

Description Continued

The power amplifier output stage allows the UCC5614 to source full termination current and sink active negation current when all termination lines are actively negated.

The UCC5614 is pin for pin compatible with Unitrode's other 9 line SCSI terminators, allowing lower capacitance and lower voltage upgrades to existing systems. The UCC5614, as with all Unitrode terminators, is completely hot pluggable and appears as high impedance at the terminating channels with $V_{TRMPWR} = 0V$ or open.

Internal circuit trimming is utilized, first to trim the 110 ohm termination impedance to a 7% tolerance, and then

most importantly, to trim the output current to a 4% tolerance, as close to the max SCSI-3 spec as possible, which maximizes noise margin in fast SCSI operation.

Other features include thermal shutdown and current limit.

This device is offered in low thermal resistance versions of the industry standard 16 pin narrow body SOIC, 16 pin ZIP (Zig-Zag In Line package), 24 pin TSSOP and 28 pin PLCC.

ABSOLUTE MAXIMUM RATINGS

Tempwr Voltage	 +7V
Signal Line Voltage	 0V to +7V
Regulator Output Current	 0.6A
Storage Temperature	 -65°C to +150°C
Operating Temperature	 -55°C to +150°C
Lead Temperature (Soldering, 10 Sec.)	 +300°C

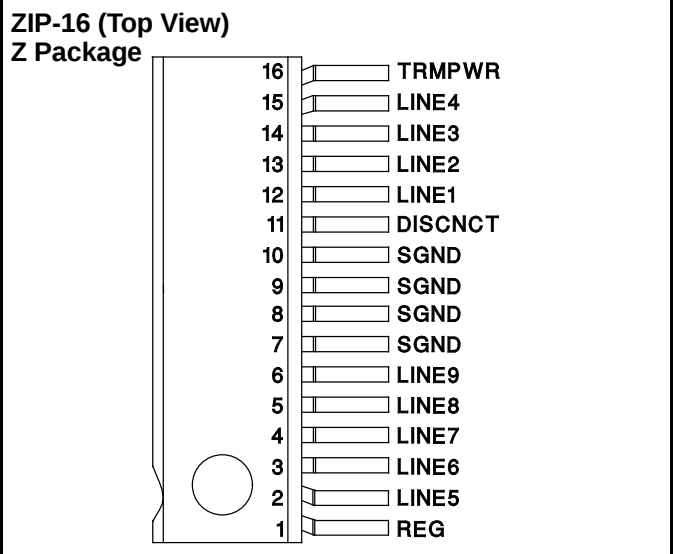
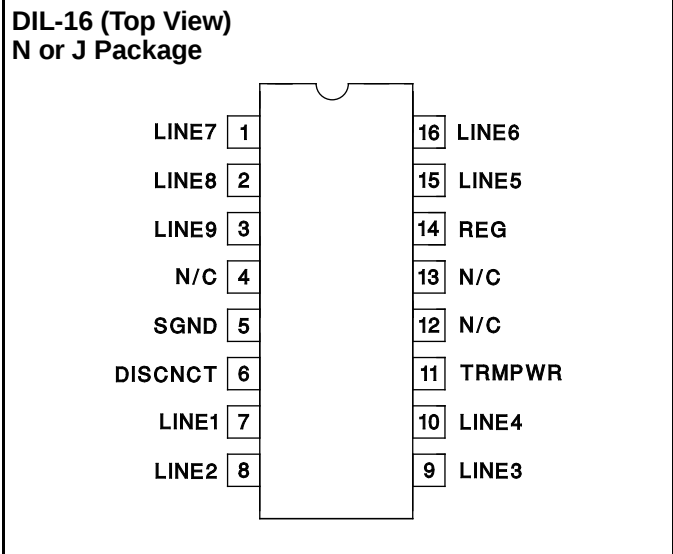
Unless otherwise specified all voltages are with respect to Ground. Currents are positive into, negative out of the specified terminal.

Consult Packaging Section of Unitrode Integrated Circuits databook for thermal limitations and considerations of packages.

RECOMMENDED OPERATING CONDITIONS

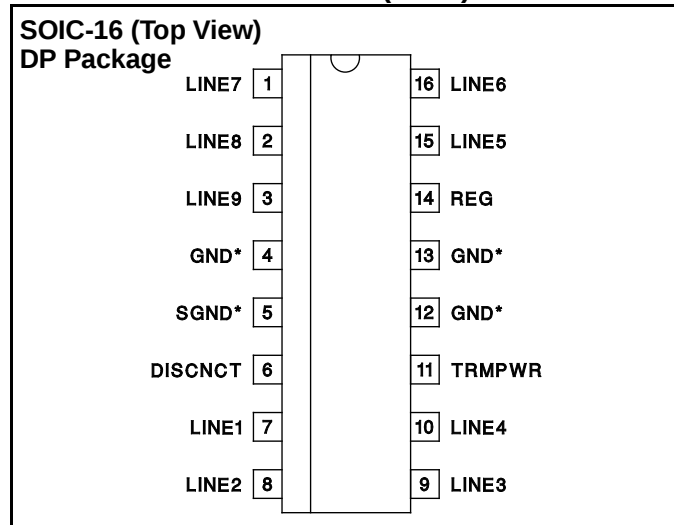
Tempwr Voltage	 2.7V to 5.25V
Signal Line Voltage	 0V to +5V
Disconnect Input Voltage	 0V to Tempwr

CONNECTION DIAGRAMS



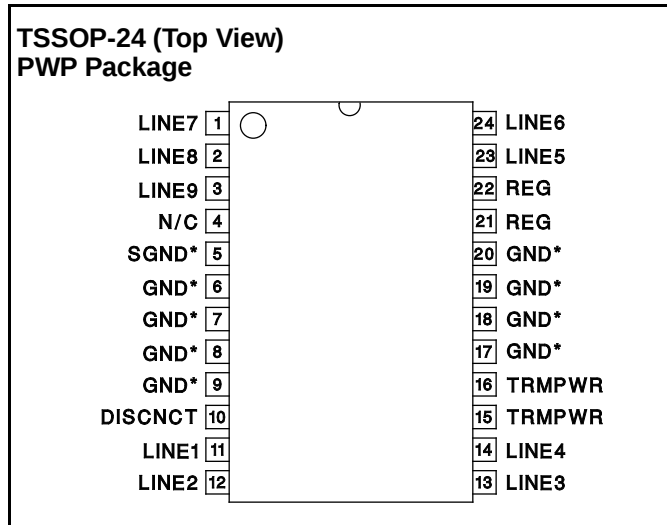
Note: Drawings are not to scale.

CONNECTION DIAGRAMS (cont.)



* DP package pin 5 serves as signal ground; pins 4, 12, 13 serve as heatsink/ground.

Note: Drawings are not to scale.



* PWP package pin 5 serves as signal ground; pins 6, 7, 8, 9, 17, 18, 19, and 20 serve as heatsink/ground.

ELECTRICAL CHARACTERISTICS

Unless otherwise stated, these specifications apply for $T_A = 0^\circ\text{C}$ to 70°C .

TRMPWR = 3.3V, DISCNCT = 0V, R_{DISCNCT} = 0 ohms. $T_A = T_J$.

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Supply Current Section					
Termpwr Supply Current	All termination lines = Open		1	2	mA
	All termination lines = 0.2V		210	218	mA
Power Down Mode	DISCNCT = Termpwr		0.5	5	μA
Output Section (110 ohms - Terminator Lines)					
Terminator Impedance		102.3	110	117.7	Ohms
Output High Voltage	(Note 1)	2.5	2.7	3.0	V
Max Output Current	V _{LINE} = 0.2V $T_J = 25^\circ\text{C}$	-22.1	-23	-24	mA
	V _{LINE} = 0.2V	-21	-23	-24	mA
	V _{LINE} = 0.2V, TRMPWR = 3V $T_J = 25^\circ\text{C}$ (Note 1)	-20.2	-23	-24	mA
	V _{LINE} = 0.2V, TRMPWR = 3V (Note 1)	-19	-23	-24	mA
	V _{LINE} = 0.5V			-22.4	mA
Output Leakage	DISCNCT = 2.4V, TRMPWR = 0V to 5.25V		10	400	nA
Output Capacitance	DISCNCT = 2.4V (Note 2) (DP Package)		1.8	2.5	pF
Output Section (2.5k ohms - Terminator Lines) (R_{DISCNCT} = 80k ohms)					
Terminator Impedance		2	2.5	3	k Ω
Output High Voltage	TRMPWR = 3V (Note 1)	2.5	2.7	3.0	V
Max Output Current	V _{LINE} = 0.2V	-0.7	-1	-1.4	mA
	V _{LINE} = 0.2V, TRMPWR = 3V (Note 1)	-0.6	-1	-1.5	mA
Output Leakage	DISCNCT = 2.4V, TRMPWR = 0 to 5.25V		10	400	nA
Output Capacitance	DISCNCT = 2.4V (Note 2) (DP Package)		1.8	2.5	pF
Regulator Section					
Regulator Output Voltage	5.25V > TRMPWR > 3V	2.5	2.7	3.0	V
Drop Out Voltage	All Termination Lines = 0.2V		0.1	0.2	V
Short Circuit Current	V _{REG} = 0V	-200	-400	-800	mA

ELECTRICAL CHARACTERISTICS (cont.) Unless otherwise stated, these specifications apply for $T_A = 0^{\circ}\text{C}$ to 70°C .
 $\text{TRMPWR} = 3.3\text{V}$, $\text{DISCNCNT} = 0\text{V}$, $\text{R}_{\text{DISCNCNT}} = 0\text{ ohms}$. $T_A = T_J$.

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Regulator Section (cont.)					
Sinking Current Capability	$V_{\text{REG}} = 3\text{V}$	200	400	800	mA
Thermal Shutdown	(Note 2)		170		$^{\circ}\text{C}$
Thermal Shutdown Hysteresis	(Note 2)		10		$^{\circ}\text{C}$
Disconnect Section					
Disconnect Threshold	$\text{R}_{\text{DISCNCNT}} = 0 \text{ \& } 80\text{k}$	0.8	1.5	2.0	V
Input Current	$\text{DISCNCNT} = 0\text{V}$		30	50	μA

Note 1: Measuring each termination line while other 8 are low (0.2V).
 Note 2: Guaranteed by design. Not 100% tested in production.

APPLICATION INFORMATION

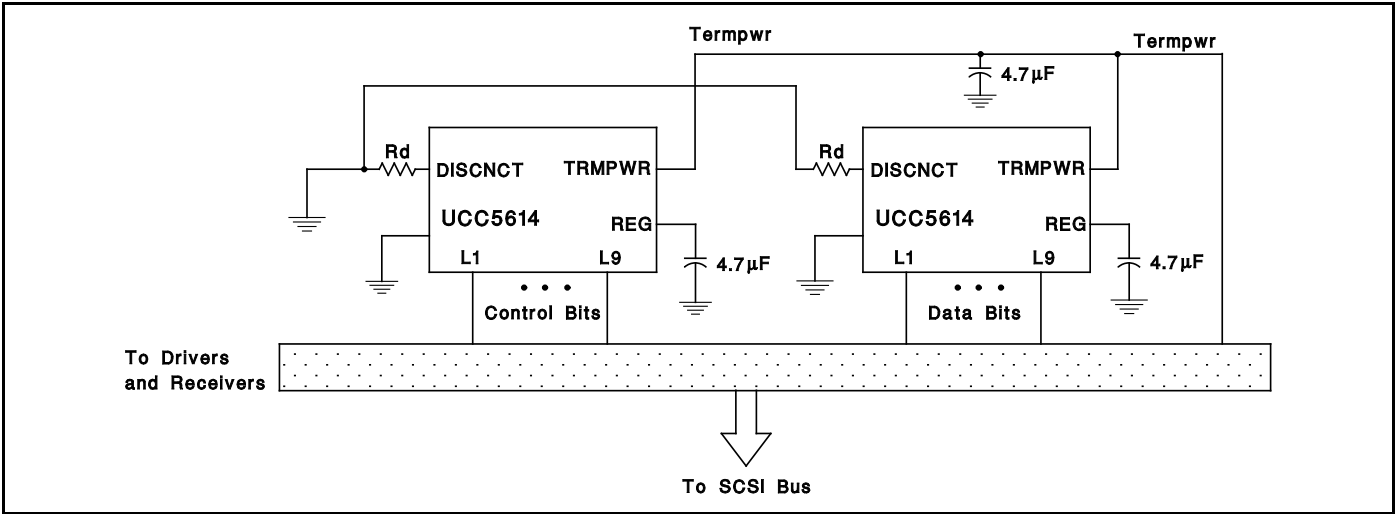


Figure 1: Typical SCSI Bus Configurations Utilizing 2 UCC5614 Devices

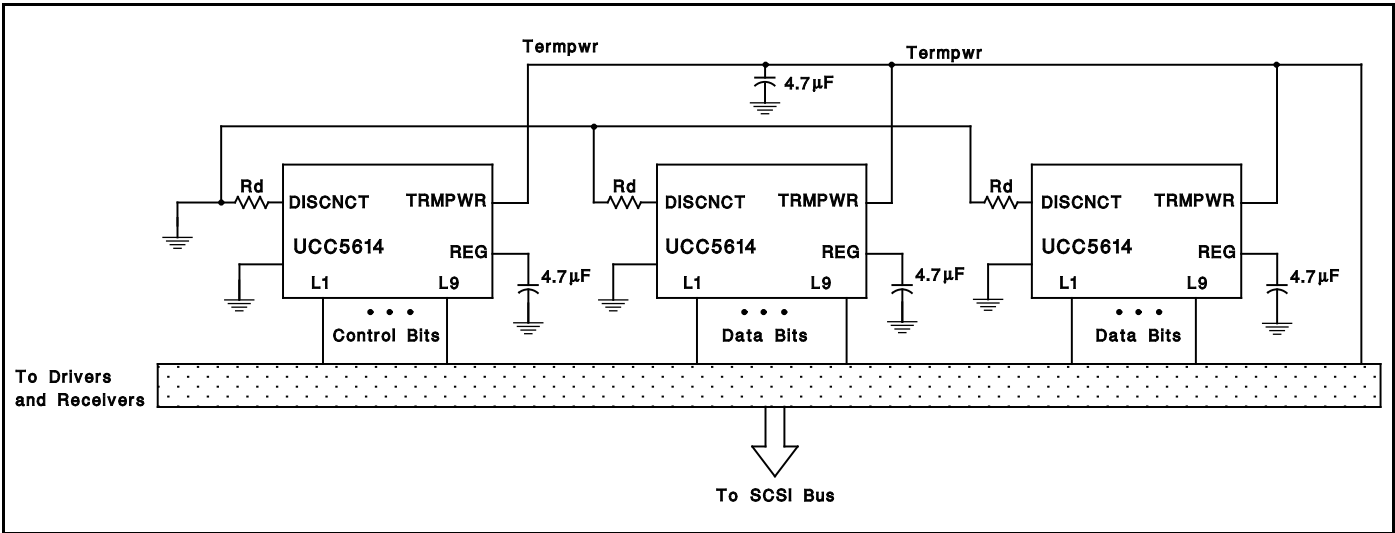


Figure 2: Typical Wide SCSI Bus Configurations Utilizing 3 UCC5614 Devices.

IMPORTANT NOTICE

Texas Instruments and its subsidiaries (TI) reserve the right to make changes to their products or to discontinue any product or service without notice, and advise customers to obtain the latest version of relevant information to verify, before placing orders, that information being relied on is current and complete. All products are sold subject to the terms and conditions of sale supplied at the time of order acknowledgement, including those pertaining to warranty, patent infringement, and limitation of liability.

TI warrants performance of its semiconductor products to the specifications applicable at the time of sale in accordance with TI's standard warranty. Testing and other quality control techniques are utilized to the extent TI deems necessary to support this warranty. Specific testing of all parameters of each device is not necessarily performed, except those mandated by government requirements.

CERTAIN APPLICATIONS USING SEMICONDUCTOR PRODUCTS MAY INVOLVE POTENTIAL RISKS OF DEATH, PERSONAL INJURY, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE ("CRITICAL APPLICATIONS"). TI SEMICONDUCTOR PRODUCTS ARE NOT DESIGNED, AUTHORIZED, OR WARRANTED TO BE SUITABLE FOR USE IN LIFE-SUPPORT DEVICES OR SYSTEMS OR OTHER CRITICAL APPLICATIONS. INCLUSION OF TI PRODUCTS IN SUCH APPLICATIONS IS UNDERSTOOD TO BE FULLY AT THE CUSTOMER'S RISK.

In order to minimize risks associated with the customer's applications, adequate design and operating safeguards must be provided by the customer to minimize inherent or procedural hazards.

TI assumes no liability for applications assistance or customer product design. TI does not warrant or represent that any license, either express or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right of TI covering or relating to any combination, machine, or process in which such semiconductor products or services might be or are used. TI's publication of information regarding any third party's products or services does not constitute TI's approval, warranty or endorsement thereof.