DOCUMENT CHANGE REQUEST

DCR number 121	Changes required for: General	Originator: S Thacker
Date: 2004/06/04	Date sent: 2004/06/04	Organisation: ESA/ESTEC
Status: IMPLEMENTED		

Title:	CMOS Analogue Multiplexer/Demultiplexer (Triple 2-Channel), based on type 4053B		
Number:	9202/049	Issue:	1

Other documents affected:

Page:

1) Maximum Ratings Table - Table 1(b) page 6

2) Electrical test table - Table 2 page 24 & Test Circuits Fig 4(h) page 40 (also Table 3(a)&(b)) - parameter: Input Voltage tests VIL1, VIL2, VIH1, VIH2.

3) Electrical Test table Table 2 page 25 &26 & Test

Paragraph:

1) Maximum Ratings Table - Table 1(b) page 6

2) Electrical test table - Table 2 page 24 & Test Circuits Fig 4(h) page 40 (also Table 3(a)&(b)) - parameter: Input Voltage tests VIL1, VIL2, VIH1, VIH2.

3) Electrical Test table Table 2 page 25 &26 & Test

Original wording:

Proposed wording:

In addition to general changes to the specification format/layout/content for the 4000B series as summarised in ESCC approved DCR90, there are some additional specific technical changes to this specification as follows :

1) Maximum Ratings Table (Table1(b)(para 1.5))
Changes to take into account VEE as well as VDD - see attached sheets for current and new table.

Addition of application note as follows:
"Note 3. To avoid draining VDD supply current into the ON Channel when current flows from CH to COM the voltage drop across the ON Channel shall not exceed 0.4V."

2) Electrical test table (Table 2 note 5/Fig 4(h)(para 2.3.1/2.3.3 note 5)) - parameter: Input Voltage tests VIL & VIH.
Addition & clarification of the functional test condition to check for OFF channel current: IOFF<2uA.
- see attached sheets for current and new table & note.
(same change applies to Table 3(a)&(b)(para 2.3.2))

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3) Electrical Test table & circuit (Table 2/Fig 4(p) (para 2.3.1/2.3.3 note 8)) - parameters: Propagation times.
Test conditions for channel inputs for tPLH2 (=tPZH1), tPLH3 (=tPZH2), tPHL2 (=tPHZ1), tPHL3 (=tPHZ2) have been amended/clarifed for correct switching. The switching waveforms have also been corrected in Fig 4(p)(para 2.3.3 note 8).
- see attached sheets for current and new table & fig/note.

Justification:

1), 2), 3) - The current specification is incomplete, unclear or incorrect for these requirements.

Note : Manufacturer ST has agreed these changes

Attachments:

121attmod.pdf, null

Modifications:

N/A

Approval signature:



Date signed:

2004-06-04

Characteristics	Symbols	MIL-STD-883 Test Method	Test Conditions Note 1	Limits		Units
				Min	Max	
Propagation Delay Low to High X bCOM to bCHy	t_{PLH}X	3003	V_{IN}(COM)=Pulse Generator V_{IN} (Remaining Inputs)=Truth Table V_{IL}=0V, V_{IH}=5V, R_L=200kΩ V_{DD}=5V, V_{SS}=V_{EE}=0V Note 8	-	40	ns
Propagation Delay High to Low X bCOM to bCHy	t_{PHL}X	3003	V_{IN}(COM)=Pulse Generator V_{IN} (Remaining Inputs)=Truth Table V_{IL}=0V, V_{IH}=5V, R_L=200kΩ V_{DD}=5V, V_{SS}=V_{EE}=0V Note 8	-	40	ns
~~Propagation Delay Low to High~~ 2, A to aCOM (~~Channels ON~~)	~~t_{PLH}~~ 2 t_{PZH1}	3003	V_{IN}(A)=Pulse Generator V_{IN} (Remaining Inputs)=Truth Table V_{IL}=0V, V_{IH}=5V, V_{IN}(CH)=~~0V and~~ 5V and Open R_L=10kΩ V_{DD}=5V, V_{SS}=V_{EE}=0V Note 8	-	670	ns
~~Propagation Delay High to Low~~ 2, A to aCOM (~~Channels ON~~)	~~t_{PHL}~~ 2 t_{PHZ1}	3003	V_{IN}(A)=Pulse Generator V_{IN} (Remaining Inputs)=Truth Table V_{IL}=0V, V_{IH}=5V, V_{IN}(CH)=~~0V and~~ 5V and Open R_L=10kΩ V_{DD}=5V, V_{SS}=V_{EE}=0V Note 8	-	670	ns
Output Enable Time High Impedance to High Output 2, INH to aCOM	t_{PZH}2	3003	V_{IN}(INH)=Pulse Generator V_{IN} (Remaining Inputs)=Truth Table V_{IL}=0V, V_{IH}=5V, V_{IN}(CH)=5V, R_L=10kΩ V_{DD}=5V, V_{SS}=V_{EE}=0V Note 8	-	400	ns

Output Enable Time High Impedance to High Output 1, A to aCOM

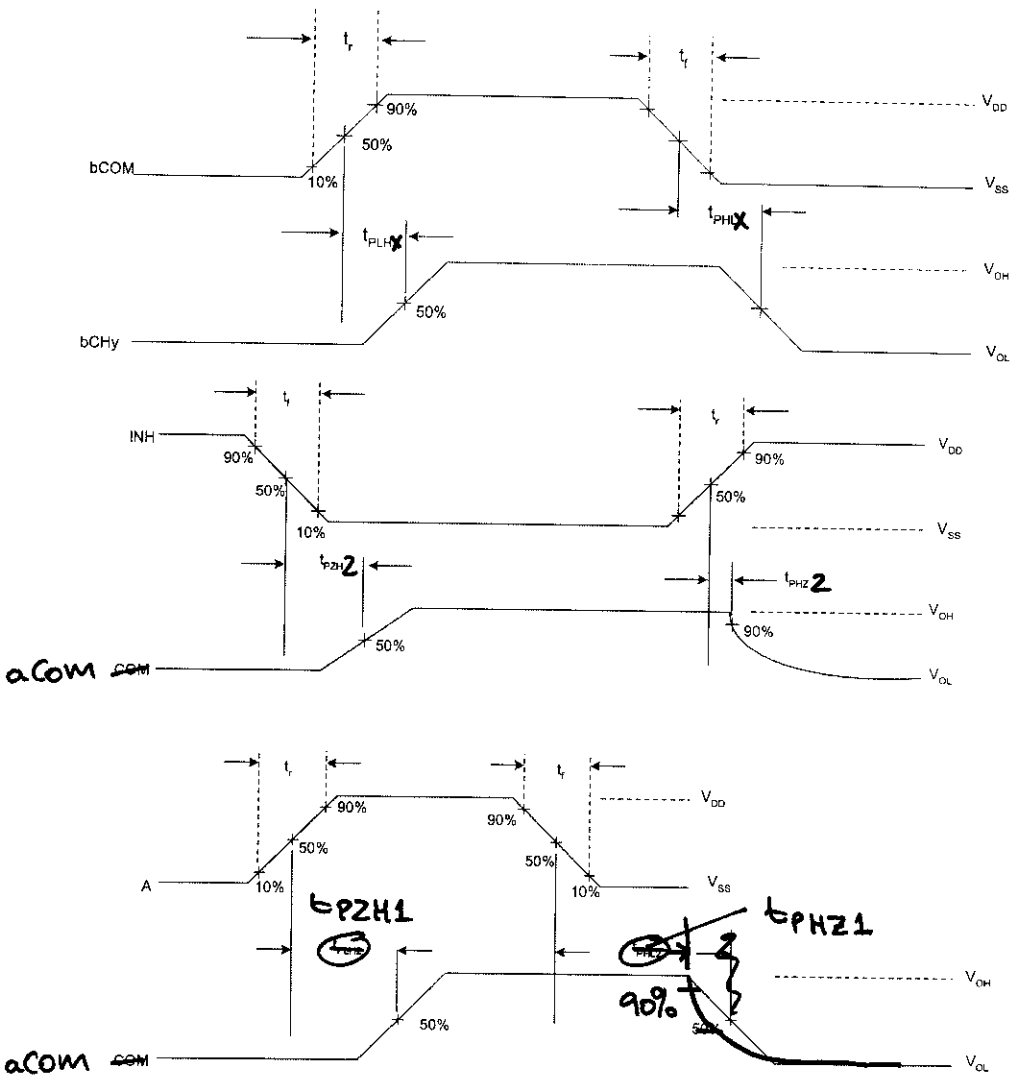
Output Disable Time High Output to High Impedance 1, A to aCOM

Characteristics	Symbols	MIL-STD-883 Test Method	Test Conditions Note 1	Limits		Units
				Min	Max	
Output Disable Time High Output to High Impedance 2, INH to aCOM	t_{PHZ} 2	3003	V_{IN}(INH)=Pulse Generator V_{IN} (Remaining Inputs)=Truth Table V_{IL}=0V, V_{IH}=5V, V_{IN}(CH)=5V, R_L=300Ω V_{DD}=5V, V_{SS}=V_{EE}=0V Note 8	-	400	ns

2.3.2 High and Low Temperatures Electrical Measurements

The measurements shall be performed at T_{amb}=+125 (+0 -5) °C and T_{amb}=- 55(+5-0)°C.

Characteristics	Symbols	MIL-STD-883 Test Method	Test Conditions Note 1	Limits		Units
				Min	Max	
Functional Test 1	-	3014	Verify Truth Table V_{IL}=0V,V_{IH}=3V V_{DD}=3V, V_{SS}=V_{EE}=0V Note 2	-	-	-
Functional Test 2	-	3014	Verify Truth Table V_{IL}=0V,V_{IH}=15V V_{DD}=15V, V_{SS}=V_{EE}=0V Note 2	-	-	-
Quiescent Current	I_{DD}	3005	V_{IL}=0V,V_{IH}=15V V_{DD}=15V, V_{SS}=V_{EE}=0V Note 3 T_{amb}=+125°C T_{amb}=- 55°C	 - -	 30 1	µA
Low Level Input Current, Control Inputs	I_{IL}	3009	V_{IN} (Under Test)=0V V_{DD}=15V, V_{SS}=V_{EE}=0V T_{amb}=+125°C T_{amb}=- 55°C	 - -	 -100 -50	nA
High Level Input Current, Control Inputs	I_{IH}	3010	V_{IN} (Under Test)=15V V_{DD}=15V, V_{SS}=V_{EE}=0V T_{amb}=+125°C T_{amb}=- 55°C	 - -	 100 50	nA



2.4 PARAMETER DRIFT VALUES

Unless otherwise specified, the measurements shall be performed at T_{amb}=+22 ±3°C.

The test methods and test conditions shall be as per the corresponding test defined in Room Temperature Electrical Measurements.

The drift values (Δ) shall not be exceeded for each characteristic specified. The corresponding absolute limit values for each characteristic shall not be exceeded.