

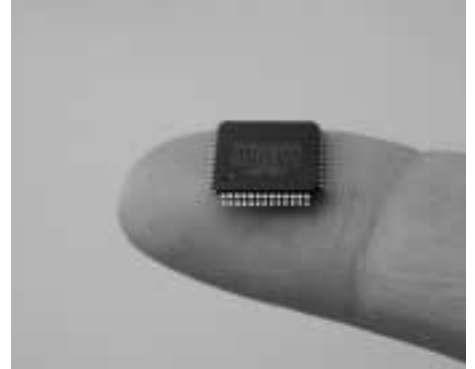
Smartcoder®

AU6802

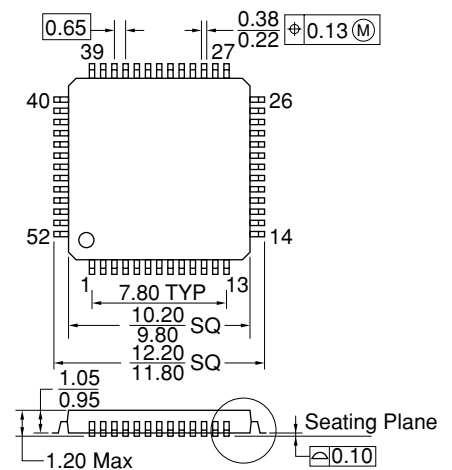
High-speed, Digital-Tracking, Complete Angle Detector 10/12-Bit Resolver-to-Digital Converter IC

■ Features

- (1) Vehicle-mount quality
 - * Quality level : Transportation equipment involved with safety
 - * Operating temperature range : $-40 \sim +125^{\circ}\text{C}$
- (2) High accuracy
- (3) Simple to use
 - * Real time output (High tracking rate : 240,000 rpm for 10 bit resolution)
 - * Single power supply of DC5V (Integrated oscillator for exciting resolver : 10/20 kHz)
 - * Small size and light weight (10 × 10mm, Pin interval : 0.65mm, 52pins TQFP, Mass. 0.3gram)
 - * Built-in test (Abnormality detection) function
 - * Pulse / Parallel / Bus serial output (Selectable)
 - * Resolution of 10/12 bits (Selectable)
 - * Capable to set the number of poles for UVW (Selectable from × 1, 2, 3, 4)
 - * Clock input (20MHz) : External CLK input / Crystal resonator / Ceramic resonator (Selectable)



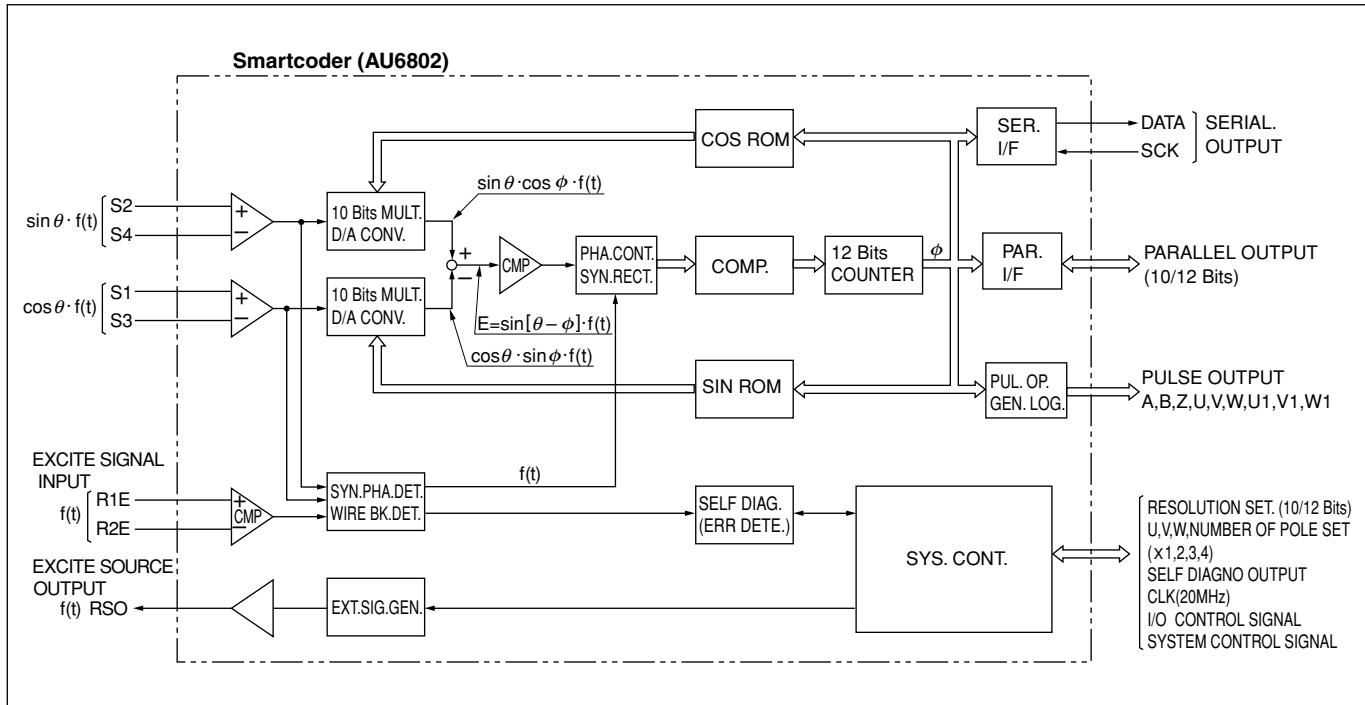
■ Outline



■ Specifications

Resolution	1,024 (=2 ¹⁰)	4,096 (=2 ¹²)	For 1 revolution of electric angle
Conversion Accuracy	±2LSB	±4LSB (Sorting)	As static absolute accuracy in electric angle
		±8LSB (Standard)	
Settling time	0.5 ms	2 ms	For step input of 179° in electric angle
Tracking rate	4,000s ⁻¹ (240,000rpm)	1,000s ⁻¹ (60,000rpm)	As maximum tracking rate in electric angle
Response	±0.2° max. / 10,000rpm	±0.4° max. / 10,000rpm	As output response delay in electric angle
2 phase pulse signal	256 C/T	1,024 C/T	
Source dissipation	DC 5V ±5% 45mA Max (30mA Typ.)		
Operating temperature	-40 ~ +125°C		
Storage temperature	-65 ~ +150°C		
Humidity	90%RH Max		
Mass	1g Max		

FUNCTIONAL BLOCK DIAGRAM



PIN DESCRIPTION

PIN NO.	SYMBOL	FORM	FUNCTION
1	R1E	A/I	EXT. EXCIT. IP.
2	R2E	A/I	(DIF. IP.)
3	Vcc	—	ANALOGUE SOURCE
4	SINMNT	A/O	SIN. MONITOR
5	S4	A/I	SIN. IP.
6	S2	A/I	(DIF. IP.)
7	A.GND	—	ANALOGUE GND
8	S1	A/I	COS. IP.
9	S3	A/I	(DIF. IP.)
10	COSMNT	A/O	COS. MONITOR
11	Vcc	—	ANALOGUE SOURCE
12	RSO	A/O	SIG. FOR EXCIT.
13	COM	A/O	COMMON (2.5V)
14	A.GND	—	ANALOGUE GND
15	MDSEL	D/I	RES. SELECT
16	SYRB	D/I	REF. SYNC.
17	XSEL1	D/I	UVW P SEL.
18	XSEL2	D/I	
19	OUTMD	D/I	OP. SEL.
20	SCSB	D/I	SERIAL CSB.
21	DATA	D/O	SERIAL DATA
22	SCK	D/I	SERIAL LOCK
23	VDD	—	DIGITAL SOURCE
24	XTAL	—	OSC. CONN.
25	CLKIN	D/I	EXTERNAL CLK INPUT
26	D.GND	—	DIGITAL GND

* A/I ANALOG INPUT.

* A/O ANALOG OUTPUT.

* D/I DIGITAL INPUT.

* D/O DIGITAL OUTPUT.

PIN NO.	SYMBOL	FORM	FUNCTION
27	Do	D/O (BUS)	PRTY/ $\phi 12$
28	D1	D/O (BUS)	ERRHLD/ $\phi 11$
29	D2	D/O (BUS)	ERR/ $\phi 10$
30	D3	D/O (BUS)	W1/ $\phi 9$
31	D4	D/O (BUS)	V1/ $\phi 8$
32	D5	D/O (BUS)	U1/ $\phi 7$
33	D.GND	—	DIGITAL GND
34	D6	D/O (BUS)	Wch./ $\phi 6$
35	D7	D/O (BUS)	Vch./ $\phi 5$
36	D8	D/O (BUS)	Uch./ $\phi 4$
37	D9	D/O (BUS)	Zch./ $\phi 3$
38	D10	D/O (BUS)	Bch./ $\phi 2$
39	D11	D/O (BUS)	Ach./ $\phi 1$
40	D.GND	—	DIGITAL GND
41	CSB	D/I	CHIP SELECT
42	RDB	D/I	LEAD
43	INHB(RD)	D/I	INHIBIT
44	PRTY	D/O (BUS)	PARITY
45	ERRHLD	D/O	ERROR HOLD
46	ERRSTB	D/I	ERROR RESET
47	FSEL1	D/I	FREQUENCY SELECT
48	FSEL2	D/I	FREQUENCY SELECT
49	VDD	—	DIGITAL SOURCE
50	TEST1	D/I	TEST MODE SET
51	TEST2	D/I	TEST MODE SET
52	A.GND	—	ANALOGUE GND

WARRANTY

Tamagawa Seiki warrants that this product is free from defects in material or workmanship under normal use and service for a period of one year from the date of shipment from the factory. This warranty, however, excludes incidental and consequential damages caused by careless use of the product by the user. Even after the warranty period, Tamagawa Seiki offers repair service, with charge, in order to maintain the quality of the product. The MTBF (mean time between failures) of our product is quite long; yet, the predictable failure rate is not zero. The user is advised, therefore, that multiple safety means be incorporated in your system or product so as to prevent any consequential problems resulting from the failure of our product.



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Specifications are subject to change without notice.

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