

REVISIONS

LTR	DESCRIPTION	DATE (YR-MO-DA)	APPROVED
E	Added device type 06 for vendor cages 54230 and 88379. Added vendor cage 0EU86 for device types 01 through 06. Figure 1, changed case outline M to reflect package is available in either a single or dual cavity. -sld	99-05-14	K. A. Cottongim
F	Added case outline 9.	00-04-06	Raymond Monnin
G	Added device types 07, 08, and 09 for vendor cage 0EU86. Made changes to table I to include the addition of device types 07, 08, and 09. Added a min limit to the table I for the I _{LI} , and the I _{LO} tests. Made changes to Figures 2, 3, 4, 5, 6, and 8. -sld	02-01-31	Raymond Monnin
H	Added case outline Z. Updated paragraph 1.2.4, 1.3, figures 1, 2, and 8. -sld	02-06-04	Raymond Monnin



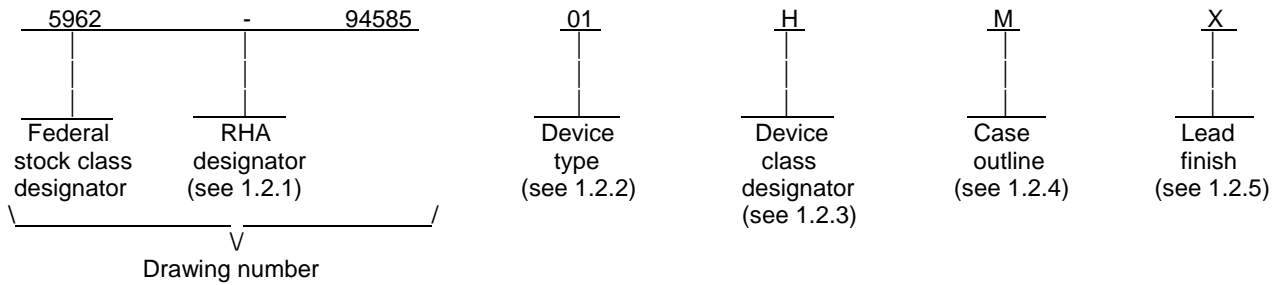
REV	H																				
SHEET	35																				
REV	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
SHEET	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	34
REV STATUS OF SHEETS	REV			H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H
	SHEET			1	2	3	4	5	6	7	8	9	10	11	12	13	14	14	14	14	14

PMIC N/A	PREPARED BY Gary Zahn	DEFENSE SUPPLY CENTER COLUMBUS POST OFFICE BOX 3990 COLUMBUS, OHIO 43216-5000									
STANDARD MICROCIRCUIT DRAWING THIS DRAWING IS AVAILABLE FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE AMSC N/A	CHECKED BY Michael C. Jones										
	APPROVED BY Kendall A. Cottongim										
	DRAWING APPROVAL DATE 94-08-02										
	REVISION LEVEL H	SIZE A	CAGE CODE 67268	5962-94585							
SHEET			1 OF 35								

1. SCOPE

1.1 Scope. This drawing documents five product assurance classes as defined in paragraph 1.2.3 and MIL-PRF-38534. A choice of case outlines and lead finishes which are available and are reflected in the Part or Identifying Number (PIN). When available, a choice of radiation hardness assurance levels are reflected in the PIN.

1.2 PIN. The PIN shall be as shown in the following example:



1.2.1 Radiation hardness assurance (RHA) designator. RHA marked devices shall meet the MIL-PRF-38534 specified RHA levels and shall be marked with the appropriate RHA designator. A dash (-) indicates a non-RHA device.

1.2.2 Device type(s). The device type(s) identify the circuit function as follows:

<u>Device type</u>	<u>Generic number</u>	<u>Circuit function</u>	<u>Access time</u>
01	WE128K32-300HQ, ACT-E128K32N-300P7Q, AS8E128K32-300/883C	EEPROM, 128K x 32-bit	300 ns
02	WE128K32-250HQ, ACT-E128K32N-250P7Q, AS8E128K32-250/883C	EEPROM, 128K x 32-bit	250 ns
03	WE128K32-200HQ, ACT-E128K32N-200P7Q, AS8E128K32-200/883C	EEPROM, 128K x 32-bit	200 ns
04	WE128K32-150HQ, ACT-E128K32N-150P7Q, AS8E128K32-150/883C	EEPROM, 128K x 32-bit	150 ns
05	WE128K32-140HQ, ACT-E128K32N-140P7Q, AS8E128K32-140/883C	EEPROM, 128K x 32-bit	140 ns
06	WE128K32-120HQ, ACT-E128K32N-120P7Q, AS8E128K32-120/883C	EEPROM, 128K x 32-bit	120 ns
07	AS8ER128K32Q-250/883C	EEPROM, 128K x 32-bit	250 ns
08	AS8ER128K32Q-200/883C	EEPROM, 128K x 32-bit	200 ns
09	AS8ER128K32Q-150/883C	EEPROM, 128K x 32-bit	150 ns

1.2.3 Device class designator. This device class designator shall be a single letter identifying the product assurance level. All levels are defined by the requirements of MIL-PRF-38534 and require QML Certification as well as qualification (Class H, K, and E) or QML Listing (Class G and D). The product assurance levels are as follows:

<u>Device class</u>	<u>Device performance documentation</u>
K	Highest reliability class available. This level is intended for use in space applications.
H	Standard military quality class level. This level is intended for use in applications where non-space high reliability devices are required.
G	Reduced testing version of the standard military quality class. This level uses the Class H screening and In-Process Inspections with a possible limited temperature range, manufacturer specified incoming flow, and the manufacturer guarantees (but may not test) periodic and conformance inspections (Group A, B, C and D).
E	Designates devices which are based upon one of the other classes (K, H, or G) with exception(s) taken to the requirements of that class. These exception(s) must be specified in the device acquisition document; therefore the acquisition document should be reviewed to ensure that the exception(s) taken will not adversely affect system performance.

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D

Manufacturer specified quality class. Quality level is defined by the manufacturers internal, QML certified flow. This product may have a limited temperature range.

1.2.4 Case outline(s). The case outline(s) shall be as designated in MIL-STD-1835 and as follows:

<u>Outline letter</u>	<u>Descriptive designator</u>	<u>Terminals</u>	<u>Package style</u>
M	See figure 1	68	Ceramic, single/dual cavity, quad flatpack
N	See figure 1	68	Ceramic, single cavity, quad flatpack
T	See figure 1	66	Hex-in-line, single cavity, with standoffs
U	See figure 1	66	Hex-in-line, single cavity, without standoffs
X	See figure 1	66	Hex-in-line, single cavity, with standoffs
Y	See figure 1	66	Hex-in-line, single cavity, without standoffs
4	See figure 1	66	1.075", hex-in-line, single cavity, with standoffs
5	See figure 1	66	1.075", hex-in-line, single cavity, with standoffs
6	See figure 1	66	1.075", hex-in-line, single cavity, with standoffs
9	See figure 1	68	Ceramic, single cavity, quad flatpack
Z	See figure 1	68	Ceramic, dual cavity, quad flatpack

1.2.5 Lead finish. The lead finish shall be as specified in MIL-PRF-38534.

1.3 Absolute maximum ratings. ^{1/}

Supply voltage range (V_{CC}).....	-0.6 V to +6.25 V
Input voltage range.....	-0.6 V to +6.25 V
Power dissipation (P_D).....	1.4 W
Storage temperature range	-65°C to +150°C
Lead temperature (soldering, 10 seconds).....	+300°C
Thermal resistance junction-to-case (θ_{JC}):	
Case outlines T, X, U, and Y.....	6.2°C/W
Case outline M and Z.....	9.4°C/W
Case outline N.....	3.1°C/W
Case outlines 4, 5, and 6.....	2.7°C/W
Case outline 9.....	1.79°C/W
Data retention.....	10 years minimum
Endurance.....	10,000 cycles minimum ^{2/}

1.4 Recommended operating conditions.

Supply voltage range (V_{CC}).....	+4.5 V dc to +5.5 V dc
Input low voltage range (V_{IL}).....	-0.5 V dc to +0.8 V dc
Input high voltage range (V_{IH}):	
Device types 01 through 06.....	+2.0 V dc to $V_{CC} + 0.3$ V dc
Device types 07 through 09.....	+2.2 V dc to $V_{CC} + 0.3$ V dc
Output voltage, High minimum (V_{OH}).....	+2.4 V dc
Output voltage, low maximum (V_{OL}).....	+0.45 V dc
Case operating temperature range (T_C).....	-55°C to +125°C

^{1/} Stresses above the absolute maximum rating may cause permanent damage to the device. Extended operation at the maximum levels may degrade performance and affect reliability.

^{2/} Device types 7 through 9 for page mode writes only.

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2. APPLICABLE DOCUMENTS

2.1 Government specification, standards, and handbooks. The following specification, standards, and handbooks form a part of this drawing to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto, cited in the solicitation.

SPECIFICATION

DEPARTMENT OF DEFENSE

MIL-PRF-38534 - Hybrid Microcircuits, General Specification for.

STANDARDS

DEPARTMENT OF DEFENSE

MIL-STD-883 - Test Method Standard Microcircuits.
 MIL-STD-1835 - Interface Standard for Electronic Component Case Outlines.

HANDBOOKS

DEPARTMENT OF DEFENSE

MIL-HDBK-103 - List of Standard Microcircuit Drawings.
 MIL-HDBK-780 - Standard Microcircuit Drawings.

(Unless otherwise indicated, copies of the specification, standards, and handbooks are available from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.)

2.2 Order of precedence. In the event of a conflict between the text of this drawing and the references cited herein, the text of this drawing takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Item requirements. The individual item performance requirements for device classes D, E, G, H, and K shall be in accordance with MIL-PRF-38534. Compliance with MIL-PRF-38534 may include the performance of all tests herein or as designated in the device manufacturer's Quality Management (QM) plan or as designated for the applicable device class. Therefore, the tests and inspections herein may not be performed for the applicable device class (see MIL-PRF-38534). Furthermore, the manufacturers may take exceptions or use alternate methods to the tests and inspections herein and not perform them. However, the performance requirements as defined in MIL-PRF-38534 shall be met for the applicable device class.

3.2 Design, construction, and physical dimensions. The design, construction, and physical dimensions shall be as specified in MIL-PRF-38534 and herein.

3.2.1 Case outline(s). The case outline(s) shall be in accordance with 1.2.4 herein and figure 1.

3.2.2 Terminal connections. The terminal connections shall be as specified on figure 2.

3.2.3 Truth table(s). The truth table(s) shall be as specified on figure 3.

3.2.4 Timing diagram(s). The timing diagram(s) shall be as specified on figures 4, 5, 6, and 7.

3.2.5 Block diagram. The block diagram shall be as specified on figure 8.

3.2.5 Typical output test circuit. The typical output test circuit shall be as specified on figure 9.

3.3 Electrical performance characteristics. Unless otherwise specified herein, the electrical performance characteristics are as specified in table I and shall apply over the full specified operating temperature range.

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3.4 Electrical test requirements. The electrical test requirements shall be the subgroups specified in table II. The electrical tests for each subgroup are described in table I.

3.5 Programming procedure. The programming procedure shall be as specified by manufacturer and shall be available on request.

3.6 Marking of device(s). Marking of device(s) shall be in accordance with MIL-PRF-38534. The device shall be marked with the PIN listed in 1.2 herein. In addition, the manufacturer's vendor similar PIN may also be marked as listed in MIL-HDBK-103 and QML-38534.

3.7 Data. In addition to the general performance requirements of MIL-PRF-38534, the manufacturer of the device described herein shall maintain the electrical test data (variables format) from the initial quality conformance inspection group A lot sample, for each device type listed herein. Also, the data should include a summary of all parameters manually tested, and for those which, if any, are guaranteed. This data shall be maintained under document revision level control by the manufacturer and be made available to the preparing activity (DSCC-VA) upon request.

3.8 Certificate of compliance. A certificate of compliance shall be required from a manufacturer in order to supply to this drawing. The certificate of compliance (original copy) submitted to DSCC-VA shall affirm that the manufacturer's product meets the performance requirements of MIL-PRF-38534 and herein.

3.9 Certificate of conformance. A certificate of conformance as required in MIL-PRF-38534 shall be provided with each lot of microcircuits delivered to this drawing.

3.10 Endurance. A reprogrammability test shall be completed as part of the vendor's reliability monitors. This reprogrammability test shall be done for the initial characterization and after any design or process changes which may affect the reprogrammability of the device. The methods and procedures may be vendor specific, but shall guarantee the number of program/erase endurance cycles listed in section 1.3 herein over the full specified operating temperature range. The vendor's procedure shall be kept under document control and shall be made available upon request of the acquiring or preparing activity.

3.11 Data retention. A data retention stress test shall be completed as part of the vendor's reliability monitors. This test shall be done for initial characterization and after any design or process change which may affect data retention. The methods and procedures may be vendor specific, but shall guarantee the number of years listed in section 1.3 herein over the full military temperature range. The vendor's procedure shall be kept under document control and shall be made available upon request of the acquiring or preparing activity.

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TABLE I. Electrical performance characteristics.

Test	Symbol	Conditions <u>1/ 2/</u> -55°C ≤ T _C ≤ +125°C +4.5 V dc ≤ V _{CC} ≤ +5.5 V dc unless otherwise specified	Group A subgroups	Device types	Limits		Unit
					Min	Max	
DC parameters							
Supply current	I _{CC}	$\overline{CS} = V_{IL}$, $\overline{OE} = \overline{WE} = V_{IH}$, I/O 0 through I/O 31 = open. Inputs = V _{CC} = +5.5 V dc, A0 through A16 change at f = 5 MHz CMOS levels.	1,2,3	All		250	mA
Standby current	I _{SB}	$\overline{CS} = V_{CC}$, $\overline{OE} = V_{IH}$, I/O 0 through I/O 31 = open. Inputs = V _{CC} = +5.5 V dc, A0 through A16 change at f = 5 MHz CMOS levels.	1,2,3	All		5	mA
Input leakage current	I _{LI}	V _{IN} = V _{SS} to V _{CC}	1,2,3	All	-10	+10	μA
Input leakage (\overline{RES} pin)	I _{IL(RES)}	V _{IN} = V _{SS} to V _{CC}	1,2,3	7,8,9	-500	+500	μA
Output leakage current	I _{LO}	$\overline{CS} = V_{IH}$, V _{OUT} = V _{SS} to V _{CC}	1,2,3	All	-10	+10	μA
Input low voltage	V _{IL}		1,2,3	All		0.8	V
Input high voltage	V _{IH}		1,2,3	1-6	2.0		V
				7-9	2.2		
Input high voltage RES signal	V _H		1,2,3	7-9	V _{CC} - 5 V	V _{CC} + 1V	V
Output low voltage	V _{OL}	V _{CC} = +4.5 V dc, I _{OL} = 2.1 mA	1,2,3	All		0.45	V
Output high voltage	V _{OH}	V _{CC} = +4.5 V dc, I _{OL} = -400 μA	1,2,3	All	2.4		V
Capacitance							
A0 - A16 <u>3/</u> \overline{OE} capacitance <u>3/</u>	C _{AD} C _{OE}	V _{IN} = 0 V dc, f = 1.0 MHz, T _A = +25°C	4	All		50	pF
\overline{CS} 1-4 capacitance <u>3/</u>	C _{CS}	V _{IN} = 0 V dc, f = 1.0 MHz, T _A = +25°C	4	All		20	pF
\overline{WE} 1-4 capacitance <u>3/</u>	C _{WE1-4}	V _{IN} = 0 V dc, f = 1.0 MHz, T _A = +25°C	4	All		20	pF
See footnotes at end of table.							
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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1/</u> <u>2/</u> -55°C ≤ T _C ≤ +125°C +4.5 V dc ≤ V _{CC} ≤ +5.5 V dc unless otherwise specified	Group A subgroups	Device types	Limits		Unit
					Min	Max	
Capacitance - Continued.							
\overline{WE} capacitance <u>3/</u>	C _{WE}	V _{IN} = 0 V dc, f = 1.0 MHz, T _A = +25°C Case outline N, only.	4	All		50	pF
I/O0-I/O31 capacitance <u>3/</u>	C _{I/O}	V _{OUT} = 0 V dc, f = 1.0 MHz, T _A = +25°C	4	All		20	pF
\overline{RES} and RDY/ \overline{BUSY} capacitance	C _{RES} C _{RDY}	$\overline{RES} = \text{RDY}/\overline{BUSY} = 0 \text{ V}$	4	7,8,9		50	pF
Functional tests							
Functional tests		See 4.3.1c	7,8A,8B	All			
Read cycle timing characteristics							
Read cycle timing	t _{RC}	See figure 4.	9,10,11	01 02,07 03,08 04,09 05 06	300 250 200 150 140 120		ns
Address access timing	t _{ACC}	See figure 4.	9,10,11	01 02,07 03,08 04,09 05 06	300 250 200 150 140 120		ns
Chip select access timing	t _{ACS}	See figure 4.	9,10,11	01 02,07 03,08 04,09 05 06	300 250 200 150 140 120		ns
Output hold from address change \overline{OE} or \overline{CS}	t _{OH}	See figure 4.	9,10,11	All	0		ns
See footnotes at end of table.							
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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1/</u> <u>2/</u> -55°C ≤ T _C ≤ +125°C +4.5 V dc ≤ V _{CC} ≤ +5.5 V dc unless otherwise specified	Group A subgroups	Device types	Limits		Unit
					Min	Max	
Read cycle timing characteristics - Continued.							
Out enable to output valid	t _{OE}	See figure 4.	9,10,11	01 02,07 03,08 04,05 06 09	0 0 0 0 0 0	125 100 85 55 50 75	ns
Chip select or output enable to output high - Z <u>3/</u>	t _{DF}	See figure 4.	9,10,11	01-06		70	ns
				07-09		50	
Byte write AC timing characteristics.							
Address setup time	t _{AS}	See figure 5.	9,10,11	01-06	10		ns
				07-09	0		
Write pulse width	t _{WP}	See figure 5.	9,10,11	01-06	150		ns
				07-09	250		
Chip select setup time	t _{CS}	See figure 5.	9,10,11	All	0		ns
Address hold time	t _{AH}	See figure 5.	9,10,11	01-06	100		ns
				07-09	150		
Output enable setup time	t _{OES}	See figure 5.	9,10,11	01-06	4		ns
				07-09	0		
Data hold time	t _{DH}	See figure 5.	9,10,11	All	10		ns
Output enable hold time	t _{OEH}	See figure 5.	9,10,11	01-06	10		ns
				07-09	0		
Data setup time	t _{DS}	See figure 5.	9,10,11	All	100		ns
Chip select hold time	t _{CSH}	See figure 5.	9,10,11	All	0		ns
Write pulse width high	t _{WPH}	See figure 5.	9,10,11	01-06	50		ns
				07-09	300		
Write cycle time	t _{WC}	See figure 5.	9,10,11	All		10	ms
See footnotes at end of table							
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TABLE I. Electrical performance characteristics - Continued.

Test	Symbol	Conditions <u>1/</u> <u>2/</u> -55°C ≤ T _C ≤ +125°C +4.5 V dc ≤ V _{CC} ≤ +5.5 V dc unless otherwise specified	Group A subgroups	Device types	Limits		Unit
					Min	Max	
Page mode write AC timing characteristics.							
Data setup time	t _{DS}	See figure 6.	9,10,11	All	100		ns
Data hold time	t _{DH}	See figure 6.	9,10,11	All	10		ns
Write pulse width	t _{WP}	See figure 6.	9,10,11	01-06	150		ns
				07-09	250		
Byte load cycle time	t _{BLC}	See figure 6.	9,10,11	01-06		150	μs
				07-09		30	
Write pulse width high	t _{WPH}	See figure 6.	9,10,11	01-06	50		ns
				07-09	300		
Write cycle time	t _{WC}	See figure 6.	9,10,11	All		10	ms
Data polling AC timing characteristics. <u>3/</u>							
Data hold time	t _{DH}	See figure 7.	9,10,11	All	10		ns
Output enable hold time	t _{OE_H}	See figure 7.	9,10,11	All	10		ns
Output enable to output delay	t _{OE}	See figure 7.	9,10,11	All		100	ns
Write recovery time	t _{WR}	See figure 7.	9,10,11	All	0		ns
$\overline{\text{RES}}$ low to output float	t _{DFR}	See figure 4.	9,10,11	07-09	0	350	ns
$\overline{\text{RES}}$ to output delay	t _{RR}	See figure 4.	9,10,11	07-09	0	450	ns
Reset protect time	t _{RP}	See figures 5 and 6.	9,10,11	07-09	100		μs
Reset high time	t _{RES}	See figures 5 and 6.	9,10,11	07-09	1.0		μs
Time to device busy	t _{DB}	See figures 5 and 6.	9,10,11	07-09	120		ns
<p><u>1/</u> Unless otherwise specified, the AC test conditions are as follows: Input pulse levels: V_{IL} = 0 V and V_{IH} = 3.0 V. Input rise and fall times: 5 nanoseconds. Input and output timing reference level: 1.5 V.</p> <p><u>2/</u> $\overline{\text{RES}}$ and RDY/$\overline{\text{BUSY}}$ functions are applicable for device types 07 through 09 only.</p> <p><u>3/</u> Guaranteed by design, but not tested.</p>							
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Case outline M.

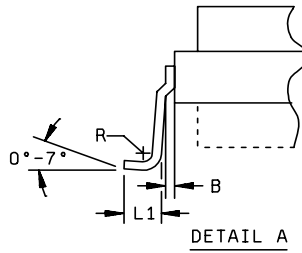
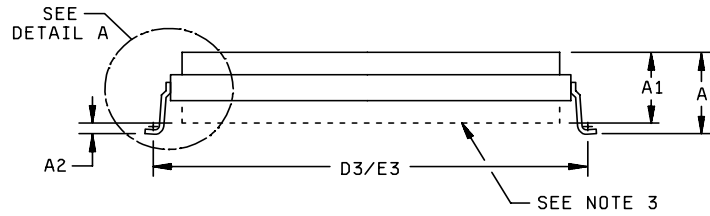
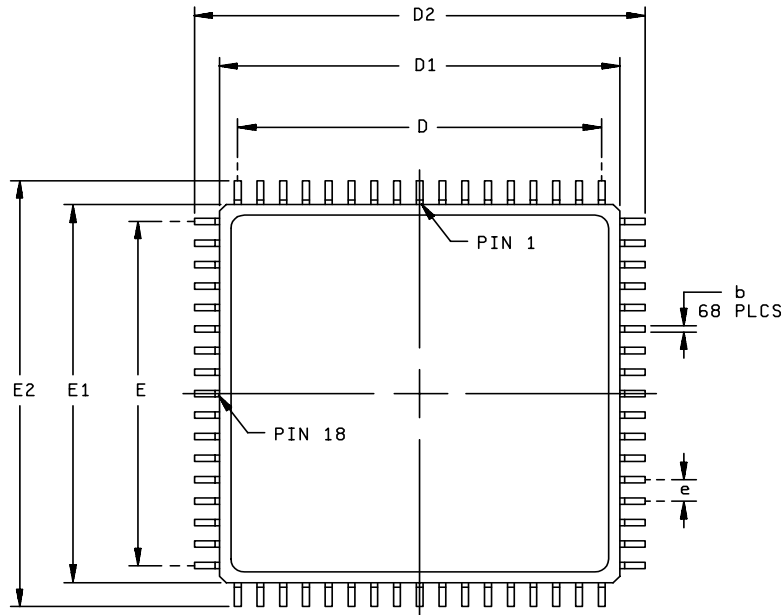


FIGURE 1. Case outline(s).

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Case outline M - Continued.

Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	3.12	5.08	.123	.200
A1	2.30	4.72	.118	.186
A2	0.00	0.51	.000	.020
b	0.33	0.43	.013	.017
B	0.25 REF		.010 REF	
D/E	20.32 BSC		.800 BSC	
D1/E1	22.10	22.61	.870	.890
D2/E2	24.89	25.40	.980	1.000
D3/E3	23.77	24.28	.936	.956
e	1.27 BSC		.050 BSC	
R	0.13		.005	
L1	0.89	1.14	.035	.045

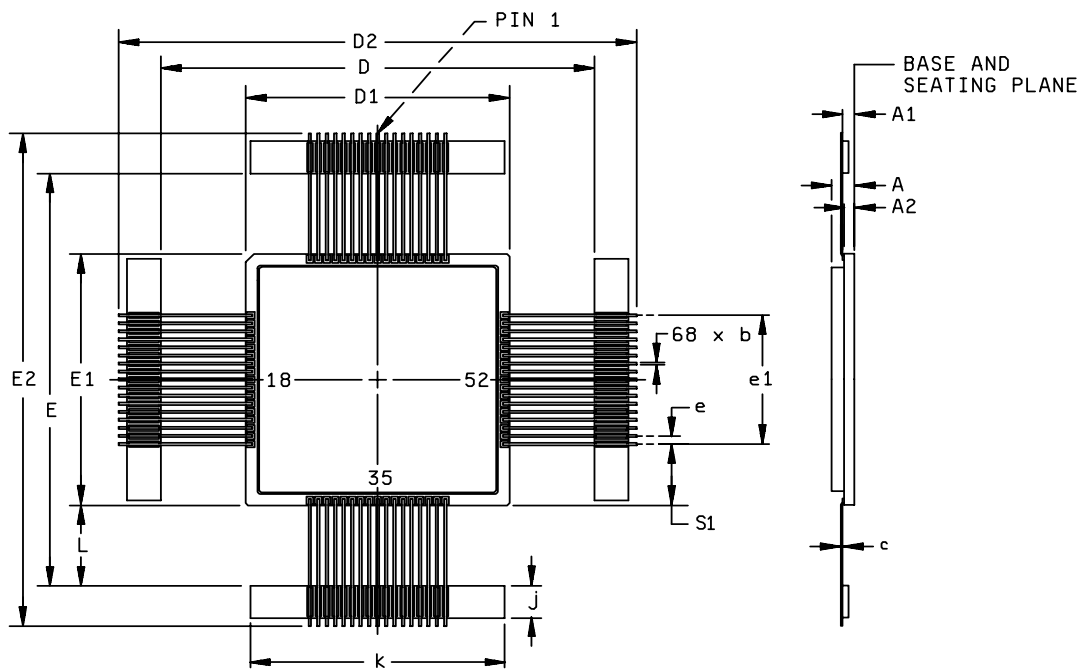
NOTES:

1. The U.S. preferred system of measurement is the metric SI. This item was designed using inch-pound units of measurement. In case of problems involving conflicts between the metric and inch-pound units, the inch-pound units shall rule.
2. Pin numbers are for reference only.
3. Case outline M may either be a single cavity or a dual cavity package.

FIGURE 1. Case outline(s) - Continued.

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Case outline N.



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	4.45	5.08	.175	.200
A1	1.52 BSC		.060 BSC	
A2	1.14	1.39	.045	.055
b	0.31	0.46	.012	.018
c	0.23	0.31	.009	.012
D/E	63.63	66.42	2.505	2.615
D1/E1	39.24	40.01	1.545	1.575
D2/E2	73.28	84.20	2.885	3.315
e	1.27 BSC		.050 BSC	
e1	20.32 BSC		.800 BSC	
j	4.83	5.33	.190	.210
k	37.72	38.48	1.485	1.515
L	12.19	13.21	.480	.520
S1	9.65 BSC		.380 BSC	

NOTES:

1. The U.S. preferred system of measurement is the metric SI. This item was designed using inch-pound units of measurement. In case of problems involving conflicts between the metric and inch-pound units, the inch-pound units shall rule.
2. Pin numbers are for reference only.

FIGURE 1. Case outline(s) - Continued.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 12

Case outlines T, X, 4, 5, and 6.

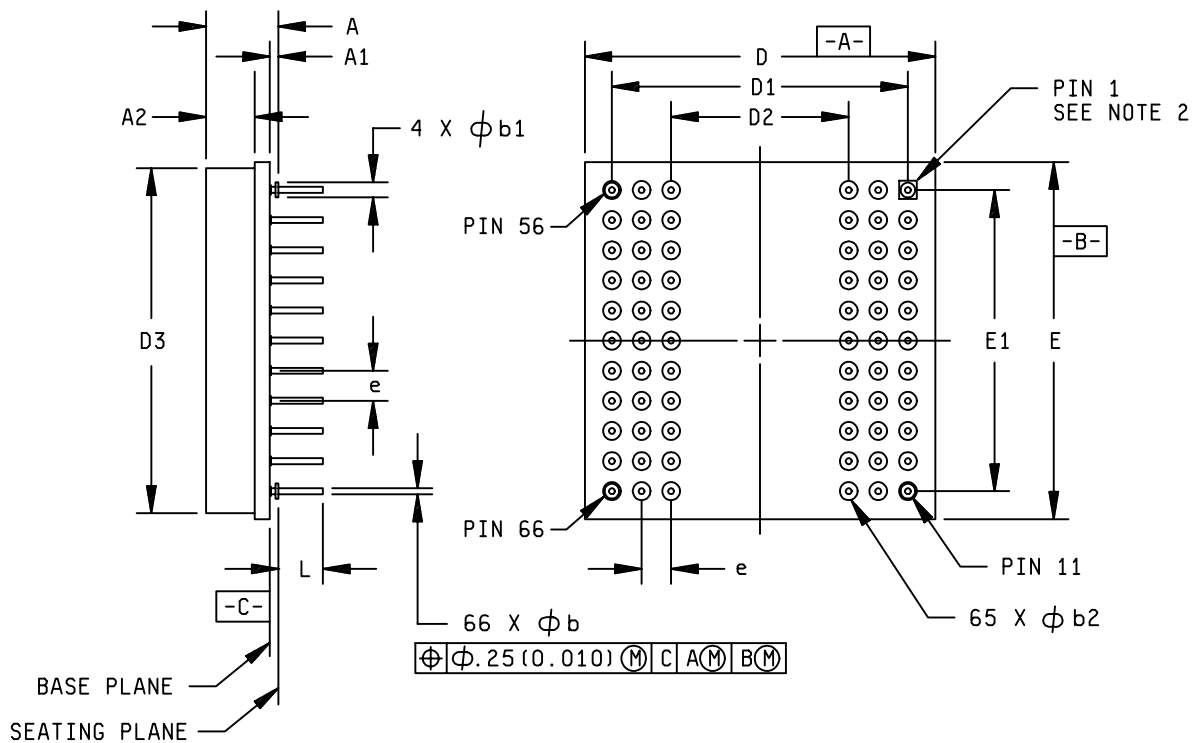


FIGURE 1. Case outline(s) - Continued.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 13

Case outlines T and X - Continued.

Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	5.33	6.22	.210	.245
A1	0.64	0.89	.025	.035
A2	3.42	3.68	.135	.145
øb	0.41	0.51	.016	.020
øb1	1.14	1.40	.045	.055
øb2	1.65	1.91	.065	.075
D/E	29.72	30.48	1.170	1.200
D1/E1	25.40 BSC		1.000 BSC	
D2	15.24 BSC		.600 BSC	
D3	28.96	29.21	1.140	1.150
e	2.54 BSC		.100 BSC	
L	3.68	3.94	.145	.155

Case outlines 4, 5, and 6 - Continued.

Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	3.43	4.60	.135	.181
A1	0.64	0.89	.025	.035
øb	0.41	0.51	.016	.020
øb1	1.14	1.40	.045	.055
øb2	1.65	1.91	.065	.075
D/E	27.05	27.56	1.065	1.085
D1/E1	25.40 BSC		1.000 BSC	
D2	15.24 BSC		.600 BSC	
D3	25.90	26.92	1.020	1.060
e	2.54 BSC		.100 BSC	
L	3.35	3.94	.132	.155

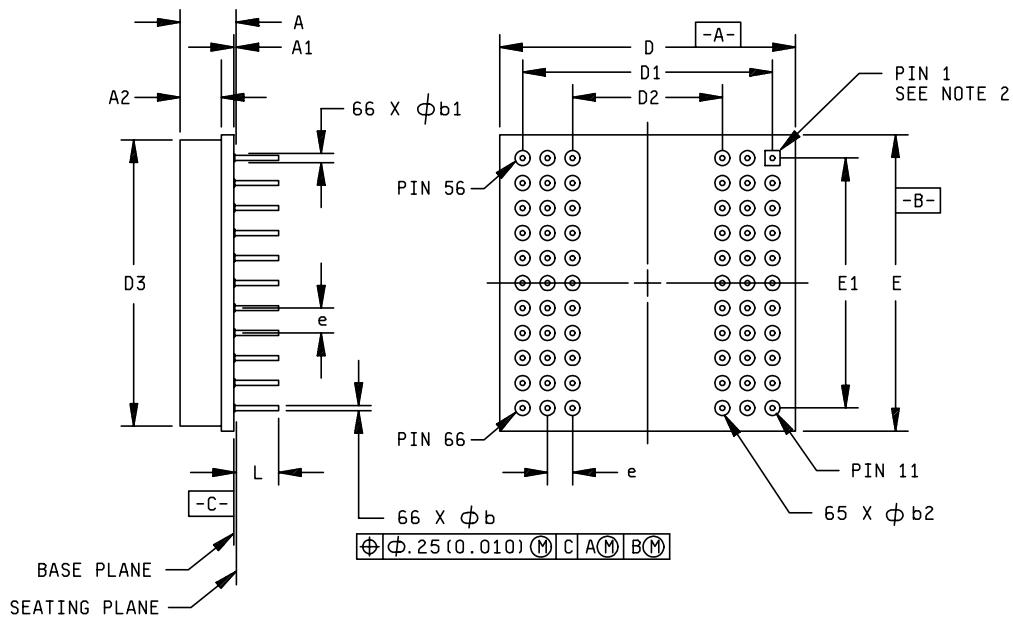
NOTES:

1. The U.S. preferred system of measurement is the metric SI. This item was designed using inch-pound units of measurement. In case of problems involving conflicts between the metric and inch-pound units, the inch-pound units shall rule.
2. Pin 1 is identified by .070 inch (1.78 mm) square pad.
3. Pin numbers are for reference only.

FIGURE 1. Case outline(s) - Continued.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 14

Case outlines U and Y.



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	4.70	5.84	.185	.230
A1	0.13	0.51	.005	.020
A2	3.42	3.68	.135	.145
øb	0.41	0.51	.016	.020
øb1	0.76	1.52	.030	.060
øb2	1.65	1.91	.065	.075
D/E	29.72	30.48	1.170	1.200
D1/E1	25.40 BSC		1.000 BSC	
D2	15.24 BSC		.600 BSC	
D3	28.96	29.21	1.140	1.150
e	2.54 BSC		.100 BSC	
L	4.19	4.70	.165	.185

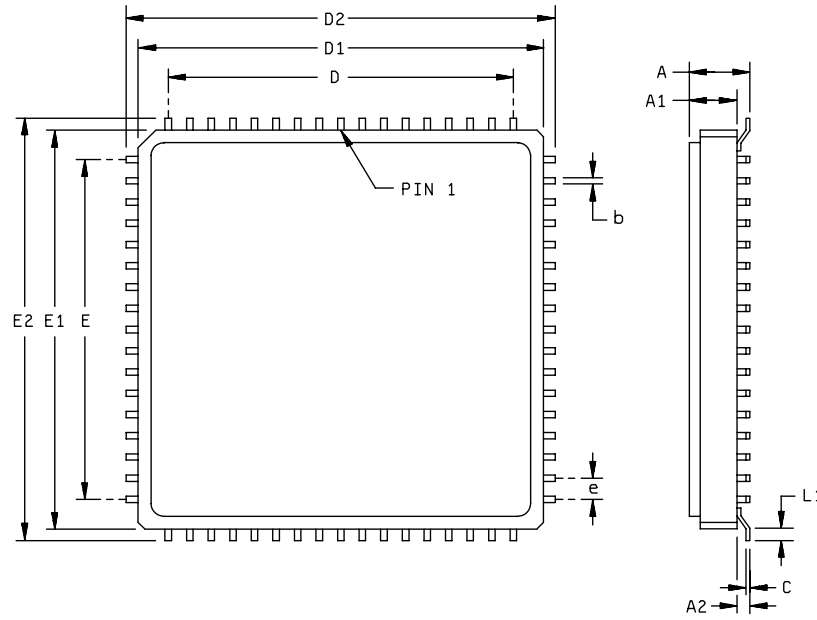
NOTES:

1. The U.S. preferred system of measurement is the metric SI. This item was designed using inch-pound units of measurement. In case of problems involving conflicts between the metric and inch-pound units, the inch-pound units shall rule.
2. Pin 1 is identified by .070 inch (1.78 mm) square pad.
3. Pin numbers are for reference only.

FIGURE 1. Case outline(s) - Continued.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 15

Case outline 9.



Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A		3.56		.140
A1		2.79		.110
A2	0.46	0.76	.018	.030
b	0.33	0.43	.013	.017
C	0.15	0.25	.006	.010
D/E	20.32 BSC		.800 BSC	
D1/E1	23.65	24.10	.931	.949
D2/E2	25.15	25.40	.990	1.000
e	1.27 BSC		.050 BSC	
L1	0.51	1.14	.020	.045

NOTES:

1. The U.S. preferred system of measurement is the metric SI. This item was designed using inch-pound units of measurement. In case of problems involving conflicts between the metric and inch-pound units, the inch-pound units shall rule.
2. Pin numbers are for reference only.

FIGURE 1. Case outline(s) - Continued.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 16

Case outline Z.

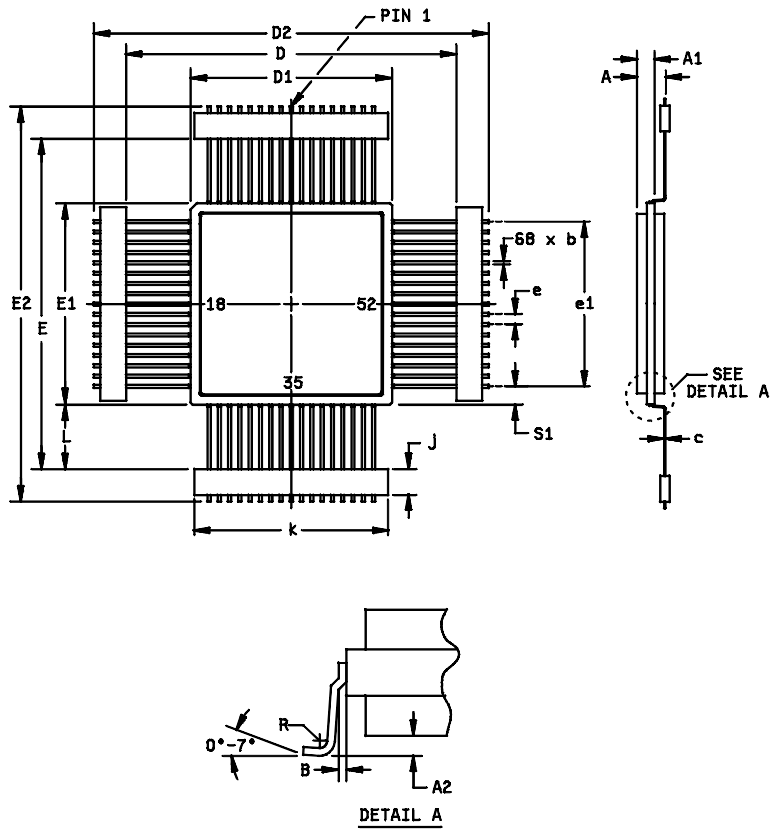


FIGURE 1. Case outline(s) -Continued.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 17

Case Z - Continued.

Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	3.12	5.08	.123	.200
A1	3.00	4.72	.118	.186
A2	0.00	0.51	.000	.020
b	0.33	0.43	.013	.017
c	0.23	0.31	.009	.012
D/E	27.58	28.30	1.086	1.114
D1/E1	22.10	22.61	.870	.890
D2/E2	48.77	50.80	1.920	2.000
e	1.27 BSC		.050 BSC	
e1	20.32 BSC		.800 BSC	
j	4.95	5.21	.195	.205
k	22.73	22.99	.895	.905
L	8.00	8.26	.315	.325
R	0.13		.005	
S1	1.02 BSC		.040 BSC	

NOTES:

1. The U.S. preferred system of measurement is the metric SI. This item was designed using inch-pound units of measurement. In case of problems involving conflicts between the metric and inch-pound units, the inch-pound units shall rule.
2. Pin numbers are for reference only.

FIGURE 1. Case outline(s) - Continued.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 18

Device types	1-6	Device types	1-6	Device types	1-6	Device types	1-6
Case outlines	M, 9	Case outlines	M, 9	Case outlines	M, 9	Case outlines	M, 9
Terminal number	Terminal symbol	Terminal number	Terminal symbol	Terminal number	Terminal symbol	Terminal number	Terminal symbol
1	GND	18	GND	35	$\overline{\text{OE}}$	52	GND
2	$\overline{\text{CS3}}$	19	I/O8	36	$\overline{\text{CS2}}$	53	I/O23
3	A5	20	I/O9	37	NC	54	I/O22
4	A4	21	I/O10	38	$\overline{\text{WE2}}$	55	I/O21
5	A3	22	I/O11	39	$\overline{\text{WE3}}$	56	I/O20
6	A2	23	I/O12	40	$\overline{\text{WE4}}$	57	I/O19
7	A1	24	I/O13	41	NC	58	I/O18
8	A0	25	I/O14	42	NC	59	I/O17
9	NC	26	I/O15	43	NC	60	I/O16
10	I/O0	27	V _{CC}	44	I/O31	61	V _{CC}
11	I/O1	28	A11	45	I/O30	62	A10
12	I/O2	29	A12	46	I/O29	63	A9
13	I/O3	30	A13	47	I/O28	64	A8
14	I/O4	31	A14	48	I/O27	65	A7
15	I/O5	32	A15	49	I/O26	66	A6
16	I/O6	33	A16	50	I/O25	67	$\overline{\text{WE1}}$
17	I/O7	34	$\overline{\text{CS1}}$	51	I/O24	68	$\overline{\text{CS4}}$

NOTES:

1. NC is no connection.
2. For case outline M, device types 07 through 09, pin 9 is $\overline{\text{RES}}$, pin 31 is A15, pin 32 is A14, and pin 43 is $\overline{\text{RDY/BUSY}}$.

FIGURE 2. Terminal connections.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 19

Device types	1-6	Device types	1-6	Device types	1-6	Device types	1-6
Case outline	N	Case outline	N	Case outline	N	Case outline	N
Terminal number	Terminal symbol	Terminal number	Terminal symbol	Terminal number	Terminal symbol	Terminal number	Terminal symbol
1	GND	18	GND	35	$\overline{\text{OE}}$	52	GND
2	$\overline{\text{CS1}}$	19	I/O8	36	$\overline{\text{CS4}}$	53	I/O23
3	A5	20	I/O9	37	NC	54	I/O22
4	A4	21	I/O10	38	NC	55	I/O21
5	A3	22	I/O11	39	NC	56	I/O20
6	A2	23	I/O12	40	NC	57	I/O19
7	A1	24	I/O13	41	NC	58	I/O18
8	A0	25	I/O14	42	NC	59	I/O17
9	NC	26	I/O15	43	NC	60	I/O16
10	I/O0	27	V _{CC}	44	I/O31	61	V _{CC}
11	I/O1	28	A11	45	I/O30	62	A10
12	I/O2	29	A12	46	I/O29	63	A9
13	I/O3	3	A13	47	I/O28	64	A8
14	I/O4	31	A14	48	I/O27	65	A7
15	I/O5	32	A15	49	I/O26	66	A6
16	I/O6	33	A16	50	I/O25	67	$\overline{\text{WE}}$
17	I/O7	34	$\overline{\text{CS2}}$	51	I/O24	68	$\overline{\text{CS3}}$

NOTE: NC is no connection.

FIGURE 2. Terminal connections - Continued.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 20

Device types	1-6	Device types	1-6	Device types	1-6	Device types	1-6
Case outlines	T,U,X,Y, 4,5	Case outlines	T,U,X,Y, 4,5	Case outlines	T,U,X,Y, 4,5	Case outlines	T,U,X,Y, 4,5
Terminal number	Terminal symbol	Terminal number	Terminal symbol	Terminal number	Terminal symbol	Terminal number	Terminal symbol
1	I/O8	18	A12	35	I/O25	52	$\overline{WE3}$
2	I/O9	19	V _{CC}	36	I/O26	53	$\overline{CS3}$
3	I/O10	20	$\overline{CS1}$	37	A6	54	GND
4	A13	21	NC	38	A7	55	I/O19
5	A14	22	I/O3	39	NC	56	I/O31
6	A15	23	I/O15	40	A8	57	I/O30
7	A16	24	I/O14	41	A9	58	I/O29
8	NC	25	I/O13	42	I/O16	59	I/O28
9	I/O0	26	I/O12	43	I/O17	60	A0
10	I/O1	27	\overline{OE}	44	I/O18	61	A1
11	I/O2	28	NC	45	V _{CC}	62	A2
12	$\overline{WE2}$	29	$\overline{WE1}$	46	$\overline{CS4}$	63	I/O23
13	$\overline{CS2}$	30	I/O7	47	$\overline{WE4}$	64	I/O22
14	GND	31	I/O6	48	I/O27	65	I/O21
15	I/O11	32	I/O5	49	A3	66	I/O20
16	A10	33	I/O4	50	A4		
17	A11	34	I/O24	51	A5		

NOTE: Case outlines T, U, and 4, pins 8, 21, 28, and 39 are no connects (NC) and for case outlines X, Y, and 5, pins 8, 21, 28, and 39 are ground.

FIGURE 2. Terminal connections - Continued.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 21

Device types	1-6	Device types	1-6	Device types	1-6	Device types	1-6
Case outline	6	Case outline	6	Case outline	6	Case outline	6
Terminal number	Terminal symbol	Terminal number	Terminal symbol	Terminal number	Terminal symbol	Terminal number	Terminal symbol
1	I/O8	18	A15	35	I/O25	52	$\overline{WE3}$
2	I/O9	19	V _{CC}	36	I/O26	53	$\overline{CS3}$
3	I/O10	20	$\overline{CS1}$	37	A7	54	GND
4	A14	21	NC	38	A12	55	I/O19
5	A16	22	I/O3	39	NC	56	I/O31
6	A11	23	I/O15	40	A13	57	I/O30
7	A0	24	I/O14	41	A8	58	I/O29
8	NC	25	I/O13	42	I/O16	59	I/O28
9	I/O0	26	I/O12	43	I/O17	60	A1
10	I/O1	27	\overline{OE}	44	I/O18	61	A2
11	I/O2	28	NC	45	V _{CC}	62	A3
12	$\overline{WE2}$	29	$\overline{WE1}$	46	$\overline{CS4}$	63	I/O23
13	$\overline{CS2}$	30	I/O7	47	$\overline{WE4}$	64	I/O22
14	GND	31	I/O6	48	I/O27	65	I/O21
15	I/O11	32	I/O5	49	A4	66	I/O20
16	A10	33	I/O4	50	A5		
17	A9	34	I/O24	51	A6		

NOTE: NC is no connection.

FIGURE 2. Terminal connections - Continued.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 22

Device types	7-9	Device types	7-9	Device types	7-9	Device types	7-9
Case outline	M, Z	Case outline	M, Z	Case outline	M, Z	Case outline	M, Z
Terminal number	Terminal symbol	Terminal number	Terminal symbol	Terminal number	Terminal symbol	Terminal number	Terminal symbol
1	GND	18	GND	35	\overline{OE}	52	GND
2	$\overline{CS3}$	19	I/O8	36	$\overline{CS2}$	53	I/O23
3	A5	20	I/O9	37	NC	54	I/O22
4	A4	21	I/O10	38	$\overline{WE2}$	55	I/O21
5	A3	22	I/O11	39	$\overline{WE3}$	56	I/O20
6	A2	23	I/O12	40	$\overline{WE4}$	57	I/O19
7	A1	24	I/O13	41	NC	58	I/O18
8	A0	25	I/O14	42	NC	59	I/O17
9	\overline{RES}	26	I/O15	43	RDY/ \overline{BUSY}	60	I/O16
10	I/O0	27	V _{CC}	44	I/O31	61	V _{CC}
11	I/O1	28	A11	45	I/O30	62	A10
12	I/O2	29	A12	46	I/O29	63	A9
13	I/O3	30	A13	47	I/O28	64	A8
14	I/O4	31	A15	48	I/O27	65	A7
15	I/O5	32	A14	49	I/O26	66	A6
16	I/O6	33	A16	50	I/O25	67	$\overline{WE1}$
17	I/O7	34	$\overline{CS1}$	51	I/O24	68	$\overline{CS4}$

NOTES:

1. NC is no connection.
2. For case outline M, device types 01 through 06, pin 9 is a no connect, pin 31 is A14, pin 32 is A15, and pin 43 is a no connect.

FIGURE 2. Terminal connections - Continued.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 23

Device types 01 through 06.

\overline{CS}	\overline{OE}	\overline{WE}	A0-A16	Mode	Data I/O	Device Current
H	X	X	X	Standby	High Z	Standby
L	L	H	Stable	Read	Data Out	Active
L	H	L	Stable	Write	Data In	Active
X	H	X	X	Out Disable	High Z	Active
X	X	H	X	Write Inhibit		Active
X	L	X	X	Write Inhibit		Active

NOTES:

1. H = V_{IH} = High logic level
2. L = V_{IL} = Low logic level
3. X = Do not care (either high or low)
4. High Z = High impedance state

Device types 07 through 09.

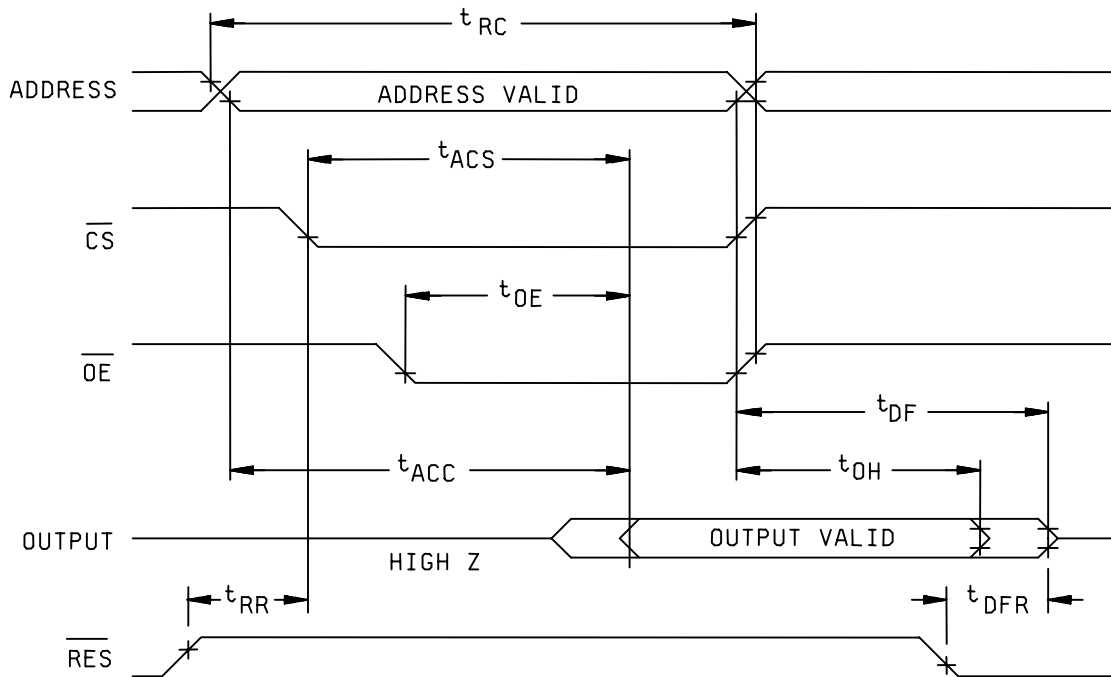
Mode	\overline{CS}	\overline{OE}	\overline{WE}	\overline{RES}	RDY/ \overline{BUSY}	I/O
Read	V_{IL}	V_{IL}	V_{IH}	V_H	High Z	D_{out}
Standby	V_{IH}	X	X	X	High Z	High Z
Write	V_{IL}	V_{IH}	V_{IL}	V_H	High Z to V_{OL}	D_{in}
Deselect	V_{IL}	V_{IH}	V_{IH}	V_H	High Z	High Z
Write inhibit	X	X	V_{IH}	X	---	---
Write inhibit	X	V_{IL}	X	X	---	---
Data polling	V_{IL}	V_{IL}	V_{IH}	V_H	V_{OL}	D_{OUT} (I/O7)
Program reset	X	X	X	V_{IL}	High Z	High Z

NOTES:

1. V_{IH} = High logic "1" state.
2. V_{IL} = Low logic "0" state.
3. X = "do not care" state.
4. High Z = High impedance state.
5. D_{in} = Data in, D_{out} = Data out, and $V_H = V_{CC} - 0.5 V$ to $V_{CC} + 1.0 V$.

FIGURE 3. Truth table.

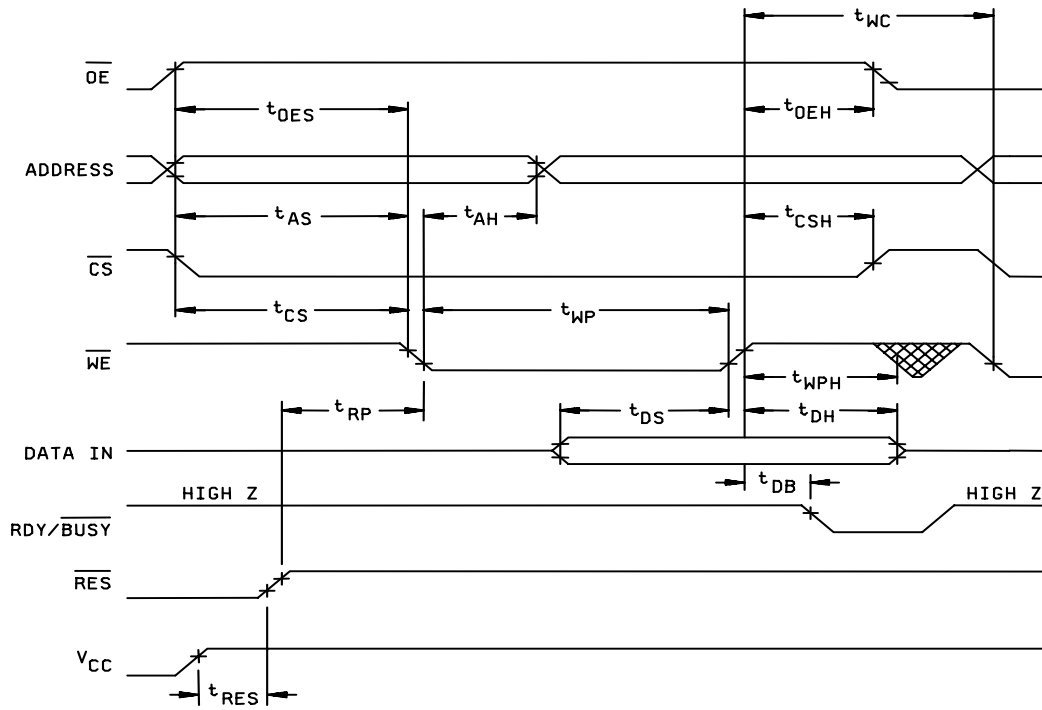
STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 24



NOTE: \overline{RES} waveform is applicable for device types 07 through 09 only.

FIGURE 4. Read cycle timing diagram.

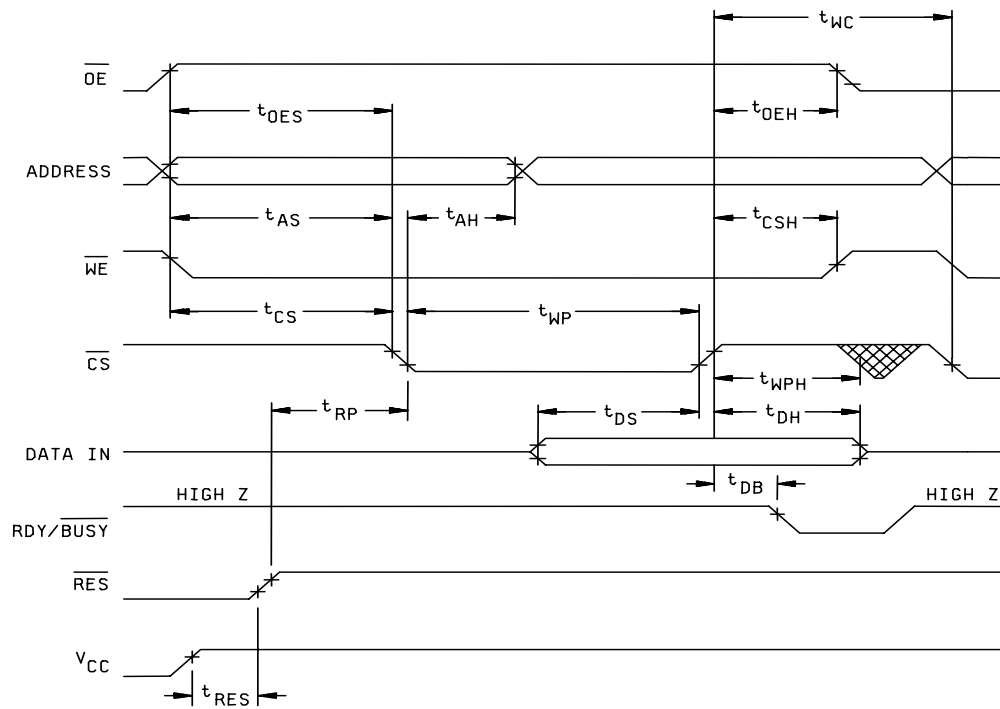
STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 25



NOTE: RDY/ \overline{BUSY} , \overline{RES} and V_{CC} waveforms are applicable for device types 07 through 09 only.

FIGURE 5. Write cycle timing diagram \overline{WE} controlled.

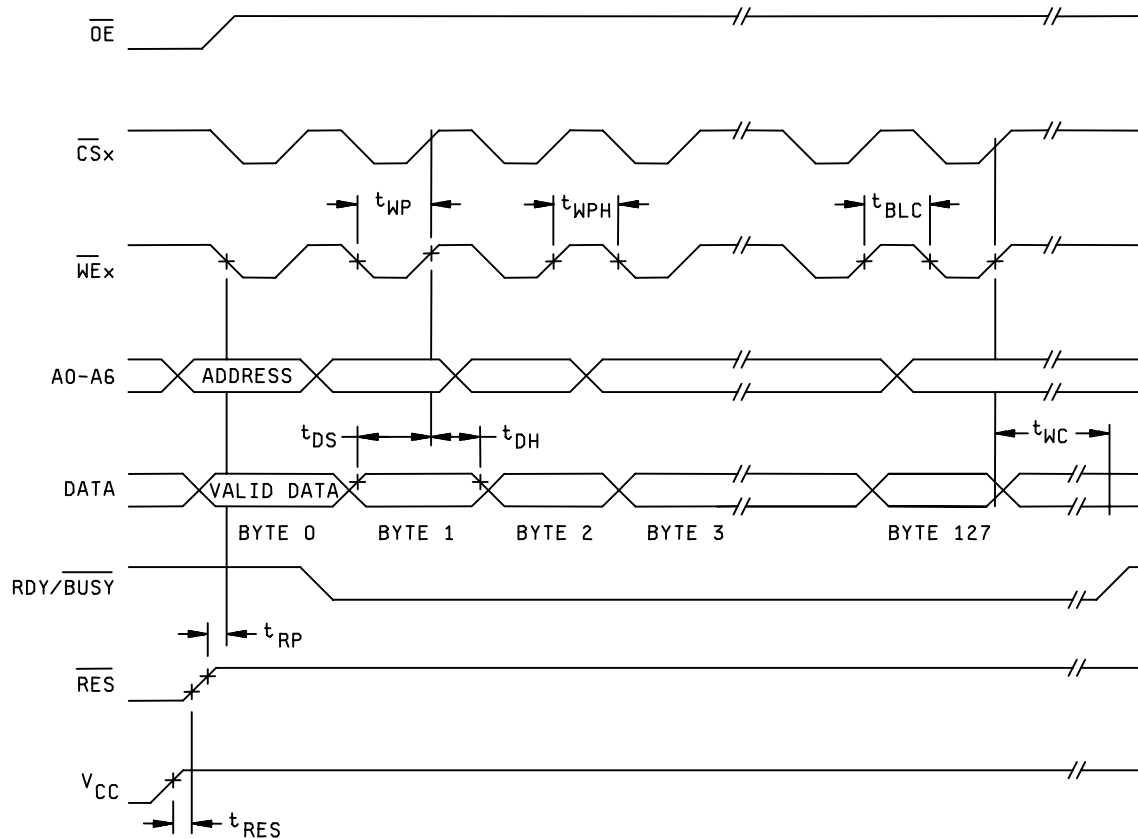
STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 26



NOTE: RDY/BUSY, RES and V_{CC} waveforms are applicable for device types 07 through 09 only.

FIGURE 5. Write cycle timing diagram CS controlled - Continued.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 27



NOTES:

1. A0 through A6 are used to address specific bytes within a page.
2. A7 through A16 must specify the same page address during each high to low transition of write enable or chip select.
3. RDY/BUSY, RES and V_{CC} waveforms are applicable for device types 07 through 09 only.

FIGURE 6. Page mode write timing diagram.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 28

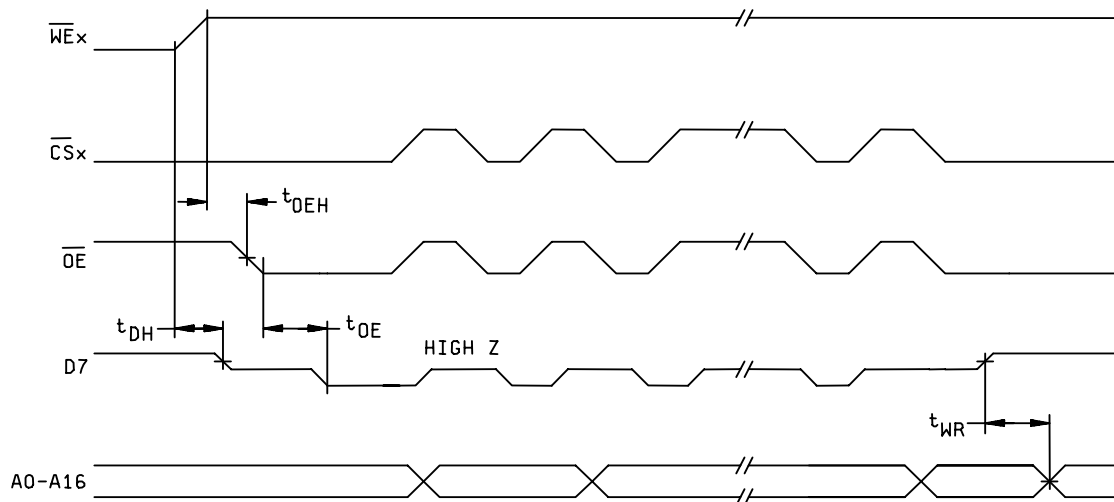
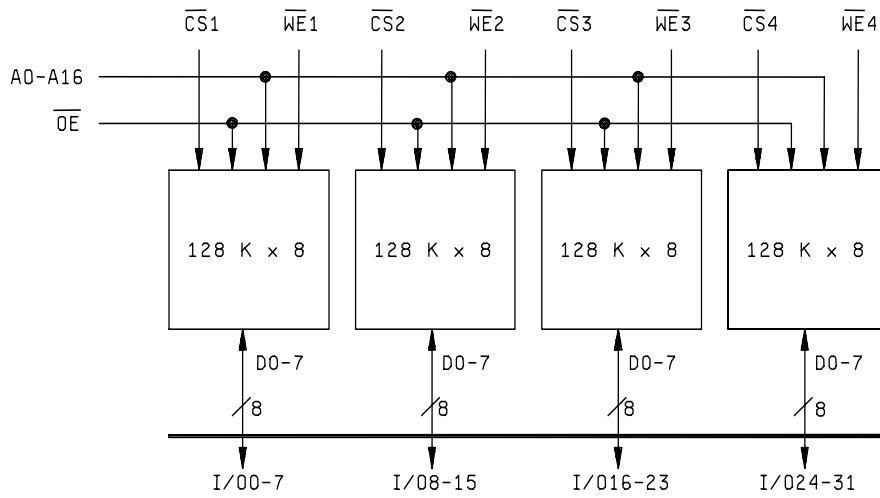


FIGURE 7. Data polling AC timing diagram.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 29

Case outlines M, T, U, X, Y, 4, 5, 6, and 9.



Case outline N.

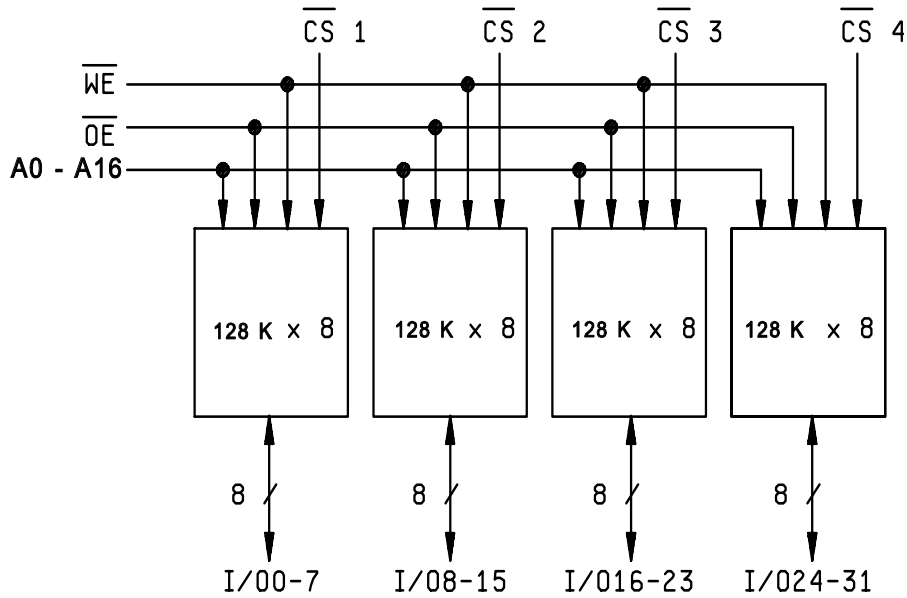


FIGURE 8. Block diagram(s).

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 30

Case outlines M and Z, device types 07, 08, and 09 only.

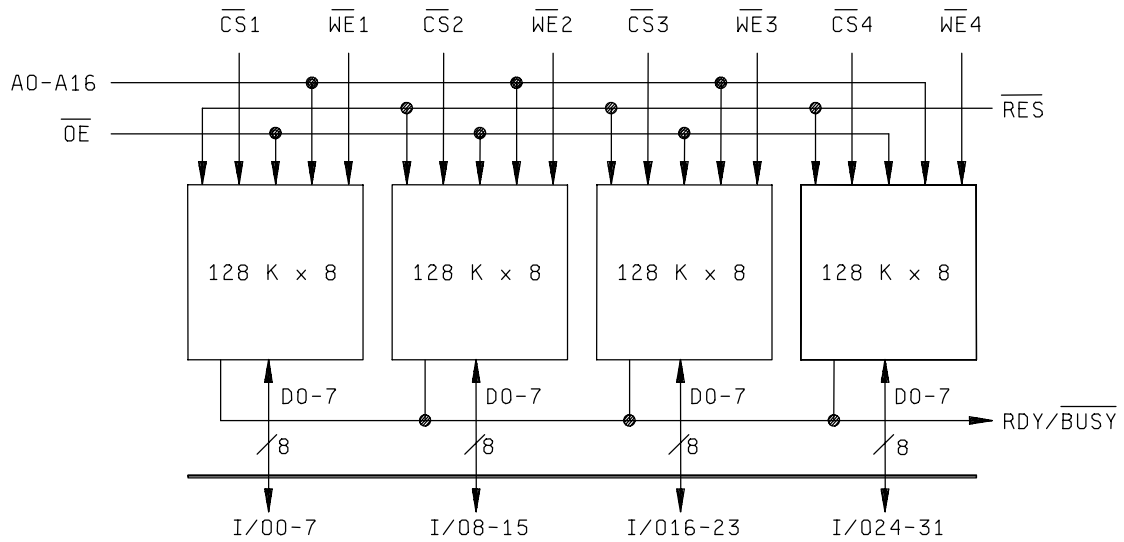
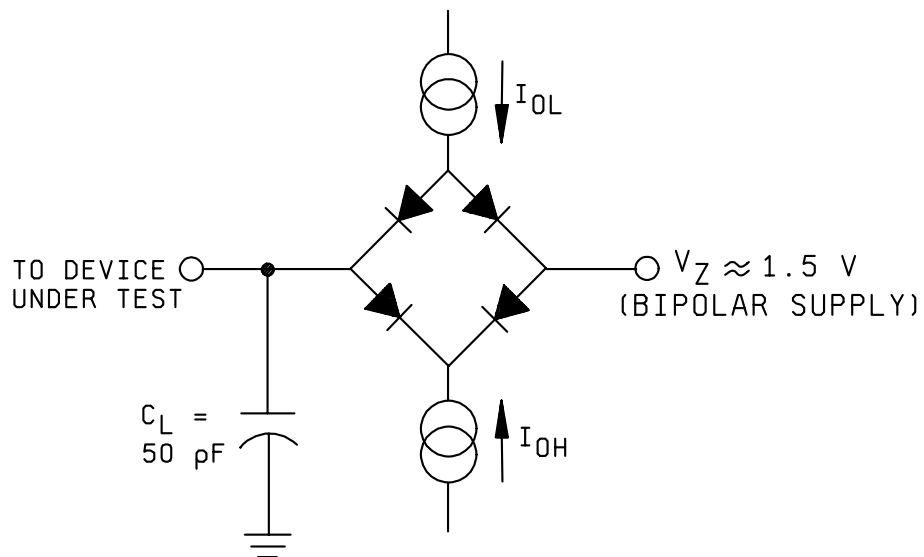


FIGURE 8. Block diagram - Continued.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 31



NOTES:

1. V_Z is programmed from -2.0 V to +7.0 V. I_{OH} and I_{OL} are programmable from 0 to 16 mA.
2. Tester impedance $Z_O = 75$ ohms
3. V_Z is typically the midpoint of V_{OH} and V_{OL} .
4. C_L includes tester includes jig capacitance.

FIGURE 9. Typical output test circuit.

STANDARD MICROCIRCUIT DRAWING DEFENSE SUPPLY CENTER COLUMBUS COLUMBUS, OHIO 43216-5000	SIZE A		5962-94585
		REVISION LEVEL H	SHEET 32

TABLE II. Electrical test requirements.

MIL-PRF-38534 test requirements	Subgroups (in accordance with MIL-PRF-38534, group A test table)
Interim electrical parameters	1,4,7,9
Final electrical parameters	1*,2,3,4,7,8A,8B,9,10,11
Group A test requirements	1,2,3,4,7,8A,8B,9,10,11
Group C end-point electrical parameters	1,2,3,4,7,8A,8B,9,10,11
End-point electrical parameters for radiation hardness assurance (RHA) devices	Not applicable

* PDA applies to subgroup 1.

4. QUALITY ASSURANCE PROVISIONS

4.1 Sampling and inspection. Sampling and inspection procedures shall be in accordance with MIL-PRF-38534 or as modified in the device manufacturer's Quality Management (QM) plan. The modification in the QM plan shall not affect the form, fit, or function as described herein. .

4.2 Screening. Screening shall be in accordance with MIL-PRF-38534, or by the manufacturer's Quality Management (QM) Plan in accordance with appendix B of MIL-PRF-38534. The following additional criteria shall apply:

a. Burn-in test, method 1015 of MIL-STD-883.

- (1) Test condition B. The test circuit shall be maintained by the manufacturer under document revision level control and shall be made available to either DSCC-VA or the acquiring activity upon request. Also, the test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1015 of MIL-STD-883.
- (2) T_A as specified in accordance with table I of method 1015 of MIL-STD-883.

b. Interim and final electrical test parameters shall be as specified in table II herein, except interim electrical parameter tests prior to burn-in are optional at the discretion of the manufacturer.

4.3 Conformance and periodic inspections. Conformance inspection (CI) and periodic inspection (PI) shall be in accordance with MIL-PRF-38534 and as specified herein.

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4.3.1 Group A inspection (CI). Group A inspection shall be in accordance with MIL-PRF-38534 and as follows:

- a. Tests shall be as specified in table II herein.
- b. Subgroups 5 and 6 shall be omitted.
- c. Subgroups 7, 8A, and 8B shall include verification of the truth table.
- d. The following data patterns shall be verified during subgroups 7, 8A, and 8B:
 - (1) 0's to all memory cell locations.
 - (2) 1's to all memory cell locations.
 - (3) Checkerboard pattern to entire memory array.
 - (4) Checkerboard compliment to entire memory array.

4.3.2 Group B inspection (PI). Group B inspection shall be in accordance with MIL-PRF-38534.

4.3.3 Group C inspection (PI). Group C inspection shall be in accordance with MIL-PRF-38534 and as follows:

- a. End-point electrical parameters shall be as specified in table II herein.
- b. All devices requiring end-point electrical testing shall be programmed with a checkerboard pattern of alternate rows of AA hex and 55 hex.
- c. Steady-state life test, method 1005 of MIL-STD-883.
 - (1) Test condition B. The test circuit shall be maintained by the manufacturer under document revision level control and shall be made available to either DSCC-VA or the acquiring activity upon request. Also, the test circuit shall specify the inputs, outputs, biases, and power dissipation, as applicable, in accordance with the intent specified in test method 1005 of MIL-STD-883.
 - (2) T_A as specified in accordance with table I of method 1005 of MIL-STD-883.
 - (3) Test duration: 1,000 hours, except as permitted by method 1005 of MIL-STD-883.
 - (4) The checkerboard data pattern shall be verified after burn-in as part of end-point electrical testing.

4.3.4 Group D inspection (PI). Group D inspection shall be in accordance with MIL-PRF-38534.

4.3.5 Radiation hardness assurance (RHA) inspection. RHA inspection is currently not applicable to this drawing.

5. PACKAGING

5.1 Packaging requirements. The requirements for packaging shall be in accordance with MIL-PRF-38534.

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6. NOTES

6.1 Intended use. Microcircuits conforming to this drawing are intended for use for Government microcircuit applications (original equipment), design applications, and logistics purposes.

6.2 Replaceability. Microcircuits covered by this drawing will replace the same generic device covered by a contractor-prepared specification or drawing.

6.3 Configuration control of SMD's. All proposed changes to existing SMD's will be coordinated with the users of record for the individual documents. This coordination will be accomplished in accordance with MIL-PRF-38534.

6.4 Record of users. Military and industrial users shall inform Defense Supply Center Columbus when a system application requires configuration control and the applicable SMD. DSCC will maintain a record of users and this list will be used for coordination and distribution of changes to the drawings. Users of drawings covering microelectronic devices (FSC 5962) should contact DSCC-VA, telephone (614) 692-0544.

6.5 Comments. Comments on this drawing should be directed to DSCC-VA, Post Office Box 3990, Columbus, Ohio 43216-5000, or telephone (614) 692-1081.

6.6 Sources of supply. Sources of supply are listed in MIL-HDBK-103 and QML-38534. The vendors listed in MIL-HDBK-103 and QML-38534 have submitted a certificate of compliance (see 3.7 herein) to DSCC-VA and have agreed to this drawing.

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Approved sources of supply for SMD 5962-94585 are listed below for immediate acquisition information only and shall be added to MIL-HDBK-103 and QML-38534 during the next revisions. MIL-HDBK-103 and QML-38534 will be revised to include the addition or deletion of sources. The vendors listed below have agreed to this drawing and a certificate of compliance has been submitted to and accepted by DSCC-VA. This bulletin is superseded by the next dated revisions of MIL-HDBK-103 and QML-38534.

Standard microcircuit drawing PIN <u>1</u> /	Vendor CAGE number	Vendor similar PIN <u>2</u> /
5962-9458501HMA	0EU86	AS8E128K32Q-300/883C
5962-9458501HMC	0EU86	AS8E128K32Q-300/883C
5962-9458501HMA	54230	WE128K32-300G2Q
5962-9458501HMC	54230	WE128K32-300G2Q
5962-9458501HMA	88379	ACT-E128K32N-300F2Q
5962-9458501HMC	88379	ACT-E128K32N-300F2Q
5962-9458501HNC	54230	WE128K32-300G4Q
5962-9458501HTA	54230	WE128K32N-300HQ
5962-9458501HTC	54230	WE128K32N-300HQ
5962-9458501HUA	54230	WE128K32N-300HQ
5962-9458501HUC	54230	WE128K32N-300HQ
5962-9458501HXA	54230	WE128K32-300HQ
5962-9458501HXC	54230	WE128K32-300HQ
5962-9458501HYA	54230	WE128K32-300HQ
5962-9458501HYC	54230	WE128K32-300HQ
5962-9458501H4A	0EU86	AS8E128K32PN-300/883C
5962-9458501H4C	0EU86	AS8E128K32PN-300/883C
5962-9458501H4A	54230	WE128K32N-300H1Q
5962-9458501H4C	54230	WE128K32N-300H1Q
5962-9458501H4A	88379	ACT-E128K32N-300P7Q
5962-9458501H4C	88379	ACT-E128K32N-300P7Q
5962-9458501H5A	0EU86	AS8E128K32P-300/883C
5962-9458501H5C	0EU86	AS8E128K32P-300/883C
5962-9458501H5A	54230	WE128K32-300H1Q
5962-9458501H5C	54230	WE128K32-300H1Q
5962-9458501H5A	88379	ACT-E128K32C-300P7Q
5962-9458501H5C	88379	ACT-E128K32C-300P7Q
5962-9458501H6A	54230	WE128K32NP-300H1Q
5962-9458501H6C	54230	WE128K32NP-300H1Q
5962-9458501H9A	54230	WE128K32-300G1UQ
5962-9458501H9C	54230	WE128K32-300G1UQ

See footnotes at end of table.

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Standard microcircuit drawing PIN <u>1</u> /	Vendor CAGE number	Vendor similar PIN <u>2</u> /
5962-9458502HMA	0EU86	AS8E128K32Q-250/883C
5962-9458502HMC	0EU86	AS8E128K32Q-250/883C
5962-9458502HMA	54230	WE128K32-250G2Q
5962-9458502HMC	54230	WE128K32-250G2Q
5962-9458502HMA	88379	ACT-E128K32N-250F2Q
5962-9458502HMC	88379	ACT-E128K32N-250F2Q
5962-9458502HNC	54230	WE128K32-300G4Q
5962-9458502HTA	54230	WE128K32N-250HQ
5962-9458502HTC	54230	WE128K32N-250HQ
5962-9458502HUA	54230	WE128K32N-250HQ
5962-9458502HUC	54230	WE128K32N-250HQ
5962-9458502HXA	54230	WE128K32-250HQ
5962-9458502HXC	54230	WE128K32-250HQ
5962-9458502HYA	54230	WE128K32-250HQ
5962-9458502HYC	54230	WE128K32-250HQ
5962-9458502H4A	0EU86	AS8E128K32PN-250/883C
5962-9458502H4C	0EU86	AS8E128K32PN-250/883C
5962-9458502H4A	54230	WE128K32N-250H1Q
5962-9458502H4C	54230	WE128K32N-250H1Q
5962-9458502H4A	88379	ACT-E128K32N-250P7Q
5962-9458502H4C	88379	ACT-E128K32N-250P7Q
5962-9458502H5A	0EU86	AS8E128K32P-250/883C
5962-9458502H5C	0EU86	AS8E128K32P-250/883C
5962-9458502H5A	54230	WE128K32-250H1Q
5962-9458502H5C	54230	WE128K32-250H1Q
5962-9458502H5A	88379	ACT-E128K32C-250P7Q
5962-9458502H5C	88379	ACT-E128K32C-250P7Q
5962-9458502H6A	54230	WE128K32NP-250H1Q
5962-9458502H6C	54230	WE128K32NP-250H1Q
5962-9458502H9A	54230	WE128K32-250G1UQ
5962-9458502H9C	54230	WE128K32-250G1UQ

See footnotes at end of table.

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Standard microcircuit drawing PIN <u>1</u> /	Vendor CAGE number	Vendor similar PIN <u>2</u> /
5962-9458503HMA	0EU86	AS8E128K32Q-200/883C
5962-9458503HMC	0EU86	AS8E128K32Q-200/883C
5962-9458503HMA	54230	WE128K32-200G2Q
5962-9458503HMC	54230	WE128K32-200G2Q
5962-9458503HMA	88379	ACT-E128K32N-200F2Q
5962-9458503HMC	88379	ACT-E128K32N-200F2Q
5962-9458503HNC	54230	WE128K32-300G4Q
5962-9458503HTA	54230	WE128K32N-200HQ
5962-9458503HTC	54230	WE128K32N-200HQ
5962-9458503HUA	54230	WE128K32N-200HQ
5962-9458503HUC	54230	WE128K32N-200HQ
5962-9458503HXA	54230	WE128K32-200HQ
5962-9458503HXC	54230	WE128K32-200HQ
5962-9458503HYA	54230	WE128K32-200HQ
5962-9458503HYC	54230	WE128K32-200HQ
5962-9458503H4A	0EU86	AS8E128K32PN-200/883C
5962-9458503H4C	0EU86	AS8E128K32PN-200/883C
5962-9458503H4A	54230	WE128K32N-200H1Q
5962-9458503H4C	54230	WE128K32N-200H1Q
5962-9458503H4A	88379	ACT-E128K32N-200P7Q
5962-9458503H4C	88379	ACT-E128K32N-200P7Q
5962-9458503H5A	0EU86	AS8E128K32P-200/883C
5962-9458503H5C	0EU86	AS8E128K32P-200/883C
5962-9458503H5A	54230	WE128K32-200H1Q
5962-9458503H5C	54230	WE128K32-200H1Q
5962-9458503H5A	88379	ACT-E128K32C-200P7Q
5962-9458503H5C	88379	ACT-E128K32C-200P7Q
5962-9458503H6A	54230	WE128K32NP-200H1Q
5962-9458503H6C	54230	WE128K32NP-200H1Q
5962-9458503H9A	54230	WE128K32-200G1UQ
5962-9458503H9C	54230	WE128K32-200G1UQ

See footnotes at end of table.

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Standard microcircuit drawing PIN <u>1</u> /	Vendor CAGE number	Vendor similar PIN <u>2</u> /
5962-9458504HMA	0EU86	AS8E128K32Q-150/883C
5962-9458504HMC	0EU86	AS8E128K32Q-150/883C
5962-9458504HMA	54230	WE128K32-150G2Q
5962-9458504HMC	54230	WE128K32-150G2Q
5962-9458504HMA	88379	ACT-E128K32N-150F2Q
5962-9458504HMC	88379	ACT-E128K32N-150F2Q
5962-9458504HNC	54230	WE128K32-150G4Q
5962-9458504HTA	54230	WE128K32N-150HQ
5962-9458504HTC	54230	WE128K32N-150HQ
5962-9458504HUA	54230	WE128K32N-150HQ
5962-9458504HUC	54230	WE128K32N-150HQ
5962-9458504HXA	54230	WE128K32-150HQ
5962-9458504HXC	54230	WE128K32-150HQ
5962-9458504HYA	54230	WE128K32-150HQ
5962-9458504HYC	54230	WE128K32-150HQ
5962-9458504H4A	0EU86	AS8E128K32PN-150/883C
5962-9458504H4C	0EU86	AS8E128K32PN-150/883C
5962-9458504H4A	54230	WE128K32N-150H1Q
5962-9458504H4C	54230	WE128K32N-150H1Q
5962-9458504H4A	88379	ACT-E128K32N-150P7Q
5962-9458504H4C	88379	ACT-E128K32N-150P7Q
5962-9458504H5A	0EU86	AS8E128K32P-150/883C
5962-9458504H5C	0EU86	AS8E128K32P-150/883C
5962-9458504H5A	54230	WE128K32-150H1Q
5962-9458504H5C	54230	WE128K32-150H1Q
5962-9458504H5A	88379	ACT-E128K32C-150P7Q
5962-9458504H5C	88379	ACT-E128K32C-150P7Q
5962-9458504H6A	54230	WE128K32NP-150H1Q
5962-9458504H6C	54230	WE128K32NP-150H1Q
5962-9458504H9A	54230	WE128K32-150G1UQ
5962-9458504H9C	54230	WE128K32-150G1UQ

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Standard microcircuit drawing PIN <u>1</u> /	Vendor CAGE number	Vendor similar PIN <u>2</u> /
5962-9458505HMA	0EU86	AS8E128K32Q-140/883C
5962-9458505HMC	0EU86	AS8E128K32Q-140/883C
5962-9458505HMA	54230	WE128K32-140G2Q
5962-9458505HMC	54230	WE128K32-140G2Q
5962-9458505HMA	88379	ACT-E128K32N-140F2Q
5962-9458505HMC	88379	ACT-E128K32N-140F2Q
5962-9458505HNC	54230	WE128K32-140G4Q
5962-9458505HTA	54230	WE128K32N-140HQ
5962-9458505HTC	54230	WE128K32N-140HQ
5962-9458505HUA	54230	WE128K32N-140HQ
5962-9458505HUC	54230	WE128K32N-140HQ
5962-9458505HXA	54230	WE128K32-140HQ
5962-9458505HXC	54230	WE128K32-140HQ
5962-9458505HYA	54230	WE128K32-140HQ
5962-9458505HYC	54230	WE128K32-140HQ
5962-9458505H4A	0EU86	AS8E128K32PN-140/883C
5962-9458505H4C	0EU86	AS8E128K32PN-140/883C
5962-9458505H4A	54230	WE128K32N-140H1Q
5962-9458505H4C	54230	WE128K32N-140H1Q
5962-9458505H4A	88379	ACT-E128K32N-140P7Q
5962-9458505H4C	88379	ACT-E128K32N-140P7Q
5962-9458505H5A	0EU86	AS8E128K32P-140/883C
5962-9458505H5C	0EU86	AS8E128K32P-140/883C
5962-9458505H5A	54230	WE128K32-140H1Q
5962-9458505H5C	54230	WE128K32-140H1Q
5962-9458505H5A	88379	ACT-E128K32C-140P7Q
5962-9458505H5C	88379	ACT-E128K32C-140P7Q
5962-9458505H6A	54230	WE128K32NP-140H1Q
5962-9458505H6C	54230	WE128K32NP-140H1Q
5962-9458505H9A	54230	WE128K32-140G1UQ
5962-9458505H9C	54230	WE128K32-140G1UQ

See footnotes at end of table.

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Standard microcircuit drawing PIN <u>1</u> /	Vendor CAGE number	Vendor similar PIN <u>2</u> /
5962-9458506HMA	0EU86	AS8E128K32Q-120/883C
5962-9458506HMC	0EU86	AS8E128K32Q-120/883C
5962-9458506HMA	54230	WE128K32-120G2Q
5962-9458506HMC	54230	WE128K32-120G2Q
5962-9458506HMA	88379	ACT-E128K32N-120F2Q
5962-9458506HMC	88379	ACT-E128K32N-120F2Q
5962-9458506HNC	54230	WE128K32-120G4Q
5962-9458506HTA	54230	WE128K32N-120HQ
5962-9458506HTC	54230	WE128K32N-120HQ
5962-9458506HUA	54230	WE128K32N-120HQ
5962-9458506HUC	54230	WE128K32N-120HQ
5962-9458506HXA	54230	WE128K32-120HQ
5962-9458506HXC	54230	WE128K32-120HQ
5962-9458506HYA	54230	WE128K32-120HQ
5962-9458506HYC	54230	WE128K32-120HQ
5962-9458506H4A	0EU86	AS8E128K32PN-120/883C
5962-9458506H4C	0EU86	AS8E128K32PN-120/883C
5962-9458506H4A	54230	WE128K32N-120H1Q
5962-9458506H4C	54230	WE128K32N-120H1Q
5962-9458506H4A	88379	ACT-E128K32N-120P7Q
5962-9458506H4C	88379	ACT-E128K32N-120P7Q
5962-9458506H5A	0EU86	AS8E128K32P-120/883C
5962-9458506H5C	0EU86	AS8E128K32P-120/883C
5962-9458506H5A	54230	WE128K32-120H1Q
5962-9458506H5C	54230	WE128K32-120H1Q
5962-9458506H5A	88379	ACT-E128K32C-120P7Q
5962-9458506H5C	88379	ACT-E128K32C-120P7Q
5962-9458506H6A	54230	WE128K32NP-120H1Q
5962-9458506H6C	54230	WE128K32NP-120H1Q
5962-9458506H9A	54230	WE128K32-120G1UQ
5962-9458506H9C	54230	WE128K32-120G1UQ
5962-9458507HMA	0EU86	AS8ER128K32Q-250/883C
5962-9458507HMC	0EU86	AS8ER128K32Q-250/883C
5962-9458507HZC	0EU86	AS8ER128K32QB-250/883C
5962-9458508HMA	0EU86	AS8ER128K32Q-200/883C
5962-9458508HMC	0EU86	AS8ER128K32Q-200/883C
5962-9458508HZC	0EU86	AS8ER128K32QB-200/883C
5962-9458509HMA	0EU86	AS8ER128K32Q-150/883C
5962-9458509HMC	0EU86	AS8ER128K32Q-150/883C
5962-9458509HZC	0EU86	AS8ER128K32QB-150/883C

See footnotes at top of next page.

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- 1/ The lead finish shown for each PIN representing a hermetic package is the most readily available from the manufacturer listed for that part. If the desired lead finish is not listed contact the Vendor to determine its availability.
- 2/ Caution. Do not use this number for item acquisition. Items acquired to this number may not satisfy the performance requirements of this drawing.

<u>Vendor CAGE number</u>	<u>Vendor name and address</u>
0EU86	Austin Semiconductor, Incorporated 8701 Cross Park Drive Austin, TX 78754-4566
54230	White Electronic Designs Corporation 3601 East University Drive Phoenix, AZ 85034-7217
88379	Aeroflex Circuit Technology Corporation 35 South Service Road Plainview, NY 11803-4101

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