UV ERASABLE PROM FAMILY

EXPRESS

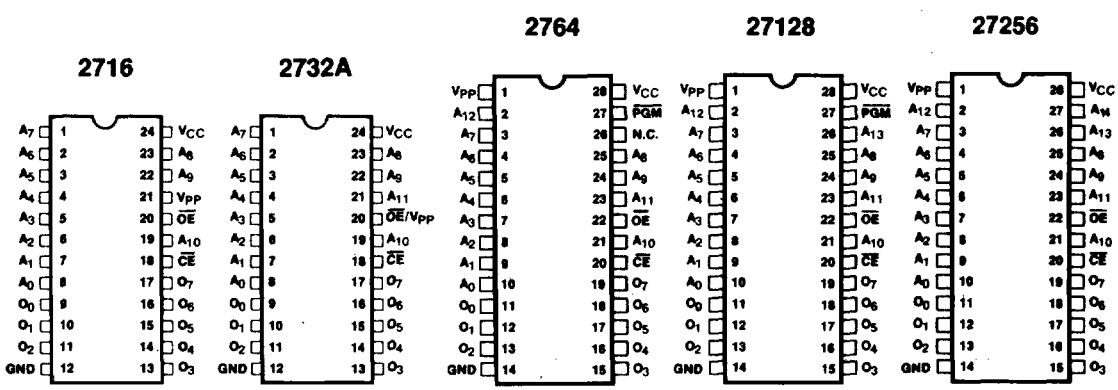
- **0–70°C Temperature Range Standard**
- **Extended Temperature Range −40°C – +85°C Available**
- **Two Line Control**
- **168±8 Hour Burn-In Available**
- **Industry Standard Pinout . . . JEDEC Approved**
- **Inspected To 0.1% AQL**

The Intel EXPRESS EPROM family is a series of ultraviolet erasable and electrically programmable read only memories which have received additional processing to enhance product characteristics. EXPRESS processing is available for several densities of EPROM, allowing the choice of appropriate memory size to match system applications. Intel's JEDEC approved 28 pin Universal Memory Socket provides the industry standard upgrade path to higher density EPROMs.

EXPRESS EPROM products are available with 168±8 hour, 125°C dynamic burn-in using Intel's standard bias configuration. This process exceeds or meets most industry specifications of burn-in.

The standard EXPRESS EPROM operating temperature range is 0°C to 70°C. Extended operating temperature range (−40°C to 85°C) EXPRESS products are available. EXPRESS products plus military grade EPROMs (−55°C to 125°C) provide the most complete choice of standard and extended temperature range EPROMs available.

Like all Intel EPROMs, the EXPRESS EPROM family is inspected to 0.1% electrical AQL. This may allow the user to reduce or eliminate incoming inspection testing.



PIN CONFIGURATION

OCTOBER 1983
ORDER NUMBER: 210322-002

EXPRESS
EPROM Product Family

Type	Organization	Maximum Access (ns)	Power Supply	Operating Temperature (°C)	Burn-in 125°C (hr)
QD2716-1	2048x8	350	5V ± 10%	0 to 70	168±8
QD2716-2	2048x8	390	5V ± 5%	0 to 70	168±8
QD2716	2048x8	450	5V ± 5%	0 to 70	168±8
LD2716	2048x8	450	5V ± 5%	-40 to 85	168±8
TD2716	2048x8	450	5V ± 5%	-40 to 85	NONE
QD2732A-2	4096x8	200	5V ± 5%	0 to 70	168±8
QD2732A	4096x8	250	5V ± 5%	0 to 70	168±8
QD2732A-3	4096x8	300	5V ± 5%	0 to 70	168±8
QD2732A-4	4096x8	450	5V ± 5%	0 to 70	168±8
QD2732A-20	4096x8	200	5V ± 10%	0 to 70	168±8
QD2732A-25	4096x8	250	5V ± 10%	0 to 70	168±8
QD2732A-30	4096x8	300	5V ± 10%	0 to 70	168±8
LD2732A	4096x8	250	5V ± 5%	-40 to 85	168±8
LD2732A-4	4096x8	450	5V ± 5%	-40 to 85	168±8
LD2732A-25	4096x8	250	5V ± 10%	-40 to 85	168±8
LD2732A-45	4096x8	450	5V ± 10%	-40 to 85	168±8
TD2732A	4096x8	250	5V ± 5%	-40 to 85	NONE
TD2732A-4	4096x8	450	5V ± 5%	-40 to 85	NONE
TD2732A-25	4096x8	250	5V ± 10%	-40 to 85	NONE
TD2732A-45	4096x8	450	5V ± 10%	-40 to 85	NONE
QD2764-2	8192x8	200	5V ± 5%	0 to 70	168±8
QD2764	8192x8	250	5V ± 5%	0 to 70	168±8
QD2764-3	8192x8	300	5V ± 5%	0 to 70	168±8
QD2764-4	8192x8	450	5V ± 5%	0 to 70	168±8
QD2764-25	8192x8	250	5V ± 10%	0 to 70	168±8
QD2764-30	8192x8	300	5V ± 10%	0 to 70	168±8
QD2764-45	8192x8	450	5V ± 10%	0 to 70	168±8
LD2764	8192x8	250	5V ± 5%	-40 to 85	168±8
LD2764-4	8192x8	450	5V ± 5%	-40 to 85	168±8
LD2764-25	8192x8	250	5V ± 10%	-40 to 85	168±8
LD2764-45	8192x8	450	5V ± 10%	-40 to 85	168±8
TD2764	8192x8	250	5V ± 5%	-40 to 85	NONE
TD2764-4	8192x8	450	5V ± 5%	-40 to 85	NONE
TD2764-25	8192x8	250	5V ± 10%	-40 to 85	NONE
TD2764-45	8192x8	450	5V ± 10%	-40 to 85	NONE
QD27128	16384x8	250	5V ± 5%	0 to 70	168±8
QD27128-3	16384x8	300	5V ± 5%	0 to 70	168±8

EXPRESS
EPROM Product Family
(Cont.)

Type	Organization	Maximum Access (ns)	Power Supply	Operating Temperature (°C)	Burn-in 125°C (hr)
QD27128-4	16384x8	450	5V ± 5%	0 to 70	168 ± 8
QD27128-25	16384x8	250	5V ± 10%	0 to 70	168 ± 8
QD27128-45	16384x8	450	5V ± 10%	0 to 70	168 ± 8
LD27128	16384x8	250	5V ± 5%	– 40 to 85	168 ± 8
LD27128-4	16384x8	450	5V ± 5%	– 40 to 85	168 ± 8
LD27128-45	16384x8	450	5V ± 10%	– 40 to 85	168 ± 8
TD27128	16384x8	250	5V ± 5%	– 40 to 85	NONE
TD27128-4	16384x8	450	5V ± 5%	– 40 to 85	NONE
TD27128-45	16384x8	450	5V ± 10%	– 40 to 85	NONE
QD27256	32768x8	250	5V ± 5%	0 to 70	168 ± 8
QD27256-25	32768x8	250	5V ± 10%	0 to 70	168 ± 8
LD27256	32768x8	250	5V ± 10%	– 40 to 85	168 ± 8
LD27256-25	32768x8	250	5V ± 5%	– 40 to 85	168 ± 8
TD27256	32768x8	250	5V ± 5%	– 40 to 85	None
TD27256-25	32768x8	250	5V ± 10%	– 40 to 85	None

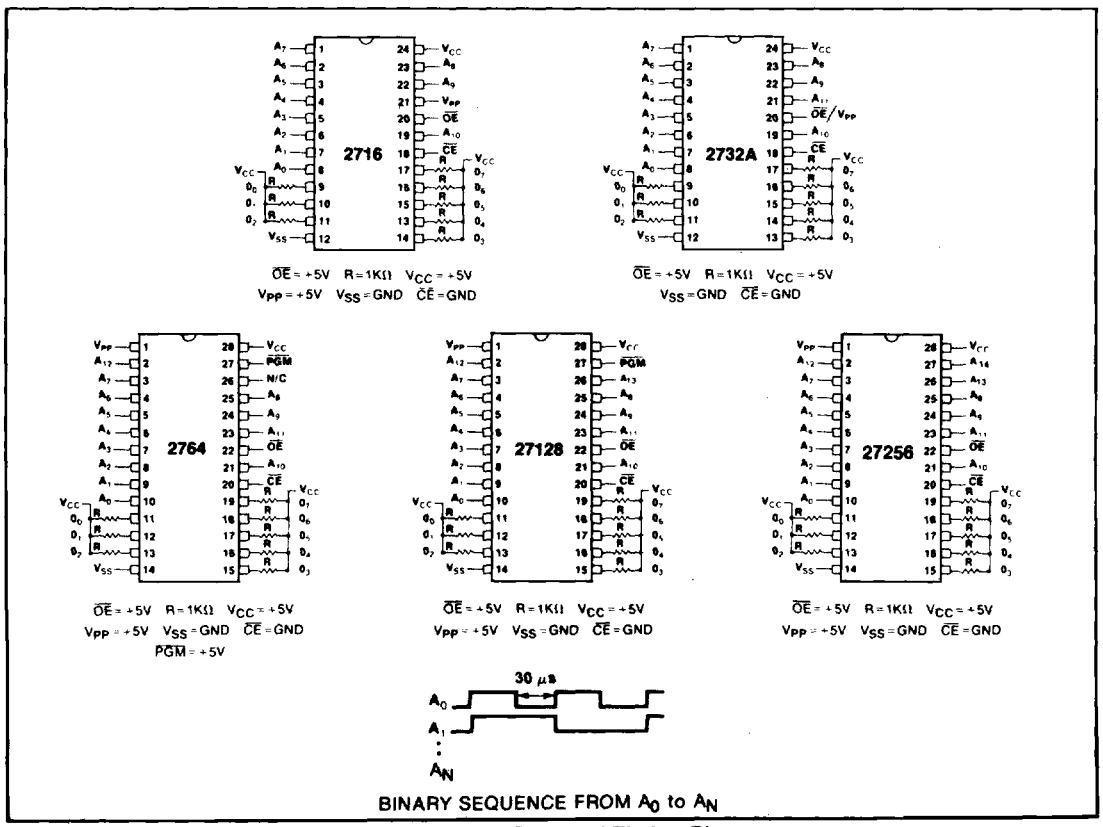


Figure 1. Burn-In Bias and Timing Diagrams

READ OPERATION

D.C. AND A.C. CHARACTERISTICS

Electrical Parameters of EXPRESS EPROM products are identical to standard data sheet parameters except for:

Symbol	Parameter	Limits										Test Conditions
		TD2716 LD2716		TD2732A LD2732A		TD2764 LD2764		TD27128 LD27128		TD27256 LD27256		
		Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
T_{OE}	Output Enable to Output Delay (ns)		150									$\overline{CE} = V_{IL}$
t_{DF}	Output Enable to Output Float (ns)	0	130									$\overline{CE} = V_{IL}$
I_{CC1}	V_{CC} Standby Current (mA)				45		50		50		50	$\overline{CE} = V_{IH}$, $\overline{OE} = V_{IL}$
I_{CC2}	V_{CC} Active Current (mA)				150		125		125		125	$\overline{OE} = \overline{CE} = V_{IL}$