



Magtron Industry co., Ltd

Characterization test report

Project:

Prepare:

Check:

Approve:

Date:

Outline:

1. V_{OUT} at I_{PN} (without offset) & offset
2. Linearity error
3. Accuracy
4. Thermal drift of offset
5. Insulation Voltage
6. Response time



VOUT at I_{PN} (without offset) & offset

Objects: JCB-25A
 Number of objects: 10 pcs
 Date of test: 06-28-2013
 Tester: D.Weii
 Note: None

Specifications:

Primary nominal current rms: I_{PN} ± 25 [A]
 V_{OUT} at I_P : $V_{OE} \pm (2 \times I_P / I_{PN})$ [V]
 V_{OUT} at 0 [A] V_{OE} 2.5 ± 0.020 [V]
 V_{OUT} at I_{PN} , without offset, $T_A = 25$ [°C]: X $< \pm 1$ [%] of I_{PN}

Conditions:

Primary current: I_P 0 [A] for offset,
 25 [A] for V_{OUT} at I_{PN}
 Output load resistance: R_L 10 [k Ω]
 Power supply voltage: V_C +5 [V]
 Temperature: T 25 [°C]

Equipment:

Device	Brand	Type
DC Current Power	Qing Hua Tech.	XF30DQ
Regulated DC Power	Gwinstek	GPD3303S
PC	DLINK	NULL
数据采集模块	施耐德	MDV8

Measurement data:

Part No.	V_{OUT} at 0A [V]	V_{OUT} at I_{PN} without offset [V]	V_{OUT} at I_{PN} [V]	Error of	
				V_{OUT} at 0A [mV]	V_{OUT} at I_{PN} without offset (%) of I_{PN}
13168A001	2.507	2.001	4.507	6.5	0.1
13168A002	2.497	2.002	4.498	-2.9	0.1
13168A012	2.505	1.997	4.502	5.3	-0.1
13168A013	2.496	2.006	4.502	-3.9	0.3
13168A017	2.502	1.993	4.494	1.8	-0.4
13168A018	2.497	1.999	4.495	-3.4	0.0
13168A019	2.509	1.994	4.502	8.9	-0.3
13168A020	2.490	1.998	4.486	-10.0	-0.1
13168A022	2.503	1.997	4.499	3.3	-0.2
13168A024	2.505	1.999	4.505	5.2	0.0

Result:

Conform

Linearity error at -40,-20,25,85 [°C]

Measured parameter	Condition	Temperature	Specification
ϵ_L (% of I_{PN})	With excursion to $\pm I_{PN}; V_C=5V$	Refer to below	0.4% of I_{PN}

Objects:	JCB-25A
Number of objects:	10PCS
Date of test:	06-28-2013
Tester:	D.Weii
Note:	None

Conditions:	
Primary current [A]:	0 to 25A by step of 2.5A ($I_{PN}/10$)
Load [Ω]:	10 k Ω
Power supply voltage [V]:	$V_C=5 V$
Temperature [°C]:	-40,-20,25,85 [°C]
Humidity [%]:	Uncontrolled

Equipment:

Device	Brand	Type
DC Current Power	Qing Hua Tech.	XF30DQ
Regulated DC Power	Gwinstek	GPD3303S
PC	DLINK	NULL
数据采集模块	施耐德	MDV8
高低温箱	苏瑞环试	RGDJS-500

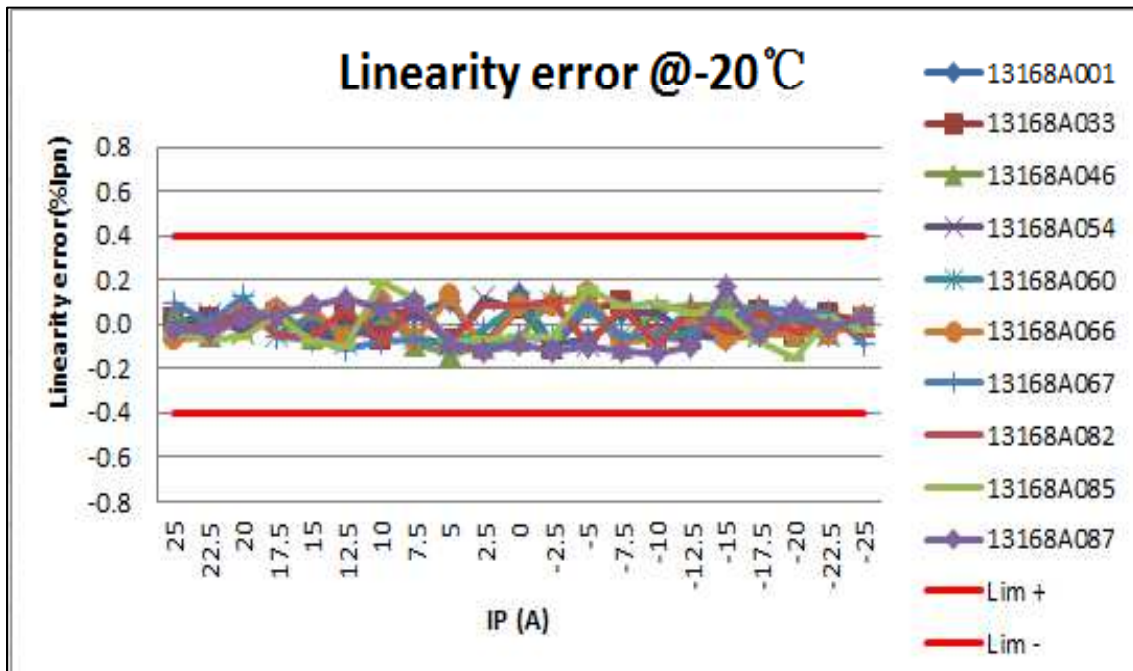
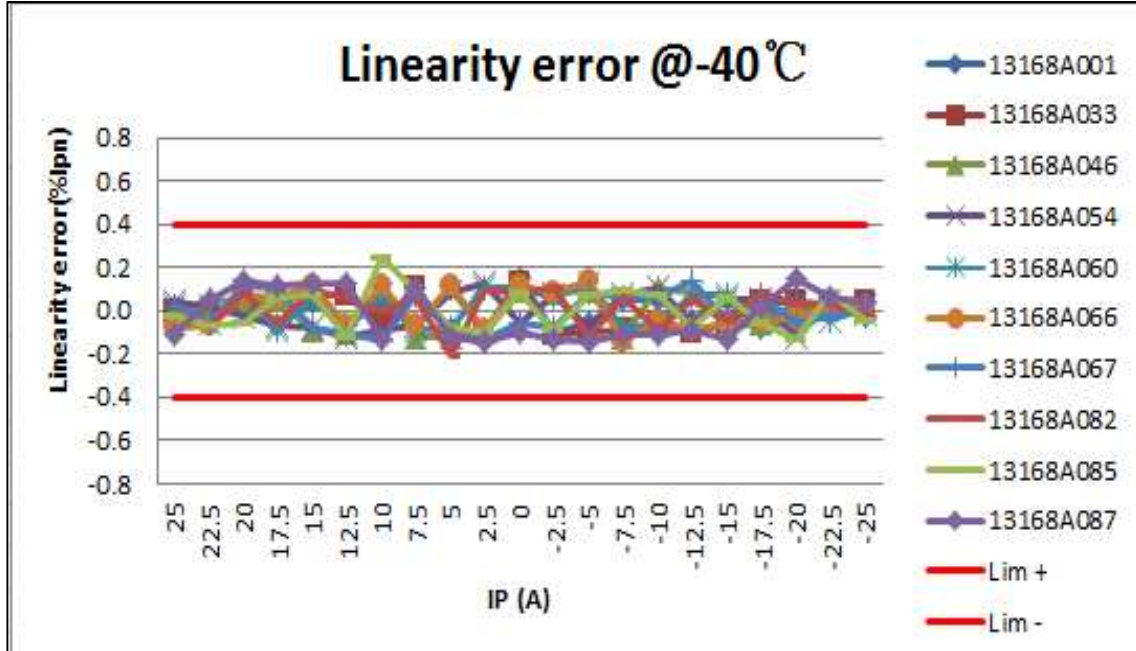
Measurement data:

See next page

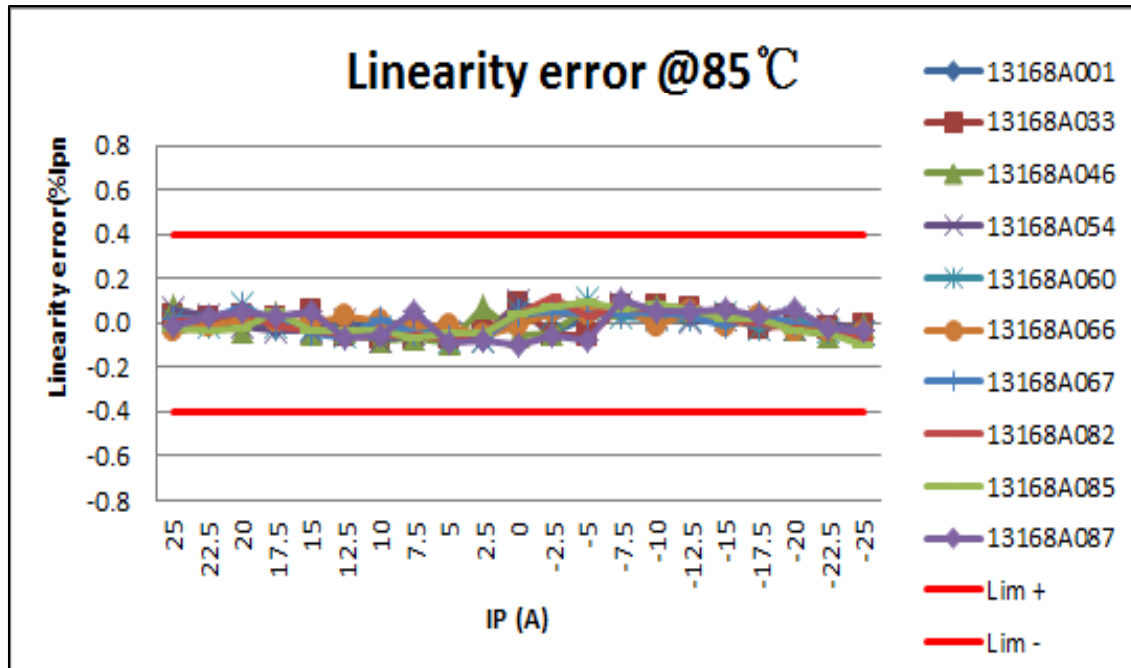
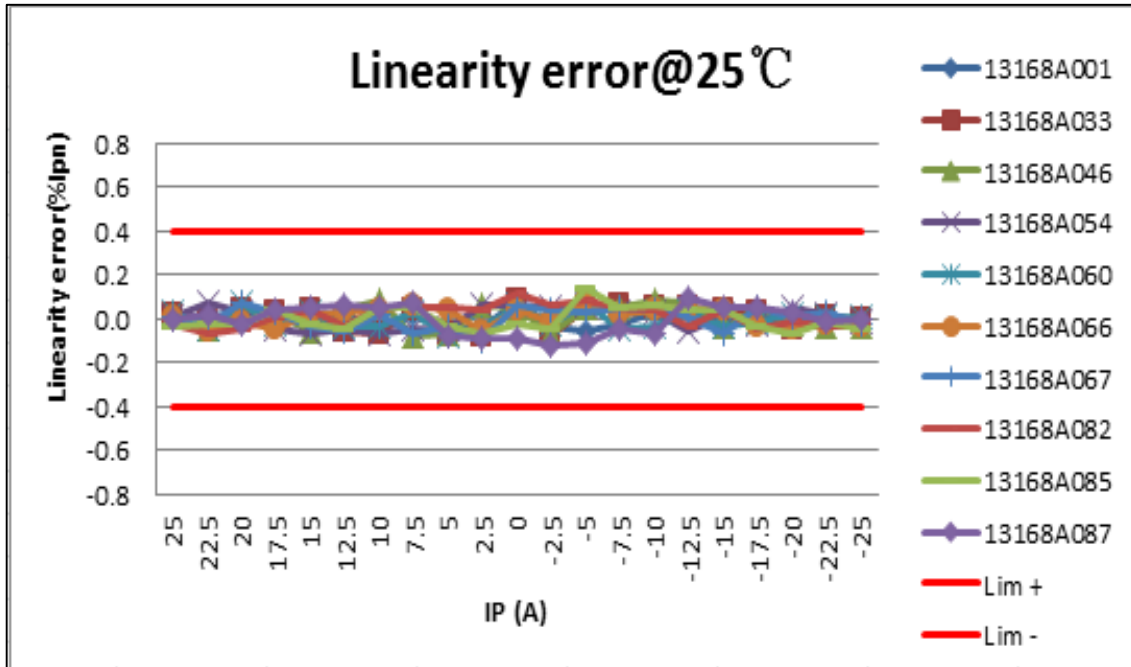
Result:

Conform

Measurement data:



Measurement data:



Accuracy X @-40°C

Measured parameter	Condition	Temperature	Specification
X (% of I_{PN})	With excursion to $\pm I_{PN}; V_C=5V$	@-40°C	2% of I_{PN}

Objects:	JCB-25A
Number of objects:	10PCS
Date of test:	06-28-2013
Tester:	D.Weii
Note:	None

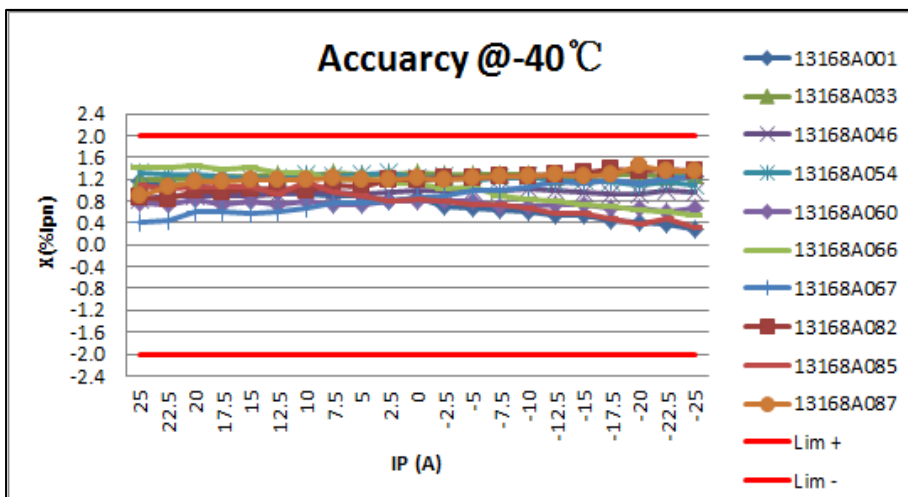
Conditions:

Primary current [A]:	0 to 25A by step of 2.5A ($I_{PN}/10$)
Load [Ω]:	10 k Ω
Power supply voltage [V]:	$V_C=5 V$
Temperature [°C]:	-40 °C
Humidity [%]:	Uncontrolled

Equipment:

Device	Brand	Type
DC Current Power	Qing Hua Tech.	XF30DQ
Regulated DC Power	Gwinstek	GPD3303S
PC	DLINK	NULL
数据采集模块	施耐德	MDV8
高低温箱	苏瑞环试	RGDJS-500

Measurement data:



Result:

Conform

Accuracy X @-20°C

Measured parameter	Condition	Temperature	Specification
X (% of I_{PN})	With excursion to $\pm I_{PN}$; $V_C=5V$	@-20°C	2% of I_{PN}

Objects:	JCB-25A
Number of objects:	10PCS
Date of test:	06-28-2013
Tester:	D.Weii
Note:	None

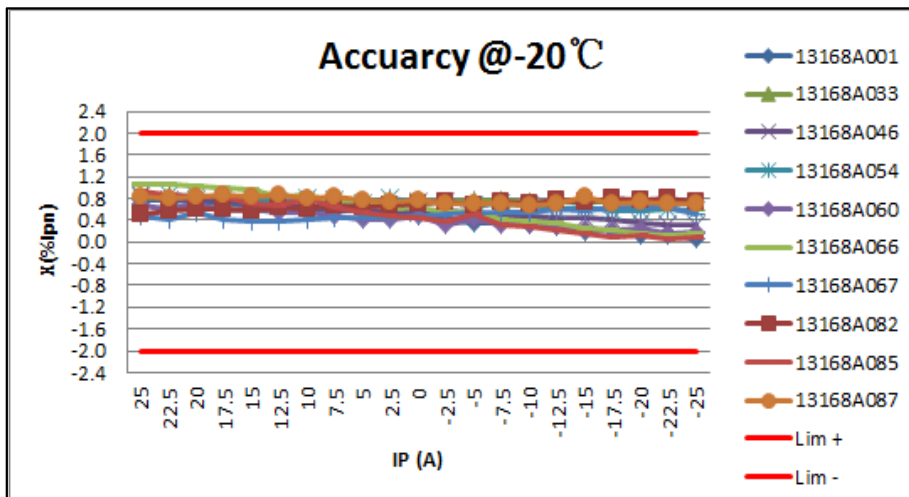
Conditions:

Primary current [A]:	0 to 25A by step of 2.5A ($I_{PN}/10$)
Load [Ω]:	10 k Ω
Power supply voltage [V]:	$V_C=5 V$
Temperature [°C]:	-20 °C
Humidity [%]:	Uncontrolled

Equipment:

Device	Brand	Type
DC Current Power	Qing Hua Tech.	XF30DQ
Regulated DC Power	Gwinstek	GPD3303S
PC	DLINK	NULL
数据采集模块	施耐德	MDV8
高低温箱	苏瑞环试	RGDJS-500

Measurement data:



Result:

Conform

Accuracy X @25°C

Measured parameter	Condition	Temperature	Specification
X (% of I_{PN})	With excursion to $\pm I_{PN}; V_C=5V$	@25°C	1% of I_{PN}

Objects:	JCB-25A
Number of objects:	10PCS
Date of test:	06-28-2013
Tester:	D.Weii
Note:	None

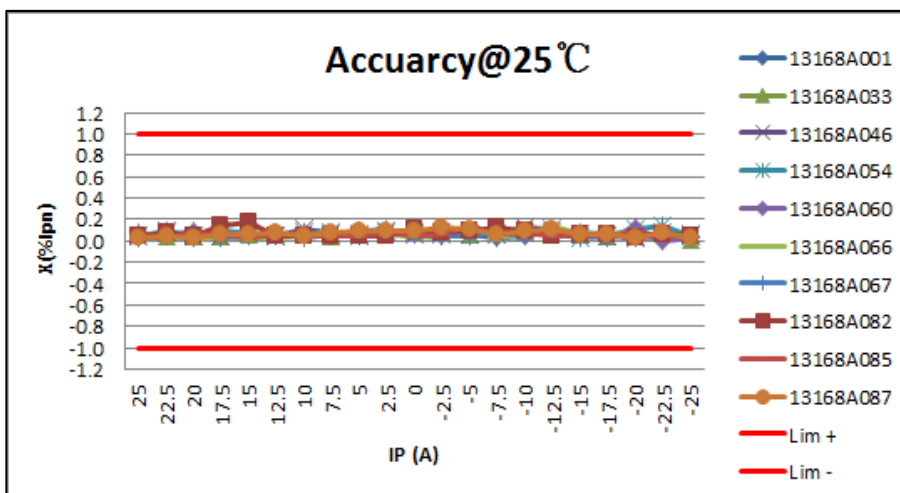
Conditions:

Primary current [A]:	0 to 25A by step of 2.5A ($I_{PN}/10$)
Load [Ω]:	10 k Ω
Power supply voltage [V]:	$V_C=5 V$
Temperature [$^{\circ}C$]:	25 $^{\circ}C$
Humidity [%]:	Uncontrolled

Equipment:

Device	Brand	Type
DC Current Power	Qing Hua Tech.	XF30DQ
Regulated DC Power	Gwinstek	GPD3303S
PC	DLINK	NULL
数据采集模块	施耐德	MDV8
高低温箱	苏瑞环试	RGDJS-500

Measurement data:



Result:

Conform

Accuracy X @85°C

Measured parameter	Condition	Temperature	Specification
X (% of I_{PN})	With excursion to $\pm I_{PN}$; $V_C=5V$	@85°C	2% of I_{PN}

Objects:	JCB-25A
Number of objects:	10PCS
Date of test:	06-28-2013
Tester:	D.Weii
Note:	None

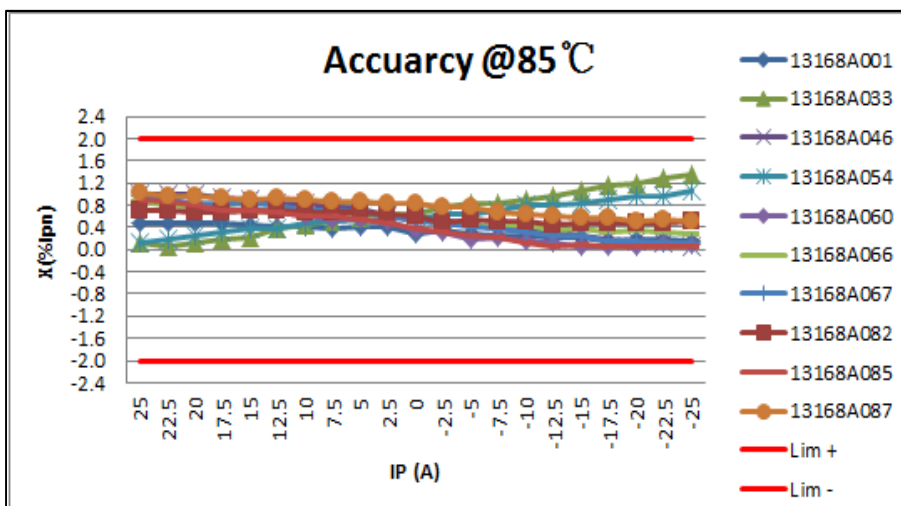
Conditions:

Primary current [A]:	0 to 25A by step of 2.5A ($I_{PN}/10$)
Load [Ω]:	10 k Ω
Power supply voltage [V]:	$V_C=5 V$
Temperature [°C]:	85 °C
Humidity [%]:	Uncontrolled

Equipment:

Device	Brand	Type
DC Current Power	Qing Hua Tech.	XF30DQ
Regulated DC Power	Gwinstek	GPD3303S
PC	DLINK	NULL
数据采集模块	施耐德	MDV8
高低温箱	苏瑞环试	RGDJS-500

Measurement data:



Result:

Conform

Thermal drift of offset

Measured parameter	Condition	Temperature	Specification
TCV _{OE}	With excursion to $\pm I_{PN}; V_C=5V$	Refer to below	<300 [PPM/°C]

Objects: JCB-25A
Number of objects: 10PCS
Date of test: 06-28-2013
Tester: D.Weii
Note: None

Conditions:

Primary current [A]: 0 to 25A by step of 2.5A ($I_{PN}/10$)
Load [Ω]: 10 k Ω
Power supply voltage [V]: $V_C=5V$
Temperature [°C]: -40,-20,0,25,45,65,85 [°C]
Humidity [%]: Uncontrolled

Equipment:

Device	Brand	Type
DC Current Power	Qing Hua Tech.	XF30DQ
Regulated DC Power	Gwinstek	GPD3303S
PC	DLINK	NULL
数据采集模块	施耐德	MDV8
高低温箱	苏瑞环试	RGDJS-500

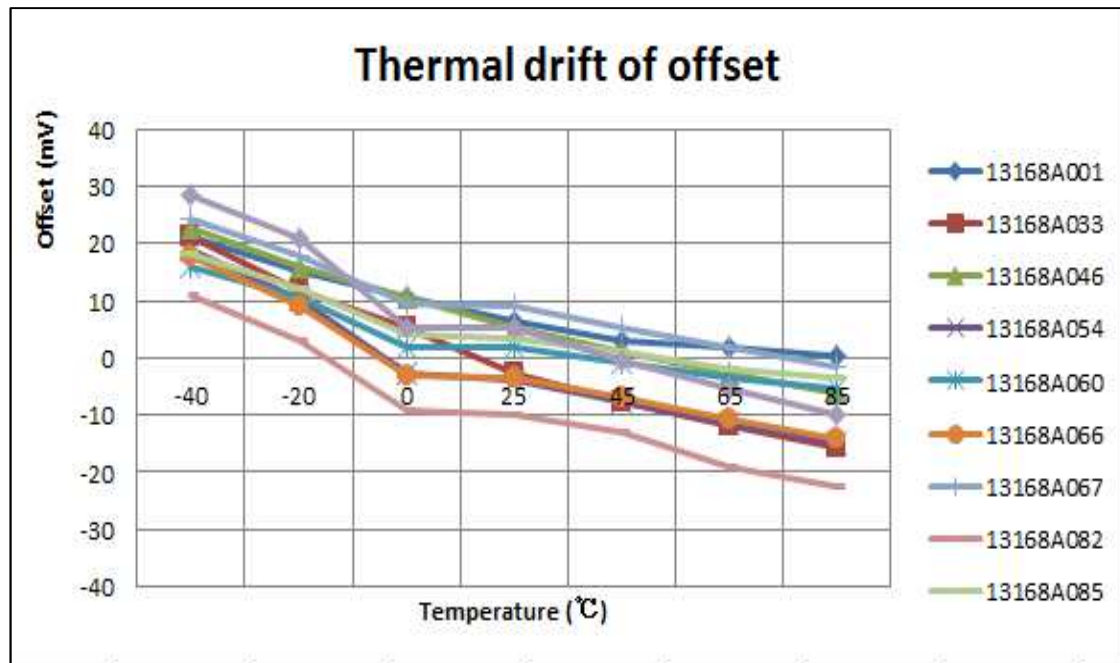
Measurement data:

Temp. (°C)	Offset at 0A (mV)							TCV _{oe} (PPM/°C)							
	-40	-20	0	25	45	65	85	-40~25	-20~25	0~25	25~45	25~65	25~85	Max drift	Full drift
13168A001	21	15	11	7	3	2	0	-90	-77	-66	-69	-46	-41	-90	21
13168A033	21	12	5	-3	-8	-12	-16	-149	-131	-128	-96	-90	-86	-149	37
13168A046	23	16	11	5	1	-3	-6	-108	-95	-88	-83	-79	-76	-108	29
13168A054	19	10	-3	-4	-8	-11	-15	-141	-126	-18	-73	-76	-73	-141	34
13168A060	16	10	2	2	-1	-3	-5	-88	-76	0	-55	-52	-49	-88	22
13168A066	18	9	-3	-3	-7	-11	-14	-130	-112	-2	-74	-73	-73	-130	32
13168A067	24	18	9	9	5	2	-1	-95	-80	-6	-74	-71	-69	-95	26
13168A082	11	3	-9	-10	-13	-19	-22	-129	-114	-11	-63	-90	-83	-129	33
13168A085	18	12	4	3	1	-2	-4	-92	-79	-12	-48	-52	-46	-92	22
13168A087	28	21	5	5	0	-5	-10	-143	-139	0	-110	-105	-100	-143	38

Result:

Conform

Thermal drift of offset





Insulation Voltage

Measured parameter	Condition	Temperature	Specification
Vd Insulation voltage (kV)	Refer to below	Room temperature	$\geq 3\text{KV}$

Objects: JCB-25A
Number of objects: 10PCS
Date of test: 06-28-2013
Tester: D.Weii

Conditions:
Supply voltage: 3KV (AC)
Test time: 1min
Test current: 1mA
Temperature: Room temperature
Humidity: Uncontrolled

Equipment:

Device	Brand	Type
Safety tester (安规测试仪)	苏州嘉宾电子	GPT-9804

Measurement data:

Part No.	Result
13168A011	Pass
13168A023	Pass
13168A131	Pass
13168A193	Pass
13172A001	Pass
13172A013	Pass
13172A099	Pass
13172A144	Pass
13172A150	Pass
13174A044	Pass

Result:

Conform

Response time

Objects: JCB-25A
Number of objects: 5PCS
Date of test: 06-28-2013
Tester: D.Weii

Specification:

Response time to 90% of IPN step t_r <1.5 [ms]

Conditions:

Primary nominal current rms: IPN ± 25 [A]
Power supply: VC 5 [V]
Temperature: T Room temperature
Output load resistance: RL 10 [k Ω]

Equipment:

Device	Brand	Type
Power Supply	Kethly	2400
Oscilloscope	Tektronix	DPO2000
signal generator	Tektronix	AFG3102

Measurement data:

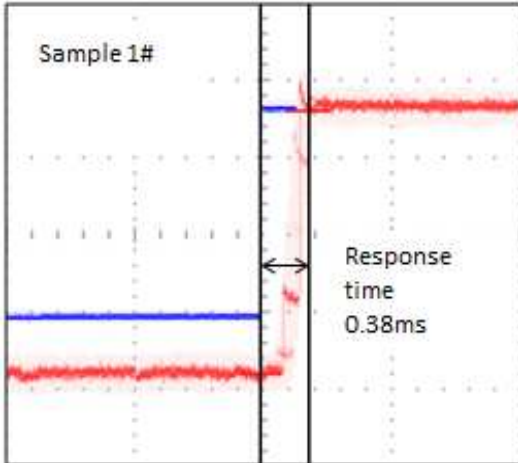
No.	Response time (ms)
Sample 1#	0.38
Sample 2#	0.4
Sample 3#	0.44
Sample 4#	0.42
Sample 5#	0.38

Graph see next page

Result:

Conform

Response time



Vertical
1 ch 2A/div
2 ch 100mV/div
Horizontal
1ms/div

