

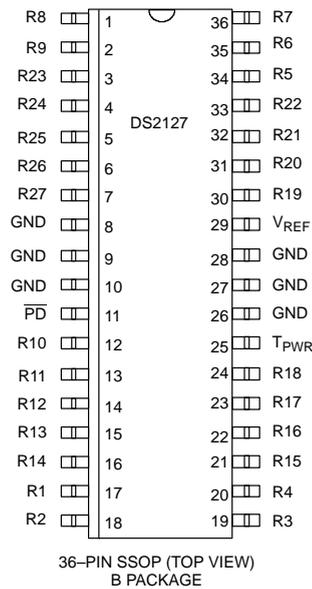
DALLAS
SEMICONDUCTOR

DS21T27
27 Line SCSI Terminator

FEATURES

- Fully compliant with SCSI, Fast SCSI and Ultra SCSI
- Provides active termination for 27 signal lines
- 5% tolerance on termination resistance and termination current
- Low power down capacitance of 3 pF
- Onboard thermal shutdown circuitry
- SCSI bus hot–plug compatible
- Fully supports actively negated SCSI signals
- Active low power–down

PIN ASSIGNMENT



DESCRIPTION

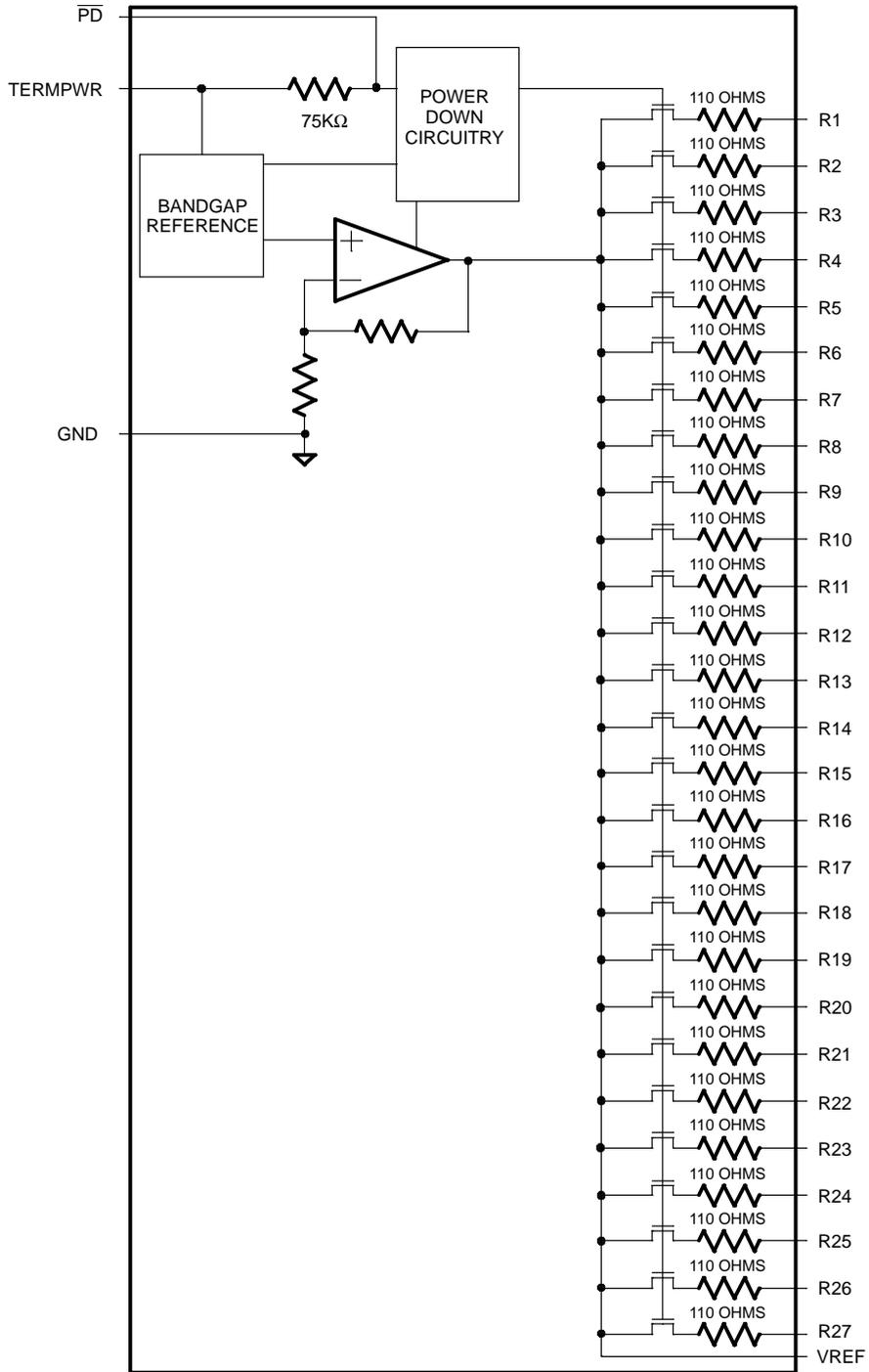
Fast SCSI and Ultra SCSI require the use of active termination at both ends of every cable segment in a SCSI system with single ended drivers and receivers. Ultra SCSI requires the support of active negation and hot plugging. The DS21T27 is fully compliant with these standards.

The DS21T27 integrates a low drop out regulator and 27 precise switched 110 Ohm termination resistors into a 36 pin SSOP package.

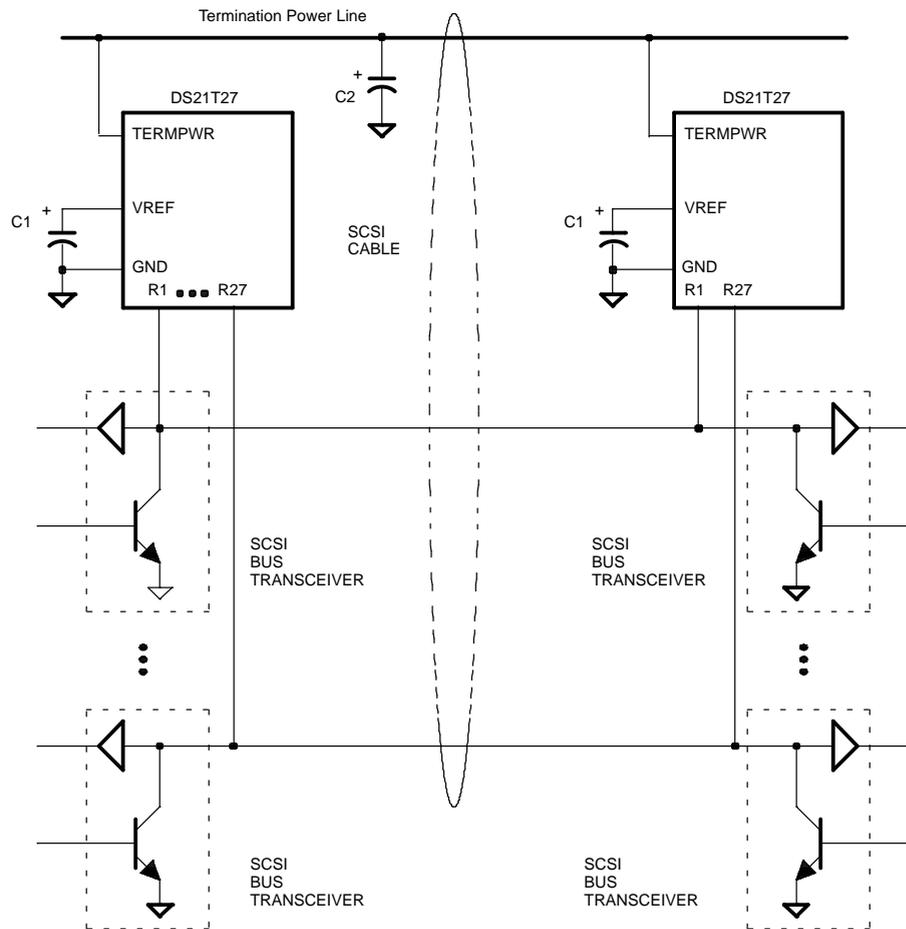
Active termination provides greater immunity to voltage drops on the TERMPWR (termination power) line, enhanced high level noise immunity, intrinsic TERMPWR decoupling, and very low quiescent current. A single DS21T27 can be used to terminate a wide SCSI bus (27 lines).

For the SE termination, one low drop–out regulator and 27 precise 110 Ohm resistors are used.

DS2127 BLOCK DIAGRAM Figure 1



TYPICAL SCSI BUS CONFIGURATION Figure 2

**NOTES:**

1. C1 = 4.7 μ F
C2 = 2.2 μ F tantalum or 4.7 μ F aluminum.
2. If the DS21T27 is to be embedded into a peripheral that will act as a target on a SCSI bus, it is that recommended TERMPWR be derived from the SCSI cable, not generated locally. In this configuration, if a power failure occurs in the peripheral, it will not affect the bus.
3. A high frequency bypass capacitor (0.1 μ F recommended) can be added in parallel to C1 for applications using fast rise/fall time drivers.
4. All six GND pins must be connected to ground.

PIN DESCRIPTION Table 1

PIN	SYMBOL	DESCRIPTION
1–7, 12–24, 30–36	Rx	Signal Termination. Connect to SCSI bus signal lines.
8–10, 26–28	GND	Ground. Signal ground; 0.0 volts. Internally connected to the mounting pad for heat sinking.
11	$\overline{\text{PD}}$	Power Down. When pulled low, the DS21T27 enters power–down mode. Power down when the device is not at the end of the SCSI bus.
25	TPWR	Termination Power. Connect to SCSI bus TERMPWR line and decouple with 2.2 μF tantalum or 4.7 μF aluminum capacitor.
29	VREF	Reference Voltage. 2.85 volt reference; must be decoupled with a 4.7 μF capacitor.

ABSOLUTE MAXIMUM RATINGS*

Voltage on Any Pin Relative to Ground	-1.0V to +7.0V
Operating Temperature	0°C to 70°C
Storage Temperature	-55°C to +125°C
Soldering Temperature	260°C for 10 seconds

* This is a stress rating only and functional operation of the device at these or any other conditions above those indicated in the operation sections of this specification is not implied. Exposure to absolute maximum rating conditions for extended periods of time may affect reliability.

RECOMMENDED OPERATING CONDITIONS

(0°C to 70°C)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	NOTES
TERMPWR Voltage	V_{TP}	4.00		5.50	V	
PD/Inactive	V_{PDI}	2.0		$V_{TP} + 0.3$	V	
PD/Active	V_{PDA}	-0.3		0.8	V	

DC CHARACTERISTICS

(0°C to 70°C)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	NOTES
TERMPWR Current	I_{TP}			700	mA	1, 3
	I_{TP}		10	14		1, 4
Power Down Current	I_{PD}		100	150	μ A	1, 2, 5
Termination Resistance	R_{TERM}	108	110	119	Ohms	1, 2
Die Thermal Shutdown	T_{SD}	150			°C	1, 6
Power Down Termination Capacitance	C_{PD}		3	4	pF	1, 2, 5, 6
Input Leakage High	I_{IH}	-1.0			μ A	1, 8
Input Leakage Low	I_{IL}			1.0	μ A	1, 7

REGULATOR CHARACTERISTICS

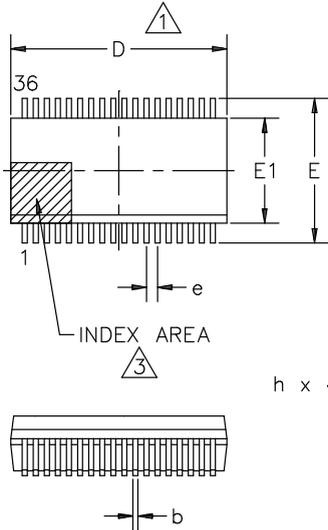
(0°C to 70°C)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS	NOTES
Output Voltage	V_{REF}	2.79	2.85	2.95	V	1, 2
Drop Out Voltage	V_{DROP}		0.50	0.75	V	3, 6
Output Current	I_{OUT}	21.6	22.8	25.2	mA	9
Line Regulation	L_{REG}		1.0	2.0	%	1, 4
Load Regulation	L_{OREG}		1.3	3.0	%	1, 3, 6
Current Limit	I_L		900		mA	1
Sink Current	I_{SINK}	600			mA	1

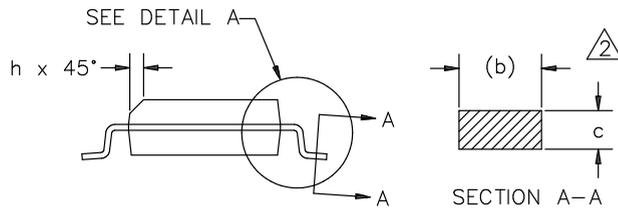
NOTES:

1. $4.00V < TERMPWR < 5.25V$.
2. $0.0V < \text{signal lines} < 3.0V$.
3. All signal lines = 0.0V.
4. All signal lines open.
5. Power-down enabled; $\overline{PD} = 0.0v$.
6. Guaranteed by design; not production tested.
7. R1 through R27 only.
8. R1 through R27 and PD/.
9. $V_{SIGNAL} = 0.2V$.

DS21T27 36-PIN SSOP PACKAGE Figure 3



- 1 DIMENSIONS D AND E1 INCLUDE MOLD MISMATCH, BUT DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS. MOLD FLASH, PROTRUSIONS OR GATE BURRS SHALL NOT EXCEED 0.254 MM PER SIDE.
- 2 SECTION A-A DIMENSIONS APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.13 TO 0.25 MM FROM THE LEAD TIP.
- 3 THE CHAMFER ON THE BODY IS OPTIONAL. IF IT IS NOT PRESENT, A VISUAL INDEX FEATURE MUST BE LOCATED WITHIN THE CROSS-HATCHED AREA.



DIM	MIN	MAX
A	2.44	2.64
A1	0.12	—
b	0.29	0.43
c	0.23	0.32
D	15.20	15.54
E	10.11	10.52
E1	7.40	7.60
e	0.80	BSC
h	0.25	0.71
L	0.51	1.02

DIMENSIONS ARE IN MILLIMETERS