INTEGRATED CIRCUITS, SILICON MONOLITHIC, CMOS ANALOGUE MULTIPLEXER/DEMULTIPLEXER (DIFFERENTIAL 4-CHANNEL)

BASED ON TYPE 4052B

ESCC Detail Specification No. 9202/048

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DOCUMENTATION CHANGE NOTICE

(Refer to https://escies.org for ESCC DCR content)

DCR No.	CHANGE DESCRIPTION
1200, 1258	Specification upissued to incorporate changes per DCR.

TABLE OF CONTENTS

1 GENERAL

1.1 SCOPE

This specification details the ratings, physical and electrical characteristics and test and inspection data for the component type variants and/or the range of components specified below. It supplements the requirements of, and shall be read in conjunction with, the ESCC Generic Specification listed under Applicable Documents.

1.2 APPLICABLE DOCUMENTS

The following documents form part of this specification and shall be read in conjunction with it:

(a) ESCC Generic Specification No. 9000
(b) MIL-STD-883, Test Methods and Procedures for Microelectronics

1.3 TERMS, DEFINITIONS, ABBREVIATIONS, SYMBOLS AND UNITS

For the purpose of this specification, the terms, definitions, abbreviations, symbols and units specified in ESCC Basic Specification No. 21300 shall apply.

1.4 THE ESCC COMPONENT NUMBER AND COMPONENT TYPE VARIANTS

1.4.1 The ESCC Component Number

The ESCC Component Number shall be constituted as follows:

Example: 920204801

- Detail Specification Reference: 9202048
- Component Type Variant Number: 01 (as required)

1.4.2 Component Type Variants

The component type variants applicable to this specification are as follows:

Variant Number	Based on Type	Case	Terminal Material and Finish	Weight max g
01	4052B	FP	G2	0.7
02	4052B	FP	G4	0.7
08	4052B	DIP	G2	2.2
09	4052B	DIP	G4	2.2

The terminal material and finish shall be in accordance with the requirements of ESCC Basic Specification No. 23500.

1.5 MAXIMUM RATINGS

The maximum ratings shall not be exceeded at any time during use or storage.

Maximum ratings shall only be exceeded during testing to the extent specified in this specification and when stipulated in Test Methods and Procedures of the ESCC Generic Specification.

Characteristics	Symbols	Maximum Ratings	Units	Remarks
Supply Voltage	V_{DD}	-0.5 to 18	V	Note 1
Supply Voltage Range	V_{DD}-V_{EE}	-0.5 to 18	V	Note 2
Control Input Voltage	V_{IN}	-0.5 to V_{DD}+0.5	V	Note 1 Power on
Channel Input/Output Voltage	V_{IN}	V_{EE}-0.5 to V_{DD}+0.5	V	Note 1, 3
Control Input Current	I_{IN}	±10	mA	-
Device Power Dissipation (Continuous)	P_D	200	mW	-
Power Dissipation per Single Output	P_{DSO}	100	mW	-
Operating Temperature Range	T_{op}	-55 to +125	°C	T_{amb}
Storage Temperature Range	T_{stg}	-65 to +150	°C	-
Soldering Temperature	T_{sol}	+265	°C	Note 4

NOTES:

1. Device is functional for $3V \leq V_{DD} \leq 15V$ with reference to V_{SS}.
2. Device is functional for $3V \leq V_{DD}\text{-}V_{EE} \leq 15V$.
3. To avoid draining V_{DD} supply current into the ON Channel when current flows from CHn to COM the voltage drop across the ON Channel shall not exceed 0.4V.
4. Duration 10 seconds maximum at a distance of not less than 1.5mm from the device body and the same terminal shall not be resoldered until 3 minutes have elapsed.

1.6 HANDLING PRECAUTIONS

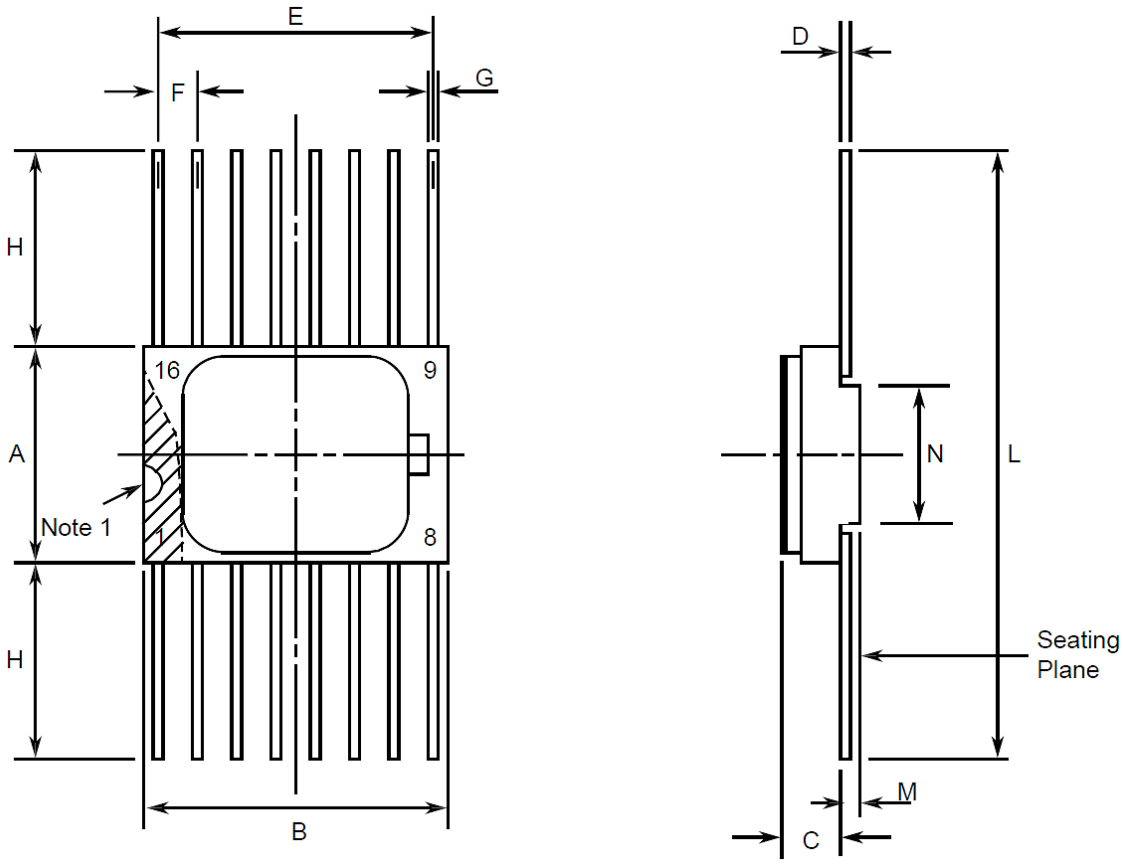
These devices are susceptible to damage by electrostatic discharge. Therefore, suitable precautions shall be employed for protection during all phases of manufacture, testing, packaging, shipment and any handling.

These components are categorised as Class 1 per ESCC Basic Specification No. 23800 with a minimum Critical Path Failure Voltage of 400 Volts.

1.7 PHYSICAL DIMENSIONS AND TERMINAL IDENTIFICATION

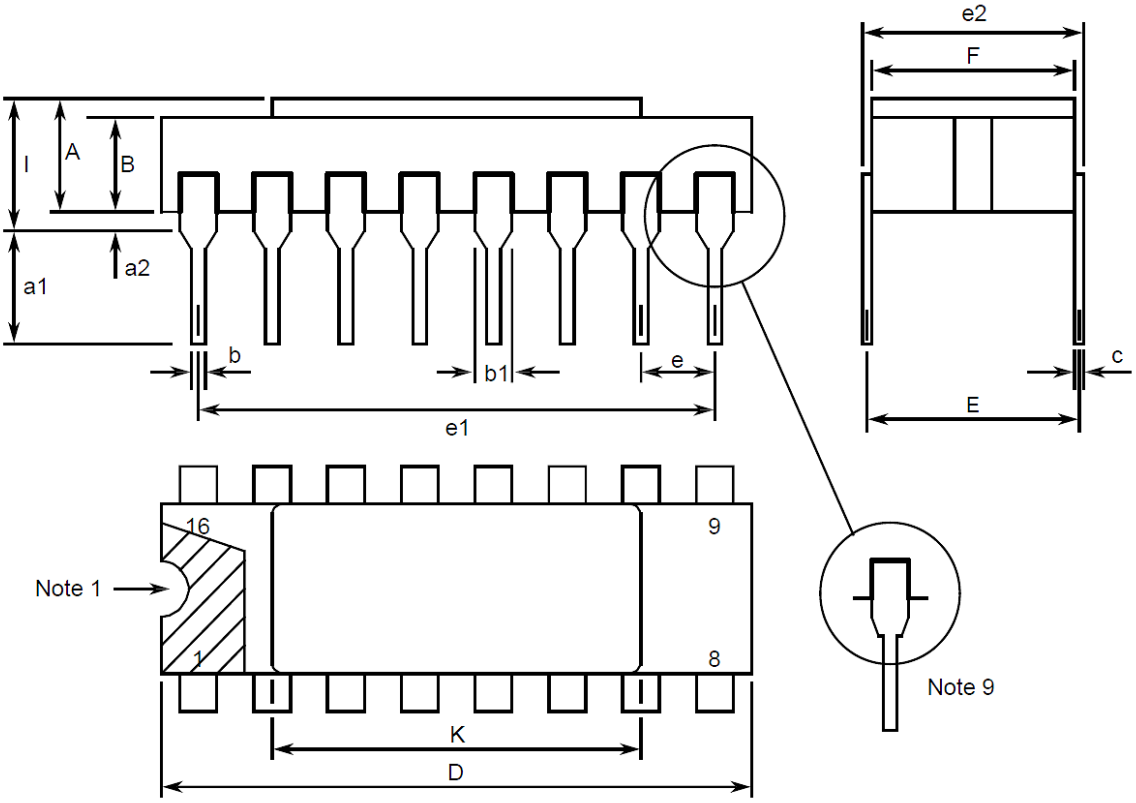
Consolidated Notes are given in Para. 1.7.3.

1.7.1 Flat Package (FP) - 16 Pin (Variants 01, 02)



Symbols	Dimensions mm		Notes
	Min	Max	
A	6.75	7.06	
B	9.76	10.14	
C	1.49	1.95	
D	0.1	0.15	5
E	8.76	9.01	
F	1.27 BSC		3, 6
G	0.38	0.48	5
H	6	-	5
L	18.75	22	
M	0.33	0.43	
N	4.32 TYPICAL		

1.7.2 Dual-in-line Package (DIP) - 16 Pin (Variants 08, 09)



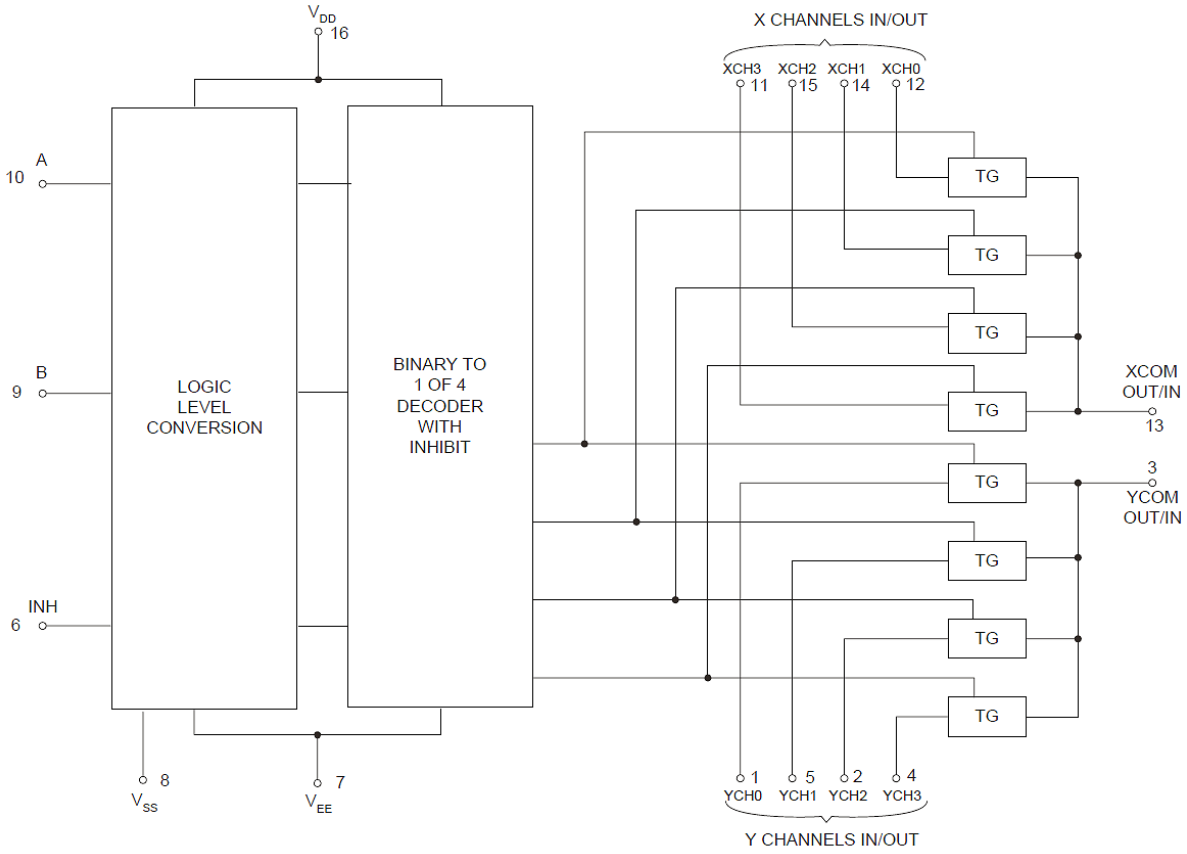
Symbols	Dimensions mm		Notes
	Min	Max	
A	2.1	2.71	
a1	3	3.7	
a2	0.63	1.14	2
B	1.82	2.39	
b	0.4	0.5	5
b1	1.14	1.5	5
c	0.2	0.3	5
D	20.06	20.58	
E	7.36	7.87	
e	2.54 BSC		4, 6
e1	17.65	17.9	
e2	7.62	8.12	
F	7.29	7.7	
I	-	3.83	

Symbols	Dimensions mm		Notes
	Min	Max	
K	10.9	12.1	

1.7.3 Notes to Physical Dimensions and Terminal Identification

1. Index area; a notch or a dot shall be located adjacent to Pin 1 and shall be within the shaded area shown. For chip carrier packages, the index shall be as shown.
2. The dimension shall be measured from the seating plane to the base plane.
3. The true position pin spacing is 1.27mm between centrelines. Each pin centreline shall be located within ±0.13mm of its true longitudinal position relative to Pin 1 and the highest pin number.
4. The true position pin spacing is 2.54mm between centrelines. Each pin centreline shall be located within ±0.25mm of its true longitudinal position relative to Pin 1 and the highest pin number.
5. All terminals.
6. 14 spaces.
9. For all pins, either pin shape may be supplied.

1.8 FUNCTIONAL DIAGRAM



NOTES:

1. The package lid for all packages is not connected to any terminal.

1.9 PIN ASSIGNMENT

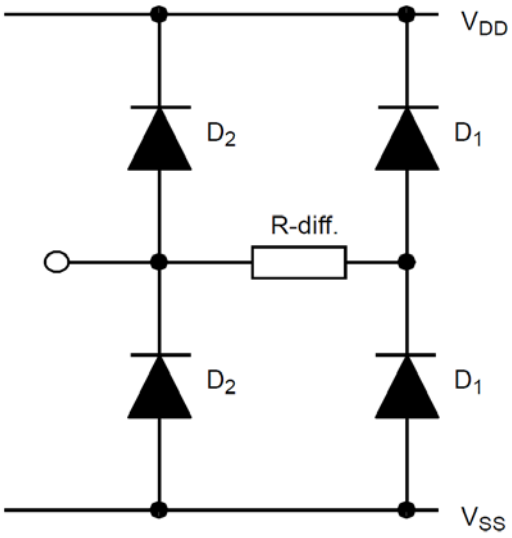
Pin	Function	Pin	Function
1	YCH0 Input/Output (Channel)	9	B Input (Select)
2	YCH2 Input/Output (Channel)	10	A Input (Select)
3	YCOM Output/Input (Common)	11	XCH3 Input/Output (Channel)
4	YCH3 Input/Output (Channel)	12	XCH0 Input/Output (Channel)
5	YCH1 Input/Output (Channel)	13	XCOM Output/Input (Common)
6	INH Input (Inhibit)	14	XCH1 Input/Output (Channel)
7	V_{EE} (Analogue Negative Supply)	15	XCH2 Input/Output (Channel)
8	V_{SS} (Digital Negative Supply)	16	V_{DD}

1.10 TRUTH TABLE

1. Logic Level Definitions: L = Low Level, H = High Level, X = Irrelevant.

Control Inputs			ON Channels
INH	Select		
	B	A	
L	L	L	XCH0 to XCOM, XCOM to XCH0 YCH0 to YCOM, YCOM to YCH0
L	L	H	XCH1 to XCOM, XCOM to XCH1 YCH1 to YCOM, YCOM to YCH1
L	H	L	XCH2 to XCOM, XCOM to XCH2 YCH2 to YCOM, YCOM to YCH2
L	H	H	XCH3 to XCOM, XCOM to XCH3 YCH3 to YCOM, YCOM to YCH3
H	X	X	NONE (High Impedance)

1.11 INPUT PROTECTION NETWORK
(CONTROL INPUTS)



2 REQUIREMENTS

2.1 GENERAL
The complete requirements for procurement of the components specified herein are as stated in this specification and the ESCC Generic Specification. Permitted deviations from the Generic Specification, applicable to this specification only, are listed below.

Permitted deviations from the Generic Specification and this Detail Specification, formally agreed with specific Manufacturers on the basis that the alternative requirements are equivalent to the ESCC requirement and do not affect the component's reliability, are listed in the appendices attached to this specification.

2.1.1 Deviations from the Generic Specification
None.

2.2 MARKING
The marking shall be in accordance with the requirements of ESCC Basic Specification No. 21700 and as follows.

The information to be marked on the component shall be:

(a) Terminal identification (see Para. 1.7).
(b) The ESCC qualified components symbol (for ESCC qualified components only).
(c) The ESCC Component Number (see Para. 1.4.1).
(d) Traceability information.

2.3 ELECTRICAL MEASUREMENTS AT ROOM, HIGH AND LOW TEMPERATURES

Electrical measurements shall be performed at room, high and low temperatures. Consolidated Notes are given in Para. 2.3.3.

2.3.1 Room Temperature Electrical Measurements

The measurements shall be performed at T_{amb} = +22 ±3°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	-	1	µA
Low Level Input Current, Control Inputs	I_{IL}	3009	V_{IN} (Under Test) = 0V V_{DD} = 15V, V_{SS} = V_{EE} = 0V	-	-50	nA
High Level Input Current, Control Inputs	I_{IH}	3010	V_{IN} (Under Test) = 15V V_{DD} = 15V, V_{SS} = V_{EE} = 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} = V_{EE} = 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} = V_{EE} = 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} = V_{EE} = 0V	-	100	nA

Characteristics	Symbols	MIL-STD-883 Test Method	Test Conditions Note 1	Limits		Units
				Min	Max	
Channel OFF Leakage Current 4, All Channels Tested Together	I_{OFF4}	-	V_{IN} (CH) = 15V V_{IN} (COM) = 0V V_{DD} = 15V, V_{SS} = V_{EE} = 0V	-	-100	nA
Channel ON Resistance 1	R_{ON1}	-	V_{IL} = 0V, V_{IH} = 5V R_L = 10kΩ V_{DD} = 5V, V_{SS} = V_{EE} = 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} = V_{EE} = 0V Note 4	-	280	Ω
Low Level Input Voltage 1 (Noise Immunity) (Functional Test)	V_{IL1}	-	Verify Truth Table V_{DD} = 5V, V_{SS} = V_{EE} = 0V Note 5	-	1.5	V
Low Level Input Voltage 2 (Noise Immunity) (Functional Test)	V_{IL2}	-	Verify Truth Table V_{DD} = 15V, V_{SS} = V_{EE} = 0V Note 5	-	4	V
High Level Input Voltage 1 (Noise Immunity) (Functional Test)	V_{IH1}	-	Verify Truth Table V_{DD} = 5V, V_{SS} = V_{EE} = 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} = V_{EE} = 0V Note 5	11	-	V
Threshold Voltage N-Channel	V_{THN}	-	INH Input and V_{EE} 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 and V_{EE} at Ground All Other Inputs: V_{IN} = -5V V_{SS} = V_{EE} = -5V I_{DD} = 3.5µA	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

Characteristics	Symbols	MIL-STD-883 Test Method	Test Conditions Note 1	Limits		Units
				Min	Max	
Input Capacitance Control Inputs	C_{IN}	3012	V_{IN} (Not Under Test) = 0V $V_{DD} = V_{SS} = V_{EE} = 0V$ f = 100 kHz to 1 MHz Note 7	-	7.5	pF
Channel Capacitance, CHn	C_{CH}	3012	V_{IN} (Not Under Test) = 0V $V_{DD} = V_{SS} = V_{EE} = 0V$ f = 100 kHz to 1 MHz Note 7	-	7.5	pF
Channel Capacitance, XCOM, YCOM	C_{COM}	3012	V_{IN} (Not Under Test) = 0V $V_{DD} = V_{SS} = V_{EE} = 0V$ f = 100 kHz to 1 MHz Note 7	-	30	pF
Propagation Delay Low to High, XCOM to XCH0	t_{PLH}	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, XCOM to XCH0	t_{PHL}	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
Output Enable Time High Impedance to High Output 1, A to YCOM	t_{PZH1}	3003	V_{IN} (A) = Pulse Generator V_{IN} (Remaining Inputs) = Truth Table V_{IL} = 0V, V_{IH} = 5V, V_{IN} (CH0) = 5V and Open R_L = 10kΩ V_{DD} = 5V, $V_{SS} = V_{EE}$ = 0V Note 8	-	720	ns

Characteristics	Symbols	MIL-STD-883 Test Method	Test Conditions Note 1	Limits		Units
				Min	Max	
Output Disable Time High Output to High Impedance 1, A to YCOM	t_{PHZ1}	3003	V_{IN} (A) = Pulse Generator V_{IN} (Remaining Inputs) = Truth Table V_{IL} = 0V, V_{IH} = 5V, V_{IN} (CH0) = 5V and Open R_L = 300Ω V_{DD} = 5V, V_{SS} = V_{EE} = 0V Note 8	-	720	ns
Output Enable Time High Impedance to High Output 2, INH to YCOM	t_{PZH2}	3003	V_{IN} (INH) = Pulse Generator V_{IN} (Remaining Inputs) = Truth Table V_{IL} = 0V, V_{IH} = 5V, V_{IN} (CH0) = 5V, R_L = 10kΩ V_{DD} = 5V, V_{SS} = V_{EE} = 0V Note 8	-	400	ns
Output Disable Time High Output to High Impedance 2, INH to YCOM	t_{PHZ2}	3003	V_{IN} (INH) = Pulse Generator V_{IN} (Remaining Inputs) = Truth Table V_{IL} = 0V, V_{IH} = 5V, V_{IN} (CH0) = 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

Characteristics	Symbols	MIL-STD-883 Test Method	Test Conditions Note 1	Limits		Units
				Min	Max	
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
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} = V_{EE} = 0V T_{amb} = +125°C T_{amb} = -55°C	 - -	 -1 -0.1	µA
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} = V_{EE} = 0V T_{amb} = +125°C T_{amb} = -55°C	 - -	 1 0.1	µA
Channel OFF Leakage Current 3, All Channels Tested Together	I_{OFF3}	-	V_{IN} (CH) = 0V V_{IN} (COM) = 15V V_{DD} = 15V, V_{SS} = V_{EE} = 0V T_{amb} = +125°C T_{amb} = -55°C	 - -	 1 0.1	µA
Channel OFF Leakage Current 4, All Channels Tested Together	I_{OFF4}	-	V_{IN} (CH) = 15V V_{IN} (COM) = 0V V_{DD} = 15V, V_{SS} = V_{EE} = 0V T_{amb} = +125°C T_{amb} = -55°C	 - -	 -1 -0.1	µA
Channel ON Resistance 1	R_{ON1}	-	V_{IL} = 0V, V_{IH} = 5V R_L = 10kΩ V_{DD} = 5V, V_{SS} = V_{EE} = 0V Note 4 T_{amb} = +125°C T_{amb} = -55°C	 - -	 1200 880	Ω

Characteristics	Symbols	MIL-STD-883 Test Method	Test Conditions Note 1	Limits		Units
				Min	Max	
Channel ON Resistance 2	R_{ON2}	-	V_{IL} = 0V, V_{IH} = 15V R_L = 10kΩ V_{DD} = 15V, V_{SS} = V_{EE} = 0V Note 4 T_{amb} = +125°C T_{amb} = -55°C	 - -	 400 220	Ω
Low Level Input Voltage 1 (Noise Immunity) (Functional Test)	V_{IL1}	-	Verify Truth Table V_{DD} = 5V, V_{SS} = V_{EE} = 0V Note 5	-	1.5	V
Low Level Input Voltage 2 (Noise Immunity) (Functional Test)	V_{IL2}	-	Verify Truth Table V_{DD} = 15V, V_{SS} = V_{EE} = 0V Note 5	-	4	V
High Level Input Voltage 1 (Noise Immunity) (Functional Test)	V_{IH1}	-	Verify Truth Table V_{DD} = 5V, V_{SS} = V_{EE} = 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} = V_{EE} = 0V Note 5	11	-	V
Threshold Voltage N-Channel	V_{THN}	-	INH Input and V_{EE} at Ground All Other Inputs: V_{IN} = 5V V_{DD} = 5V, I_{SS} = -10µA T_{amb} = +125°C T_{amb} = -55°C	 -0.3 -0.7	 -3.5 -3.5	V
Threshold Voltage P-Channel	V_{THP}	-	INH Input at Ground All Other Inputs: V_{IN} = -5V V_{SS} = V_{EE} = -5V I_{DD} = 3.5µA T_{amb} = +125°C T_{amb} = -55°C	 0.3 0.7	 3.5 3.5	V

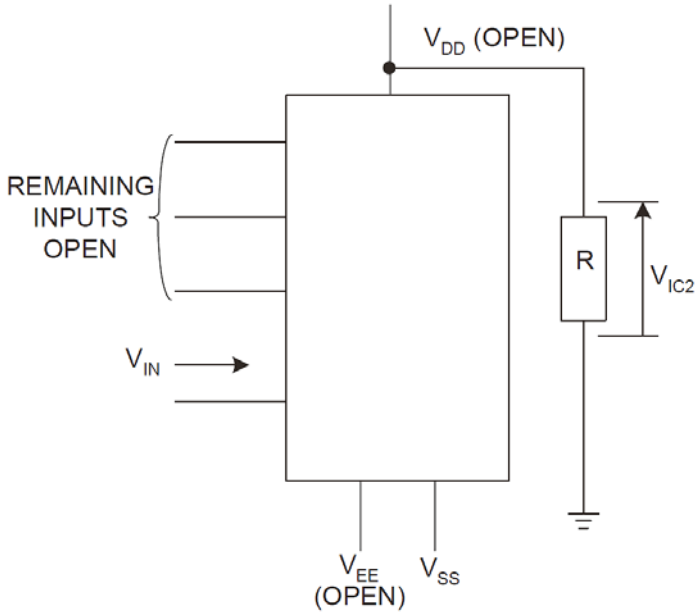
2.3.3 Notes to Electrical Measurement Tables

1. Unless otherwise specified all inputs and outputs shall be tested for each characteristic, inputs not under test shall be V_{IN} = V_{SS} or V_{DD} and outputs 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}:

I_{DD} Test	Input Conditions												
	INH	A	B	XCOM	XCH0	XCH1	XCH2	XCH3	YCOM	YCH0	YCH1	YCH2	YCH3
(a)	0	0	0	1	1	1	1	1	1	1	1	1	1
(b)	0	1	0	1	1	1	1	1	1	1	1	1	1
(c)	0	0	1	0	0	0	0	0	0	0	0	0	0
(d)	0	1	1	0	0	0	0	0	0	0	0	0	0
(e)	0	1	1	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 = 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 Y0 (YCH0 to YCOM, YCOM to YCH0) 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 ±5%.
6. Input Clamp Voltage 2 to V_{DD}, V_{IC2}, shall be tested on each input as follows:

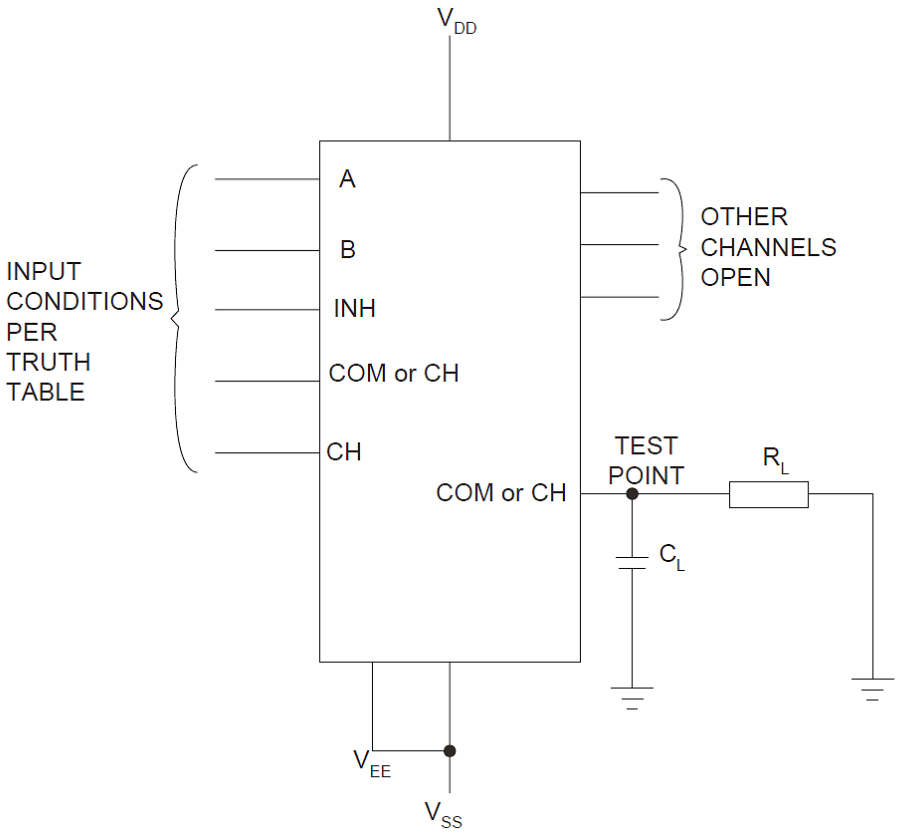


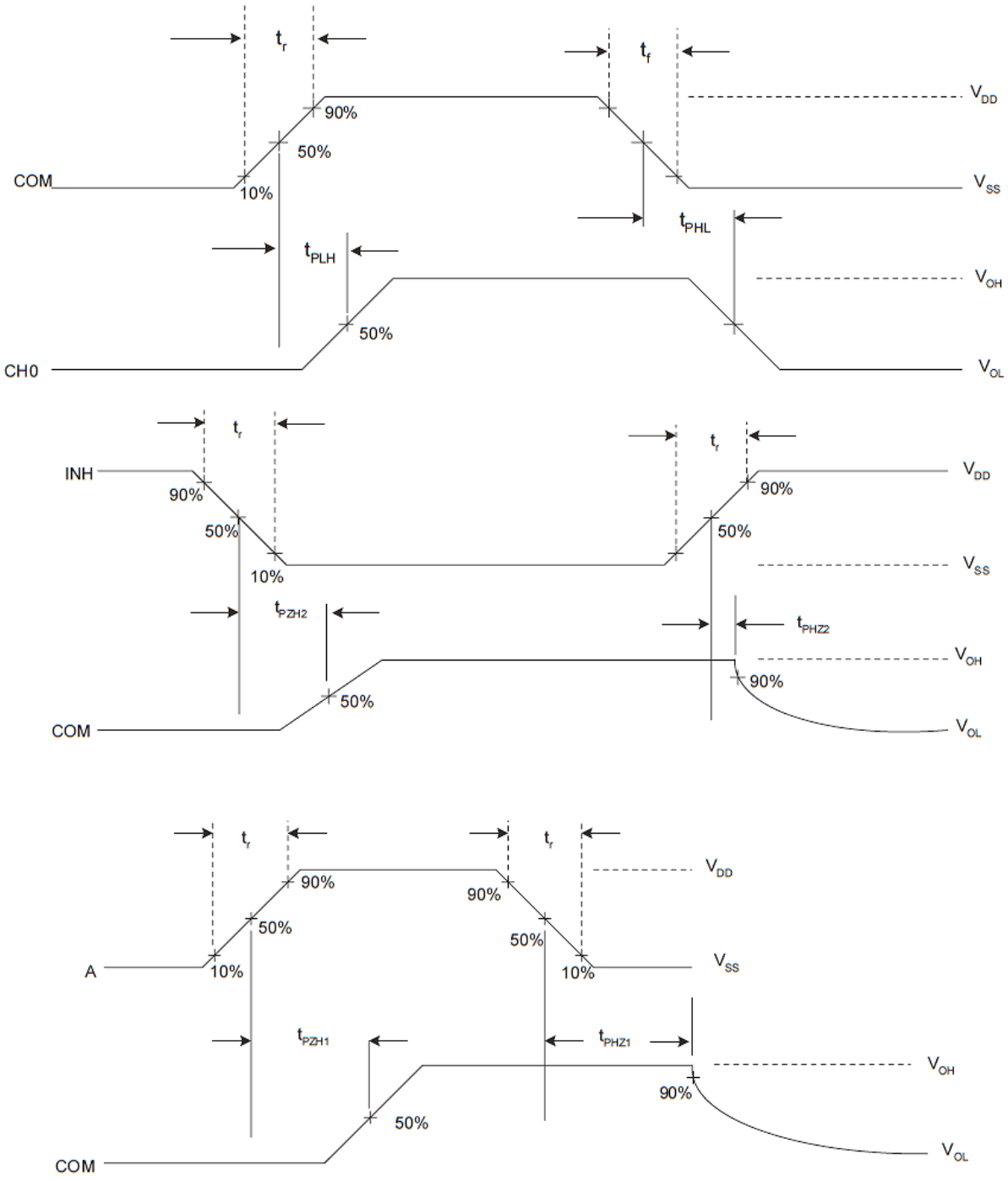
7. Guaranteed but not tested.
8. Read and record measurements shall be performed on a sample of 32 components with 0 failures permitted.

   The pulse generator shall have the following characteristics:

   V_{GEN} = 0 to V_{DD}; f_{GEN} = 500kHz; t_r and t_f ≤ 15ns (10% to 90%); duty cycle = 50%; Z_{out} = 50Ω. 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 Para. 2.3.1, 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}	±0.15	-	1	µA
Channel ON Resistance 1, YCH0 to YCOM, YCOM to YCH0 Note 2	R_{ON1}	±50	-	1050	Ω
Channel ON Resistance 2, YCH0 to YCOM, YCOM to YCH0 Note 2	R_{ON2}	±15	-	280	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 Para. 2.3.1, Room Temperature Electrical Measurements in both directions for YCH0 to YCOM 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 Para. 2.3.1, 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.

Characteristics	Symbols	Limits			Units
		Drift Value Δ	Absolute		
			Min	Max	
Functional Test 1	-	-	-	-	-
Quiescent Current	I_{DD}	±75	-	1	µA
Low Level Input Current, Control Inputs	I_{IL}	-	-	-50	nA
High Level Input Current, Control Inputs	I_{IH}	-	-	50	nA
Channel OFF Leakage Current 1, Any Channel CHn	I_{OFF1}	-	-	-100	nA
Channel OFF Leakage Current 3, All Channels Tested Together	I_{OFF3}	-	-	100	nA
Channel ON Resistance 1	R_{ON1}	±50	-	1050	Ω
Channel ON Resistance 2	R_{ON2}	±15		280	Ω

Characteristics	Symbols	Limits			Units
		Drift Value Δ	Absolute		
			Min	Max	
Low Level Input Voltage 1, (Noise Immunity) (Functional Test)	V_{IL1}	-	-	1.5	V
High Level Input Voltage 1, (Noise Immunity) (Functional Test)	V_{IH1}	-	3.5	-	V
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. The drift values (Δ) are applicable to the Operating Life test only.

2.6 HIGH TEMPERATURE REVERSE BIAS BURN-IN CONDITIONS

2.6.1 N-Channel HTRB

Characteristics	Symbols	Test Conditions	Units
Ambient Temperature	T_{amb}	+125 (+0 -5)	°C
Output COM (all Channels)	V_{OUT}	V_{SS}	V
Inputs CHn (all channels)	V_{IN}	V_{DD}	V
Inputs INH, A, B	V_{IN}	V_{DD}	V
Positive Supply Voltage	V_{DD}	15 (+0 -0.5)	V
Digital Negative Supply Voltage	V_{SS}	0	V
Analogue Negative Supply Voltage	V_{EE}	0	V
Duration	t	72	Hours

NOTES:
1. Input Protection Resistor = Output Load = 2kΩ min to 47kΩ max.

2.6.2 P-Channel HTRB

Characteristics	Symbols	Test Conditions	Units
Ambient Temperature	T_{amb}	+125 (+0 -5)	°C
Output COM (all Channels)	V_{OUT}	V_{SS}	V
Inputs CHn (all Channels)	V_{IN}	V_{SS}	V
Inputs INH, A, B	V_{IN}	V_{SS}	V
Positive Supply Voltage	V_{DD}	15 (+0 -0.5)	V
Digital Negative Supply Voltage	V_{SS}	0	V
Analogue Negative Supply Voltage	V_{EE}	0	V
Duration	t	72	Hours

NOTES:
1. Input Protection Resistor = 2kΩ min to 47kΩ max.

2.7 POWER BURN-IN CONDITIONS

Characteristics	Symbols	Test Conditions	Units
Ambient Temperature	T_{amb}	+125 (+0 -5)	°C
Output COM (all Channels)	V_{OUT}	V_{SS}	V
Inputs CHn (all Channels)	V_{IN}	V_{DD}	V
Input A	V_{IN}	V_{GEN1}	V
Input B	V_{IN}	V_{GEN2}	V
Input INH	V_{IN}	V_{GEN3}	V
Pulse Voltage	V_{GEN}	0V to V_{DD}	V
Pulse Frequency Square Wave	f_{GEN1} f_{GEN2} fGEN3	500k 250k 125k 50% Duty Cycle	Hz
Positive Supply Voltage	V_{DD}	15 (+0 -0.5)	V
Digital Negative Supply Voltage	V_{SS}	0	V
Analogue Negative Supply Voltage	V_{EE}	0	V

NOTES:
1. Input Protection Resistor = Output Load = 2kΩ min to 47kΩ max.

2.8 OPERATING LIFE CONDITIONS

The conditions shall be as specified in Para. 2.7, Power Burn-in Conditions.

APPENDIX 'A'

AGREED DEVIATIONS FOR STMICROELECTRONICS (F)

ITEMS AFFECTED	DESCRIPTION OF DEVIATIONS
Para. 2.1.1 Deviations from the Generic Specification: Deviations from Screening Tests - Chart F3	External Visual Inspection: The criteria applicable to chip-outs are those described in MIL-STD-883, Test Method 2009, Paras 3.3.6(b) and 3.3.7(a). High Temperature Reverse Bias Burn-in: The temperature limits of MIL-STD-883, Para. 4.5.8(c) may be used. Power Burn-in test is performed using STMicroelectronics Specification Ref: 0019255. Solderability is not applicable unless specifically stipulated in the Purchase Order.
Para. 2.1.1 Deviations from the Generic Specification: Deviations from Qualification and Periodic Tests - Chart F4	External Visual Inspection: The criteria applicable to chip-outs are those described in MIL-STD-883, Test Method 2009, Paras 3.3.6(b) and 3.3.7(a). Operating Life: The temperature limits of MIL-STD-883, Para. 4.5.8(c) may be used.
Para. 2.3.1 Room Temperature Electrical Measurements	All AC characteristics (Capacitance and Timings) may be considered guaranteed but not tested if successful pilot lot testing has been performed on the wafer lot which includes AC characteristic measurements per the Detail Specification. A summary of the pilot lot testing shall be provided if required by the Purchase Order.
Para. 2.3.2 High and Low Temperatures Electrical Measurements	High and Low Temperatures Electrical Measurements may be considered guaranteed but not tested if successful pilot lot testing has been performed on the wafer lot which includes High and Low Temperatures Electrical Measurements per the Detail Specification. A summary of the pilot lot testing shall be provided if required by the Purchase Order.