		
5330-1, 5331-1	60	40		
5336-2	80	40		
5340-1, 5341-1	80	40		
5341-2	70	40		
5348-1, 5349-1	80	40		
5349-2	70	40		
5352-1, 5353-1	75	40		
5353-2	65	30		
5388-1, 5389-1	100	40		
5389-2	70	40		
5380-1, 5381-1	125	40		
5380-2	90	40		
5381-2	70	40		