

27 - Line SCSI Terminator With Split Disconnect

FEATURES

- Complies with SCSI, SCSI-2, SCSI-3 and FAST-20 (Ultra) Standards
- 2.5pF Channel Capacitance During Disconnect
- 100µA Supply Current in Disconnect Mode
- 4V To 7V Operation
- 110Ω Termination
- Completely Meets SCSI Hot Plugging
- -900mA Sourcing Current for Termination
- +500mA Sinking Current for Active Negation
- Logic Command Disconnects all Termination Lines
- Split Disconnect Controls Lines 1 to 9 and 10 to 27 Separately
- Trimmed Impedance to 5%
- Current Limit and Thermal Shutdown Protection

DESCRIPTION

The UCC5622 provides 27 lines of active termination for a SCSI (Small Computer Systems Interface) parallel bus. The SCSI standard recommends active termination at both ends of the cable.

The UCC5622 is ideal for high performance 5V SCSI systems. During disconnect the supply current is typically only 100µA, which makes the IC attractive for lower powered systems.

The UCC5622 features a split disconnect allowing the user to control termination lines 10 to 27 with disconnect one, DISCNCT1, and control termination lines 1 to 9 with disconnect two, DISCNCT2.

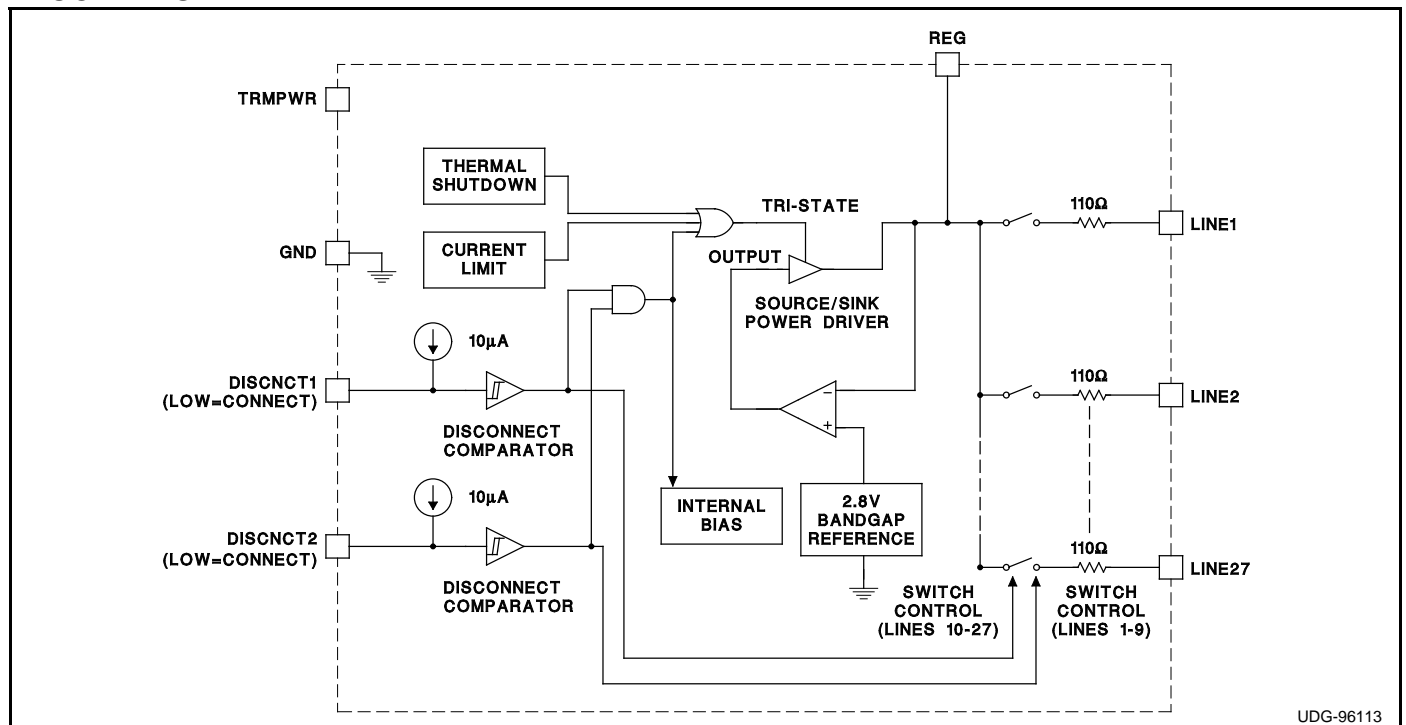
The UCC5622 is designed with a low channel capacitance of 2.5pF, which eliminates effects on signal integrity from disconnected terminators at interim points on the bus.

The power amplifier output stage allows the UCC5622 to source full termination current and sink active negation current when all termination lines are actively negated.

The UCC5622, as with all Unitrode terminators, is completely hot pluggable and appears as high impedance at the terminating channels with $V_{TRMPWR} = 0V$ or open.

continued

BLOCK DIAGRAM



UDG-96113

DESCRIPTION (cont.)

Internal circuit trimming is utilized, first to trim the 110Ω impedance, and then most importantly, to trim the output current as close to the maximum SCSI-3 specification as possible, which maximizes noise margin in FAST-20 SCSI operation.

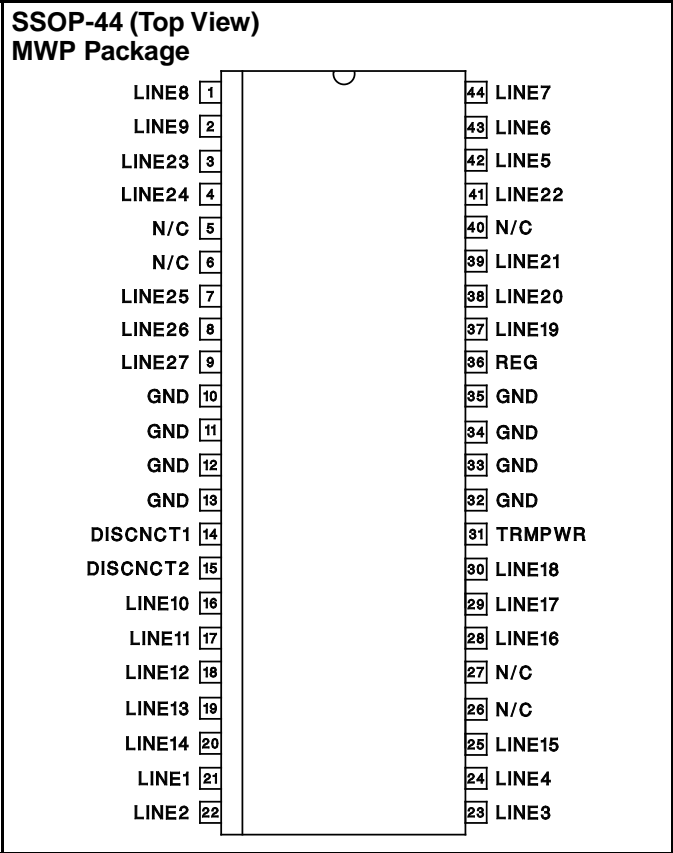
Other features include thermal shutdown and current limit. This device is offered in low thermal resistance versions of the industry standard 44 pin wide body SSOP (MWP). Consult SSOP-44 Packaging Diagram for exact dimensions.

ABSOLUTE MAXIMUM RATINGS

Tempwr Voltage	+7V
Signal Line Voltage	0V to +7V
Regulator Output Current	1.5A
Storage Temperature	-65°C to +150°C
Junction Temperature	-55°C to +150°C
Lead Temperature (Soldering, 10 Sec.)	+300°C

Currents are positive into, negative out of the specified terminal. Consult Packaging Section of Databook for thermal limitations and considerations of packages.

CONNECTION DIAGRAM



ELECTRICAL CHARACTERISTICS Unless otherwise stated, these specifications apply for TA = 0°C to 70°C, TRMPWR = 4.75V, DISCNCT1 = DISCNCT2 = 0V, TA = TJ.

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Supply Current Section					
Tempwr Supply Current	All Termination Lines = Open		1	2	mA
	All Termination Lines = 0.2V		630	650	mA
Power Down Mode	DISCNCT1 = DISCNCT2 = TRMPWR		100	200	µA
Output Section (Termination Lines)					
Termination Impedance	(Note 3)	104.5	110	115.5	Ω
Output High Voltage	(Note 1)	2.6	2.8	3.0	V
Max Output Current	VLINE = 0.2V, TJ = 25°C	-22.1	-23.3	-24	mA
	VLINE = 0.2V	-20.7	-23.3	-24	mA
	VLINE = 0.2V, TRMPWR = 4V, TJ = 25°C (Note 1)	-21	-23	-24	mA
	VLINE = 0.2V, TRMPWR = 4V (Note 1)	-20	-23	-24	mA
	VLINE = 0.5V			-22.4	mA
Output Leakage	DISCNCT1 = DISCNCT2 = 2.4V, TRMPWR = 0V to 5.25V		10	400	nA
Output Capacitance	DISCNCT1 = DISCNCT2 = 2.4V (Note 2)		2.5	4	pF
Regulator Section					
Regulator Output Voltage		2.6	2.8	3.0	V
Drop Out Voltage	All Termination Lines = 0.2V		0.4	0.8	V
Short Circuit Current	VREG = 0V	-650	-900	-1300	mA
Sinking Current Capability	VREG = 3.5V	300	500	900	mA
Thermal Shutdown			170		°C
Thermal Shutdown Hysteresis			10		°C

ELECTRICAL CHARACTERISTICS (cont.) Unless otherwise stated, these specifications apply for TA = 0°C to 70°C, TRMPWR = 4.75V, DISCNCT1 = DISCNCT2 = 0V, TA = TJ.

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Disconnect Section					
Disconnect Threshold DISCNCT1	Controls Lines 10 to 27	0.8	1.5	2.0	V
Input Current DISCNCT1	DISCNCT1 = 0V		-10	-30	μA
Disconnect Threshold DISCNCT2	Controls Lines 1 to 9	0.8	1.5	2	V
Input Current DISCNCT2	DISCNCT2 = 0V		-10	-30	μA

Note 1: Measuring each termination line while other 26 are low (0.2V).

Note 2: Guaranteed by design. Not 100% tested in production.

Note 3: Tested by measuring IOUT with VOUT = 0.2V and VOUT with no load, then calculate:

$$Z = \frac{V_{OUT\ N.L.} - 0.2V}{I_{OUT\ at\ 0.2V}}$$

PIN DESCRIPTIONS

DISCNCT1: Disconnect one controls termination lines 10 – 27. Taking this pin high or leaving it open causes termination lines 10 - 27 to become high impedance, taking this pin low allows the channels to provide normal termination.

DISCNCT2: Disconnect two controls termination lines 1 – 9. Taking this pin high or leaving it open causes termination lines 1 - 9 to become high impedance. Taking this pin low allows the channels to provide normal

termination. Taking both disconnect pins high or leaving them open will put the chip in to sleep mode where it will be in low-power mode.

GND: Ground reference for the IC.

LINE1 - 27: 110Ω termination channels.

REG: Output of the internal 2.7V regulator.

TRMPWR: Power for the IC.

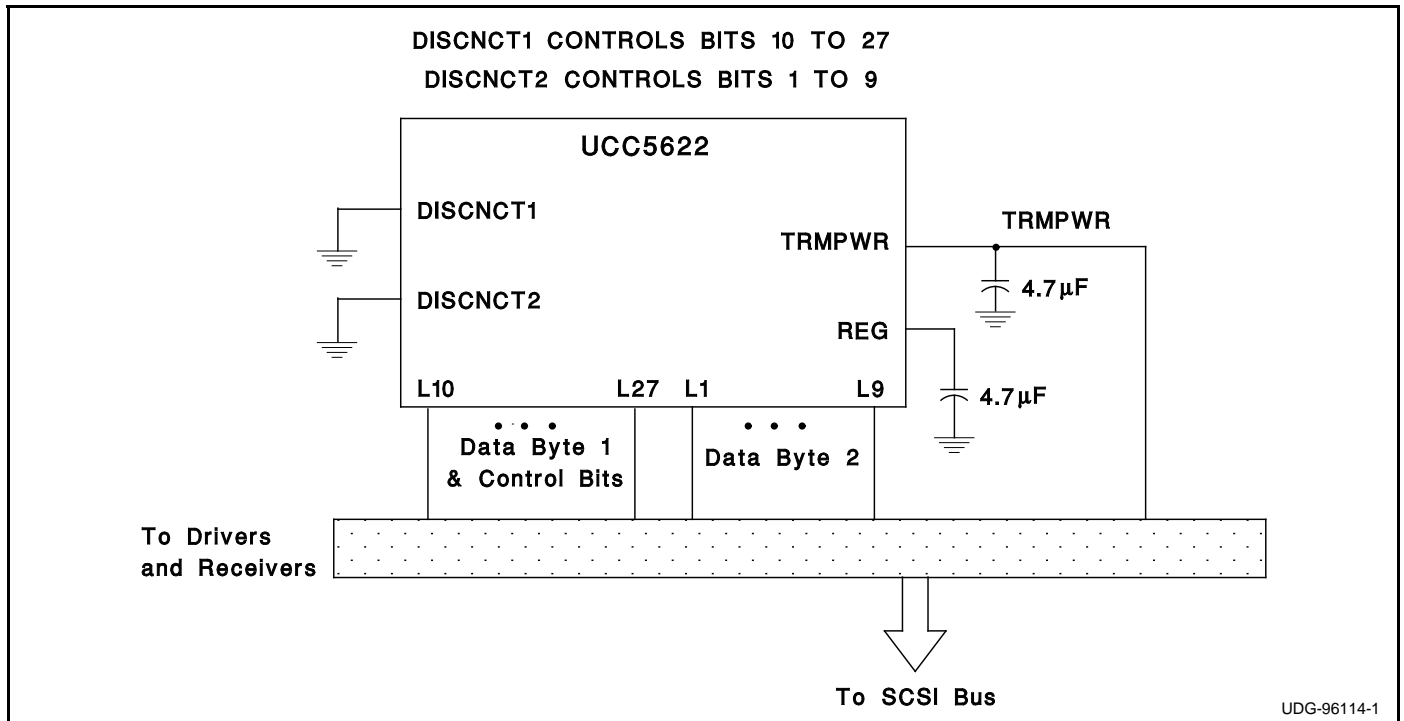
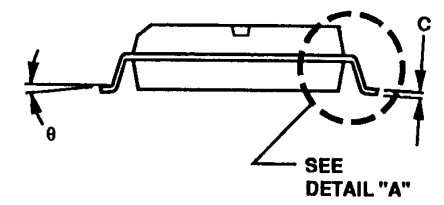
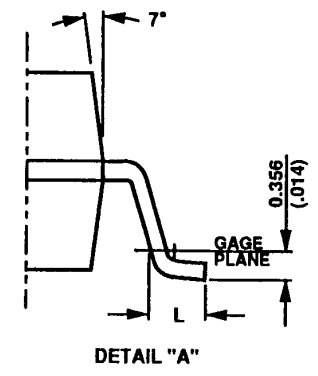
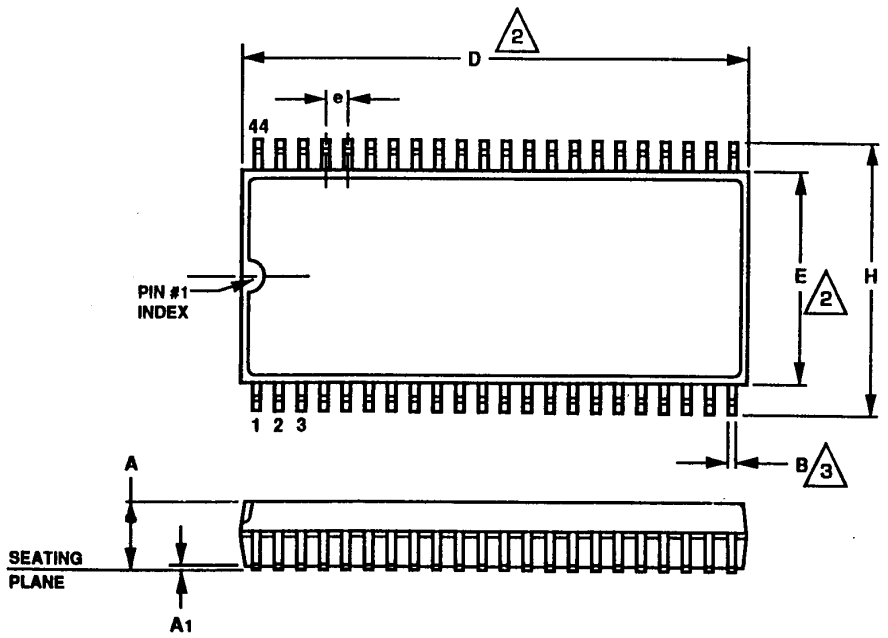


Figure 1. Typical Wide SCSI Bus Configuration Using the UCC5622

VENDOR	


REV. NO.	REVISIONS	DATE	APP'D.
-	INIT PER SCN #18179	01/15/98	

SYMBOL	DIMENSIONS			
	MIN		MAX	
	MM	INCHES	MM	INCHES
A	2.35	.093	2.65	.104
A1	0.10	.004	0.30	.012
B	0.28	.011	0.39	.015
C	0.15	.006	0.32	.0125
D	17.70	.697	18.10	.712
E	7.40	.291	7.60	.299
e	0.80 MM .031 INCHES BSC			
H	10.00	.394	10.65	.419
L	0.40	.016	1.27	.050
θ	0°		8°	



- NOTES:
- CONTROLLING DIMENSION: MILLIMETERS. INCHES SHOWN FOR REFERENCE.
 - 'D' AND 'E' DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS. MOLD FLASH OR PROTRUSIONS SHALL NOT EXCEED 0.15mm PER SIDE.
 - THE BASIC LEAD SPACING IS 0.80mm BETWEEN CENTERLINES. EACH LEAD CENTERLINE SHALL BE LOCATED WITHIN 0.20mm OF ITS EXACT TRUE POSITION AT MAXIMUM MATERIAL CONDITION RELATIVE TO THE CENTER OF THE PACKAGE BODY.
 - LEADS SHALL BE COPLANAR WITHIN 0.10mm AT THE SEATING PLANE.

DRAWN	RJV	DATE	1/98
APP'D	<i>RJM</i>	DATE	2/98
TOLERANCES (U.O.S.)			
.XX ± .01			
.XXX ± .005			
FRACTIONS ± 1/64"			
ANGLES ± 1/2°			
SURFACE QUALITY ✓			

 UNITRODE INTEGRATED CIRCUIT CORP. MERRIMACK, N.H.	
TITLE 44 LEAD SSOP PACKAGE OUTLINE DRAWING	
DWG NO. MA 2153	
SCALE	SHEET 1 OF 1