

## Product/Process Change Notification

PCN#	Effective Date	Issue Date
2011-06-15C-01	2011/7/1	2011/6/15
PCN Classification	Product Category	
Bond Wire Change	Transistor	
Subject		
Copper Bond Wire Implementation		
Affected Product(s)		
2SB1188		
Description of Change(s)		
Improve selected electrical and mechanical properties by changing from gold to copper bond wire		
Content of Change(s)		
Changing from gold to copper bond wire		
Impact(s)		
Attachment(s)		
Reliability Teat Report		

Approval		
Issue by	Alice Lai	e-mail: alice@secosgmbh.com
Development Engineer		Alice Lai
QA Manager		Peter Yang
General Manger		Mathew Liu

## Reliability Test

Date: 2011/6/13

Report NO. : RT201106002

Prepared: Martin Huang

Approved: Mark Huang

TITLE: 2SB1188 Test Result Report

### Test Stage :

Routine Monitor  New Product  Engineer Request  Customer Request

### Test Purpose :

Evaluation test for long term test

### Sample Description :

PKG TYPE	SOT-89	PRODUCT	Bipolar Transistor
D/B PROCESS	Epoxy	W/B PROCESS	Ball Bond

### Test & evaluation Result :

Passed to all items  Fail  
 Passed to option(or temporality)

### Test & evaluation Result :

TEST ITEM	SAMPLE SIZE	TEST TERM	RESULT	REMARK
Low temperature storage (LTS)	22	1000 hrs	pass	---
High temperature storage (HTS)	22	1000 hrs	pass	---
High temperature & humidity storage (THT)	22	1000 hrs	pass	---
Temperature cycling test (TCT)	22	200 cyps	pass	---
Pressure cooker test (PCT)	22	168 hrs	pass	---
Thermal shock test (TST)	22	100 cyps	pass	---
DC life	22	1000 hrs	pass	---

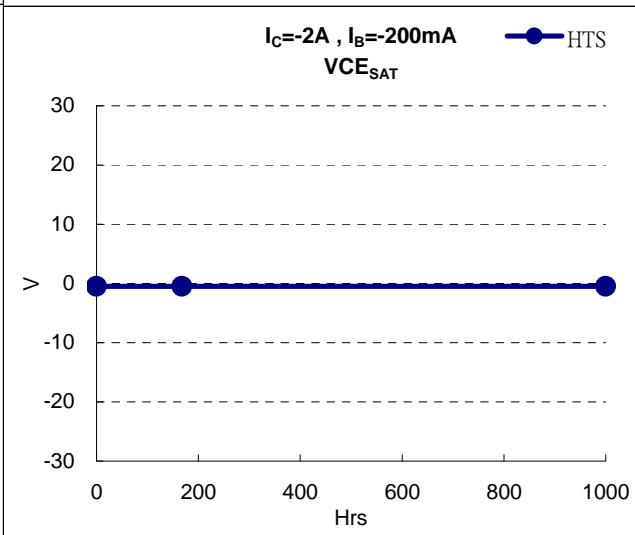
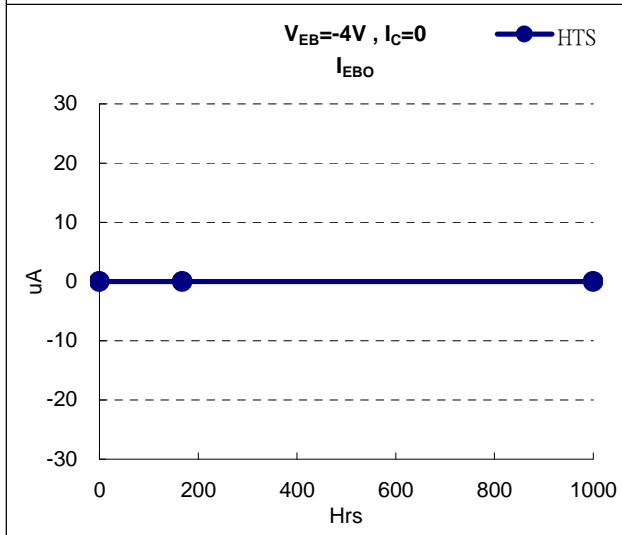
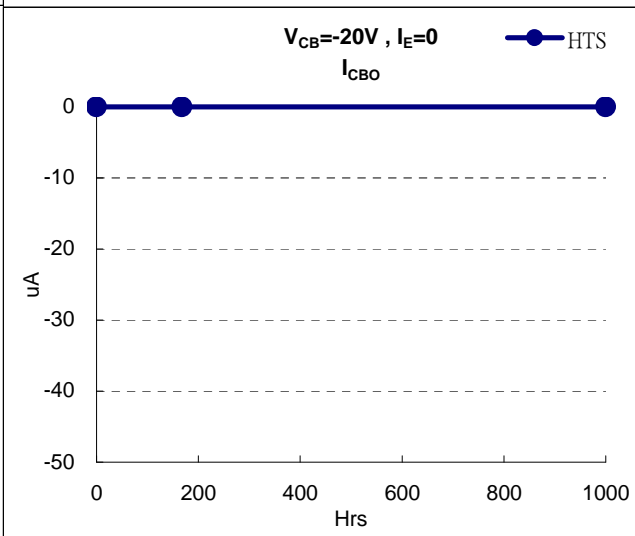
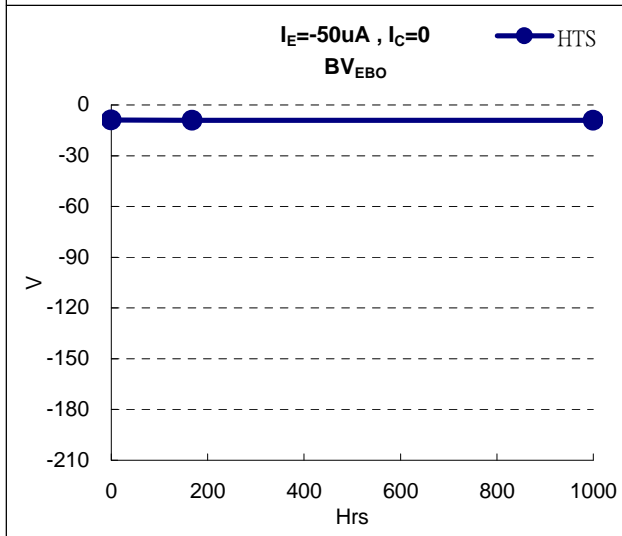
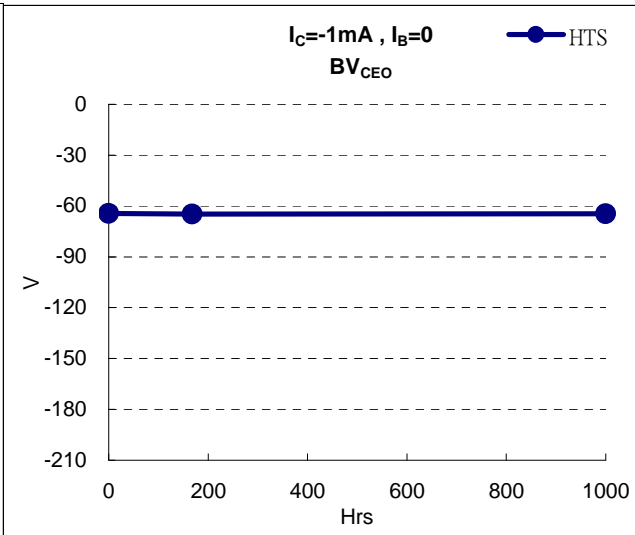
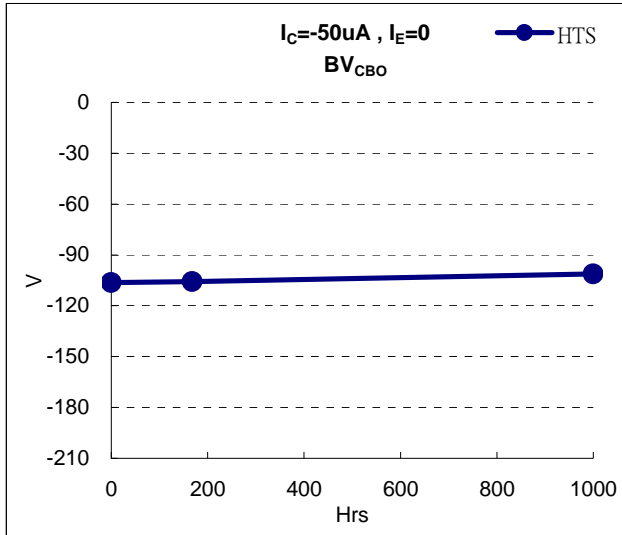
**Test Summary :****1. General Description**

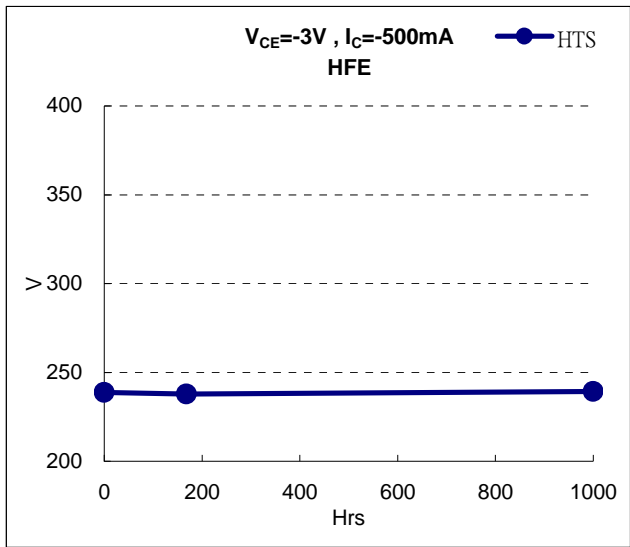
No.	TEST ITEM	TEST CONDITION	SAMPLE SIZE	REJECT
1	LTS	Ta= -50°C	22	0
2	HTS	Ta= 150°C	22	0
3	THT	Ta= 85°C , H=85%	22	0
4	TCT	Ta= -65°C / 15min ~ 150°C / 15min	22	0
5	PCT	Ta= 121°C / H= 100% / 15PSIG	22	0
6	TST	Ta= 0°C / 5min ~ 100°C / 5min	22	0
7	DC life	Ta= 25°C PD=0.5W	22	0

**2. Test Term**

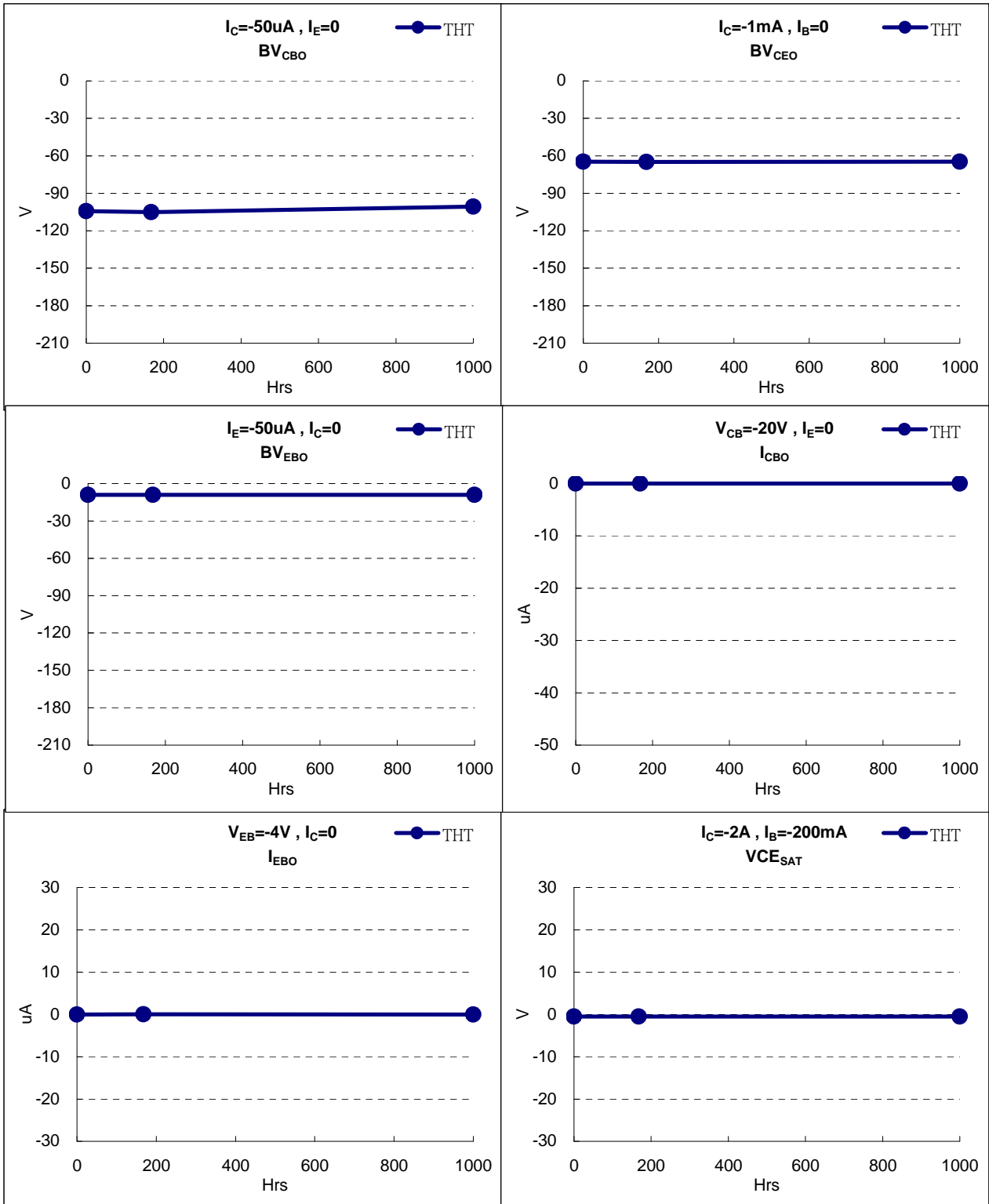
No.	TEST ITEM	READING POINT	CHECK ITEM
1	LTS	0, 168, 1000 hrs	Base on spec.
2	HTS	0, 168, 1000 hrs	Base on spec.
3	THT	0, 168, 1000 hrs	Base on spec.
4	TCT	0, 200 cycs.	Base on spec.
5	PCT	0, 168 hrs	Base on spec.
6	TST	0, 100 cycs.	Base on spec.
7	DC life	0, 168, 1000 hrs	Base on spec.

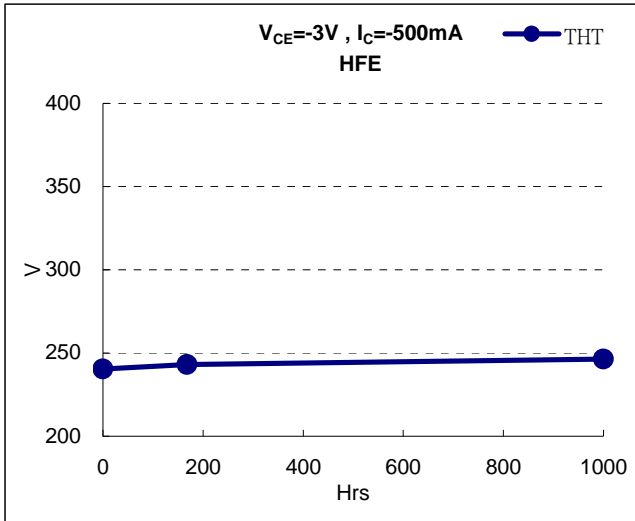
HTS	BVCBO(V)	BVCEO(V)	BVEB(V)	ICBO(uA)	IEBO(uA)	VCEsat(V)	HFE
0	-106.300	-64.427	-8.983	-0.007	-0.005	-0.489	238.705
168	-105.845	-64.814	-9.002	-0.001	0.000	-0.489	237.882
1000	-101.132	-64.668	-8.988	0.000	-0.002	-0.489	239.318



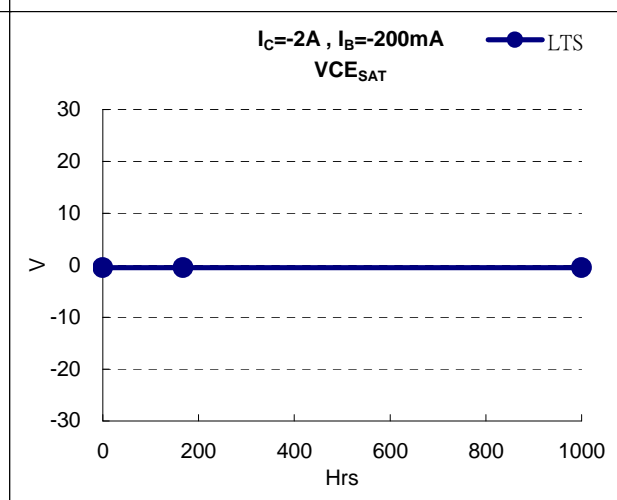
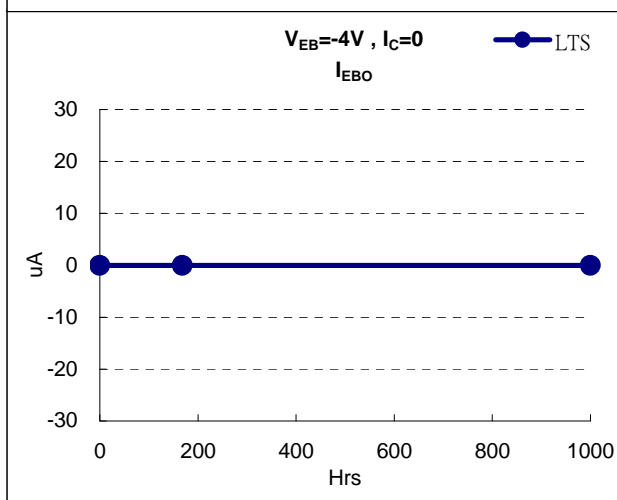
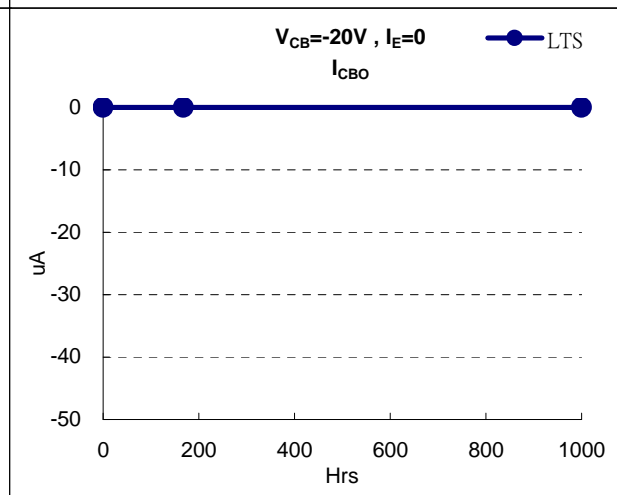
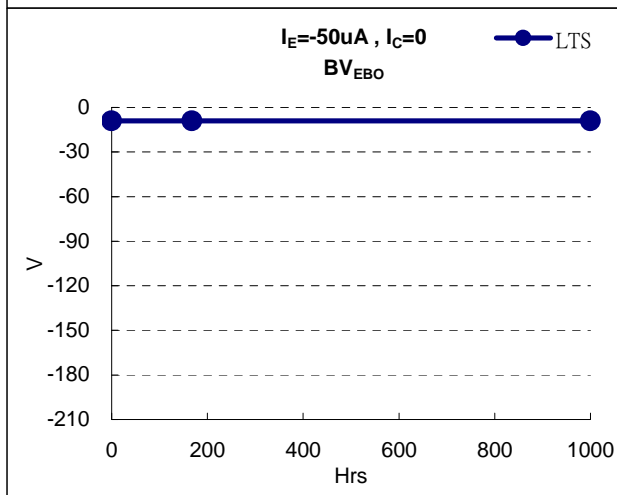
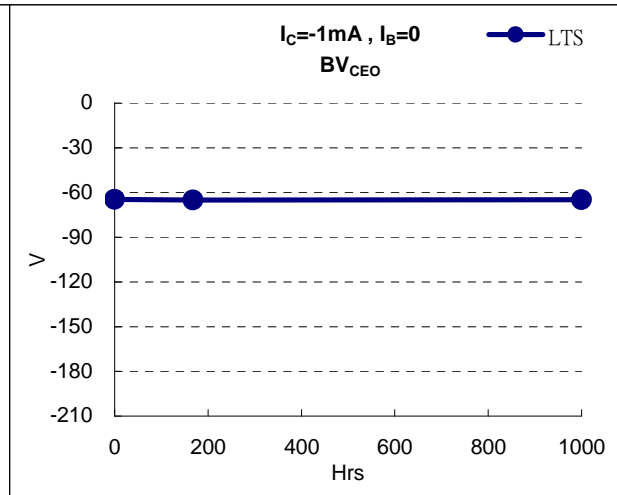
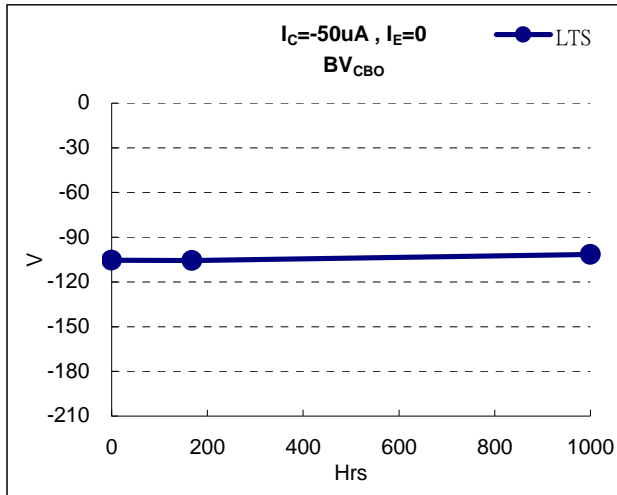


THT	BVCBO(V)	BVCEO(V)	BVEB(V)	ICBO(uA)	IEBO(uA)	VCEsat(V)	HFE
0	-104.345	-64.645	-8.985	-0.007	-0.002	-0.489	240.377
168	-105.127	-64.891	-9.006	-0.001	0.000	-0.487	243.077
1000	-100.595	-64.764	-8.997	0.000	-0.001	-0.485	246.282

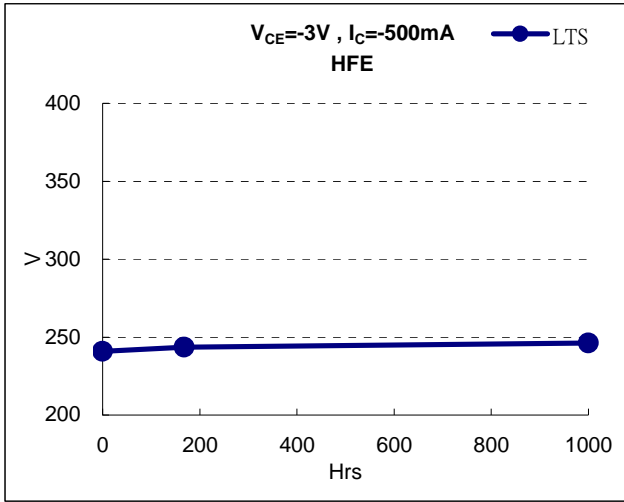




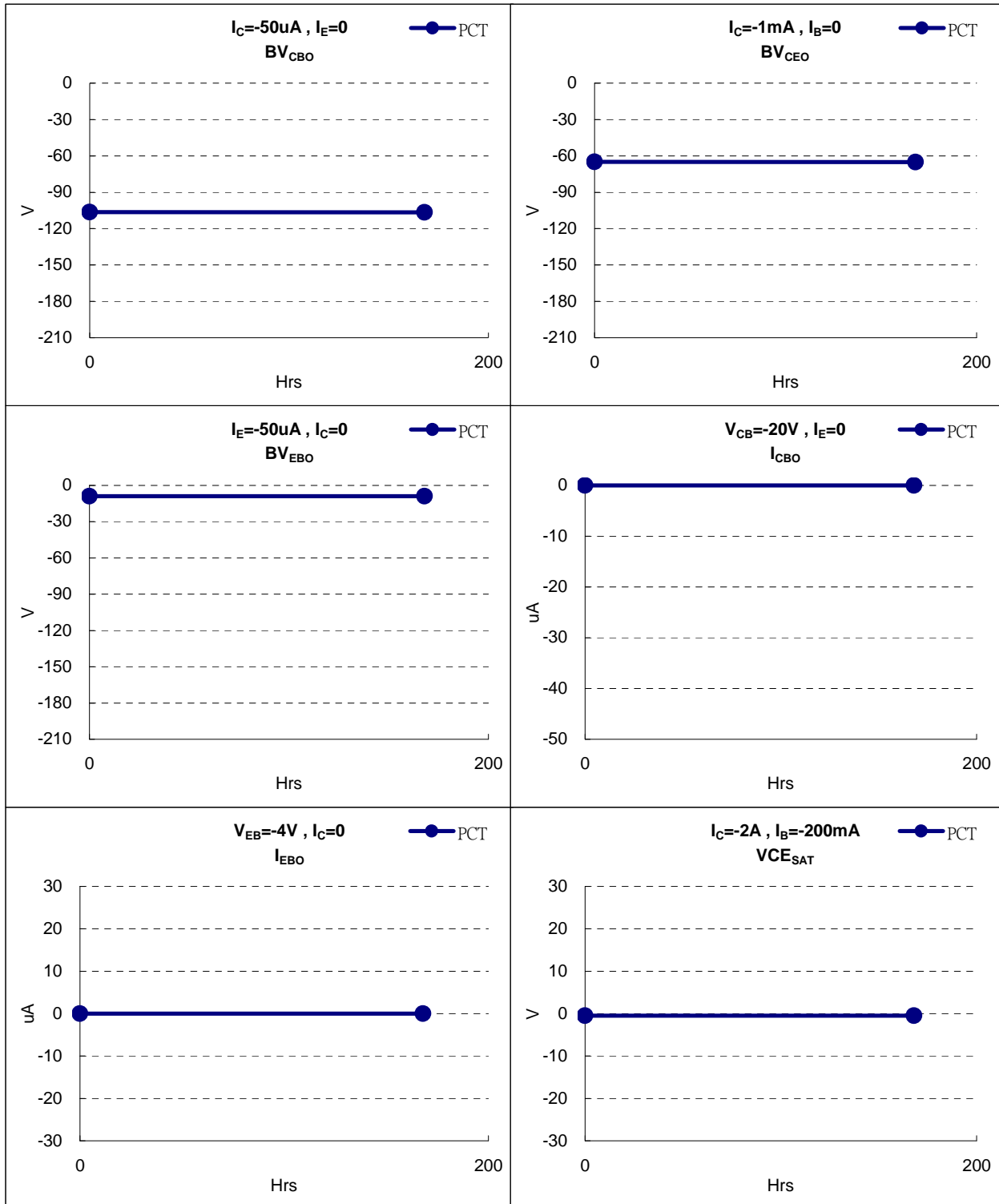
LTS	BVCBO(V)	BVCEO(V)	BVEB(V)	ICBO( $\mu$ A)	IEBO( $\mu$ A)	VCEsat(V)	HFE
0	-105.373	-64.727	-8.973	-0.008	-0.003	-0.489	240.959
168	-105.600	-65.059	-8.997	-0.001	0.000	-0.487	243.632
1000	-101.527	-64.923	-8.982	0.000	-0.001	-0.487	246.127

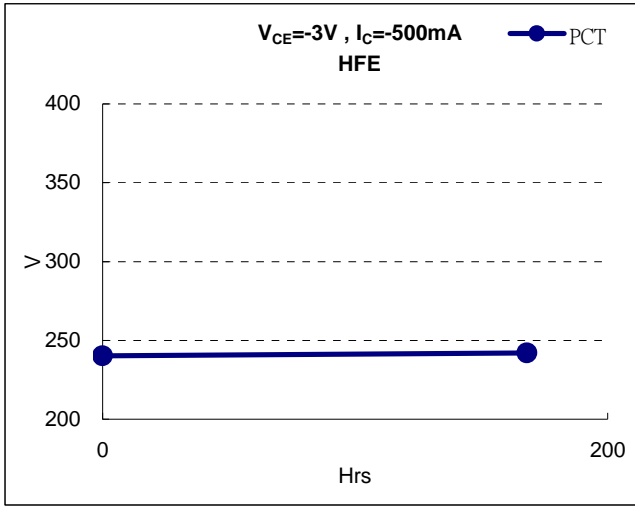




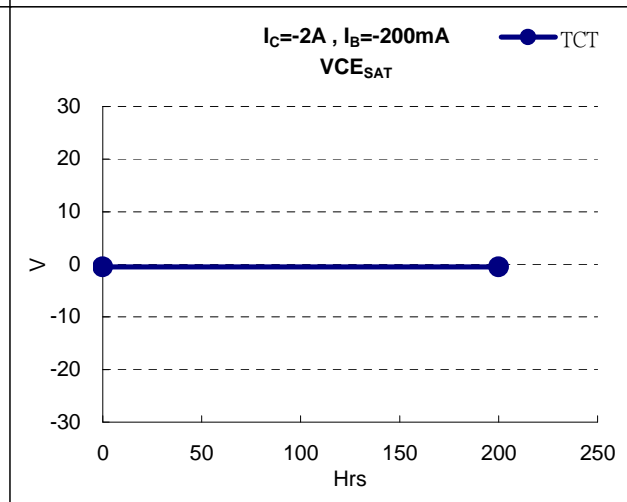
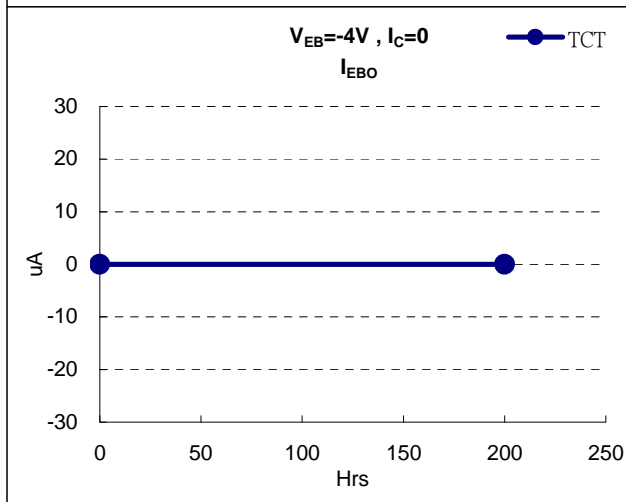
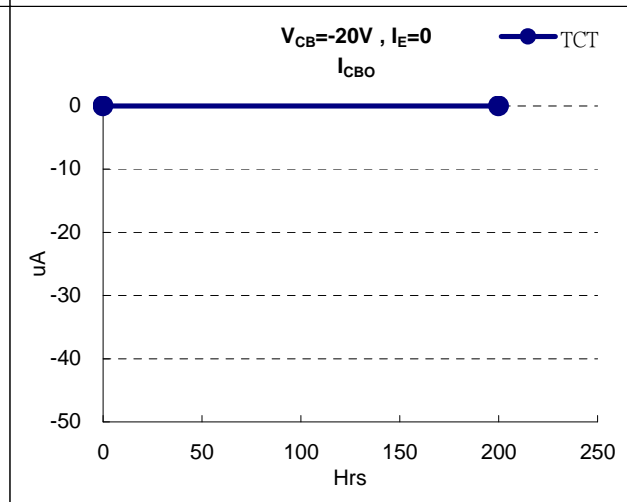
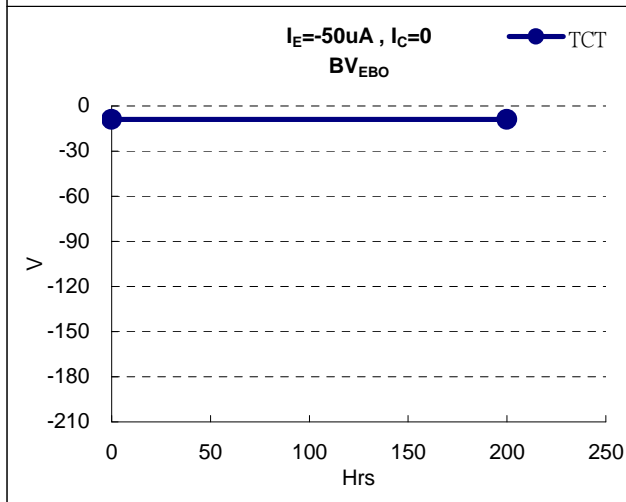
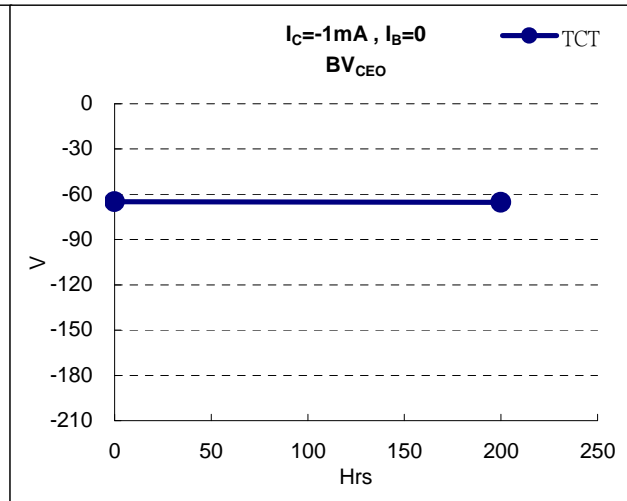
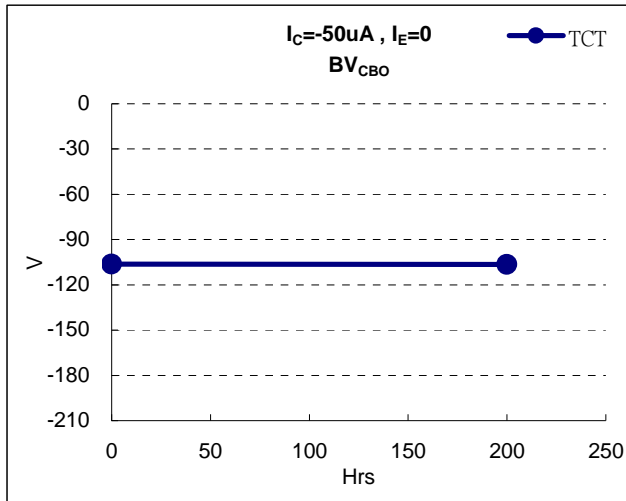


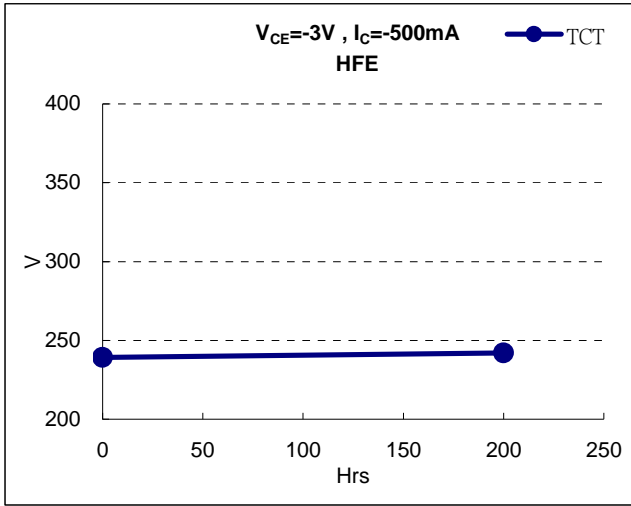
PCT	BVCBO(V)	BVCEO(V)	BVEB(V)	ICBO( $\mu$ A)	IEBO( $\mu$ A)	VCE <sub>sat</sub> (V)	HFE
0	-106.436	-64.855	-8.972	-0.003	-0.004	-0.488	240.286
168	-106.555	-65.073	-8.992	0.000	-0.003	-0.487	242.059



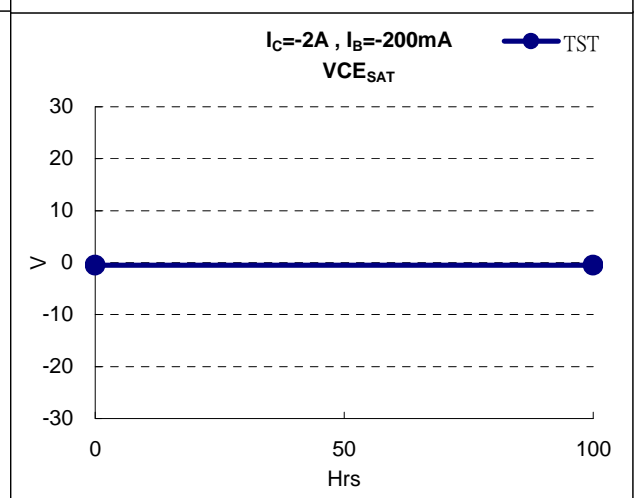
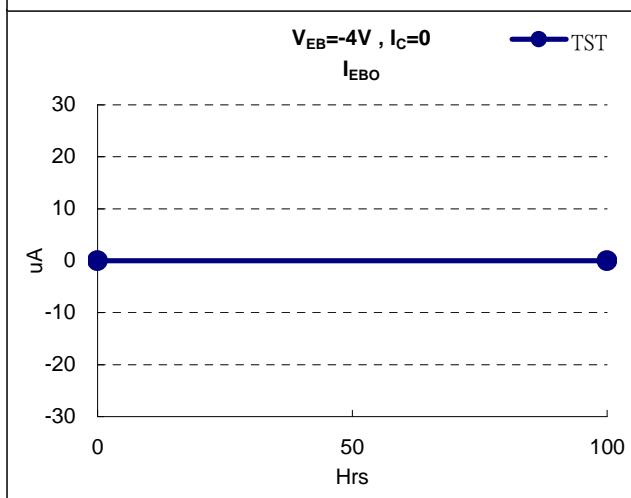
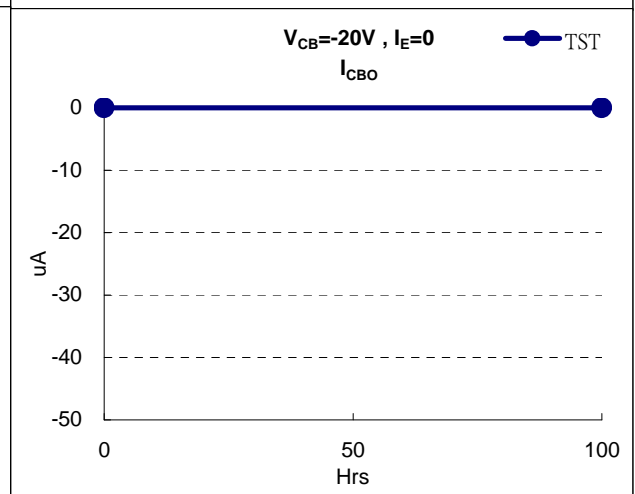
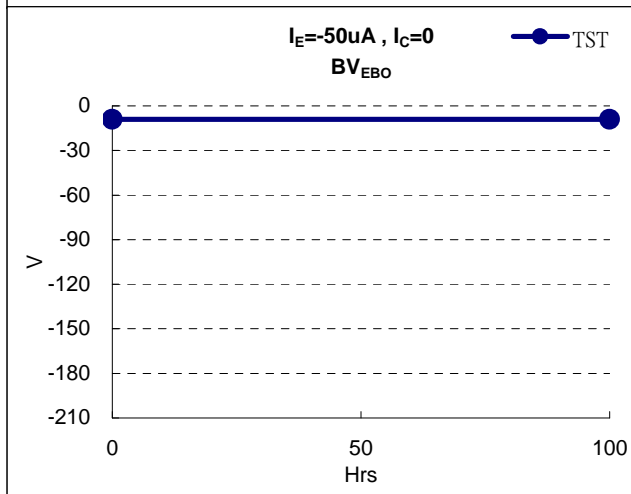
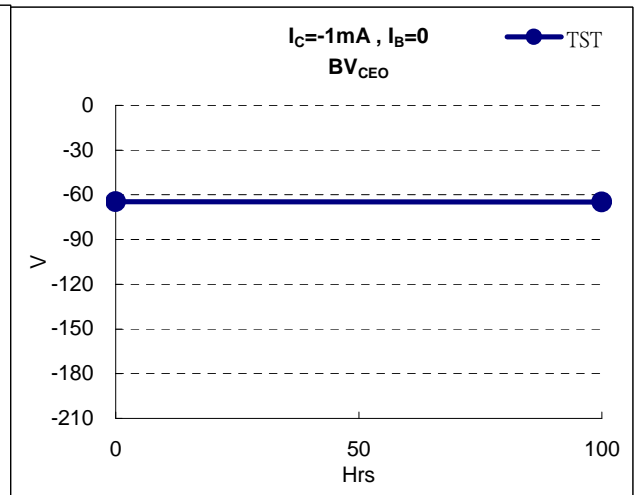
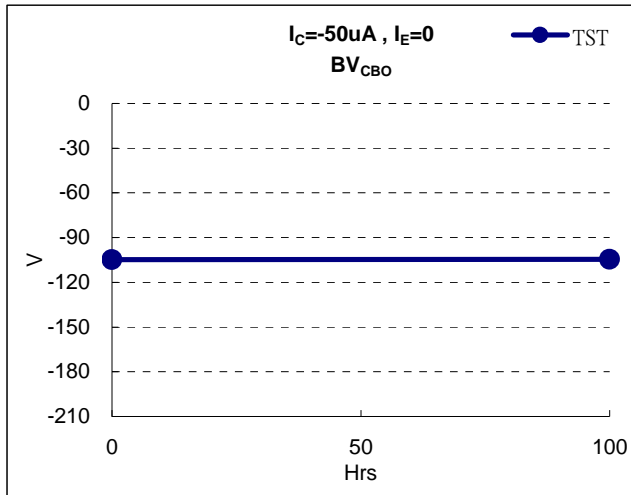


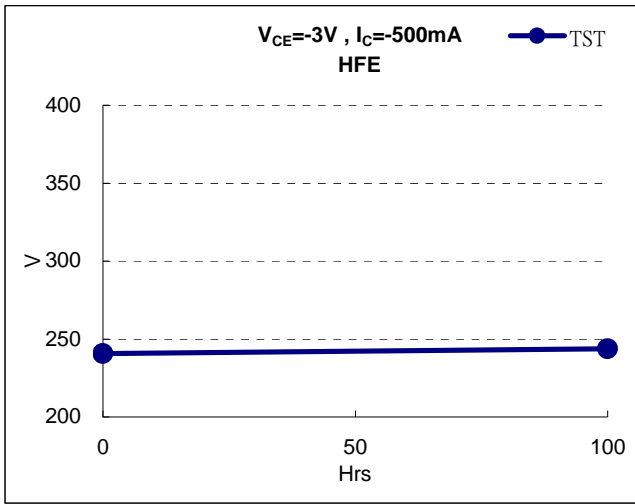
TCT	BVCBO(V)	BVCEO(V)	BVEB(V)	ICBO( $\mu$ A)	IEBO( $\mu$ A)	VCEsat(V)	HFE
0	-106.173	-64.914	-8.968	-0.009	-0.004	-0.489	239.095
200	-106.573	-65.241	-8.998	0.000	-0.001	-0.488	242.009





TST	BVCBO(V)	BVCEO(V)	BVEB(V)	ICBO(uA)	IEBO(uA)	VCEsat(V)	HFE
0	-104.886	-64.559	-8.975	-0.004	-0.004	-0.490	240.595
100	-104.518	-64.795	-9.002	-0.001	0.000	-0.488	243.723





DC - Life	BVCBO(V)	BVCEO(V)	BVEB(V)	ICBO(uA)	IEBO(uA)	VCEsat(V)	HFE
0	-103.659	-64.373	-8.994	-0.007	0.000	-0.489	243.450
168	-104.505	-64.723	-9.017	-0.001	0.000	-0.489	242.918
1000	-98.877	-64.541	-9.000	0.000	-0.001	-0.488	246.055

