

# AN8612NSB

## SCSI active terminator IC

### ■ Overview

The AN8612NSB is a terminator IC conformed to standard interface specification (SCSI-I/II) for personal computers, workstations and various types of information equipment. So far configured with a fixed resistor and a regulator, it has recently been integrated onto a single chip with built-in standby function.

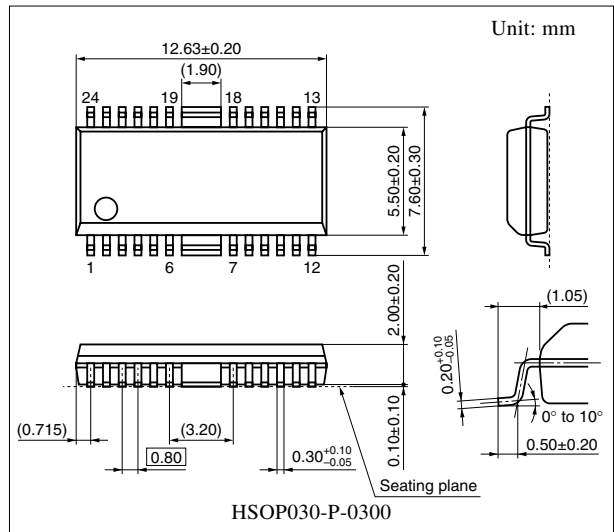
It is easy to satisfy 25 pF of the maximum pin capacitance in SCSI-II specification due to its small output pin capacitance. It can support 10 Mbyte/s of SCSI-II and 20 Mbyte/s of FAST-20.

### ■ Features

- Active termination for 18-signal line
- Low power consumption due to its standby function (100  $\mu$ A at standby).
- Small output pin capacitance: 3.8 pF (typ.)
- High precision regulator: 2.85 V $\pm$ 60 mV

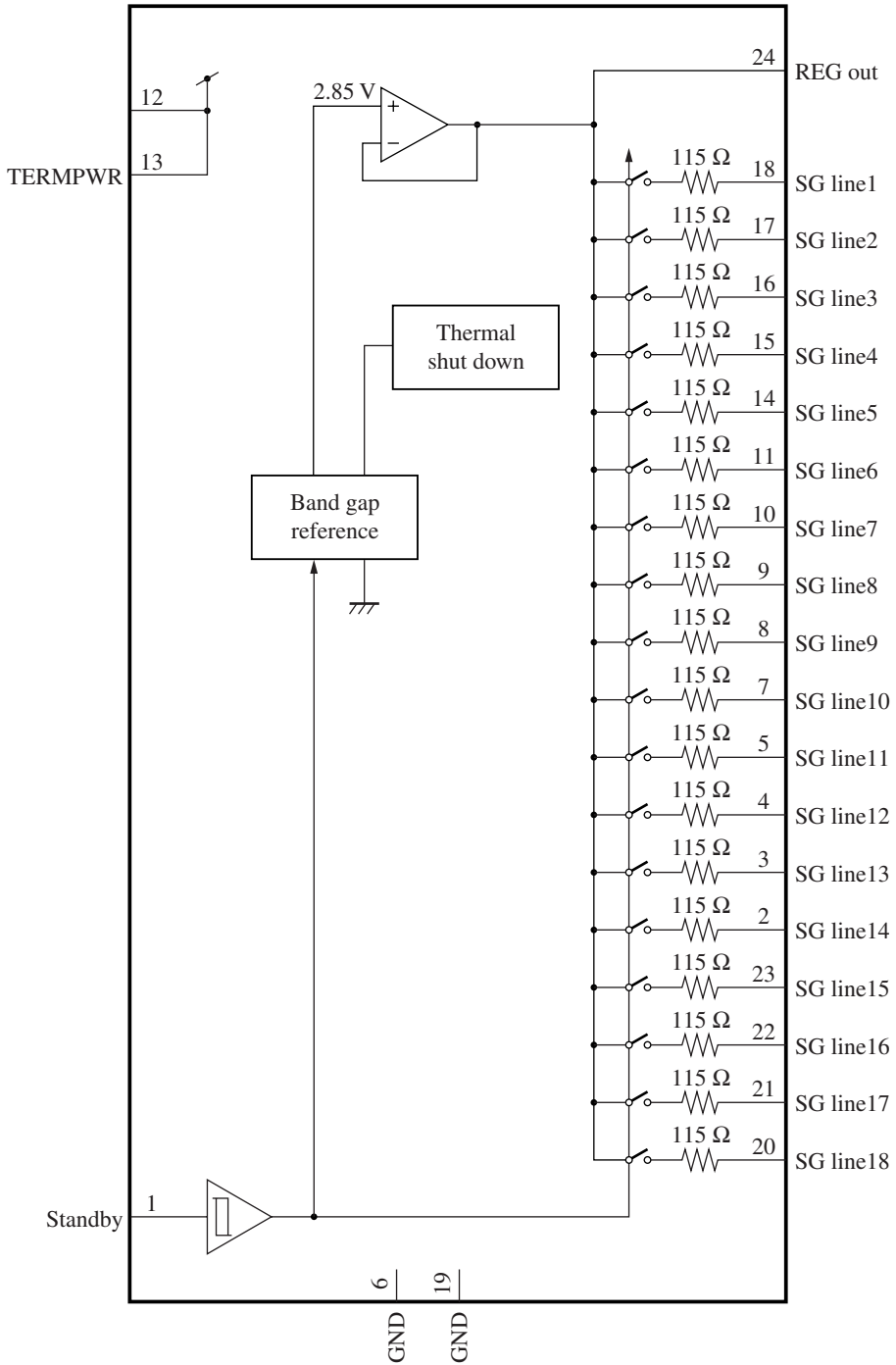
### ■ Applications

- SCSI interface board of PC
- SCSI-compatible equipment such as CD-ROM, MO, PD, MD drive and printer



Note) The package of this product will be changed to lead-free type (HSOP030-P-0300A). See the new package dimensions section later of this datasheet.

■ Block Diagram



## Pin Descriptions

Pin No.	Description	Pin No.	Description
1	Standby *1	13	V <sub>CC</sub> (TERMPWR) *3
2	SG line14	14	SG line5
3	SG line13	15	SG line4
4	SG line12	16	SG line3
5	SG line11	17	SG line2
6	GND *2	18	SG line1
Fin	GND *2	Fin	GND *2
7	SG line10	19	GND *2
8	SG line9	20	SG line18
9	SG line8	21	SG line17
10	SG line7	22	SG line16
11	SG line6	23	SG line15
12	V <sub>CC</sub> (TERMPWR) *3	24	REG out

Note) \*1: A standby pin input voltage becomes an active mode at  $V_I < V_{TH}$  and a standby mode at  $V_I > V_{TH+}$ .

Likewise, a standby mode when standby pin is open.

\*2: Both ground pins of the pin 6 and pin 19 should be placed on the same pattern, and the pattern should be wide on the PCB.

(We recommend that whole surface of one layer of a multi-layer PCB be GND.)

\*3: Connect the V<sub>CC</sub> to SCSI termination resistor power supply (TERMPWR).

## Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
Supply voltage	V <sub>CC</sub>	6.0	V
Supply current	I <sub>CC</sub>	550	mA
Power dissipation *2	P <sub>D</sub>	412	mW
Operating ambient temperature *1	T <sub>opr</sub>	-20 to +75	°C
Storage temperature *1	T <sub>stg</sub>	-55 to +150	°C

Note) \*1: Except for the power dissipation, operating ambient temperature and storage temperature, all ratings are for T<sub>a</sub> = 25°C.

\*2: T<sub>a</sub> = 75°C. For the independent IC without a heat sink.

Refer to "Application Notes".

## Recommended Operating Range

Parameter	Symbol	Range	Unit
Supply voltage	V <sub>CC</sub>	4.0 to 5.5	V

**■ Electrical Characteristics at  $V_{CC} = 5.0\text{ V}$ ,  $T_a = 25^\circ\text{C}$** 

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Supply current 1	$I_{CC1}$	Standby = low, all SG line = open	—	44	54	mA
Supply current 2	$I_{CC2}$	Standby = low, All SG line = 0.2 V	—	458	530	mA
Supply current 3	$I_{CC3}$	Standby = open	—	100	200	$\mu\text{A}$
Standby pin low-level input current	$I_{STBYL}$	$V_{CC} = 5.5\text{ V}$ , $V_I = 0\text{ V}$	-150	-50	—	$\mu\text{A}$
Standby pin high-level input current	$I_{STBYH}$	$V_{CC} = 5.5\text{ V}$ , $V_I = 5.5\text{ V}$	—	—	1	$\mu\text{A}$
Standby pin positive direction threshold voltage	$V_{TH+}$		1.3	1.5	1.7	V
Standby pin negative direction threshold voltage	$V_{TH-}$		1.1	1.3	1.5	V
Maximum output current SG line1 to SG line18	$I_{SG}$	$V_{SG} = 0.2\text{ V}$	19.8	23.0	26.2	mA
Output leak current 1 SG line1 to SG line18	$I_{LK1}$	$V_{CC} = 5.5\text{ V}$ Standby = open, $V_{SG} = 0\text{ V}$	-1	—	—	$\mu\text{A}$
Output leak current 2 SG line1 to SG line18	$I_{LK2}$	$V_{CC} = 5.5\text{ V}$ , $V_{SG} = 2.85\text{ V}$ Standby = open	-1	—	1	$\mu\text{A}$
REG output voltage 1	$V_{REG1}$	$V_{CC} = 4.0\text{ V}$ to $5.5\text{ V}$ , all SG line = open	2.79	2.85	2.91	V
REG output voltage 2	$V_{REG2}$	$V_{CC} = 3.2\text{ V}$ , all SG line = open	2.00	—	—	V
Termination resistance value SG line1 to SG line18	$R_{SG}$	$I_{SG} = 5\text{ mA}$ to $15\text{ mA}$	107	115	123	$\Omega$
High-level output voltage SG line1 to SG line18	$V_{SGH}$	$V_{CC} = 4.0\text{ V}$ to $5.5\text{ V}$ , all SG line = open	2.78	2.85	2.92	V

**• Design reference data**

Note) The characteristics listed below are theoretical values based on the IC design and are not guaranteed.

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Standby pin hysteresis width	$V_{HYS}$		—	200	—	mV
Output pin capacitance	$C_{SG}$		—	3.8	4.5	pF
Thermal shutdown temperature	$T_{TSD}$		—	170	—	$^\circ\text{C}$

**■ Terminal Equivalent Circuits**

Pin No.	Symbol	Equivalent circuit
1	Standby	

■ Terminal Equivalent Circuits (continued)

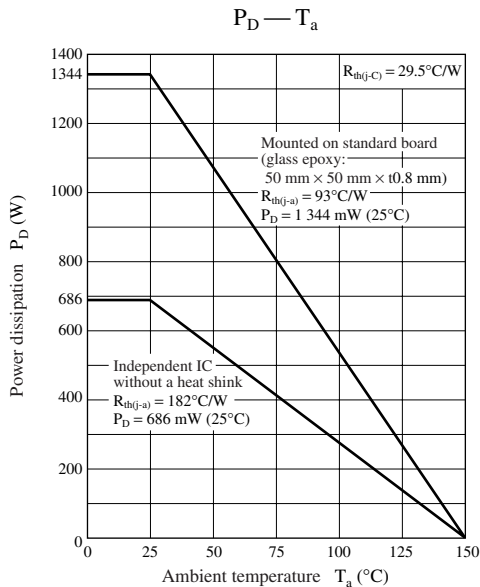
Pin No.	Symbol	Equivalent circuit
2 3 4 5	Pin 2: SG line14 Pin 3: SG line13 Pin 4: SG line12 Pin 5: SG line11	
6	GND	—
Fin	GND	—
7 8 9 10 11	Pin 7: SG line10 Pin 8: SG line9 Pin 9: SG line8 Pin 10: SG line7 Pin 11: SG line6	
12 13	Pin 12: V <sub>CC</sub> (TERMPWR) Pin 13: V <sub>CC</sub> (TERMPWR)	
14 15 16 17 18	Pin 14: SG line5 Pin 15: SG line4 Pin 16: SG line3 Pin 17: SG line2 Pin 18: SG line1	

■ Terminal Equivalent Circuits (continued)

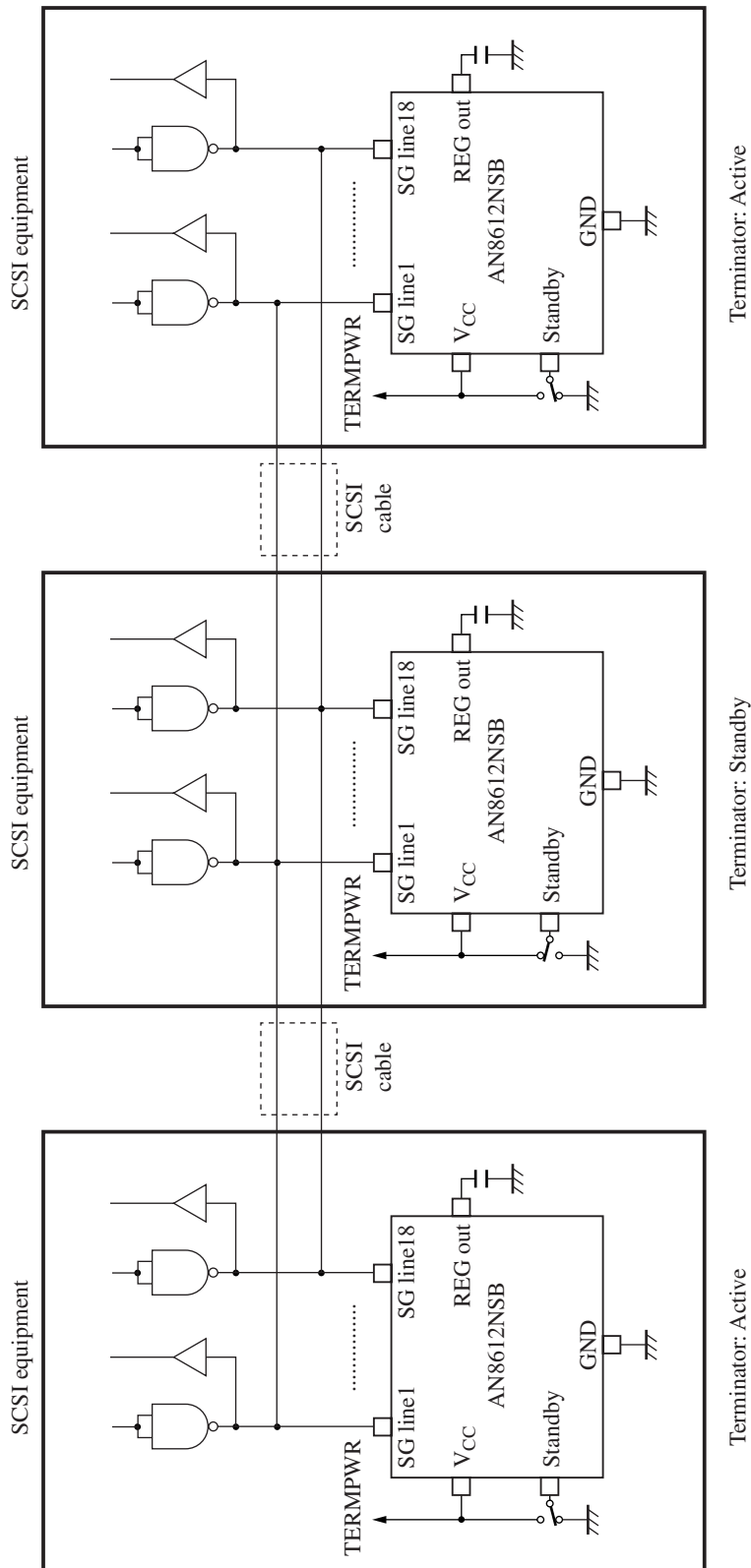
Pin No.	Symbol	Equivalent circuit
Fin	GND	—
19	GND	—
20 21 22 23	Pin 20: SG line18 Pin 21: SG line17 Pin 22: SG line16 Pin 23: SG line15	
24	REG out	

■ Application Notes

- $P_D - T_a$  curves of HSOP030-P-0300

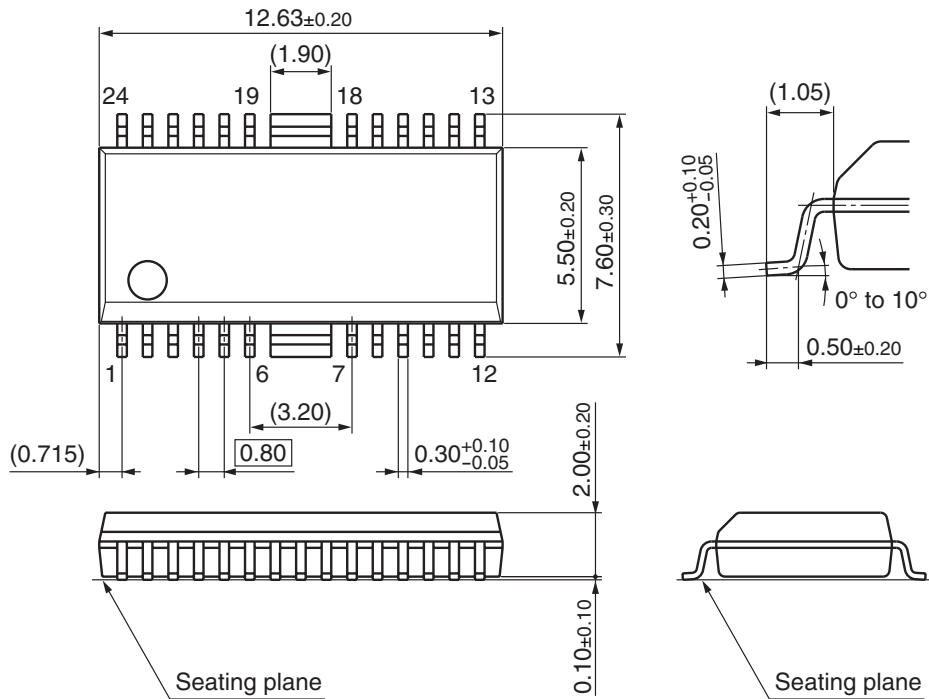


■ Application Circuit Example



## ■ New Package Dimensions (Unit: mm)

- HSOP030-P-0300A (Lead-free package)





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