TAMURA

S21Z/100A,150A,200A,300A data sheet

『Representative data：S21Z200D15』

※The conditions for determining the specification of this product (200A, 300A)

[Offset current, output current accuracy, output linearity, and hysteresis width] follow the following conditions.

Power supply (Vcc)=±15V Load resistance(RL)=30Ω

●Load resistance(RL)

at Vcc=±15V ： more than 30Ω

at Vcc=±12V ： more than 15Ω

However, the maximal measuring current is restricted by power supply voltage and load resistance. Therefore, choose load resistance (resistance, rated electric power) according to the saturation characteristic on a data sheet.

●Continuation current

Less than DC125A ： Conninuation

Less than DC300A ： Less than 1 minute

However, it is based on the load resistance conditions indicated above.

Tamura Corporation
Avio & Industrial Devices Business Unit
AI Technology Department
Unit Devices Technology Group

Rev.A (drawing up on 1/Mar/2004 by H.anzai)

1. Static characteristic 『Offset voltage』 『output voltage』 『linearity』 『Hysterisis width』

Vcc=±15V、 RL=30(29.79)Ω、 I=50,100,150,200(A)

(V)

Detected current(A)	No.1	No.2	No.3	No.4	No.5	Remarks
0	0.0009	-0.0012	-0.0007	-0.0013	0.0001	◆ ★ ●
50	0.7451	0.7430	0.7430	0.7399	0.7455	●
100	1.4883	1.4874	1.4869	1.4812	1.4902	●
150	2.2319	2.2319	2.2301	2.2219	2.2355	●
200	2.9749	2.9758	2.9748	2.9630	2.9794	▲ ●
0	-0.0016	-0.0032	0.0039	-0.0043	-0.0012	★

◆

(mA) 《standard value》

Offset current	0.030	-0.040	-0.023	-0.044	0.003	±0.5mA以下
Quality judging	OK	OK	OK	OK	OK	

▲

(mA) 《standard value》

Output current	99.86	99.89	99.86	99.46	100.01	Io(100mA)±2%
Quality judging	OK	OK	OK	OK	OK	(98～102mA)

★

(mA) 《standard value》

Hysteresis width	-0.084	-0.067	0.154	-0.101	-0.044	±0.3mA以下
Quality judging	OK	OK	OK	OK	OK	

●

(%) 《standard value》

Output linearity	0.058	0.012	-0.019	0.014	0.040	≦±0.25%(If=rated current)
Quality judging	OK	OK	OK	OK	OK	

Detected current(A)	No.1	No.2	No.3	No.4	No.5
0	0.0000	0.0000	0.0000	0.0000	0.0000
50	0.7442	0.7442	0.7437	0.7412	0.7454
100	1.4874	1.4886	1.4876	1.4825	1.4901
150	2.2310	2.2331	2.2308	2.2232	2.2354
200	2.9740	2.9770	2.9755	2.9643	2.9793

【considering residual current 】

↓

Detected current(A)	No.1	No.2	No.3	No.4	No.5
50	2.9768	2.9768	2.9748	2.9648	2.9816
100	2.9748	2.9772	2.9752	2.9650	2.9802
150	2.9747	2.9775	2.9744	2.9643	2.9805
200	2.9740	2.9770	2.9755	2.9643	2.9793

【It rectifies to a primary nominal value.】

↓

Average gain	2.9751	2.9771	2.9750	2.9646	2.9804

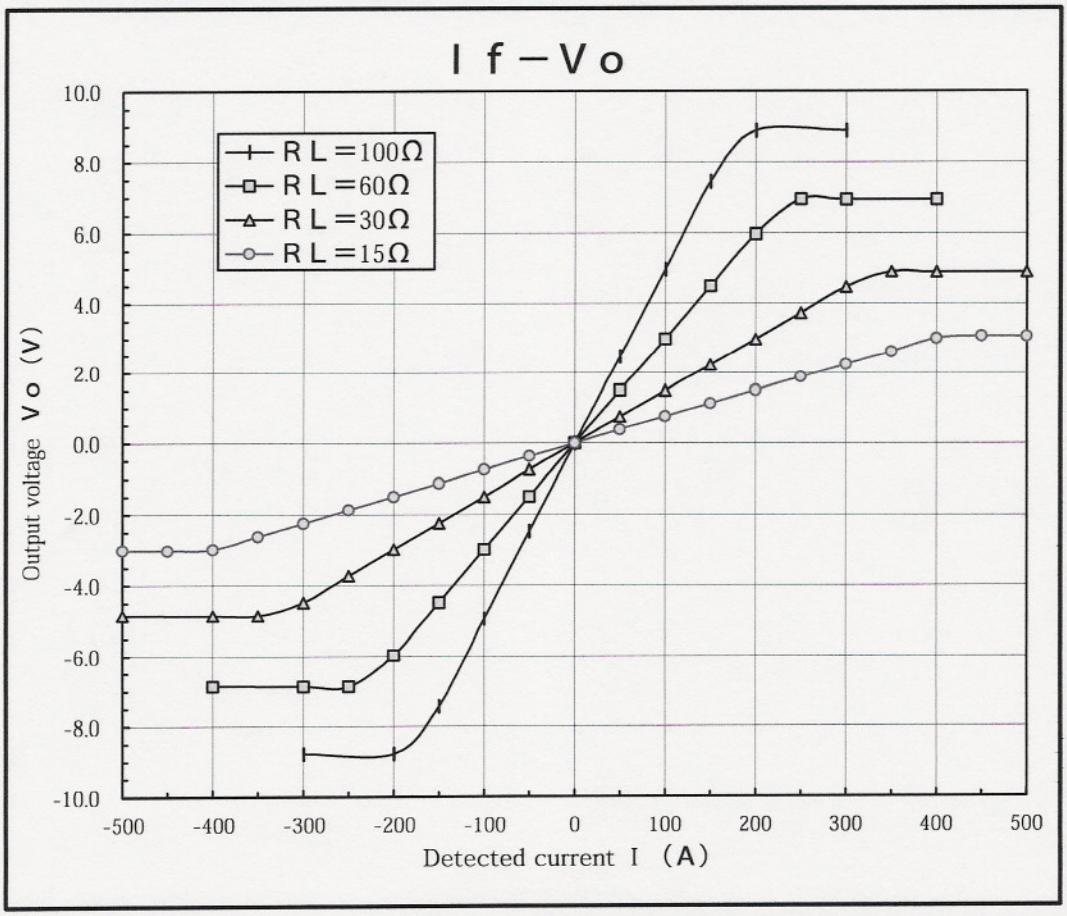
Detected current(A)	No.1	No.2	No.3	No.4	No.5
50	0.058	-0.011	-0.006	0.007	0.040
100	-0.009	0.003	0.008	0.014	-0.007
150	-0.013	0.012	-0.019	-0.011	0.004
200	-0.036	-0.004	0.018	-0.010	-0.037

【linearity of each 1/4, 1/2, 3/4, 1】

2. Saturation characteristic(1) Vcc=±15V No.4

Vcc=±15V RL=100Ω,60Ω,30Ω,15Ω (V)

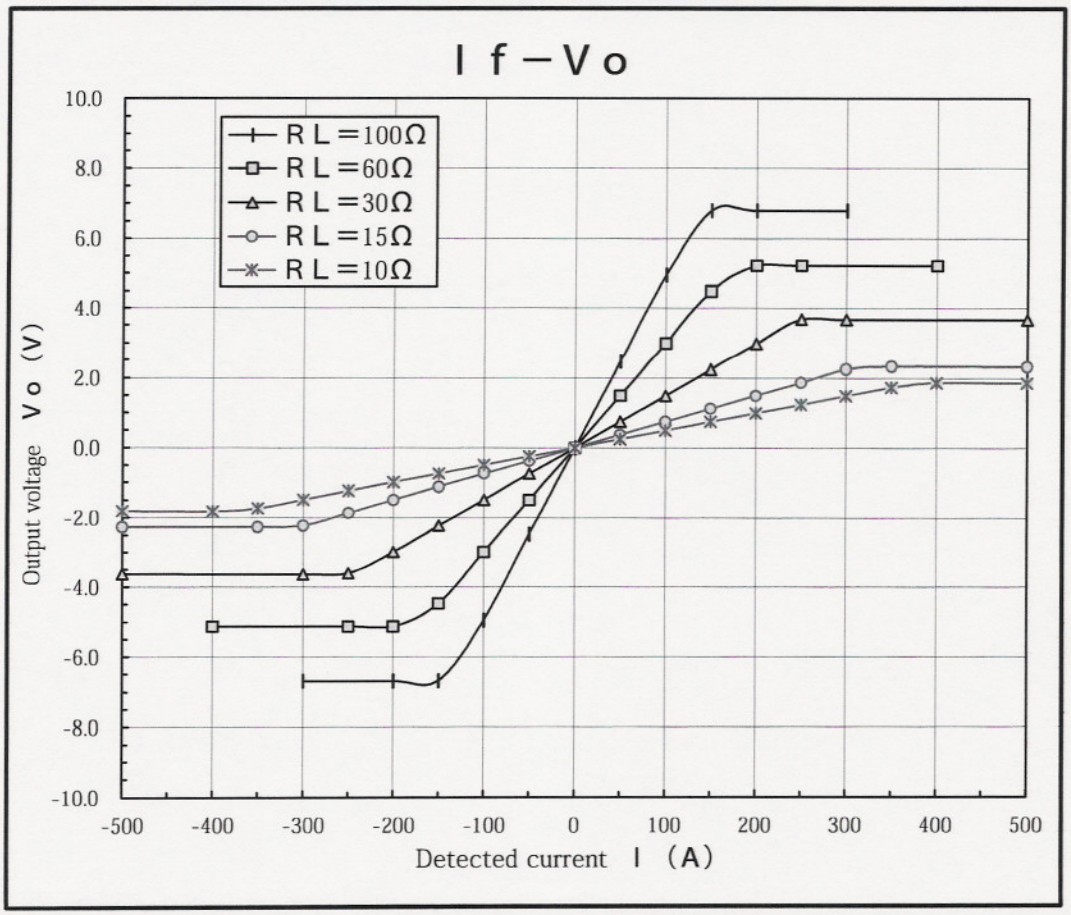
Detected current (A)	R_L=100Ω	RL=60Ω	RL=30Ω	RL=15Ω		
500			4.890	3.065		
450				3.071		
400		6.948	4.893	2.994		
350			4.900	2.617		
300	8.880	6.950	4.469	2.243		
250		6.953	3.724	1.870		
200	8.881	5.982	2.977	1.496		
150	7.446	4.490	2.233	1.122		
100	4.965	2.992	1.489	0.749		
50	2.482	1.501	0.744	0.375		
0	0.002	0.000	0.000	0.000		
-50	-2.472	-1.490	-0.747	-0.370		
-100	-4.952	-2.984	-1.493	-0.744		
-150	-7.433	-4.479	-2.235	-1.118		
-200	-8.777	-5.975	-2.981	-1.491		
-250		-6.868	-3.728	-1.866		
-300	-8.780	-6.866	-4.474	-2.240		
-350			-4.856	-2.615		
-400		-6.860	-4.850	-2.980		
-450				-3.013		
-500			-4.848	-3.007		



2. Saturation characteristic(2) Vcc=±15V No.4

Vcc=±15V RL=100Ω,60Ω,30Ω,15Ω,10Ω (V)

Detected current (A)	RL=100Ω	RL=60Ω	RL=30Ω	RL=15Ω	RL=10Ω	
500			3.670	2.320	1.862	
450						
400		5.216			1.872	
350				2.328	1.735	
300	6.797		3.675	2.245	1.487	
250		5.216	3.682	1.870	1.238	
200	6.796	5.217	2.978	1.495	0.990	
150	6.796	4.487	2.233	1.123	0.743	
100	4.942	2.991	1.488	0.749	0.494	
50	2.468	1.497	0.743	0.375	0.247	
0	0.002	0.000	0.000	0.000	0.000	
-50	-2.478	-1.490	-0.747	-0.370	-0.246	
-100	-4.952	-2.984	-1.493	-0.744	-0.494	
-150	-6.673	-4.480	-2.239	-1.118	-0.742	
-200	-6.689	-5.123	-2.984	-1.492	-0.990	
-250		-5.124	-3.610	-1.865	-1.238	
-300	-6.690		-3.636	-2.233	-1.486	
-350				-2.278	-1.734	
-400		-5.124			-1.826	
-450						
-500			-3.630	-2.272	-1.820	



3. Frequency characteristic

Reference data) -1dBTYP./100kHz

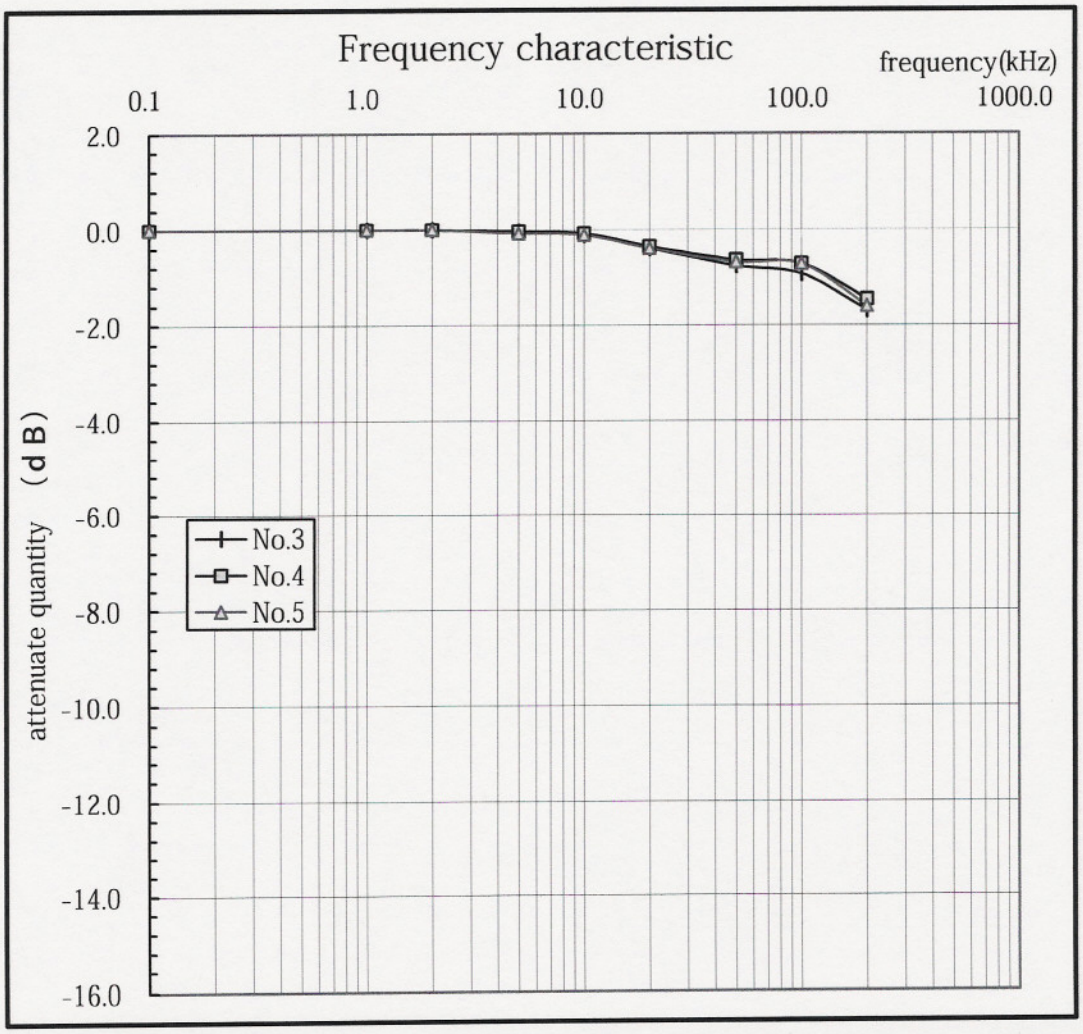
(attenuate quantity)

frequency (KHz)	No.3	No.4	No.5
0.1	0.000	0.000	0.000
1	0.000	0.000	0.000
2	0.000	0.000	0.000
5	-0.038	-0.038	-0.077
10	-0.116	-0.077	-0.116
20	-0.391	-0.351	-0.393
50	-0.759	-0.635	-0.679
100	-0.928	-0.718	-0.721
200	-1.684	-1.454	-1.599

(mVrms)

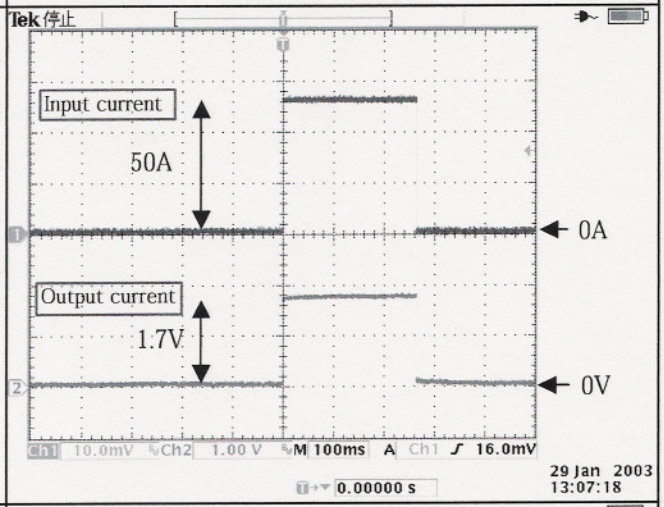
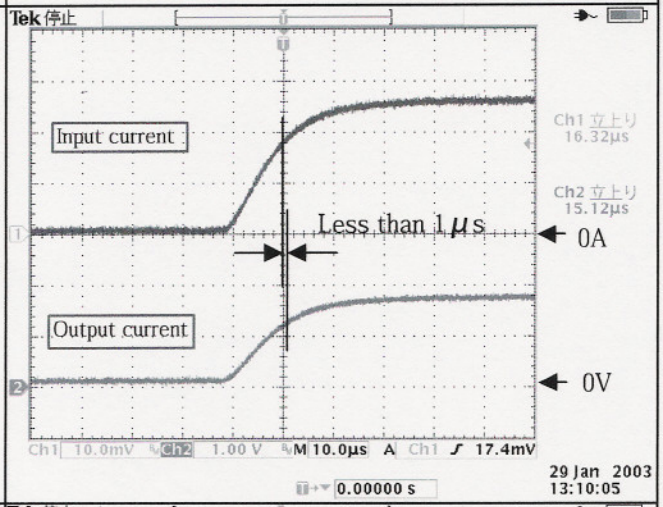
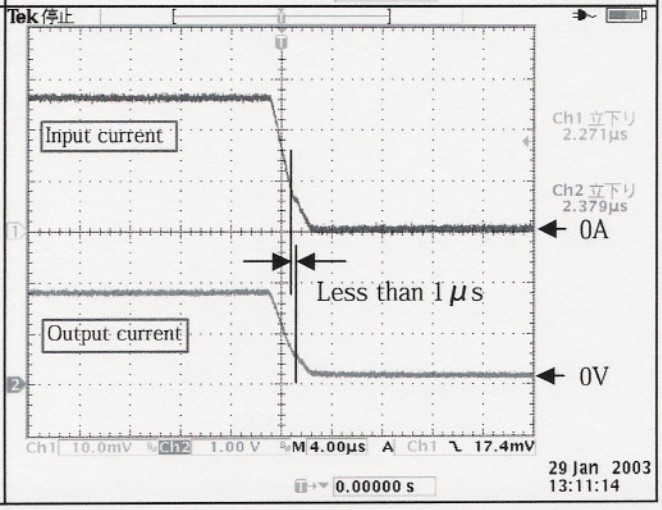
No.3	No.4	No.5
227	227	226
227	227	226
227	227	226
226	226	224
224	225	223
217	218	216
208	211	209
204	209	208
187	192	188

precondition) input current : 1Arms×7turn
Vcc=±15V
RL=68Ω



CONDITION **Vcc=±15V** 【Standard value】 Less than 2μs, but delay time is 70% for input wave form:50A/2μs.

4. Response wave form RL=68Ω No.5

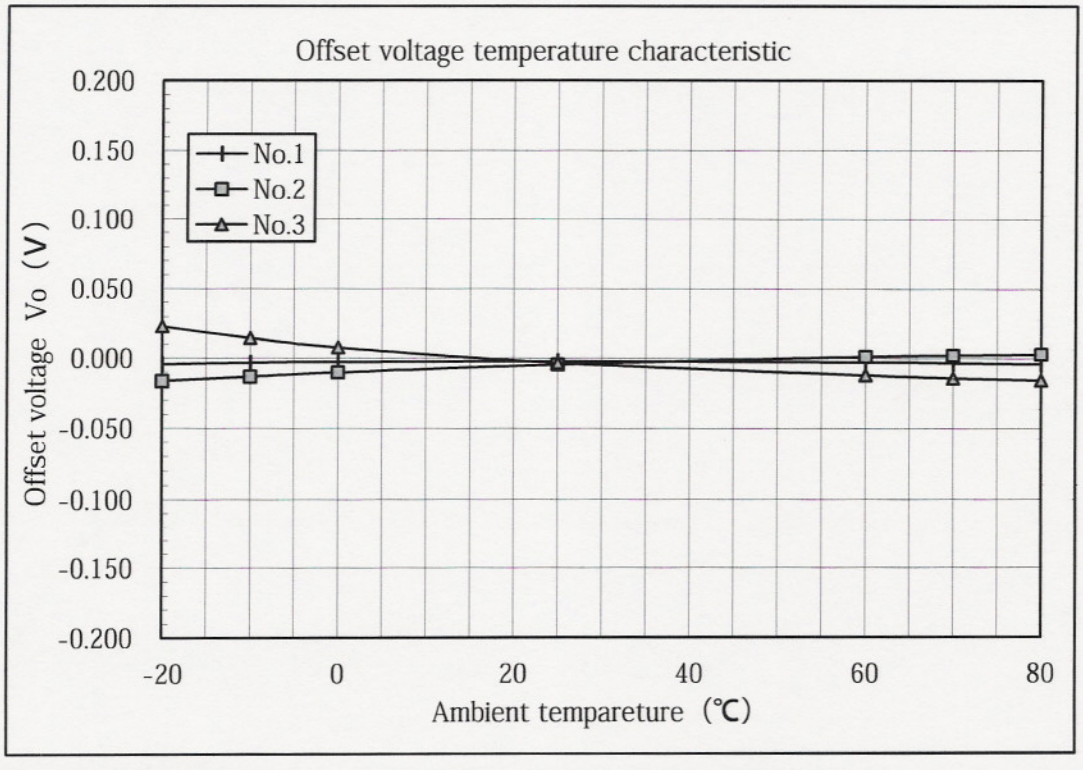
TEST POINT	OSCILLOSCOPE SETTING	WAVE FORM
No. 5 - 1	Vert. 20A/div 1V/div /div /div Horiz. 100ms/div Notes	
No. 5 - 2	Vert. 20A/div 1V/div /div /div Horiz. 10μs/div Notes	
No. 5 - 3	Vert. 20A/div 1V/div /div. /div. Horiz. 4μs/div Notes	

5. Offset voltage temperature characteristic

Detected current I=0(A)　RL=68Ω　Vcc=±15V

temperature (℃)	Output voltage Vout(V) No.1	No.2	No.3			Remarks
-20	-0.0044	-0.0163	0.0231			
-10	-0.0034	-0.0133	0.0145			Operating temperature
0	-0.0028	-0.0104	0.0077			
25	-0.0024	-0.0047	-0.0035			
60	-0.0029	0.0012	-0.0121			
70	-0.0035	0.0022	-0.0141			
▼ 80	-0.0041	0.0031	-0.0156			

					(mA/℃)	【standard value】
cooficient 25→-10	-0.0004	-0.0036	0.0076			0.025
cooficient 25→70	-0.0004	0.0023	-0.0035			0.025



6. Output voltage temperature characteristic

Detected currentI=100(A)　RL=68Ω　Vcc=±15V

temperature (℃)	Output voltage Vout(V) No.1	No.2	No.3			Remarks
-20	3.4149	3.4004	3.4624			
-10	3.4174	3.4042	3.4686			Operating temperature
0	3.4180	3.4069	3.4543			
25	3.4182	3.4115	3.4341			
60	3.4151	3.4170	3.4249			
70	3.4147	3.4198	3.4248			
80	3.4144	3.4216	3.4237			

【considering fluctuations of the offset voltage by temperature.】

temperature (℃)	Output voltage Vout(V) No.1	No.2	No.3			Remarks
-20	3.4193	3.4167	3.4393			
-10	3.4208	3.4175	3.4396			Operating temperature
0	3.4208	3.4173	3.4389			
25	3.4206	3.4162	3.4376			
60	3.4180	3.4158	3.4370			
70	3.4182	3.4176	3.4389			
80	3.4185	3.4185	3.4393			

					(%/℃)	【standard value】
cooficient 25→-10	0.0002	0.0011	0.0017			0.010
cooficient 25→70	-0.0016	0.0009	0.0008			0.010