



# DOCUMENT CHANGE REQUEST

DCR number	160	Changes required for:	General	Originator:	Steve Thacker
Date:	2005/03/08	Date sent:	2005/03/08	Organisation:	ESA/ESTEC
Status:	IMPLEMENTED				

Title: CMOS Dual 1-of-4 Decoder/Demultiplexer, based on type 4555B

Number:	9408/011	Issue:	2
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Other documents affected:

9408/025-1

Page:

a) Page 35 Figure 4(n) note 1  
b) Page 38 Table 5(c) No.7  
  
See attached mark-up sheets (new & original) for details

Paragraph:

a) Page 35 Figure 4(n) note 1  
b) Page 38 Table 5(c) No.7  
  
See attached mark-up sheets (new & original) for details

Original wording:

Proposed wording:

a) Amend input conditions for propagation delay tests as per mark-up attached:  
tr & tf < or = 20ns;  
delete RI=50ohm & tp=1us  
  
b) Amend fGEN2 input condition for burn-in to be 25kHz

Justification:

Error in original specifications.  
Note - Both devices (4555B & 4556B) are from the same sub-family within the 4000B series and should have the same test conditions.

Attachments:

DCR\_Attachment\_8\_March\_2005.pdf, null

Modifications:

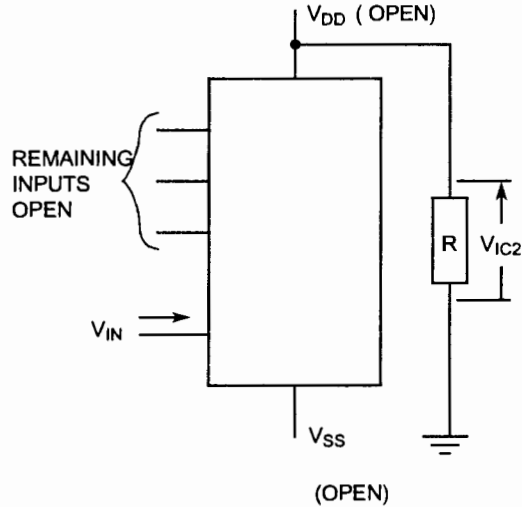
N/A

Approval signature:



Date signed:

2005-03-08



6. Guaranteed but not tested.
7. Read and record measurements shall be performed on a sample of 32 components with 0 failures permitted.

The pulse generator shall have the following characteristics:

$V_{GEN} = 0$  to  $V_{DD}$ ;  $f = 500\text{kHz}$ ;  $t_r$  and  $t_f \leq 15$  ns (10% to 90%); duty cycle = 50%. Output load capacitance  $C_L = 50\text{pF} \pm 5\%$  including scope probe, wiring and stray capacitance without component in the test fixture. Output load resistance  $R_L = 200\text{k}\Omega$ .

Propagation delay shall be measured referenced to the 50% input and output voltages.

Transition time shall be measured referenced to the 10% and 90% output voltage.

#### 2.4 PARAMETER DRIFT VALUES

Unless otherwise specified, the measurements shall be performed at  $T_{amb} = +22 \pm 3^\circ\text{C}$ .

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

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

2.7 POWER BURN-IN CONDITIONS

Characteristics	Symbols	Test Conditions	Units
Ambient Temperature	$T_{amb}$	+125 (+0 -5)	°C
Outputs $\bar{Q}$ (all gates)	$V_{OUT}$	$V_{DD}/2$	V
Inputs $\bar{E}$ (all gates)	$V_{IN}$	$V_{SS}$	V
Inputs A (all gates)	$V_{IN}$	$V_{GEN1}$	V
Inputs B (all gates)	$V_{IN}$	$V_{GEN2}$	V
Pulse Voltage	$V_{GEN}$	0V to $V_{DD}$	V
Pulse Frequency Square Wave	$f_{GEN1}$ $f_{GEN2}$	50k 25k 50% Duty Cycle	Hz
Positive Supply Voltage	$V_{DD}$	15 (+0 -0.5)	V
Negative Supply Voltage	$V_{SS}$	0	V

**NOTES:**

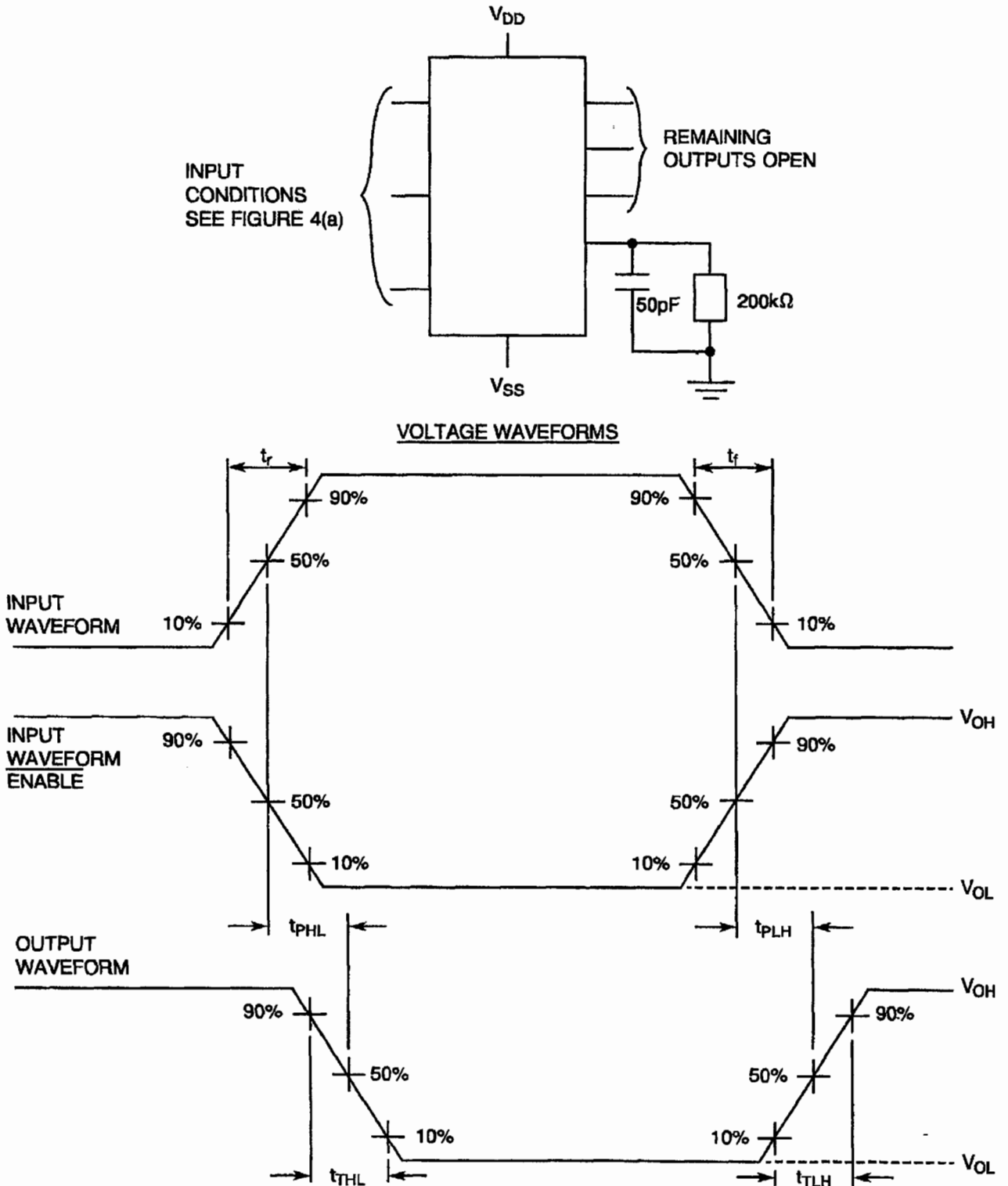
1. Input Protection Resistor = Output Load = 2k $\Omega$  min to 47k $\Omega$  max.

2.8 OPERATING LIFE CONDITIONS

The conditions shall be as specified for Power Burn-in.

**FIGURE 4 - CIRCUITS FOR ELECTRICAL MEASUREMENTS (CONTINUED)**

**FIGURE 4(n) - PROPAGATION DELAY AND TRANSITION TIME**



**NOTES**

1. Pulse Generator -  $V_p = 0$  to  $V_{DD}$ ,  $t_r$  and  $t_f \leq 20\text{ns}$ ,  $f = 500\text{kHz}$ ,  $R_1 = 50\Omega$ ,  $t_p = 1\mu\text{s}$

deleted

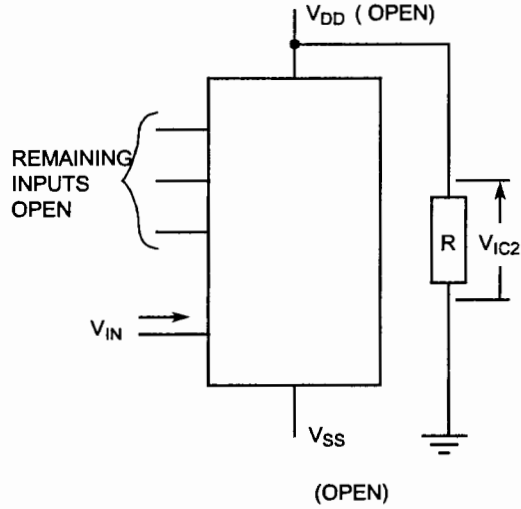
**TABLE 5(c) - CONDITIONS FOR BURN-IN DYNAMIC**

No.	CHARACTERISTICS	SYMBOL	CONDITIONS	UNIT
1	Ambient Temperature	$T_{amb}$	+ 125 (+0-5)	°C
2	Outputs - (Pins D/F 4-5-6-7-9-10-11-12) (Pins C 5-6-7-9-11-12-14-15)	$V_{OUT}$	$V_{DD}/2$	Vdc
3	Inputs - (Pins D/F 2-14) (Pins C 2-17)	$V_{IN}$	$V_{GEN1}$	Vac
4	Inputs - (Pins D/F 3-13) (Pins C 4-16)	$V_{IN}$	$V_{GEN2}$	Vac
5	Inputs - (Pins D/F 1-15) (Pins C 1-19)	$V_{IN}$	Ground	Vdc
6	Pulse Voltage	$V_{GEN}$	0 to $V_{DD}$	Vac
7	Pulse Frequency Square Wave	f	GEN1 50k, 50% Duty Cycle	Hz
			GEN2 20k, 50% Duty Cycle	
8	Positive Supply Voltage (Pin D/F 16) (Pin C 20)	$V_{DD}$	15	Vdc
9	Negative Supply Voltage (Pin D/F 8) (Pin C 10)	$V_{SS}$	Ground	Vdc

**NOTES**

1. Input Load = Output Load = 2kΩ minimum to 47kΩ maximum.

25k



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7. Read and record measurements shall be performed on a sample of 32 components with 0 failures permitted.

The pulse generator shall have the following characteristics:

$V_{GEN} = 0$  to  $V_{DD}$ ;  $f = 500\text{kHz}$ ;  $t_r$  and  $t_f \leq 15$  ns (10% to 90%); duty cycle = 50%. Output load capacitance  $C_L = 50\text{pF} \pm 5\%$  including scope probe, wiring and stray capacitance without component in the test fixture. Output load resistance  $R_L = 200\text{k}\Omega$ .

Propagation delay shall be measured referenced to the 50% input and output voltages.

Transition time shall be measured referenced to the 10% and 90% output voltage.

## 2.4

### PARAMETER DRIFT VALUES

Unless otherwise specified, the measurements shall be performed at  $T_{amb} = +22 \pm 3^\circ\text{C}$ .

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

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