



CYPRESS

PRELIMINARY

CYM76S683/684

512K/1M L2 Cache Module for Power PC Systems

Features

- High-performance cache modules based on synchronous 64K x 18 data BSRAM
- Operates at 50, 60, and 66 MHz
- 160-position DIMM module
- 3.3V data inputs/outputs

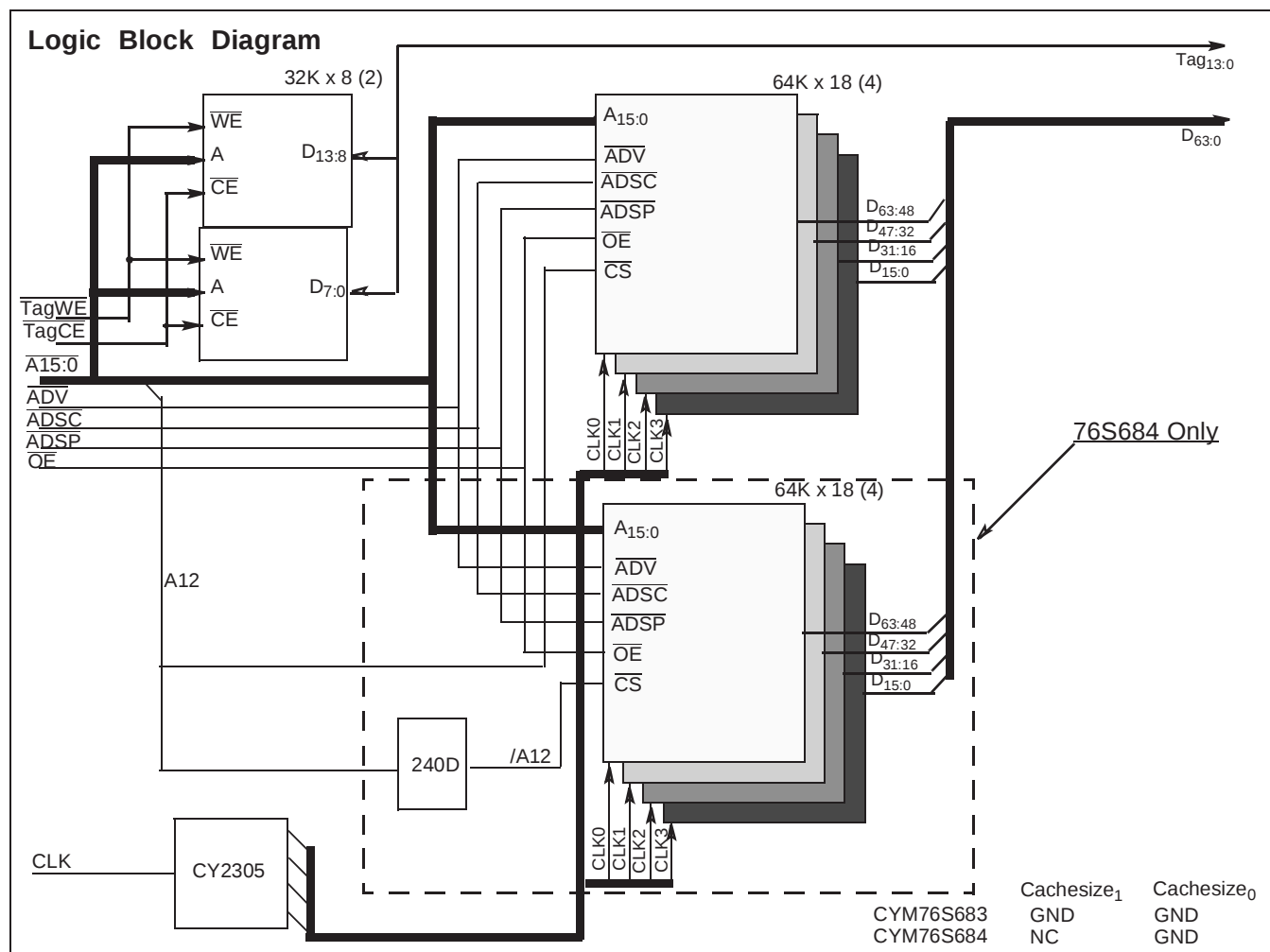
Functional Description

These cache modules are designed for systems based on the Power PC processors. These modules are specifically de-

signed for the Tsunami Catalyst type of Power PC machines. The modules are based on the Cypress high performance 64K x 18 flow through Synchronous Burst SRAMs.

Multiple ground pins and on-board decoupling capacitors ensure high performance with maximum noise immunity.

All components on the cache modules are surface mounted on a multi-layer epoxy laminate (FR-4) substrate. The contact pins are plated with 150 micro-inches of nickel covered by 30 micro-inches of gold.



Selection Guide

Part Number	Synchronous Cache Modules	
	76S683-60	76S684-60
Cache Size	512 KB	1 MB
System Clock (MHz)	60	60
ModuleData t_{CO} *	10.3 ns	10.3 ns
ModuleTag t_{AA} *	10.3 ns	10.3 ns

* - Measured at room temperature

Pin Configuration

Dual Read-Out SIMM (DIMM)

Top View

V _{cc5}	80	160	V _{cc3}
GND	79	159	GND
D ₆₂	78	158	D ₆₃
D ₆₀	77	157	D ₆₁
D ₅₈	76	156	D ₅₉
D ₅₆	75	155	D ₅₇
GND	74	154	GND
D ₅₄	73	153	D ₅₅
D ₅₂	72	152	D ₅₃
D ₅₀	71	151	D ₅₁
D ₄₈	70	150	D ₄₉
GND	69	149	GND
V _{cc5}	68	148	V _{cc3}
GND	67	147	GND
D ₄₆	66	146	D ₄₇
D ₄₄	65	145	D ₄₅
D ₄₂	64	144	D ₄₃
D ₄₀	63	143	D ₄₁
GND	62	142	GND
D ₃₈	61	141	D ₃₉
D ₃₆	60	140	D ₃₇
D ₃₄	59	139	D ₃₅
D ₃₂	58	138	D ₃₃
GND	57	137	GND
V _{cc5}	56	136	V _{cc3}
GND	55	135	GND
A ₂₈	54	134	A ₂₇
A ₂₆	53	133	A ₂₅
A ₂₄	52	132	A ₂₃
A ₂₂	51	131	A ₂₁
GND	50	130	GND
A ₂₀	49	129	A ₁₉
A ₁₈	48	128	A ₁₇
A ₁₆	47	127	A ₁₅
A ₁₄	46	126	A ₁₃
Cachesize0	45	125	GND
A ₁₂	44	124	Cachesize1
ADV	43	123	ADSP
TagOE	42	122	WE
TagWE	41	121	OE
GND	40	120	A ₁₁
CLK	39	119	GND
GND	38	118	A ₁₀
ADSC	37	117	NC
SLEEP	36	116	GND
TAGVALID	35	115	TAGDIRTY
TAG ₁₂	34	114	TAG ₁₃
TAG ₁₀	33	113	TAG ₁₁
TAG ₈	32	112	TAG ₉
GND	31	111	GND
TAG ₆	30	110	TAG ₇
TAG ₄	29	109	TAG ₅
TAG ₂	28	108	TAG ₃
TAG ₀	27	107	TAG ₁
GND	26	106	GND
V _{cc5}	25	105	V _{cc3}
GND	24	104	GND
D ₃₀	23	103	D ₃₁
D ₂₈	22	102	D ₂₉
D ₂₆	21	101	D ₂₇
D ₂₄	20	100	D ₂₅
GND	19	99	GND
D ₂₂	18	98	D ₂₃
D ₂₀	17	97	D ₂₁
D ₁₈	16	96	D ₁₉
D ₁₆	15	95	D ₁₇
GND	14	94	GND
V _{cc5}	13	93	V _{cc3}
GND	12	92	GND
D ₁₄	11	91	D ₁₅
D ₁₂	10	90	D ₁₃
D ₁₀	9	89	D ₁₁
D ₈	8	88	D ₉
GND	7	87	GND
D ₆	6	86	D ₇
D ₄	5	85	D ₅
D ₂	4	84	D ₃
D ₀	3	83	D ₁
GND	2	82	GND
V _{cc5}	1	81	V _{cc3}

Pin Definitions

Common Signals	Description
V _{cc5}	5V Supply
V _{cc3}	3.3V Supply
GND	Ground
A _{15:0}	Addresses from processor
$\overline{OE}$	Output Enable
D _{63:0}	Data lines from processor
Tag _{13:0}	Tag data bits
TAGVALID	Tag Valid address signal
TAGDIRTY	Tag dirty signal
$\overline{TagOE}$	Tag Output Enable signal
$\overline{TagWE}$	Tag Write Enable signal
$\overline{ADSP}$	Processor Address Strobe
$\overline{ADSC}$	Cache Controller Address Strobe
$\overline{ADV}$	Burst Address Advance
CLK	Clock signals
Cachesize[0:1]	Signals to indicate the cache size
NC	Signal not connected on module

Presence Detect Pins

	Cachesize1	CacheSize0
CYM76S683	Gnd	Gnd
CYM76S684	NC	Gnd

**Maximum Ratings**

(Above which the useful life may be impaired. For user guidelines, not tested.)

Storage Temperature -55°C to +125°C

Ambient Temperature
with Power Applied -0°C to +70°C

3.3V Supply Voltage to Ground Potential..... -0.5V to +4.6V

5V Supply Voltage to Ground Potential..... -0.5V to +7.0V

DC Voltage Applied to Outputs
in High Z State -0.5V to +4.6V

DC Input Voltage -0.5V to +4.6V

Output Current into Outputs (LOW)..... 20 mA

Operating Range

Range	Ambient Temperature	V _{CC5}	V _{CC3}
Commercial	0° to 70°C	5V ± 5%	3.3V +10%–5%

Electrical Characteristics Over the Operating Range

Parameter	Description	Test Condition	Min.	Max.	Unit
V _{IH}	Input HIGH Voltage		2.0	V _{CC3} + 0.3	V
V _{IL}	Input LOW Voltage		-0.3	0.8	V
V _{OH}	Output HIGH Voltage	V _{CC} =Min., I _{OH} = -4 mA	2.4		V
V _{OL}	Output LOW Voltage	V _{CC} =Min., I _{OL} = 8 mA		0.4	V
I _{CC} (76S683)	V _{CC} Operating Supply Current	V _{CC} =Max., I _{OUT} =0 mA, f=f _{MAX}		TBD	mA
I _{CC} (76S684)	V _{CC} Operating Supply Current	V _{CC} =Max., I _{OUT} =0 mA, f=f _{MAX}		TBD	mA

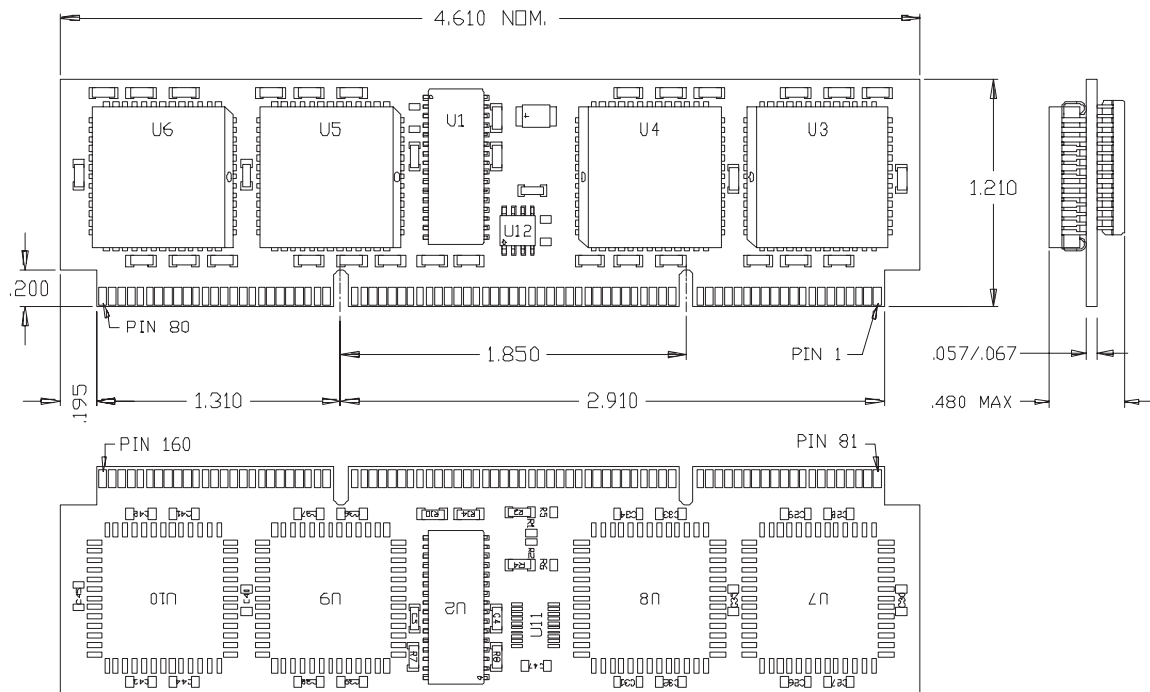
Ordering Information

Speed (MHz)	Ordering Code	Package Name	Package Type	Description	Operating Range
66	CYM76S683PM-66C	PM41	160-Pin Dual-Readout DIMM	512 KB cache module	Commercial
	CYM76S684PM-66C	PM42		1MB cache module	

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Package Diagrams

160-Pin Dual Readout SIMM PM41



160-Pin Dual Readout SIMM PM42

