DOCUMENT CHANGE REQUEST

DCR number 123	Changes required for: General	Originator: S Thacker
Date: 2004/06/04	Date sent: 2004/06/04	Organisation:
Status: IMPLEMENTED		

Title:	CMOS Analogue Multiplexer/Demultiplexer, based on type 4067B		
Number:	9408/009	Issue:	1

Other documents affected:

Page:

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

2) Electrical test table - Table 2 page 23 & Test Circuits Fig 4(h) page 48 (also Table 3(a)&(b)) - parameter: Input Voltage tests VIL1, VIL2, VIH1, VIH2.

3) Electrical Test table Table 2 page 24 & 25 & Test

Paragraph:

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

2) Electrical test table - Table 2 page 23 & Test Circuits Fig 4(h) page 48 (also Table 3(a)&(b)) - parameter: Input Voltage tests VIL1, VIL2, VIH1, VIH2.

3) Electrical Test table Table 2 page 24 & 25 & 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))
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))

3) Electrical Test table & circuit (Table 2/Fig 4(p) (para 2.3.1/2.3.3 note 8)) - parameters: Propagation times.

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Test conditions for channel inputs for tPLH1(=tPZH1), tPLH2 (=tPZH2), tPHL1 (=tPHZ1), tPHL2(=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.

4) Parameter Drift Values Table - (Table 4)(para 2.4) - parameter: RON1 & RON2
The channels to be tested for parameter drift values, read & record measurements are changed to be a single channel in both directions - Channel 4 Input/Output to Common Output/Input (CH4 to COM, COM to CH4)
- see attached sheets for current and new table & note.

Justification:

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

4) - The read & record testing of a single channel matches the method followed for the related specifications 9202/047 (4051B), 9202/048 (4052B) & 9202/049 (4053B). All other channels are tested go-no-go.

Note : Manufacturer ST has agreed these changes

Attachments:

DCR_9408009_old_new_ref_pages.pdf, 123attmod.pdf, null

Modifications:

N/A

Approval signature:

Date signed:

2004-06-04

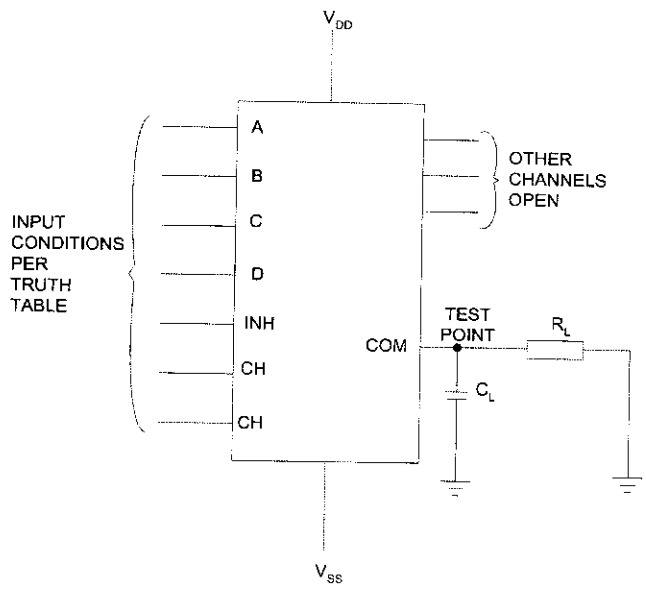
Characteristics	Symbols	MIL-STD-883 Test Method	Test Conditions Note 1	Limits		Units
				Min	Max	
Propagation Delay Low to High, CH0 to COM	t_{PLH}	3003	V_{IN}(CH)=Pulse Generator V_{IN} (Remaining Inputs)=Truth Table V_{IL}=0V, V_{IH}=5V, R_L=200kΩ V_{DD}=5V, V_{SS}=0V Note 8	-	60	ns
Propagation Delay High to Low, CH0 to COM	t_{PHL}	3003	V_{IN}(CH)=Pulse Generator V_{IN} (Remaining Inputs)=Truth Table V_{IL}=0V, V_{IH}=5V, R_L=200kΩ V_{DD}=5V, V_{SS}=0V Note 8	-	60	ns
Output Enable Time High Impedance to High Output 1, A to COM	t_{PZH1}	3003	V_{IN}(A)=Pulse Generator V_{IN} (Remaining Inputs)=Truth Table V_{IL}=0V, V_{IH}=5V V_{IN}(CH)=5V and Open R_L=10kΩ V_{DD}=5V, V_{SS}=0V Note 8	-	650	ns
Output Disable Time High Output to High Impedance 1, A to COM	t_{PHZ1}	3003	V_{IN}(A)=Pulse Generator V_{IN} (Remaining Inputs)=Truth Table V_{IL}=0V, V_{IH}=5V V_{IN}(CH)=5V and Open R_L=300Ω V_{DD}=5V, V_{SS}=0V Note 8	-	440	ns
Output Enable Time High Impedance to High Output 2, INH to COM	t_{PZH2}	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}=0V Note 8	-	650	ns

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 COM	t_{PHZ2}	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}=0V Note 8	-	440	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}=0V Note 2	-	-	-
Functional Test 2	-	3014	Verify Truth Table V_{IL}=0V,V_{IH}=15V V_{DD}=15V, V_{SS}=0V Note 2	-	-	-
Quiescent Current	I_{DD}	3005	V_{IL}=0V,V_{IH}=15V V_{DD}=15V, V_{SS}=0V Note 3 T_{amb}=+125°C T_{amb}=- 55°C	 - -	 15 0.5	µA
Low Level Input Current, Control Inputs	I_{IL}	3009	V_{IN} (Under Test)=0V V_{DD}=15V, V_{SS}=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}=0V T_{amb}=+125°C T_{amb}=- 55°C	 - -	 100 50	nA


V_{DD}
A
B
C
D
INH
CH
CH
INPUT CONDITIONS PER TRUTH TABLE
OTHER CHANNELS OPEN
COM
TEST POINT
R_L
C_L
V_{SS}

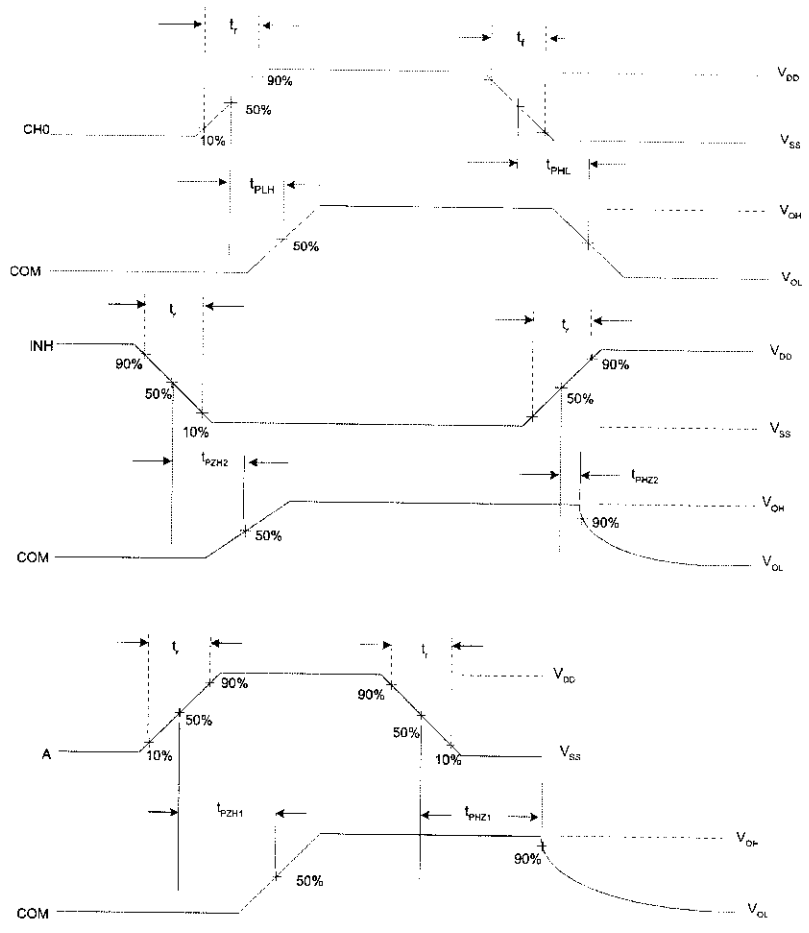

t_r
t_f
90%
50%
10%
CH0
V_{DD}
V_{SS}
t_{PLH}
t_{PHL}
V_{OH}
V_{OL}
COM
INH
t_{PZH2}
t_{PHZ2}
A
t_{PZH1}
t_{PHZ1}

TABLE 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE - D.C. PARAMETERS (CONT'D)

NO.	CHARACTERISTICS	SYMBOL	TEST METHOD MIL-STD 883	TEST FIG.	TEST CONDITIONS (PINS UNDER TEST D/F = DIP AND FP C = CCP)	LIMITS MIN	LIMITS MAX	UNIT
543	Input Voltage Low Level (Noise Immunity) (Functional Test)	V_{IL1}	-	4 (h)	Address and Inhibit Inputs: V_{IL} = 1.5Vdc, V_{IH} = 3.5Vdc Channel Inputs: V_{IL} = 0Vdc, V_{IH} = 5Vdc V_{DD} = 5Vdc, V_{SS} = 0Vdc Note 5 (Pins D/F 2-3-4-5-6-7-8-9-16-17-18-19-20-21-22-23) (Pins C 2-3-5-6-7-8-9-10-19-21-22-23-24-26-27)	-	0.5	V
	Input Voltage High Level (Noise Immunity) (Functional Test)	V_{IH1}				4.5	-	
544	Input Voltage Low Level (Noise Immunity) (Functional Test)	V_{IL2}	-	4 (h)	Address and Inhibit Inputs: V_{IL} = 4Vdc, V_{IH} = 11Vdc Channel Inputs: V_{IL} = 0Vdc, V_{IH} = 15Vdc V_{DD} = 15Vdc, V_{SS} = 0Vdc Note 5 (Pins D/F 2-3-4-5-6-7-8-9-16-17-18-19-20-21-22-23) (Pins C 2-3-5-6-7-8-9-10-19-21-22-23-24-26-27)	-	1.5	V
	Input Voltage High Level (Noise Immunity) (Functional Test)	V_{IH2}				13.5	-	
545	Threshold Voltage N-Channel	V_{THN}	-	4 (i)	Inhibit Input at Ground. All Other Inputs: V_{IN} = 5Vdc V_{DD} = 5Vdc, I_{SS} = -10µA (Pin D/F 12) (Pin C 14)	-0.7	-3.0	V
546	Threshold Voltage P-Channel	V_{THP}	-	4 (j)	Inhibit Input at Ground. All Other Inputs: V_{IN} = -5Vdc V_{SS} = -5Vdc, I_{DD} = 10µA (Pin D/F 24) (Pin C 28)	0.7	3.0	V
547 to 551	Input Clamp Voltage (to V_{SS})	V_{IC1}	-	4 (k)	I_{IN} (Under Test) = -100µA V_{DD} = Open, V_{SS} = 0Vdc All Other Pins Open (Pins D/F 10-11-13-14-15) (Pins C 12-13-15-16-17)	-	-2.0	V
552 to 556	Input ClampVoltage (to V_{DD})	V_{IC2}	-	4 (l)	V_{IN} (Under Test) = 6Vdc V_{SS} = Open, R = 30kΩ (Pins D/F 10-11-13-14-15) (Pins C 12-13-15-16-17)	3.0	-	V

NOTES: See Page 25.

TABLE 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE - A.C. PARAMETERS

NO.	CHARACTERISTICS	SYMBOL	TEST METHOD MIL-STD 883	TEST FIG.	TEST CONDITIONS (PINS UNDER TEST D/F = DIP AND FP C = CCP)	LIMITS		UNIT
						MIN	MAX	
557 to 561	Input Capacitance Address or Inhibit	C_{IN}	3012	4 (m)	V_{IN} (Not under Test) = 0Vdc V_{DD} = V_{SS} = 0Vdc Note 6 (Pins D/F 10-11-13-14-15) (Pins C 12-13-15-16-17)	-	7.5	pF
562 to 577	Channel Capacitance (Input)	C_{INC}	3012	4 (n)	V_{DD} = V_{SS} = 0Vdc Note 6 (Pins D/F 2-3-4-5-6-7-8-9-16-17-18-19-20-21-22-23) (Pins C 2-3-5-6-7-8-9-10-19-20-21-22-23-24-26-27)	-	7.5	pF
578	Channel Capacitance (Output)	C_{OC}	3012	4 (o)	V_{DD} = V_{SS} = 0Vdc Note 6 (Pin D/F 1) (Pin C 1)	-	120	pF
579	Propagation Delay Address to Signal OUT (Channel turning ON)	t_{PLH1}	3003	4 (p)	V_{IN} (Under Test) = Pulse Generator V_{IL} = 0Vdc, V_{IH} = 5Vdc R_L = 10kΩ V_{DD} = 5Vdc, V_{SS} = 0Vdc Note 7 Pins D/F: 10 to 1 — Pins C: 12 to 1	-	650	ns
580	Propagation Delay Inhibit to Signal OUT (Channel turning ON)	t_{PLH2}	3003	4 (p)	V_{IN} (Under Test) = Pulse Generator V_{IL} = 0Vdc, V_{IH} = 5Vdc R_L = 10kΩ V_{DD} = 5Vdc, V_{SS} = 0Vdc Note 7 Pins D/F: 15 to 1 — Pins C: 17 to 1	-	650	ns
581	Propagation Delay Channel Input to Channel Output	t_{PLH3}	3003	4 (q)	V_{IN} (Under Test) = Pulse Generator V_{IL} = 0Vdc, V_{IH} = 5Vdc V_{IN} (All other channels) = 0Vdc R_L = 200kΩ V_{DD} = 5Vdc, V_{SS} = 0Vdc Note 7 Pins D/F: 9 to 1 — Pins C: 10 to 1	-	60	ns

NOTES: See Page 25.

TABLE 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE - A.C. PARAMETERS (CONT'D)

NO.	CHARACTERISTICS	SYMBOL	TEST METHOD MIL-STD 883	TEST FIG.	TEST CONDITIONS (PINS UNDER TEST D/F = DIP AND FP C = CCP)	LIMITS		UNIT
						MIN	MAX	
582	Propagation Delay Address to Signal OUT (Channel turning OFF)	t_{PHL1}	3003	4 (p)	V_{IN} (Under Test) = Pulse Generator V_{IL} = 0Vdc, V_{IH} = 5Vdc R_L = 300Ω V_{DD} = 5Vdc, V_{SS} = 0Vdc Note 7 Pins D/F: 10 to 1 Pins C: 12 to 1	-	440	ns
583	Propagation Delay Inhibit to Signal OUT (Channel turning OFF)	t_{PHL2}	3003	4 (p)	V_{IN} (Under Test) = Pulse Generator V_{IL} = 0Vdc, V_{IH} = 5Vdc R_L = 300Ω V_{DD} = 5Vdc, V_{SS} = 0Vdc Note 7 Pins D/F: 15 to 1 Pins C: 17 to 1	-	440	ns
584	Propagation Delay Channel Input to Channel Output	t_{PHL3}	3003	4 (q)	V_{IN} (Under Test) = Pulse Generator V_{IL} = 0Vdc, V_{IH} = 5Vdc V_{IN} (All other channels) = 0Vdc R_L = 200kΩ V_{DD} = 5Vdc, V_{SS} = 0Vdc Note 7 Pins D/F: 9 to 1 Pins C: 10 to 1	-	60	ns

NOTES

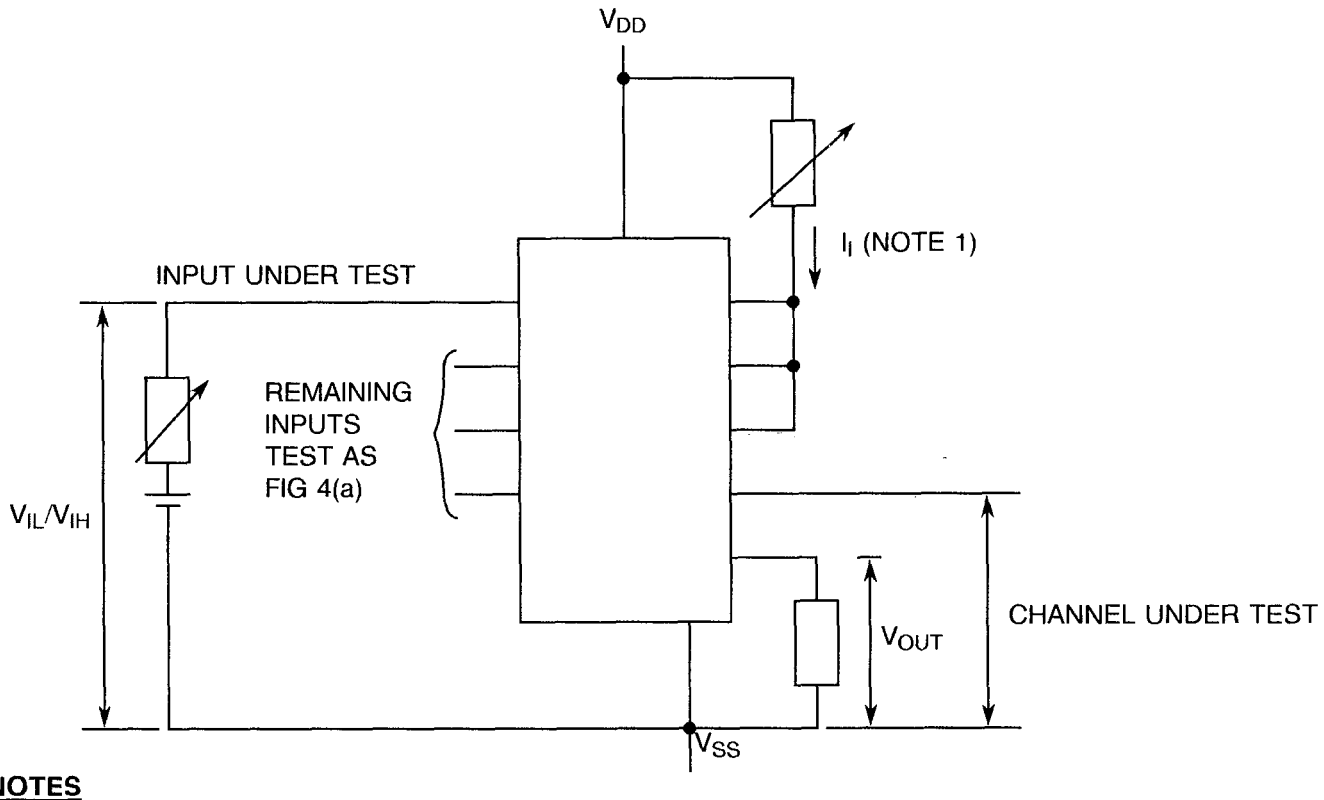
1. GO-NO-GO Test, each pattern of Test Table 4(a).

   $VOH \geq VDD - 0.5V$ $VOL \leq 0.5V$

2. Maximum time to output comparator strobe 300µsec.
3. Measure each value of IDD for the input conditions given in Table 4(b).
4. For characterisation during qualification, the incremental method or the method shown in Figure 4(g)(ii), which incorporates a plotter, shall apply. For procurement, the Orderer may accept that the devices are tested go-no-go to the maximum limits of Table 2. In the case that go-no-go testing is performed, it is necessary that at least one discrete value shall be measured and recordered in order that drift values may be applied. Figure 4(g)(iii) shall be used for the discrete value measurement.
5. This is performed as a Functional Test in which extreme VIN conditions are applied and output voltage is measured.
6. Measurement performed on a sample basis LTPD 7, or less, with a Capacitance Bridge connected between each input under test and VSS, only for Lots where LAT Level 2 is to be performed. (For LTPD sampling plan, see Annexe I of ESA/SCC 9000).
7. Measurement performed on a sample basis, LTPD 7 or less, (see Annexe I of ESA/SCC 9000).

FIGURE 4 - CIRCUITS FOR ELECTRICAL MEASUREMENTS (CONTINUED)

FIGURE 4(h) - INPUT VOLTAGE HIGH AND LOW LEVEL



NOTES

1. I_I < 2µA for all OFF Channels.

FIGURE 4(i) - THRESHOLD VOLTAGE N-CHANNEL

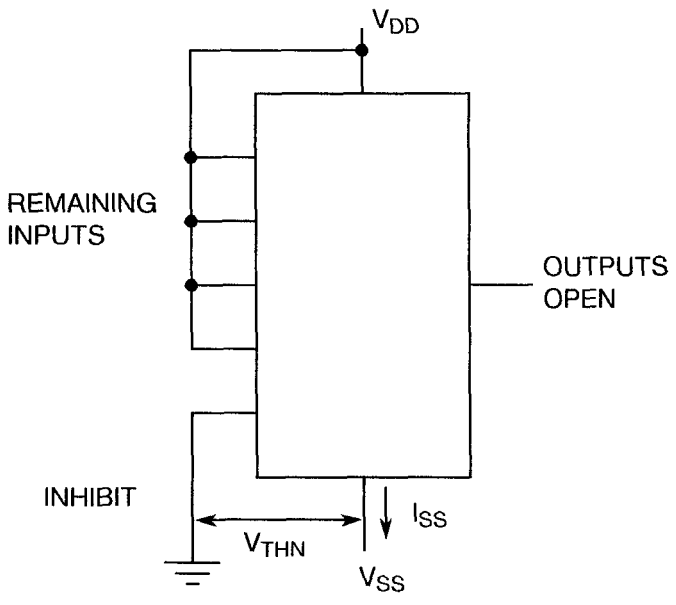


FIGURE 4(i) - THRESHOLD VOLTAGE P-CHANNEL

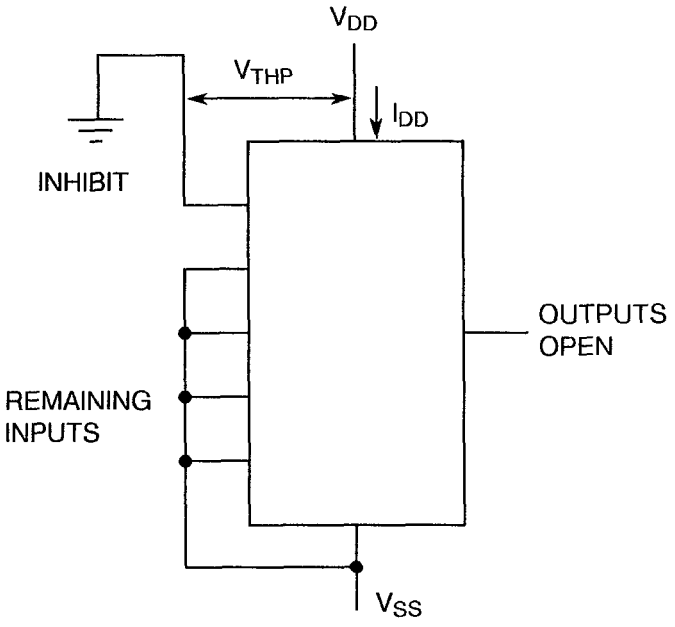
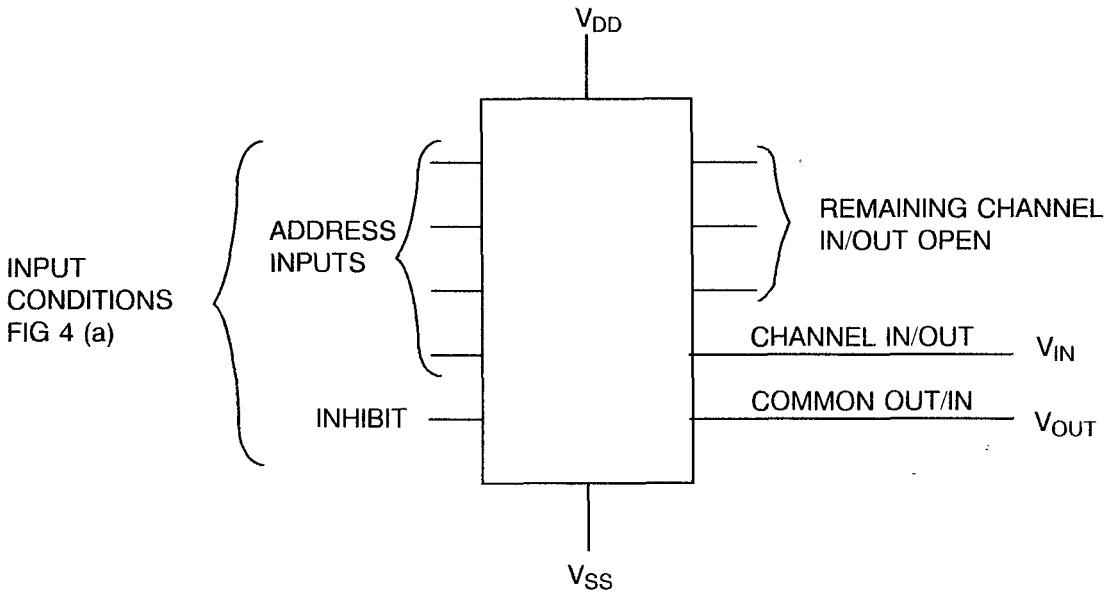
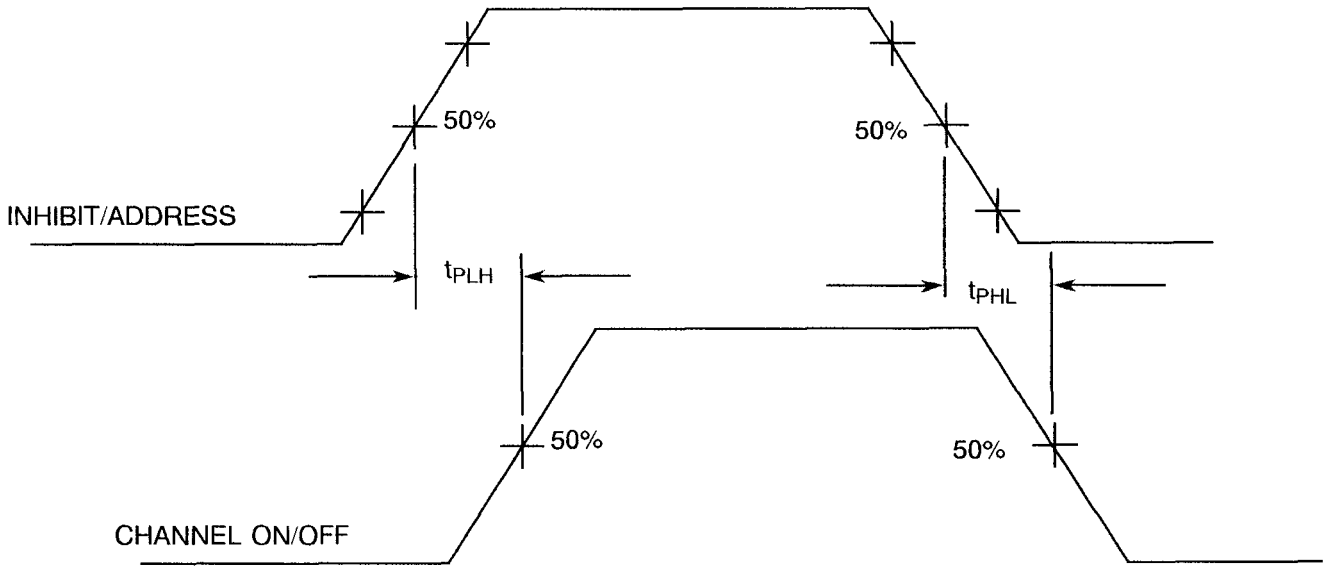


FIGURE 4 - CIRCUITS FOR ELECTRICAL MEASUREMENTS (CONTINUED)

FIGURE 4 (p) - PROPAGATION DELAY, INHIBIT OR ADDRESS INPUTS TO CHANNEL ON OR OFF



VOLTAGE WAVEFORMS



NOTES 1. Pulse Generator - $V_P = V_{DD}$, t_r and $t_f \leq 15$ns, f = 500kHz.

TABLE 4 - PARAMETER DRIFT VALUES

NO.	CHARACTERISTICS	SYMBOL	SPEC. AND/OR TEST METHOD	TEST CONDITIONS	CHANGE LIMITS (Δ)	UNIT
3 to 18	Quiescent Current	I_{DD}	As per Table 2	As per Table 2	± 75	nA
Note (1)	Channel on Resistance	R_{ON1}	As per Table 2	As per Table 2	± 50	Ω
Note (2)	Channel on Resistance	R_{ON2}	As per Table 2	As per Table 2	± 15	Ω
545	Threshold Voltage N-Channel	V_{THN}	As per Table 2	As per Table 2	± 0.3	V
546	Threshold Voltage P-Channel	V_{THP}	As per Table 2	As per Table 2	± 0.3	V

NOTES

1. Test Numbers: 63, 68, 73, 78, 83, 88, 93, 175, 180, 185, 190, 195, 200, 205.

2. Test Numbers: 278, 292, 297, 302, 307, 312, 317, 322, 415, 420, 425, 430, 435, 440, 445, 450.

Characteristics	Symbols	MIL-STD-883 Test Method	Test Conditions Note 1	Limits		Units
				Min	Max	
Quiescent Current	I_{DD}	3005	V_{IL}=0V,V_{IH}=15V V_{DD}=15V, V_{SS}= 0V Note 3	-	500	nA
Low Level Input Current, Control Inputs	I_{IL}	3009	V_{IN} (Under Test)=0V V_{DD}=15V, V_{SS}=0V	-	-50	nA
High Level Input Current, Control Inputs	I_{IH}	3010	V_{IN} (Under Test)=15V V_{DD}=15V, V_{SS}= 0V	-	50	nA
Channel OFF Leakage Current 1, Any Channel CHn	I_{OFF1}	-	Channel Under Test V_{IN} (CH)=15V V_{IN} (COM)=0V All other Channels Open V_{DD}=15V, V_{SS}= 0V	-	-100	nA
Channel OFF Leakage Current 2, Any Channel CHn	I_{OFF2}	-	Channel Under Test V_{IN} (CH)=0V V_{IN} (COM)=15V All other Channels Open V_{DD}=15V, V_{SS}= 0V	-	100	nA
Channel OFF Leakage Current 3, All Channels Tested Together	I_{OFF3}	-	V_{IN} (CH)=0V V_{IN} (COM)=15V V_{DD}=15V, V_{SS}= 0V	-	100	nA
Channel OFF Leakage Current 4, All Channels Tested Together	I_{OFF4}	-	V_{IN} (CH)=15V V_{IN} (COM)=0V V_{DD}=15V, V_{SS}= 0V	-	-100	nA
Channel ON Resistance 1	R_{ON1}	-	V_{IL}=0V, V_{IH}=5V R_L=10kΩ V_{DD}=5V,V_{SS}= 0V Note 4	-	1050	Ω
Channel ON Resistance 2	R_{ON2}	-	V_{IL}=0V, V_{IH}=15V R_L=10kΩ V_{DD}=15V, V_{SS}= 0V Note 4	-	240	Ω
Low Level Input Voltage 1 (Noise Immunity) (Functional Test)	V_{IL1}	-	Verify Truth Table V_{DD}=5V, V_{SS}=0V Note 5	-	1.5	V

Characteristics	Symbols	MIL-STD-883 Test Method	Test Conditions Note 1	Limits		Units
				Min	Max	
Low Level Input Voltage 2 (Noise Immunity) (Functional Test)	V_{IL2}	-	Verify Truth Table V_{DD}=15V, V_{SS}= 0V Note 5	-	4	V
High Level Input Voltage 1 (Noise Immunity) (Functional Test)	V_{IH1}	-	Verify Truth Table V_{DD}=5V, V_{SS}=0V Note 5	3.5	-	V
High Level Input Voltage 2 (Noise Immunity) (Functional Test)	V_{IH2}	-	Verify Truth Table V_{DD}=15V, V_{SS}= 0V Note 5	11	-	V
Threshold Voltage N-Channel	V_{THN}	-	INH Input at Ground All Other Inputs: V_{IN}=5V V_{DD}=5V, I_{SS}=-10µA	-0.7	-3	V
Threshold Voltage P-Channel	V_{THP}	-	INH Input at Ground All Other Inputs: V_{IN}=-5V V_{SS}=-5V, I_{DD}=10µA	0.7	3	V
Input Clamp Voltage 1, to V_{SS}, Control Inputs	V_{IC1}	-	I_{IN} (Under Test)= -100µA V_{DD}=Open, V_{SS}=0V All Other Pins Open	-	-2	V
Input Clamp Voltage 2, to V_{DD}, Control Inputs	V_{IC2}	-	V_{IN} (Under Test)=6V R=30kΩ, V_{SS}=Open All Other Pins Open Note 6	3	-	V
Input Capacitance, Control Inputs	C_{IN}	3012	V_{IN} (Not Under Test)=0V V_{DD}= V_{SS}=0V f = 100 kHz to 1 MHz Note 7	-	7.5	pF
Channel Capacitance, CHn	C_{CH}	3012	V_{IN} (Not Under Test)=0V V_{DD}= V_{SS}=0V f = 100 kHz to 1 MHz Note 7	-	7.5	pF
Channel Capacitance, COM	C_{COM}	3012	V_{IN} (Not Under Test)=0V V_{DD}= V_{SS}=0V f = 100 kHz to 1 MHz Note 7	-	120	pF

Characteristics	Symbols	MIL-STD-883 Test Method	Test Conditions Note 1	Limits		Units
				Min	Max	
Propagation Delay Low to High 1, CH0 to COM	t_{PLH1}	3003	V_{IN}(CH)=Pulse Generator V_{IN} (Remaining Inputs)=Truth Table V_{IL}=0V, V_{IH}=5V, R_L=200kΩ V_{DD}=5V, V_{SS}=0V Note 8	-	60	ns
Propagation Delay High to Low 1, CH0 to COM	t_{PHL1}	3003	V_{IN}(CH)=Pulse Generator V_{IN} (Remaining Inputs)=Truth Table V_{IL}=0V, V_{IH}=5V, R_L=200kΩ V_{DD}=5V, V_{SS}=0V Note 8	-	60	ns
Propagation Delay Low to High 2, A to COM (Channel ON)	t_{PLH2}	3003	V_{IN}(A)=Pulse Generator V_{IN} (Remaining Inputs)=Truth Table V_{IN}(CH)=0V and 5V R_L=10kΩ V_{DD}=5V, V_{SS}=0V Note 8	-	650	ns
Propagation Delay High to Low 2, A to COM (Channel ON)	t_{PHL2}	3003	V_{IN}(A)=Pulse Generator V_{IN} (Remaining Inputs)=Truth Table V_{IN}(CH)=0V and 5V R_L=10kΩ V_{DD}=5V, V_{SS}=0V Note 8	-	670	ns
Output Enable Time High Impedance to High Output, INH to COM	t_{PZH}	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}=0V Note 8	-	400	ns
Output Disable Time High Output to High Impedance, INH to COM	t_{PHZ}	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}=0V Note 8	-	400	ns

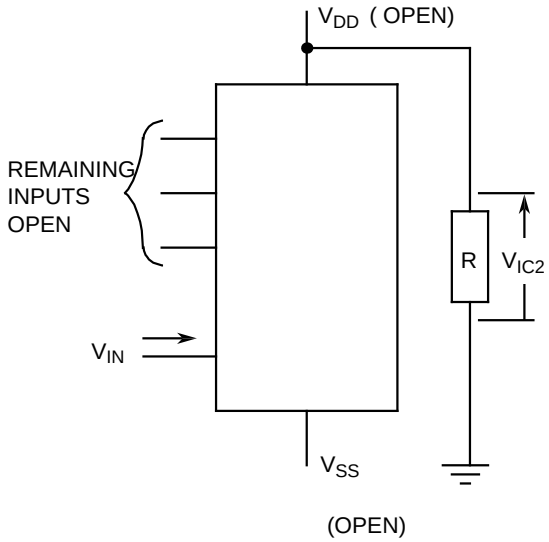
Characteristics	Symbols	MIL-STD-883 Test Method	Test Conditions Note 1	Limits		Units
				Min	Max	
Threshold Voltage P-Channel	V_{THP}	-	INH Input at Ground All Other Inputs: V_{IN}=-5V V_{SS}=-5V, I_{DD}=10µA T_{amb}=+125°C T_{amb}=- 55°C	 0.3 0.7	 3.5 3.5	V

2.3.3 Notes to Electrical Measurement Tables

1. Unless otherwise specified all inputs and channels shall be tested for each characteristic, inputs not under test shall be $V_{IN} = V_{SS}$ or V_{DD} and channels not under test shall be open.
2. Functional tests shall be performed to verify Truth Table. The Maximum time to output comparator strobe = 300µs.
3. Quiescent Current shall be tested using the following input conditions where 1 = V_{IH} and 0 =V_{IL}:

TEST	INPUT CONDITIONS																					
	INH	A	B	C	D	COM	CH 0	CH 1	CH 2	CH 3	CH 4	CH 5	CH 6	CH 7	CH 8	CH 9	CH 10	CH 11	CH 12	CH 13	CH 14	CH 15
(a)	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(b)	0	1	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(c)	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
(d)	0	1	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
(e)	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
(f)	0	1	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
(g)	0	0	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
(h)	0	1	1	1	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
(i)	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
(j)	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
(k)	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
(l)	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
(m)	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
(n)	0	1	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
(o)	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
(p)	0	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
(q)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

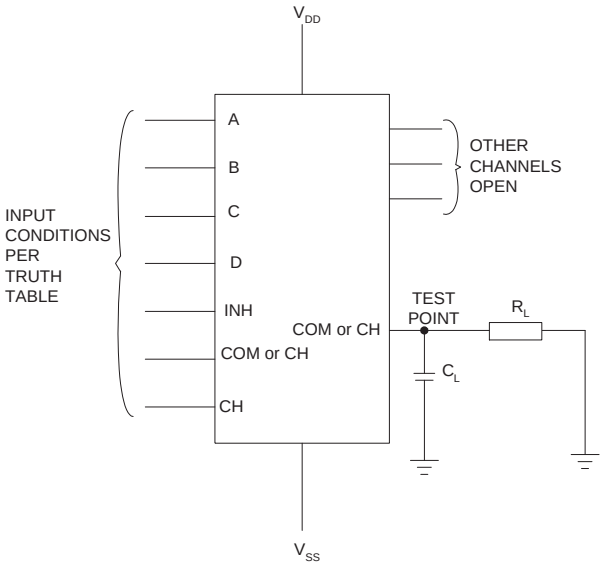
4. Channel ON Resistance shall be tested for each channel in both directions using the following input conditions:
   (a) INH = V_{IL}
   (b) A, B, C, D = V_{IL} or V_{IH} per Truth Table to select channel under test.
   (c) I_{IN} (CHn or COM) = 100µA.
   (d) R_{ON1} shall be tested with V_{IN} (CHn or COM)= 1.5V, 1.9V, 2.3V, 2.7V, 3.3V, 3.7V, 4.1V.
   R_{ON2} shall be tested with V_{IN} (CHn or COM)= 1.5V, 1.9V, 2.3V, 2.7V, 13.3V, 13.7V, 14.1V, 14.5V.
   Channel ON Resistance shall be recorded for Channel 4 (CH4 to COM, COM to CH4) at each specified $V_{IN.}$ Other channels may be tested go-no-go.
5. Performed as a functional test to verify for all OFF channels I_{OFF}<2µA with V_{IN} (CH)=V_{DD} through 1kΩ, COM output load resistance R_L=1kΩ.
6. Input Clamp Voltage 2 to V_{DD}, V_{IC2}, shall be tested on each input as follows:-

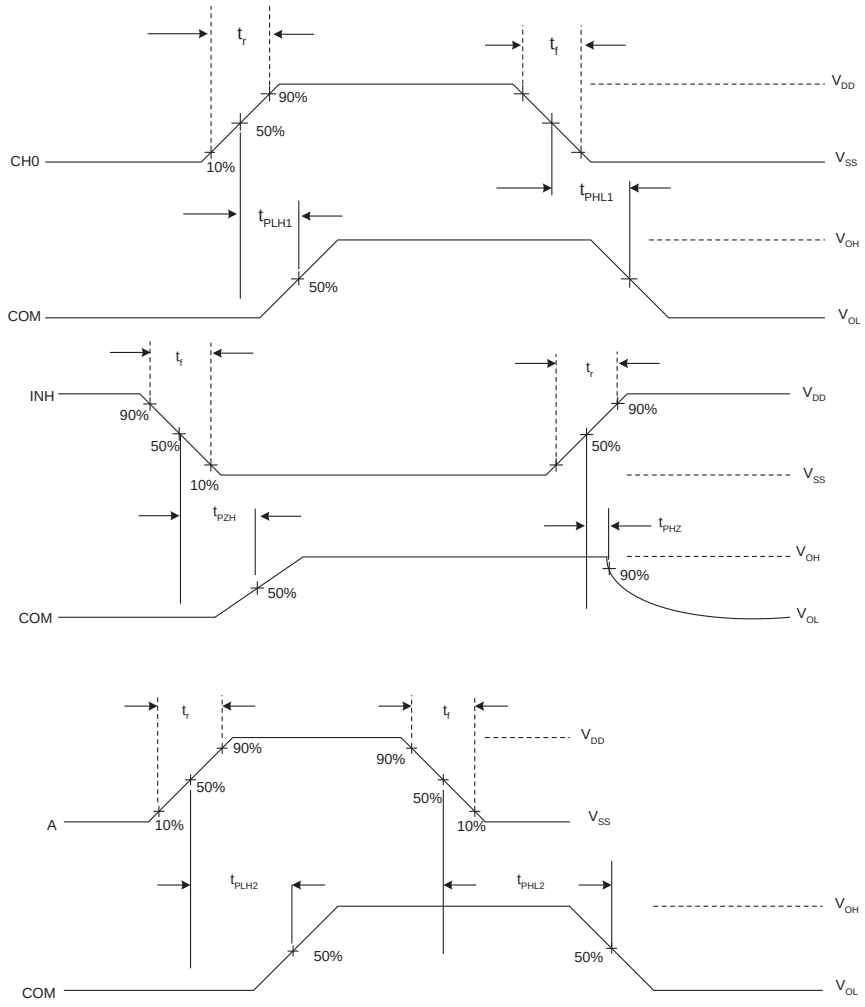


7. Guaranteed but not tested.
8. Read and record measurements shall be performed on a sample of 32 components with 0 failures permitted.
   The pulse generator shall have the following characteristics:

   V_{GEN} = 0 to V_{DD}; f = 500kHz; tr and t_f ≤15 ns (10% to 90%); duty cycle = 50%. Output load capacitance C_L = 50pF ±5% including scope probe, wiring and stray capacitance without component in the test fixture. Channel bias resistance R_L = as specified.

   Propagation delay times shall be measured as follows:





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.

Characteristics	Symbols	Limits			Units
		Drift Value Δ	Absolute		
			Min	Max	
Quiescent Current	I_{DD}	±75	-	500	nA
Channel ON Resistance 1, CH4 to COM, COM to CH4 Note 2	R_{ON1}	±50	-	1050	Ω
Channel ON Resistance 2, CH4 to COM, COM to CH4 Note 2	R_{ON2}	±15	-	240	Ω
Threshold Voltage N-Channel	V_{THN}	±0.3	-0.7	-3	V
Threshold Voltage P-Channel	V_{THP}	±0.3	0.7	3	V

NOTES:
1. Unless otherwise specified all inputs and outputs shall be tested for each characteristic.
2. Channel ON Resistance shall be tested at each input voltage level specified in Room Temperature Electrical Measurements in both directions for CH4 to COM only.

2.5 INTERMEDIATE AND END-POINT ELECTRICAL MEASUREMENTS

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 where specified. The corresponding absolute limit values for each characteristic shall not be exceeded.