BLOCK MODE TIME SLOT ALLOCATION CIRCUIT

DESCRIPTION

The SA8702 (BMTSAC) is a Block Mode Time Slot Allocation Circuit. The device is used to generate 8 consecutive timeslots in one of 4 blocks in a 32 time-slot PCM system. Each timeslot pulse is 8 BLCK cycles long. BCLK is the 2,048 station clock provided by the system. An active $\overline{\text{MRST}}$ will disable all outputs until a valid XSYNC input is recognised. The output TSX is delayed by half a cycle and indicates that one of 8 timeslots is currently active. There are 4 possible modes of operation, selectable by means of the BL0 and BL1 pins (See Table 1).

APPLICATIONS

- PCM Switching Systems
- PCM Transmission Systems
- Subscriber Multiplex Equipment
- PBX Systems

PIN CONNECTIONS

All inputs and outputs are C-MOS compatible. All outputs are push-pull with the exception of TSX which is open drain. The inputs $\overline{\text{MRST}}$ and BCLK are Schmitt Trigger. Inputs BL0 and BL1 have pull-ups. (See figure 1).

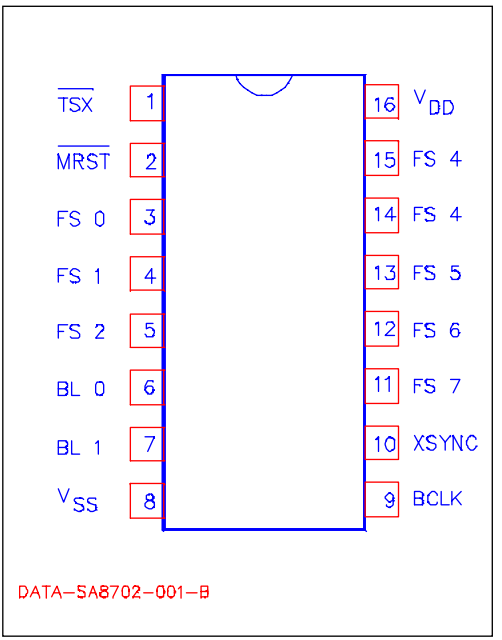


Figure 1.

Operating Modes

BL1	BL0	Mode of Operation
0	0	Outputs active in timeslots 0 to 7
0	1	Outputs active in timeslots 8 to 15
1	0	Outputs active in timeslots 16 to 23
1	1	Outputs active in timeslots 24 to 31

Table 1.

Input pulse XSYNC occurs periodically in every frame and is used to generate the first of the eight timeslots and also defines the beginning of Block 0. If XSYNC fails high then the outputs will be generated as they were before the failure occured. Should XSYNC fail low then the outputs will be deactivated after completion of the frame.

Maximum Ratings

All voltages measured with respect to V_{SS}.

Parameter	Symbol	Value	Units
Supply voltage	V_{DD}	+7,5	V
Positive voltage on any pin	V_{HM}	V_{DD} +0,3	V
Negative voltage on any pin	V_{LM}	V_{SS} -0,3	V
Maximum current through any pin	I_{HM}	±10	mA
Storage temperature	T_{ST}	-55 to +150	°C
Operating temperature	T_{O}	-10 to +70	°C

Stresses beyond these values may cause permanent damage to the device. Exposure to maximum rated conditions for extended periods may affect device reliability.

Operating Conditions:
All voltages measured with respect to V_{SS}.
Inputs must never be left open.

DC Parameters	Symbol	Min.	Nom.	Max.	Unit	Conditions
Supply Voltage	V_{DD}	4,75	5,00	5,25	V	-
* Input Low Voltage	V_{IL}	-	-	1,0	V	V_{DD} = 5V
* Input High Voltage	V_{IH}	4,0	-	-	V	V_{DD} = 5V
** Output Low Voltage	V_{OL}	-	-	0,5	V	V_{DD} = 5V I_{ol} = 0,5mA
** Output High Voltage	V_{OH}	4,5	-	-	V	V_{DD} = 5V I_{oh} = 0,5mA
Operating Frequency		-	2,048	2,273	MHz	$4,75 \leq V_{DD} \leq 5,25$
Operating Temp. range		-10	25	70	°C	-

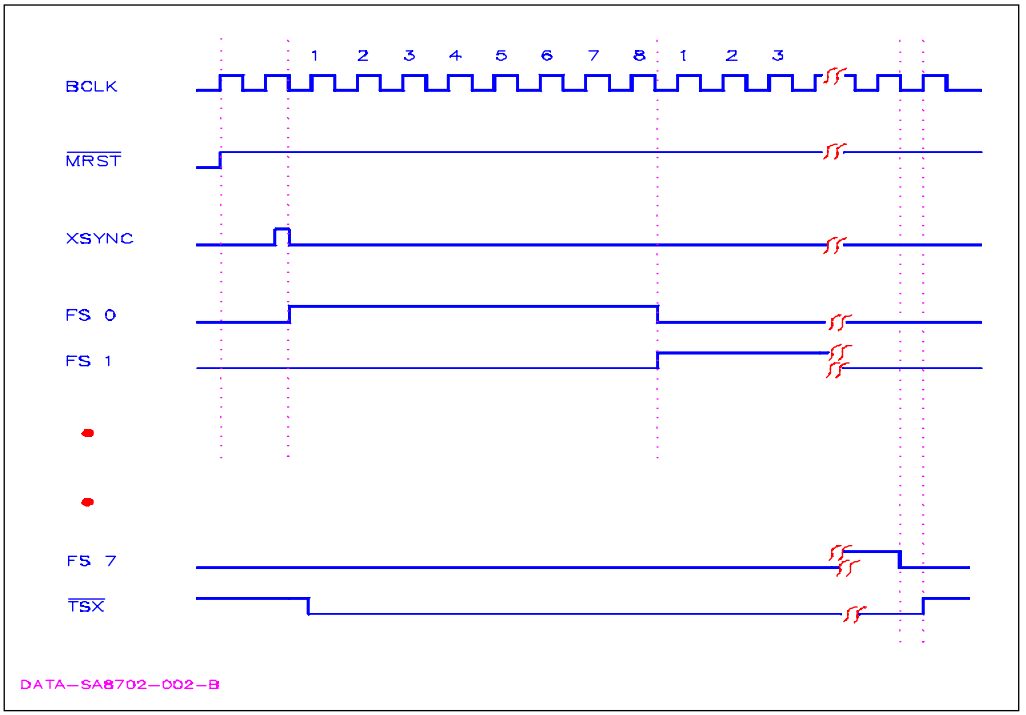
* All inputs are C-MOS level compatible. Pins 6 and 7 have internal pull-up devices.
** All outputs are push-pull except pin 1 which is open drain.

AC Parameters	Symbol	Min.	Nom.	Max.	Unit	Conditions
XSYNC setup before BCLK goes low	T_s	60	-	-	ns	$4,75 \leq V_{DD} \leq 5,25$
Output propagation delay from active clock edge	T_{pd}	-	-	150	ns	$4,75 \leq Vdd \leq 5,25$
XSYNC hold time from BCLK	T_h	50	-	-	ns	$4,75 \leq V_{DD} \leq 5,25$

PIN DESCRIPTION

Pin No.	I/O	Name	Description
1	O	$\overline{\text{TSX}}$	An open drain N-channel high impedance, but pulls low during any active timeslot.
2	I	$\overline{\text{MRST}}$	A Schmitt trigger input that asynchronously disables all outputs.
3	O	FSO	A timeslot output which is normally low, and goes active-high for 8 cycles of BCLK when a valid XSYNC is made.
4	O	FS1	Similar to pin 3.
5	O	FS2	Similar to pin 3.
6	I	BL0	The input for the LSB of the 2 bit word which defines the active block.
7	I	BL1	The input for the MSB of the 2 bit word which defines the active block.
8	I	VSS	The OV ground connection to the device.
9	I	BCLK	The 2,048MHz station clock input.
10	I	XSYNC	The input pulse XSYNC used to generate the first of the eight timeslots and also defines the beginning of block 0.
11	O	FS7	Similar to pin 3.
12	O	FS6	Similar to pin 3.
13	O	FS5	Similar to pin 3.
14	O	FS4	Similar to pin 3.
15	O	FS3	Similar to pin 3.
16	I	VDD	The positive supply to the device.

TIMING DIAGRAM



Any sales or technical questions may be posted to our e-mail adress below:
energy@sames.co.za

For the latest updates on datasheets, please visit our web site:
http://www.sames.co.za

South African Micro-Electronic Systems (Pty) Ltd

P O Box 15888,
Lynn East,
0039
Republic of South Africa,

Tel: 012 333-6021
Fax: 012 333-8071

33 Eland Street,
Koedoespoort Industrial Area,
Pretoria,
Republic of South Africa

Tel: Int +27 12 333-6021
Fax: Int +27 12 333-8071