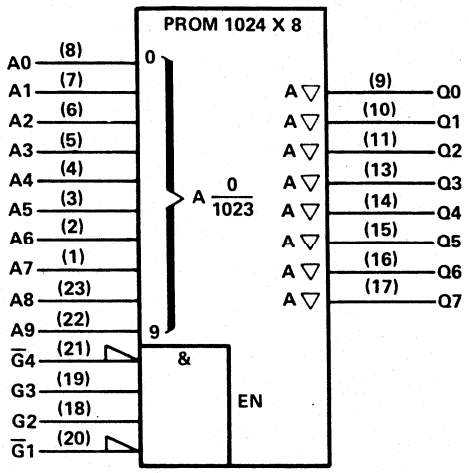
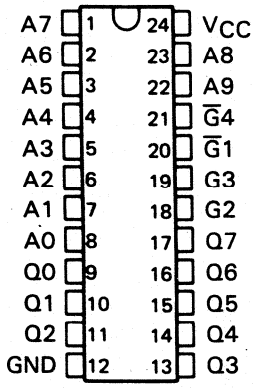
logic symbol

TBP28S86A



pin assignment

TBP28S86A
JW OR NW PACKAGE
(TOP VIEW)



recommended operating conditions

PARAMETER		MJW			JW OR NW			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V_{CC}	Supply voltage	4.5	5	5.5	4.75	5	5.25	V
V_{IH}	High-level input voltage	2			2			V
V_{IL}	Low-level input voltage			0.8			0.8	V
I_{OH}	High-level output current			−2			−3.2	mA
I_{OL}	Low-level output current			12			12	mA
T_A	Operating free-air temperature range	−55		125	0		70	°C

electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		MJW			JW OR NW			UNIT
			MIN	TYP‡	MAX	MIN	TYP‡	MAX	
V_{IK}	V_{CC} = MIN,	I_I = −18 mA			−1.2			−1.2	V
V_{OH}	V_{CC} = MIN,	I_{OH} = MAX	2.4	3.1		2.4	3.1		V
V_{OL}	V_{CC} = MIN,	I_{OL} = 12 mA			0.5			0.5	V
I_{OZH}	V_{CC} = MAX,	V_O = 2.4 V			50			50	μA
I_{OZL}	V_{CC} = MAX,	V_O = 0.5 V			−50			−50	μA
I_I	V_{CC} = MAX,	V_I = 5.5 V			1			1	mA
I_{IH}	V_{CC} = MAX,	V_I = 2.7 V			25			25	μA
I_{IL}	V_{CC} = MAX,	V_I = 0.5 V			−0.25			−0.25	mA
I_{OS}§	V_{CC} = MAX		−15		−100	−20		−100	mA
I_{CC}	V_{CC} = MAX			110	170		110	165	mA

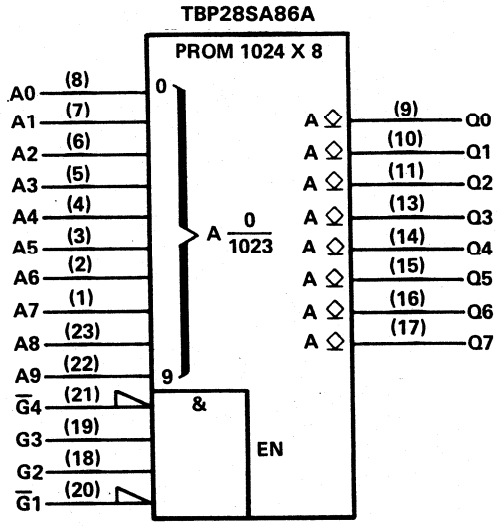
switching characteristics over recommended ranges of T_A and V_{CC} (unless otherwise noted)

PARAMETER		TEST CONDITIONS	MJW			JW OR NW			UNIT
			MIN	TYP‡	MAX	MIN	TYP‡	MAX	
t_{aA}	Access time from address	C_L = 30 pF		35	80		35	65	ns
$t_{a(S)}$	Access time from chip select (enable time)	See Note 3		20	50		20	40	ns
t_{dis}	Disable time	C_L = 5 pF See Note 3		15	40		15	35	ns

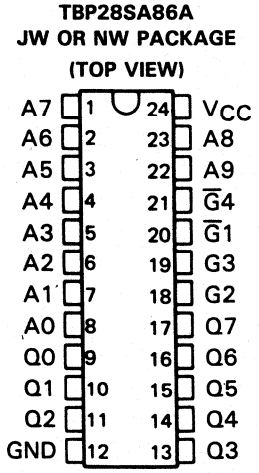
†For conditions shown as MIN or MAX, use appropriate value specified under recommended operating conditions.
‡All typical values are at V_{CC} = 5 V, T_A = 25°C.
§Not more than one output should be shorted at a time, and duration of the short circuit should not exceed one second.
NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

TBP28SA86A
8192 BITS (1024 WORDS BY 8 BITS)
STANDARD PROGRAMMABLE READ-ONLY MEMORIES WITH OPEN-COLLECTOR OUTPUTS

logic symbol



pin assignment



recommended operating conditions

PARAMETER		MJW			JW OR NW			UNIT
		MIN	NOM	MAX	MIN	NOM	MAX	
V_{CC}	Supply voltage	4.5	5	5.5	4.75	5	5.25	V
V_{IH}	High-level input voltage	2			2			V
V_{IL}	Low-level input voltage			0.8			0.8	V
V_{OH}	High-level output voltage			5.5			5.5	V
I_{OL}	Low-level output current			12			12	mA
T_A	Operating free-air temperature range	−55		125	0		70	°C

electrical characteristics over recommended operating free-air temperature range (unless otherwise noted)

PARAMETER	TEST CONDITIONS†		MJW			JW OR NW			UNIT
			MIN	TYP‡	MAX	MIN	TYP‡	MAX	
V_{IK}	V_{CC} = MIN,	I_I = −18 mA			−1.2			−1.2	V
I_{OH}	V_{CC} = MIN,	V_{OH} = 2.4 V			0.05			0.05	mA
		V_{OH} = 5.5 V			0.1			0.1	
V_{OL}	V_{CC} = MIN,	I_{OL} = 12 mA			0.5			0.5	V
I_I	V_{CC} = MAX,	V_I = 5.5 V			1			1	mA
I_{IH}	V_{CC} = MAX,	V_I = 2.7 V			25			25	μA
I_{IL}	V_{CC} = MAX,	V_I = 0.5 V			−0.25			−0.25	mA
I_{CC}	V_{CC} = MAX			125	175		125	175	mA

switching characteristics over recommended ranges of T_A and V_{CC} (unless otherwise noted)

PARAMETER		TEST CONDITIONS	MJW			JW OR NW			UNIT
			MIN	TYP‡	MAX	MIN	TYP‡	MAX	
$t_{a(A)}$	Access time from address	C_L = 30 pF, R_{L1} = 300 Ω, R_{L2} = 600 Ω, See Note 3		35	80		35	70	ns
$t_{a(S)}$	Access time from chip select (enable time)			20	50		20	40	ns
t_{PLH}	Propagation delay time low-to-high-level output from chip select			15	40		15	35	ns

†For conditions shown as MIN or MAX, use appropriate value specified under recommended operating conditions.
‡All typical values are at V_{CC} = 5 V, T_A = 25°C.
NOTE 3: Load circuits and voltage waveforms are shown in Section 1.

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