

APPLICATION		REVISION			
NEXT ASSY.	USED ON	LTR	DESCRIPTION	DATE	APPROVED
	C64	A	SPECIFICATION RELEASE PER ECO 8&0152	7-19-90	RMB
		B	REVISED PER ECO 900376	5-8-91	RMB

### 1.0 DESCRIPTION

This IC Memory Controller incorporates the functions of Commodore part number 251715 (used on the C64E models) and has 4K of static RAM (SRAM).

### 1.2 CONFIGURATION

This device is configured as a 64 pin plastic DIP.

### 2.0 SOURCES

Refer to Approved Vendor List for sources.

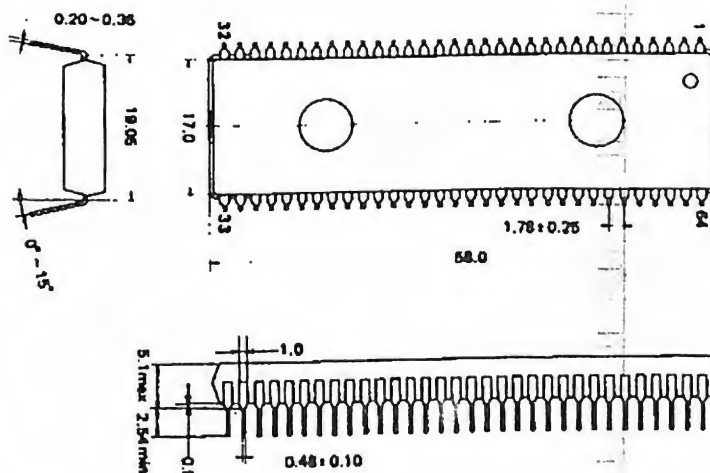


FIGURE 1 - PACKAGE DIMENSIONS

COMMODORE P. N.	STATUS				
252535-01	ACTIVE				
				IS	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES: ANGLES +/- 1 DEGREE 2 PLACE DECIMALS +/- 0.02 3 PLACE DECIMALS +/- 0.010	DRAWN Mike Rivers	DATE	<h1>Commodore</h1> 1200 WILSON DRIVE WEST CHESTER, PA. 19380 (215) 431-9100	
	SYSTEM ENG.	DATE		
	TEST ENG	DATE		
	COMP. ENG Drew Shannon	DATE		
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### 3.0 JUMPER CONFIGURATION (C64 NEW PCB)

- J10: Address A14 line for 256K ROM from memory controller. Normally open, shorted if 256K of ROM is used.
- J11: Pull-up to 5V for 128K ROM, PIN 27. Normally shorted, open if 256K ROM is used.
- J12: Address A13 line for 128K ROM from CPU. Normally shorted, opened if 256K ROM is used.
- J13: Address A13 line for 256K ROM from Memory Controller. Normally open, shorted if 256K of ROM is used.
- J14: Chip Select ( $\overline{CS}$ ) line for 32 K ROM from Memory Controller. Normally short, open if 256K ROM is used.
- J15: ROM Select (128K ROM and 32K ROM, or 256K ROM). Normally shorted, open if 256K ROM is used.
- J16: ROM select (128K ROM and 32K ROM or 256K ROM). normally open, shorted if 256K ROM is used.
- J17: Select input or output mode on color RAM select line and select ROM chip select ( $\overline{CS}$ ) line for 128K ROM or 64K ROM on  $\overline{KER/ROM}$  output.
- J18: To swap address space if A14 and A13 are high. Normally open, address \$8000 is accessed if shorted, and A13 and A14 are high.

#### 32K character and 128 Kernal/Basic ROM

- J10: OPEN
- J11: SHORT
- J12: SHORT
- J13: OPEN
- J14: SHORT
- J15: SHORT
- J16: OPEN
- J17: SHORT
- J18: OPEN (DON'T CARE)

#### 256K CHARACTER/KERNAL/BASIC ROM

- J10: SHORT
- J11: OPEN
- J12: OPEN
- J13: SHORT
- J14: OPEN
- J15: OPEN
- J16: SHORT
- J17: SHORT
- J18: SHORT

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TABLE 1 - JUMPER CONFIGURATION

		128K & 32K ROM	256K ROM	128K ROM & 32K ROM WITH 4K SRAM	INHIBIT
JUMPER CONFIGURATION	J15	SHORT	OPEN	SHORT	DON'T CARE
	J16	OPEN	SHORT	OPEN	SHORT
	J17	SHORT	SHORT	OPEN	OPEN
	J18	DON'T CARE (INPUT)	SHORT (INPUT)	SHORT (OUTPUT)	
INPUT/OUTPUT SIGNAL	CARM/A13 BAS/A14  KER/ROM CLRM/DMDE	CARM BAS  *2 KER (KERNAL+BASIC) DMDE (INPUT)	A13 A14  ROM DMDE (INPUT)	CARM  BAS KER CLRM (OUTPUT)	

- NOTE 1. CARM is the chip select signal (CS) for CHAR ROM  
 BAS is the chip select signal (CS) for BASIC ROM  
 KER is the chip select signal (CS) for KERNAL ROM  
 ROM is the chip select signal (CS) for combined 256K ROM
2. \*2 KER is the KERNAL and BASIC OR-ed signal

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### 3.2 PIN DESCRIPTIONS

1	A13	33	VSS
2	A14	34	A10
3	A15	35	-CAS
4	R/-W	36	-RAS
5	-LORAM	37	$\phi 0$
6	-HIRAM	38	AEC
7	-CHAREN	39	BA
8	NHI	40	-VIC
9	RESTOR	41	VA6
10	-VA14	42	VA7
11	-VA15	43	-SID
12	-CIA12	44	-ROML
13	-CHAROM	45	-I/O2
14	-BASIC	46	-EXROM
15	-KERNAL	47	-GAME
16	VSS	48	VSS
17	-CLRM/DMD8	49	-I/O1
18	I/O 1	50	-ROMH
19	I/O 2	51	A0
20	I/O 3	52	A1
21	I/O 4	53	A2
22	-CASRAM	54	A3
23	RAM R/-W	55	A4
24	MA6	56	A5
25	MA3	57	A6
26	MA0	58	A7
27	MA2	59	A8
28	MA4	60	A9
29	MA1	61	A10
30	MA5	62	A11
31	MA7	63	A12
32	N/C	64	VDD

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#### 4.0 ENVIRONMENTAL REQUIREMENTS

Units furnished to the requirements of this specification shall meet the following environmental resistance requirements (vendors shall furnish supporting documentation upon request):

Operating Temperature	0 to 70 deg. C
Operating Humidity	5 to 95% RH non-condensing
Operating Altitude	0 to 3000 meters
Storage Temperature	- 20 to + 85 deg. C
Storage Humidity	5 to 95% RH non-condensing
Storage Altitude	0 to 15,000 meters

#### 4.1 PROCESS QUALIFICATION TESTS

Integrated circuits supplied to the requirements of this specification shall meet the requirements of Engineering Policy No. 1.02.008. Supporting documentation shall be supplied by vendor upon request.

#### 4.2 ENVIRONMENTAL TEST CONDITIONS

Devices shall comply with the following environmental resistance tests per Commodore Engineering Policy 1.02.007.

1. Temperature/humidity (85 deg. C and 95% RH non-condensing) for 168 hours.
2. Operating life (1000 hours at 70 deg. C ambient temperature)
3. Solderability per MIL-STD-883, Method 2003
4. Pressure cooker (15 psig, 120 deg. C, and 100% RH for 24 hours)
5. Solvent resistance per MIL-STD-883, Method 2015, using water and trichloroethane
6. Solder temperature resistance (250 deg. C for five seconds)

Note: Devices shall meet this specification's operating performance requirements after the above tests are completed.

#### 4.3 MINIMUM ACCEPTANCE LEVEL

The minimum acceptance level of any lot shall be an AQL of 0.65 as defined by MIL-STD 105 single sampling techniques.

#### 4.4 MARKINGS

Devices shall be marked with manufacturer's part number and EIA date code

#### 4.5 AGE OF DEVICES

Unit shall be rejected if EIA Date Code indicates an age of three (3) or more years.

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APPROVED VENDOR LIST

This sheet must be removed from this document before the document is shown or transmitted to a vendor.

Commodore Part Number

252535-01

Vendor

SANYO

Vendor Part Number

3AB9600-S252

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