PUMA 64SDVA512X

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8M x 64 (72) Synchronous DRAM

Description

The PUMA64SDVA512X is a cost effective, unbuffered synchronous DRAM ECC Memory component organised as 8M x 64 (or 72). It uses ten 4M x 16 SDRAM devices in a 160 pin Plastic Quad Flat Pack (PQFP) package to achieve up to twice the density of existing standard solutions. The device is designed to be soldered direct to the PCB, eliminating all socket reliability problems.

PC-100 compatible variants are available which can sustain data transfer rates up to 100MHz. 66MHz variants are also available. All control, data and address input circuits are sampled on the positive edge of the system clock for fully synchronous operation.

A 256byte EEPROM is used to implement serial presence detect capability on board the module. The lower 128 bytes is reserved for module configurations programmed by the factory. The upper 128bytes are available for customer use.

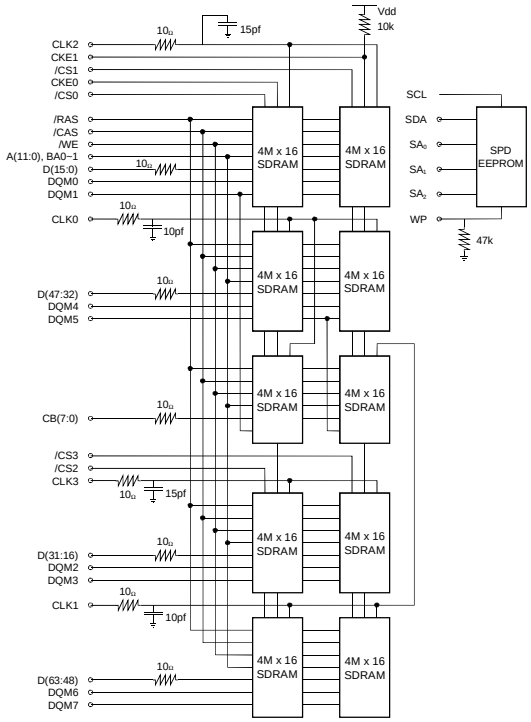
Features

- Unbuffered synchronous DRAM module organised as 2 banks of 4Mx64 (or 72)
- 3.3V + 0.3V power supply.
- Commercial and Industrial temperature grades
- Space saving 28mm square 160pin PQFP package (0.65mm pin pitch).
- PC 100 compatible operation.
- 4 internal SDRAM banks
- Fully synchronous operation to rising edge of system clock.
- Auto refresh and self refresh modes (4K/64ms)
- Sequential and interleved burst mode operation
- Programmable burst length (1,2,4,8,Full page)
- Serial presence detect EEPROM
- On board decoupling capacitors

Package Details

PUMA 64 - Plastic 160pin PQFP package
Max. Dimensions - 31.35 x 31.35 x 5.02
Max. over pins
All dimensions in mm.

Block Diagram



Pin Functions

Description	Signal
Address Input	A0~A11
Select Bank	BA0~BA1
Data I/O	D0~D63
Clock Input	CLK0~CLK3
Clock Enable Input	CKE0~CKE1
Chip Select	/CS0~3
Row Address Strobe	/RAS
Column Address Strobe	/CAS
Write Enable	/WE
Data I/O Mask	DQM~7
Power	V_{DD}
Ground	V_{SS}
Serial Data I/O	SDA
Serial Clock	SCL
Address in EEPROM	SA0~2
Write Protection	WP
Check Bits	CB0~7
Do Not Use	DNU
No Connection	NC

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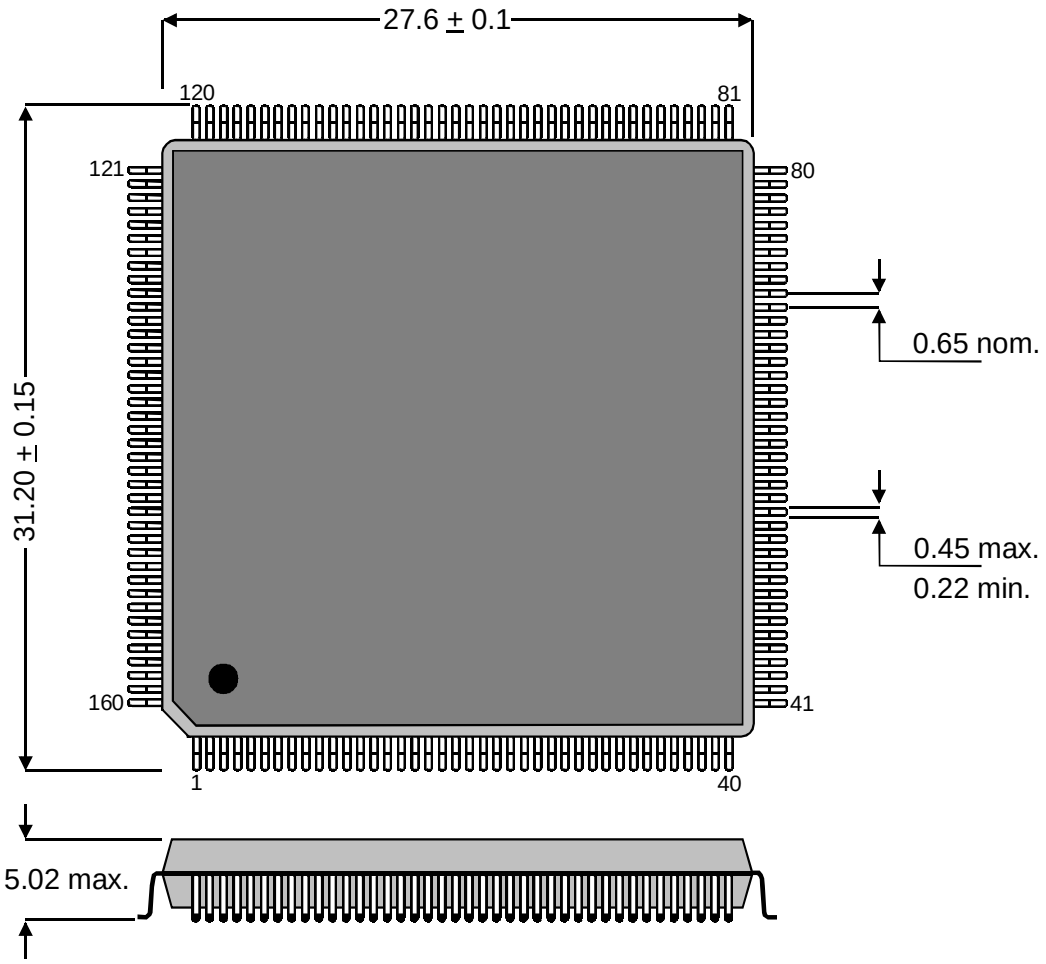
Pin Definition - PUMA64SDVA512X

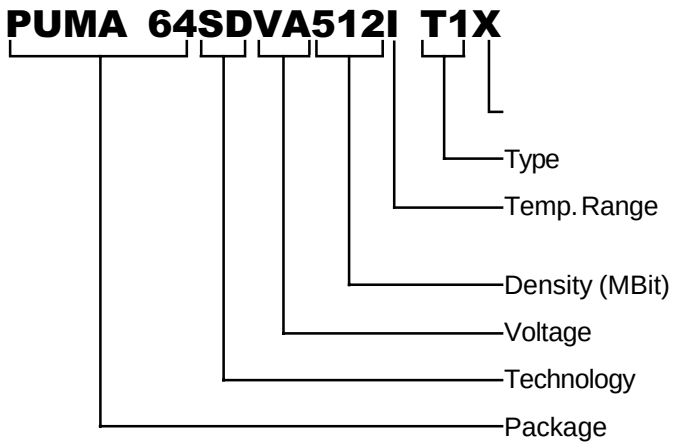
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
1	V_{SS}	41	V_{SS}	81	V_{SS}	121	V_{SS}
2	DNU	42	D16	82	SA2	122	D0
3	DNU	43	D17	83	SA1	123	D1
4	DNU	44	D18	84	SA0	124	D2
5	DNU	45	D19	85	SCL	125	D3
6	DNU	46	V_{DD}	86	SDA	126	V_{DD}
7	DNU	47	D20	87	WP	127	D4
8	DNU	48	D21	88	V_{DD}	128	D5
9	DNU	49	D22	89	CB3	129	D6
10	DNU	50	D23	90	CB7	130	D7
11	DNU	51	V_{SS}	91	CB2	131	V_{SS}
12	V_{DD}	52	D24	92	CB6	132	D8
13	/WE	53	D25	93	V_{SS}	133	D9
14	/CAS	54	D26	94	DQM7	134	D10
15	/RAS	55	D27	95	DQM6	135	D11
16	A0	56	V_{DD}	96	DQM3	136	V_{DD}
17	A1	57	D28	97	DQM2	137	D12
18	A2	58	D29	98	/CS3	138	D13
19	A3	59	D30	99	/CS2	139	D14
20	A4	60	D31	100	V_{DD}	140	D15
21	V_{SS}	61	D48	101	/CS1	141	D32
22	A5	62	D49	102	/CS0	142	D33
23	A6	63	D50	103	DQM5	143	D34
24	A7	64	D51	104	DQM4	144	D35
25	A8	65	V_{DD}	105	DQM1	145	V_{DD}
26	A9	66	D52	106	DQM0	146	D36
27	A10	67	D53	107	V_{SS}	147	D37
28	A11	68	D54	108	CB5	148	D38
29	V_{DD}	69	D55	109	CB1	149	D39
30	BA0	70	V_{SS}	110	CB4	150	V_{SS}
31	BA1	71	D56	111	CB0	151	D40
32	NC	72	D57	112	V_{DD}	152	D41
33	CKE0	73	D58	113	NC	153	D42
34	NC	74	D59	114	NC	154	D43
35	CKE1	75	V_{DD}	115	NC	155	V_{DD}
36	CLK0	76	D60	116	NC	156	D44
37	CLK1	77	D61	117	NC	157	D45
38	CLK2	78	D62	118	NC	158	D46
39	CLK3	79	D63	119	NC	159	D47
40	V_{SS}	80	V_{SS}	120	V_{SS}	160	V_{SS}

PUMA 64 - Surface Mount PQFP



All Dimensions in mm.

Ordering Information



X = Pinout Variant
Refer to table below
Blank = Commercial
I = Industrial
512 = 512MBit
VA = 3.3V
SD = Synchronous DRAM
PUMA 64 = 160 Pin PQFP

Type	ECC	Refresh	PC100 Compatible	Speed	Registered/Buffered
T1	8 Bit	4K	Yes		No
T2	8 Bit	4K	Yes		Yes
T3	No	4K	Yes		No
T4	No	4K	Yes		Yes

Note :
Although this data is believed to be accurate the information contained herein is not intended to and does not create any warranty of merchantibility or fitness for a particular purpose.
Our products are subject to a constant process of development. Data may be changed without notice.
Products are not authorised for use as critical components in life support devices without the express written approval of a company director.