www.SeCosGmbH.com

Headquarter Address:
8F.No.33, Lane 155, Sec.3, Bei-Shen Rd.,
Shen Keng Dist, New Taipei City, Taiwan
TEL: +886-2-26620988
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Product/Process Change Notification

PCN#	Effective Date	Issue Date
2017-05-25C-03	2017/8/25	2017/5/25

PCN Classification	Product Category
Major	Transistor

Subject

Production process change from lead free to halogen free.

Affected Product(s)

MMBT3906

Description of Change(s)

To meet EU environment requirement, we implement halogen free to our products.

Content of Change(s)

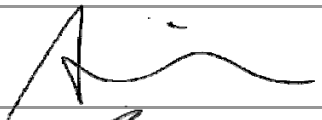
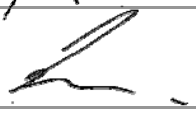
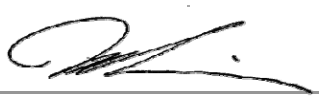
Adding “-C” to part number.

Impact(s)

N/A

Attachment(s)

SGS report. Reliability report.

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

For more information, please contact us directly or visit our website http://www.secosgmbh.com

Test Report

REPORT NO. : **CRSSA/23019-2/16**
CRS REF. : **CRSSA/16/2277/Hitachi**
DATE REPORTED : 07th Oct., 2016
PAGE : 1 of 6

Hitachi Chemical (Selangor) Sdn. Bhd.
No. 2, Persiaran Budiman, Seksyen 23,
40300 Shah Alam, Selangor Darul Ehsan

The following merchandise was (were) submitted and identified by the client as:

Sample Description	:	EPOXY MOLDING COMPOUND
Item No	:	GE-200 series
Sample Receiving Date	:	29/09/2016
Testing Period	:	29/09/2016 to 07/10/2016

Test Result : Please see the next page

Analyst : Shirley Then

SGS (MALAYSIA) SDN. BHD.

TAY SIAM PINE
B.Sc.(HONS) MMIC
ASSISTANT LAB MANAGER

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Test Report

REPORT NO. : **CRSSA/23019-2/16**
CRS REF. : **CRSSA/16/2277/Hitachi**
DATE REPORTED : 07th Oct., 2016
PAGE : 2 of 6

Company : **Hitachi Chemical (Selangor) Sdn. Bhd.**
No. 2, Persiaran Budiman, Seksyen 23,
40300 Shah Alam, Selangor Darul Ehsan

Test result:

Sample Description : EPOXY MOLDING COMPOUND
Item No : GE-200 series

Optional: RoHS Directive 2011/65/EU, priority substances

Test Item(s):	Unit	Test Method	Results	MDL	Limit
Hexabromocyclododecane (HBCDD) (Cas#25637-99-4 & 3194-55-6)	mg/kg	Based on IEC 62321:2008 (Determination of HBCDD by GC-MS)	N.D.	10	-

Note:

(a) Reference Information: Directive 2011/65/EU recasting RoHS directive 2002/95/EC: Hexabromo-cyclododecane (HBCDD), Bis (2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP) and Dibutyl phthalate (DBP) are considered as a priority for risk evaluation and substance restriction.
(b) - = not regulated
(c) N.D. = Not Detected
(d) Testing is based on original basis

Analyst: Shirley Then

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Test Report

REPORT NO. : **CRSSA/23019-2/16**
CRS REF. : **CRSSA/16/2277/Hitachi**
DATE REPORTED : 07th Oct., 2016
PAGE : 3 of 6

Company : **Hitachi Chemical (Selangor) Sdn. Bhd.**
No. 2, Persiaran Budiman, Seksyen 23,
40300 Shah Alam, Selangor Darul Ehsan

Test result:

Sample Description : EPOXY MOLDING COMPOUND
Item No : GE-200 series

RoHS Directive 2011/65/EU Annex II (amended by Directive (EU) 2015/863)

Test Item(s):	Unit	Test Method	Results	MDL	Limit
Bis (2-ethylhexyl) phthalate (DEHP) (CAS No. 117-81-7)	mg/kg	Based on EN 14372:2004 (Determination of DEHP by GC-MS)	N.D.	30	1000
Butyl benzyl phthalate (BBP) (CAS No. 85-68-7)	mg/kg	Based on EN 14372:2004 (Determination of BBP by GC-MS)	N.D.	30	1000
Dibutyl phthalate (DBP) (CAS No. 84-74-2)	mg/kg	Based on EN 14372:2004 (Determination of DBP by GC-MS)	N.D.	30	1000
Diisobutyl phthalate (DIBP) (CAS No. 84-69-5)	mg/kg	Based on EN 14372:2004 (Determination of DIBP by GC-MS)	N.D.	30	1000

Note : (a) mg/kg = ppm ; (0.1wt% = 1000ppm)
(b) N.D. = Not Detected
(c) MDL = Method Detection Limit
(d) - = Not regulated
(e) Testing is based on original basis

Analyst: Shirley Then

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Test Report

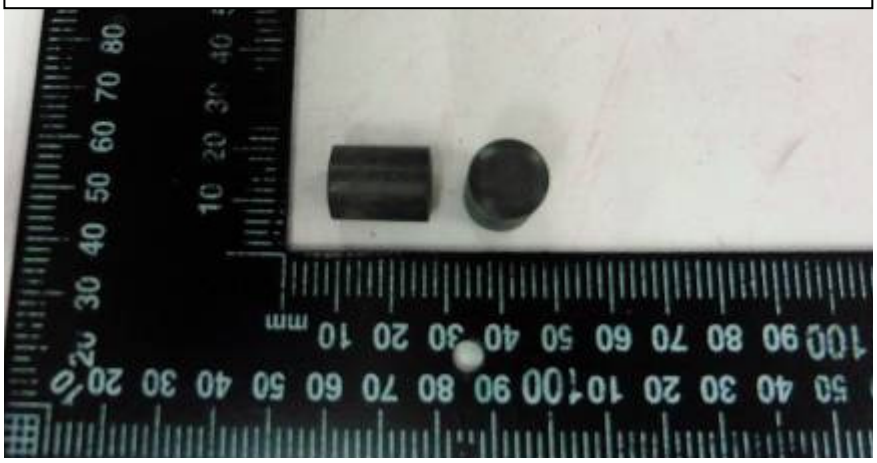
REPORT NO. : **CRSSA/23019-2/16**
CRS REF. : **CRSSA/16/2277/Hitachi**
DATE REPORTED : 07th Oct., 2016
PAGE : 4 of 6

Company : **Hitachi Chemical (Selangor) Sdn. Bhd.**
No. 2, Persiaran Budiman, Seksyen 23,
40300 Shah Alam, Selangor Darul Ehsan

Test Result

Sample Description : EPOXY MOLDING COMPOUND
Item No : GE-200 series

Hitachi Chemical (Selangor) Sdn. Bhd.
CRSSA/23019-2/16



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Test Report

DETERMINATION OF HBCDD CONTENT

Sample Preparation

↓

Weight sample (0.5-4.0g) into extraction thimble

↓

Soxhlet Extraction with Toluene

↓

Filter through 0.45 um membrane filter

↓

Analyses by GC-MS (with appropriate dilution)

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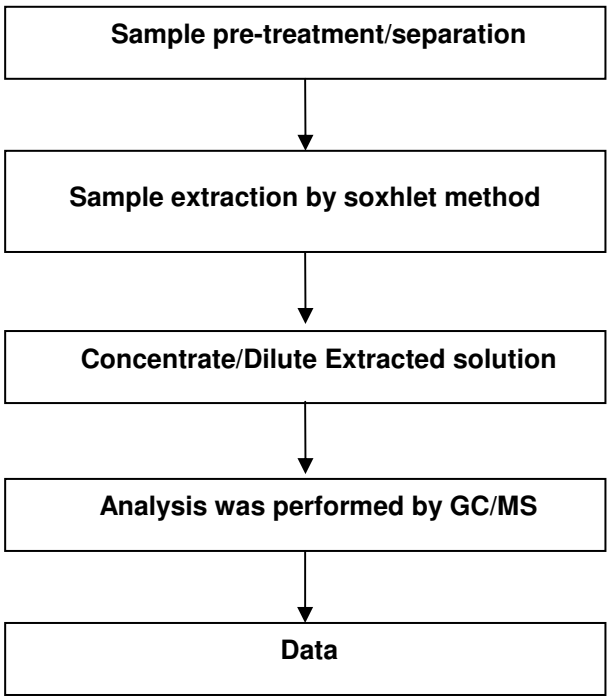
Test Report

Analytical flow chart of Phthalates Content



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Test Report

REPORT NO. : **CRSSA/22293/16**
CRS REF. : **CRSSA/16/2163/Hitachi**
DATE REPORTED : 22nd Sept., 2016
PAGE : 1 of 4

Hitachi Chemical (Selangor) Sdn. Bhd.
No. 2, Persiaran Budiman, Seksyen 23,
40300 Shah Alam, Selangor Darul Ehsan

The following merchandise was (were) submitted and identified by the client as:

Sample Description	:	EPOXY MOLDING COMPOUND
Item No	:	GE-200 series
Sample Receiving Date	:	15/09/2016
Testing Period	:	15/09/2016 to 22/09/2016

Test Result : Please see the next page

Analysts : Tan Mei Ann & Leong Ryh Cherng

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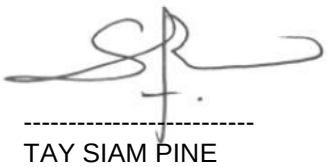

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Test Report

REPORT NO. : **CRSSA/22293/16**
CRS REF. : **CRSSA/16/2163/Hitachi**
DATE REPORTED : 22nd Sept., 2016
PAGE : 2 of 4

Company : **Hitachi Chemical (Selangor) Sdn. Bhd.**
No. 2, Persiaran Budiman, Seksyen 23,
40300 Shah Alam, Selangor Darul Ehsan

Test Result

Sample Description : EPOXY MOLDING COMPOUND
Item No : GE-200 series

Test Item (s) :	Unit	Method	Results	MDL
Antimony (Sb)	mg/kg	ICP-OES as per US EPA 3052 (acid digestion method)	N.D.	2
Halogen	---	---	---	---
Halogen-Fluorine (F)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC method for Fluorine content.	N.D	50
Halogen-Chlorine (Cl)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC method for Chlorine content.	105	50
Halogen-Bromine (Br)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC method for Bromine content.	N.D	50
Halogen-Iodine (I)	mg/kg	With reference to BS EN 14582. Analysis was performed by IC method for Iodine content.	N.D	50

Note : (a) mg/kg = ppm
(b) N.D. = Not Detected
(c) MDL = Method Detection Limit
(d) --- = Not Conducted
(e) Testing is based on original basis

Analysts: Tan Mei Ann & Leong Ryh Cherng

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Test Report

REPORT NO. : **CRSSA/22293/16**
CRS REF. : **CRSSA/16/2163/Hitachi**
DATE REPORTED : 22nd Sept., 2016
PAGE : 3 of 4

Company : **Hitachi Chemical (Selangor) Sdn. Bhd.**
No. 2, Persiaran Budiman, Seksyen 23,
40300 Shah Alam, Selangor Darul Ehsan

Test Result

Sample Description : EPOXY MOLDING COMPOUND
Item No : GE-200 series

Hitachi Chemical (Selangor) Sdn. Bhd.
CRSSA/22293/16

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Test Report

REPORT NO. : **CRSSA/22293/16**
CRS REF. : **CRSSA/16/2163/Hitachi**
DATE REPORTED : 22nd Sept., 2016
PAGE : 4 of 4

1. MICROWAVE ASSISTED ACID DIGESTION OF SILICEOUS AND ORGANICALLY BASED METRICES (US EPA 3052)

Sample Preparation
↓
Weight sample (0.2-0.5g) into digestion vessel
↓
Acid digestion (HF and HNO_3) – Microwave
↓
"Totally Dissolved"
↓
Filtration
↓
Analyses by ICP

2. DETERMINATION OF HALOGEN CONTENT

Sample pretreatment
↓
Weighting and putting sample in cell
↓
Combustion / Absorption
↓
Dilution to fixed volume
↓
Analyses by IC

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Test Report

REPORT NO. : **CRSSA/17198-1/16**
CRS REF. : **CRSSA/16/1653/Hitachi**
DATE REPORTED : 26th July, 2016
PAGE : 1 of 5

Hitachi Chemical (Selangor) Sdn. Bhd.
No. 2, Persiaran Budiman, Seksyen 23,
40300 Shah Alam, Selangor Darul Ehsan

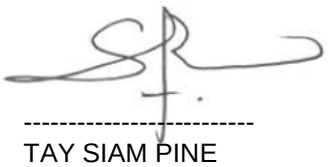
The following merchandise was (were) submitted and identified by the client as:

Sample Description	:	EPOXY MOLDING COMPOUND
Item No	:	GE-200 SERIES
Sample Receiving Date	:	20/07/2016
Testing Period	:	20/07/2016 to 26/07/2016

Test Result : Please see the next page

Analysts : Tan Mei Ann & Shirley Then

SGS (MALAYSIA) SDN. BHD.



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Test Report

REPORT NO. : **CRSSA/17198-1/16**
CRS REF. : **CRSSA/16/1653/Hitachi**
DATE REPORTED : 26th July, 2016
PAGE : 2 of 5

Company : **Hitachi Chemical (Selangor) Sdn. Bhd.**
No. 2, Persiaran Budiman, Seksyen 23,
40300 Shah Alam, Selangor Darul Ehsan

Test Result

Sample Description : EPOXY MOLDING COMPOUND
Item No : GE-200 SERIES

Test Item (s) :	Unit	Method	Instrument	MDL	Results	Limit
Chromium VI (Cr6+)	ppm	IEC 62321 : 2008 Annex C	UV Vis - Spectrophotometer	2	N.D.	1000
Cadmium (Cd)	ppm	IEC 62321-5 : 2013	ICP OES	2	N.D.	100
Mercury (Hg)	ppm	IEC 62321-4 : 2013	ICP OES	2	N.D.	1000
Lead (Pb)	ppm	IEC 62321-5 : 2013	ICP OES	2	N.D.	1000

NOTE: (a) N.D. = Not detected (<MDL)
(b) ppm = mg/kg
(c) MDL= Method Detection Limit
(d) Testing is based on original basis

Analyst: Tan Mei Ann

SGS (MALAYSIA) SDN. BHD.

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Test Report

REPORT NO. : **CRSSA/17198-1/16**
CRS REF. : **CRSSA/16/1653/Hitachi**
DATE REPORTED : 26th July, 2016
PAGE : 3 of 5

Company : **Hitachi Chemical (Selangor) Sdn. Bhd.**
No. 2, Persiaran Budiman, Seksyen 23,
40300 Shah Alam, Selangor Darul Ehsan

Test Result

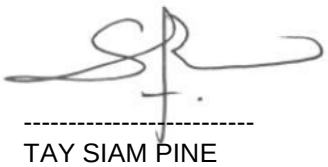
Sample Description : EPOXY MOLDING COMPOUND
Item No : GE-200 SERIES

Test Item (s) :	Unit	Method	Instrument	MDL	Result	Limit
PBBs (Polybrominated Biphenyls)						
Monobromo Biphenyl	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	1000
Dibromo Biphenyl	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Tribromo Biphenyl	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Tetrabromo Biphenyl	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Pentabromo Biphenyl	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Hexabromo Biphenyl	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Heptabromo Biphenyl	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Octabromo Biphenyl	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Nonabromo Biphenyl	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Decabromo Biphenyl	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
PBDEs (Polybrominated Diphenyl ethers)						1000
Monobromo Diphenyl Ether	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Dibromo Diphenyl Ether	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Tribromo Diphenyl Ether	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Tetrabromo Diphenyl Ether	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Pentabromo Diphenyl Ether	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Hexabromo Diphenyl Ether	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Heptabromo Diphenyl Ether	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Octabromo Diphenyl Ether	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Nonabromo Diphenyl Ether	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	
Decabromo Diphenyl Ether	ppm	GCMS as per IEC 62321- 6: 2015	GCMS	5	N.D.	

NOTE: (a) N.D. = Not detected (<MDL)
(b) MDL = Method Detection Limit
(c) Testing is based on original basis

Analyst : Shirley Then

SGS (MALAYSIA) SDN. BHD.



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B.Sc.(HONS) MMIC
ASSISTANT LAB MANAGER

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Test Report

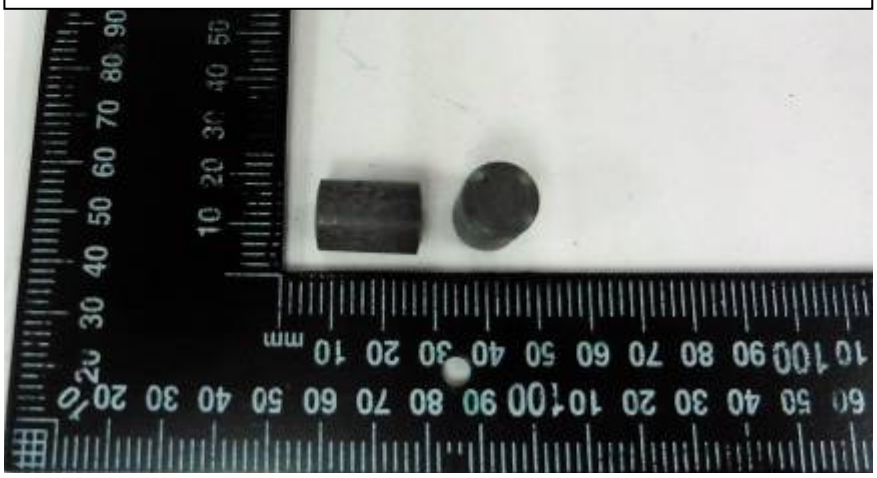
REPORT NO. : **CRSSA/17198-1/16**
CRS REF. : **CRSSA/16/1653/Hitachi**
DATE REPORTED : 26th July, 2016
PAGE : 4 of 5

Company : **Hitachi Chemical (Selangor) Sdn. Bhd.**
No. 2, Persiaran Budiman, Seksyen 23,
40300 Shah Alam, Selangor Darul Ehsan

Test Result

Sample Description : EPOXY MOLDING COMPOUND
Item No : GE-200 SERIES

Hitachi Chemical (Selangor) Sdn. Bhd.
CRSSA/17198-1/16



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Test Report

REPORT NO. : **CRSSA/17198-1/16**
CRS REF. : **CRSSA/16/1653/Hitachi**
DATE REPORTED : 26th July, 2016
PAGE : 5 of 5

1. DETERMINATION OF CADMIUM CONTENT BY IEC 62321-5 2013

Sample Receiving and Registration
↓
Sample Preparation
↓
Weight sample (0.2-0.5g) into digestion vessel
↓
Acid digestion (Microwave)
↓
"Totally Dissolved"
↓
Filtration
↓
Analyses by ICP

2. DETERMINATION OF LEAD CONTENT BY IEC 62321-5 2013

Sample Receiving and Registration
↓
Sample Preparation
↓
Weight sample (0.2-0.5g) into digestion vessel
↓
Acid digestion (Microwave)
↓
"Totally Dissolved"
↓
Filtration
↓
Analyses by ICP

3. DETERMINATION OF MERCURY CONTENT BY IEC 62321-4 2013

Sample Receiving and Registration
↓
Sample Preparation
↓
Weight sample (0.1-0.5g) into digestion vessel
↓
Acid digestion (Microwave)
↓
"Totally Dissolved"
↓
Filtration
↓
Analyses by ICP

4. DETERMINATION OF HEXAVALENT CHROMIUM BY IEC 62321 2008

Sample Preparation
↓
Add colour-developing reagent
↓
Acidify with H_2SO_4
↓
Let stand for 5-10 min
↓
Analyses by UV- Spectrophotometer (540 nm)

5. DETERMINATION OF PBB/PBDE WITH GC-MS BY IEC 62321-6 2015

Sample Preparation
↓
Weight sample (0.5-4.0g) into extraction thimble
↓
Soxhlet Extraction with Toluene
↓
Filter through 0.45 um membrane filter
↓
Analyses by GC-MS (with appropriate dilution)

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SeCoS Corporation

Reliability Testing Summary Report

Date: 2017/05/12 Document No.: SK17 -05- 202

Test Item	P/N	Test Condition	(LTPD)	Sample Numbers	Allow Fall Numbers	Fall Numbers	Result
HTRB High Temp Reverse Bias	MMBT3906-C	150℃ ± 5℃, 80%VR, T = 1000 hrs		77	0	0	ACC
HTSL High Temperature Storage Life	MMBT3906-C	150℃, T = 1000 hrs		77	0	0	ACC
PCT Pressure Cooker Test	MMBT3906-C	121℃, 29.7PSIG, 168 hrs		77	0	0	ACC
TCT Temperature Cycle Test	MMBT3906-C	-55℃/30min, 150℃/30min, For 1000 Cycle		77	0	0	ACC
THT High Temperature High Humidity Test	MMBT3906-C	85 ± 2℃, RH=85±5%, 1000 hrs		77	0	0	ACC
H3TRB High Temper High Humidity Reverse Bies Test	MMBT3906-C	85 ± 2℃, RH=85±5%, 80%VR, 1000 hrs		77	0	0	ACC
Resistance to Solder Heat Test	MMBT3906-C	270℃±5℃, 7Sec +2/-0Sec		77	0	0	ACC

Judgment:

■ **qualified** □ **unqualified**

Testing Start Date: 2017.03.20 Testing End Date: 2017.05.12

Tester: King Huang Approval: Peter Yang

SeCoS Corporation

High Temperature Reverse Bias Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 150℃ ± 5℃, 80%VR, T = 1000 hrs
Test Date: 2017.03.20 ~ 2017.05.02
Test Standard : JESD22 STANDARD Method-A108
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
1	-52.77V	218.2	-115.0mV	-53.99V	207.5	-116.4mV
2	-53.66V	204.8	-122.8mV	-54.84V	220.3	-118.3mV
3	-54.31V	215.7	-126.6mV	-55.02V	194.8	-126.2mV
4	-54.48V	217.3	-134.0mV	-53.23V	196.4	-126.9mV
5	-53.81V	214.9	-119.7mV	-55.04V	196.2	-121.1mV
6	-53.21V	202.5	-121.8mV	-52.85V	214.2	-129.5mV
7	-53.66V	208.4	-128.1mV	-52.72V	204.9	-127.3mV
8	-54.93V	195.4	-117.7mV	-53.89V	207.6	-115.7mV
9	-52.71V	195.6	-111.1mV	-53.25V	199.0	-110.6mV
10	-52.70V	201.5	-123.7mV	-53.99V	208.1	-133.4mV
11	-52.36V	206.7	-123.4mV	-52.71V	217.6	-130.7mV
12	-53.84V	202.8	-118.6mV	-52.47V	211.5	-117.8mV
13	-54.85V	205.0	-110.7mV	-52.48V	205.6	-122.8mV
14	-52.62V	215.6	-111.3mV	-53.59V	203.9	-108.9mV
15	-54.93V	203.5	-119.4mV	-53.17V	213.3	-133.1mV
16	-54.88V	211.0	-119.5mV	-54.17V	207.9	-126.4mV
17	-53.85V	192.7	-109.4mV	-52.86V	198.4	-116.1mV
18	-54.86V	212.1	-113.7mV	-54.33V	219.9	-128.4mV
19	-54.32V	204.0	-115.1mV	-53.35V	211.1	-125.6mV
20	-54.56V	193.8	-109.9mV	-55.31V	213.6	-133.9mV
21	-54.77V	214.9	-110.1mV	-52.57V	200.5	-124.8mV
22	-55.05V	221.0	-109.6mV	-54.23V	218.0	-112.3mV
23	-52.36V	196.5	-109.8mV	-53.30V	216.5	-109.6mV
24	-54.62V	212.9	-129.7mV	-53.28V	209.3	-116.3mV
25	-52.20V	203.1	-111.8mV	-54.31V	207.7	-114.2mV
26	-53.76V	208.9	-128.6mV	-54.82V	199.9	-109.0mV
27	-54.44V	212.1	-121.8mV	-52.82V	195.6	-115.8mV
28	-52.19V	202.0	-111.8mV	-54.91V	194.4	-120.6mV
29	-52.28V	200.0	-121.9mV	-53.27V	200.3	-116.4mV

SeCoS Corporation

High Temperature Reverse Bias Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 150℃ ± 5℃, 80%VR, T = 1000 hrs
Test Date: 2017.03.20 ~ 2017.05.02
Test Standard : JESD22 STANDARD Method-A108
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
30	-53.60V	193.6	-108.6mV	-53.15V	195.3	-119.4mV
31	-53.81V	213.5	-119.4mV	-52.52V	208.9	-115.0mV
32	-52.97V	194.6	-126.3mV	-52.91V	215.7	-113.5mV
33	-53.02V	213.0	-126.5mV	-55.02V	215.1	-124.4mV
34	-53.39V	215.8	-109.6mV	-52.58V	210.1	-120.1mV
35	-52.62V	193.1	-132.2mV	-53.41V	208.4	-109.9mV
36	-54.66V	200.0	-126.9mV	-54.87V	207.1	-129.3mV
37	-52.30V	208.5	-128.5mV	-53.61V	209.4	-130.3mV
38	-54.73V	205.8	-119.0mV	-54.67V	200.0	-117.6mV
39	-55.31V	206.5	-111.9mV	-54.79V	195.3	-108.2mV
40	-55.36V	215.8	-109.8mV	-54.65V	218.2	-115.0mV
41	-52.71V	201.7	-126.6mV	-53.14V	217.3	-114.5mV
42	-55.00V	200.8	-116.3mV	-52.58V	193.6	-129.1mV
43	-52.98V	192.8	-113.0mV	-54.87V	207.4	-120.7mV
44	-53.75V	201.0	-111.3mV	-53.25V	202.9	-116.3mV
45	-55.03V	202.7	-118.0mV	-52.61V	220.4	-126.3mV
46	-55.20V	197.1	-132.0mV	-52.24V	215.8	-124.4mV
47	-53.76V	201.6	-111.1mV	-53.36V	194.3	-119.4mV
48	-53.50V	198.0	-116.5mV	-54.45V	219.8	-131.2mV
49	-52.28V	217.5	-124.2mV	-54.84V	206.2	-112.7mV
50	-53.30V	207.7	-121.4mV	-55.18V	210.0	-126.4mV
51	-54.32V	195.1	-113.3mV	-54.19V	213.3	-115.4mV
52	-54.44V	201.7	-113.6mV	-54.73V	197.7	-125.5mV
53	-53.23V	209.7	-133.7mV	-53.43V	206.1	-119.4mV
54	-53.60V	220.0	-127.8mV	-54.93V	193.8	-127.6mV
55	-52.93V	198.7	-111.6mV	-52.51V	208.2	-112.8mV
56	-53.27V	199.3	-117.3mV	-54.20V	193.8	-125.8mV
57	-55.25V	193.9	-109.4mV	-54.80V	207.2	-129.1mV
58	-52.40V	203.1	-126.5mV	-55.05V	202.6	-131.2mV

SeCoS Corporation

High Temperature Reverse Bias Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 150℃ ± 5℃, 80%VR, T = 1000 hrs
Test Date: 2017.03.20 ~ 2017.05.02
Test Standard : JESD22 STANDARD Method-A108
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
59	-54.75V	205.1	-133.2mV	-53.67V	204.6	-118.1mV
60	-54.80V	206.7	-109.4mV	-54.30V	215.9	-110.4mV
61	-55.05V	199.8	-115.9mV	-52.99V	212.2	-127.4mV
62	-52.12V	213.9	-132.9mV	-52.51V	198.4	-119.9mV
63	-54.83V	196.8	-133.0mV	-55.30V	213.9	-111.9mV
64	-54.38V	213.9	-123.5mV	-52.75V	217.5	-117.7mV
65	-53.12V	219.6	-115.6mV	-55.19V	201.8	-130.0mV
66	-54.61V	206.4	-123.0mV	-52.44V	196.2	-108.0mV
67	-52.67V	216.3	-122.5mV	-53.60V	194.8	-133.8mV
68	-53.76V	194.6	-133.1mV	-54.04V	193.8	-125.5mV
69	-52.27V	194.8	-113.6mV	-53.96V	200.1	-125.9mV
70	-53.22V	213.5	-120.2mV	-52.87V	203.9	-131.5mV
71	-52.28V	205.6	-120.4mV	-54.76V	205.0	-113.6mV
72	-54.60V	198.1	-110.5mV	-52.21V	214.1	-115.4mV
73	-53.97V	200.9	-118.8mV	-52.91V	216.9	-126.5mV
74	-55.08V	217.5	-116.6mV	-52.92V	198.5	-113.8mV
75	-52.45V	202.2	-131.8mV	-54.00V	205.8	-114.2mV
76	-55.16V	211.6	-114.7mV	-54.87V	217.9	-131.4mV
77	-52.82V	193.9	-132.9mV	-53.08V	213.6	-121.9mV

Made By: King Huang

Approval: Peter Yang

SeCoS Corporation

High Temperature Storage Life Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 150℃, 1000Hrs
Test Date: 2017.03.20 ~ 2017.05.02
Test Standard : JESD22 STANDARD Method-A103
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
1	-53.44V	206.6	-118.5mV	-52.86V	193.6	-111.9mV
2	-53.75V	214.7	-118.1mV	-52.37V	217.6	-121.7mV
3	-53.14V	213.2	-126.5mV	-54.94V	210.3	-110.4mV
4	-52.21V	218.2	-125.2mV	-53.01V	195.5	-113.4mV
5	-54.09V	214.2	-120.0mV	-54.07V	206.6	-132.8mV
6	-52.69V	212.1	-127.9mV	-54.77V	195.7	-110.9mV
7	-54.98V	201.8	-133.0mV	-53.36V	209.1	-112.4mV
8	-53.07V	207.5	-124.4mV	-53.15V	204.9	-125.3mV
9	-52.13V	197.5	-117.6mV	-52.20V	199.0	-132.9mV
10	-53.99V	207.0	-120.3mV	-53.96V	216.4	-123.0mV
11	-53.05V	213.0	-108.3mV	-53.56V	217.7	-116.4mV
12	-55.01V	193.3	-112.1mV	-54.23V	220.4	-120.8mV
13	-54.19V	202.4	-121.8mV	-52.17V	205.1	-110.5mV
14	-53.17V	203.4	-131.3mV	-53.79V	207.5	-126.5mV
15	-53.82V	202.1	-124.6mV	-52.72V	212.2	-125.9mV
16	-55.01V	217.1	-108.4mV	-53.00V	193.0	-120.2mV
17	-54.64V	200.8	-132.9mV	-52.19V	215.9	-116.8mV
18	-54.73V	198.4	-107.9mV	-53.74V	214.5	-126.3mV
19	-52.64V	205.7	-119.0mV	-53.08V	211.8	-127.5mV
20	-53.75V	201.2	-119.4mV	-54.41V	212.5	-109.8mV
21	-54.96V	214.3	-110.9mV	-52.24V	208.5	-133.5mV
22	-53.35V	199.4	-127.0mV	-52.51V	196.2	-128.8mV
23	-53.79V	197.9	-131.1mV	-53.32V	202.8	-113.2mV
24	-53.30V	198.9	-113.9mV	-53.04V	199.8	-133.7mV
25	-52.64V	206.5	-115.0mV	-55.34V	210.3	-124.6mV
26	-53.92V	199.9	-120.7mV	-54.20V	210.3	-120.6mV
27	-53.44V	210.1	-129.4mV	-54.89V	219.3	-115.4mV
28	-52.52V	208.0	-118.5mV	-54.38V	196.9	-132.4mV
29	-52.25V	213.8	-117.8mV	-53.57V	215.3	-113.9mV

SeCoS Corporation

High Temperature Storage Life Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 150℃, 1000Hrs
Test Date: 2017.03.20 ~ 2017.05.02
Test Standard : JESD22 STANDARD Method-A103
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
30	-54.95V	197.2	-123.8mV	-53.09V	195.6	-119.2mV
31	-53.20V	214.3	-132.8mV	-52.16V	194.2	-130.5mV
32	-52.64V	221.1	-132.9mV	-52.96V	216.7	-120.2mV
33	-55.33V	213.3	-128.6mV	-55.13V	201.3	-130.3mV
34	-52.21V	196.1	-108.8mV	-52.14V	209.0	-129.7mV
35	-52.10V	204.3	-129.2mV	-53.41V	219.1	-109.1mV
36	-55.35V	196.4	-133.6mV	-53.38V	219.2	-131.4mV
37	-54.88V	205.3	-116.6mV	-55.12V	213.9	-109.7mV
38	-53.74V	206.1	-126.3mV	-55.30V	205.3	-120.5mV
39	-52.43V	203.3	-116.3mV	-52.85V	216.0	-121.1mV
40	-54.90V	195.1	-131.5mV	-52.28V	219.2	-120.3mV
41	-52.70V	217.1	-129.7mV	-52.51V	210.7	-126.2mV
42	-54.22V	212.0	-120.9mV	-52.66V	193.0	-123.2mV
43	-54.31V	217.9	-117.6mV	-55.16V	212.1	-133.4mV
44	-54.67V	201.6	-119.1mV	-55.34V	208.2	-119.2mV
45	-52.50V	208.8	-132.2mV	-53.04V	197.3	-129.6mV
46	-53.70V	193.1	-108.9mV	-52.65V	213.2	-114.2mV
47	-53.36V	211.6	-132.6mV	-52.30V	220.0	-111.0mV
48	-52.33V	207.9	-116.2mV	-54.58V	200.1	-108.1mV
49	-53.15V	197.4	-133.7mV	-52.86V	205.0	-115.7mV
50	-52.18V	215.8	-122.9mV	-54.71V	193.4	-111.7mV
51	-52.30V	192.8	-133.6mV	-53.37V	195.4	-132.0mV
52	-52.71V	213.0	-132.8mV	-53.16V	220.0	-119.0mV
53	-52.44V	206.6	-114.0mV	-53.88V	207.5	-120.4mV
54	-54.13V	196.6	-111.4mV	-54.13V	220.0	-114.7mV
55	-53.15V	203.1	-119.4mV	-54.64V	210.6	-130.5mV
56	-55.01V	209.4	-122.4mV	-54.64V	199.1	-130.7mV
57	-52.84V	196.9	-128.9mV	-54.55V	193.6	-128.3mV
58	-53.04V	219.6	-115.5mV	-54.12V	198.5	-130.4mV

SeCoS Corporation

High Temperature Storage Life Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 150℃, 1000Hrs
Test Date: 2017.03.20 ~ 2017.05.02
Test Standard : JESD22 STANDARD Method-A103
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
59	-55.16V	214.5	-131.1mV	-54.96V	198.6	-125.1mV
60	-52.56V	202.1	-117.4mV	-54.80V	206.1	-128.5mV
61	-55.29V	192.7	-109.5mV	-52.93V	196.0	-127.6mV
62	-54.66V	205.7	-118.7mV	-54.21V	220.4	-128.0mV
63	-52.48V	212.6	-108.4mV	-53.04V	192.9	-118.6mV
64	-52.14V	209.6	-131.7mV	-54.87V	210.5	-131.7mV
65	-54.58V	217.6	-131.0mV	-55.33V	209.9	-110.8mV
66	-53.23V	211.2	-111.8mV	-52.20V	212.2	-109.0mV
67	-53.52V	192.6	-119.8mV	-54.22V	199.7	-110.5mV
68	-53.75V	207.0	-131.9mV	-54.01V	208.4	-108.3mV
69	-54.74V	194.3	-117.5mV	-53.79V	213.3	-117.9mV
70	-54.85V	199.2	-126.7mV	-53.93V	220.6	-127.9mV
71	-52.89V	201.2	-133.6mV	-55.33V	208.1	-109.9mV
72	-54.60V	192.9	-109.5mV	-53.20V	198.8	-118.0mV
73	-55.39V	215.9	-119.8mV	-54.10V	216.7	-112.2mV
74	-54.52V	208.2	-118.8mV	-54.80V	200.6	-132.1mV
75	-54.11V	217.4	-129.4mV	-54.30V	212.5	-127.6mV
76	-53.96V	212.4	-120.1mV	-53.85V	206.0	-113.3mV
77	-52.10V	212.9	-127.8mV	-52.94V	206.0	-113.5mV

Made By: King Huang

Approval: Peter Yang

SeCoS Corporation

Pressure Cooker Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 121℃, 100%RH, 29.7PSIG, 168Hrs
Test Date: 2017.03.20 ~ 2017.03.28
Test Standard : JESD22 STANDARD Method-A102
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
1	-54.58V	201.9	-110.8mV	-52.95V	205.9	-127.6mV
2	-54.50V	194.8	-108.9mV	-53.37V	194.3	-108.9mV
3	-52.86V	197.2	-115.3mV	-53.45V	193.2	-121.1mV
4	-54.98V	220.0	-120.1mV	-54.11V	215.4	-122.7mV
5	-54.10V	209.1	-117.1mV	-54.10V	194.0	-125.0mV
6	-54.79V	198.0	-113.0mV	-53.33V	196.1	-110.5mV
7	-54.32V	198.9	-126.8mV	-55.07V	197.9	-119.0mV
8	-54.88V	196.8	-123.5mV	-54.59V	207.6	-128.8mV
9	-54.26V	202.8	-125.8mV	-54.47V	208.9	-131.3mV
10	-52.98V	197.6	-125.8mV	-52.42V	199.2	-129.2mV
11	-55.13V	210.6	-114.0mV	-52.86V	196.8	-127.2mV
12	-52.62V	217.3	-124.9mV	-53.34V	198.6	-116.7mV
13	-53.62V	206.6	-127.7mV	-53.83V	207.7	-113.1mV
14	-52.22V	211.3	-110.0mV	-54.62V	193.6	-120.0mV
15	-55.38V	203.8	-131.1mV	-53.53V	199.8	-127.5mV
16	-55.13V	220.4	-114.8mV	-55.15V	198.2	-113.0mV
17	-54.81V	220.2	-116.0mV	-53.75V	214.9	-124.6mV
18	-52.36V	213.4	-134.0mV	-52.11V	200.5	-109.8mV
19	-53.29V	193.9	-124.9mV	-55.27V	206.3	-123.4mV
20	-55.38V	212.5	-112.6mV	-52.78V	192.6	-129.2mV
21	-54.69V	209.2	-133.3mV	-54.70V	206.6	-121.6mV
22	-52.16V	211.7	-124.3mV	-52.33V	192.5	-113.9mV
23	-53.64V	209.9	-112.2mV	-52.52V	216.9	-129.3mV
24	-52.96V	218.0	-131.1mV	-52.37V	193.4	-124.1mV
25	-54.99V	195.3	-129.8mV	-54.64V	217.0	-115.8mV
26	-54.60V	198.0	-124.4mV	-54.23V	194.4	-133.6mV
27	-52.38V	209.9	-132.8mV	-52.31V	197.4	-117.8mV
28	-54.47V	208.7	-133.9mV	-54.89V	197.4	-123.1mV
29	-54.81V	197.9	-113.0mV	-53.84V	218.3	-119.0mV

SeCoS Corporation

Pressure Cooker Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 121℃, 100%RH, 29.7PSIG, 168Hrs
Test Date: 2017.03.20 ~ 2017.03.28
Test Standard : JESD22 STANDARD Method-A102
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
30	-54.59V	219.4	-119.3mV	-54.74V	194.5	-115.9mV
31	-54.18V	197.7	-115.6mV	-53.44V	194.6	-122.4mV
32	-53.29V	203.5	-121.6mV	-52.83V	202.0	-126.0mV
33	-53.22V	209.8	-121.6mV	-54.02V	215.9	-119.1mV
34	-53.31V	220.9	-133.0mV	-54.18V	217.8	-122.2mV
35	-52.29V	201.6	-128.7mV	-53.41V	199.3	-115.1mV
36	-53.09V	216.7	-130.0mV	-54.81V	199.1	-132.8mV
37	-53.03V	214.1	-109.2mV	-54.51V	203.1	-128.8mV
38	-54.15V	193.5	-108.0mV	-54.10V	197.0	-123.3mV
39	-53.72V	202.3	-109.0mV	-52.88V	220.7	-133.7mV
40	-55.06V	199.4	-109.0mV	-54.31V	217.5	-110.3mV
41	-53.05V	219.6	-108.9mV	-55.18V	214.4	-123.1mV
42	-52.42V	208.8	-127.2mV	-53.56V	214.2	-111.1mV
43	-52.84V	193.6	-117.2mV	-54.69V	198.7	-128.4mV
44	-52.93V	219.1	-125.2mV	-54.45V	196.1	-116.4mV
45	-52.77V	192.5	-128.2mV	-53.35V	210.0	-129.4mV
46	-53.85V	205.1	-117.8mV	-52.37V	211.0	-128.1mV
47	-53.74V	210.3	-122.6mV	-53.86V	210.5	-108.2mV
48	-54.85V	217.7	-132.2mV	-52.75V	212.6	-128.6mV
49	-52.47V	212.6	-131.0mV	-54.82V	215.0	-110.6mV
50	-52.48V	198.4	-121.5mV	-52.28V	212.7	-112.9mV
51	-54.42V	215.1	-132.6mV	-53.76V	209.0	-113.5mV
52	-53.56V	200.7	-132.4mV	-52.76V	198.2	-133.3mV
53	-53.76V	196.3	-120.5mV	-54.91V	210.5	-109.8mV
54	-54.32V	206.6	-120.8mV	-52.85V	215.1	-112.4mV
55	-53.50V	199.7	-112.6mV	-53.27V	217.7	-108.2mV
56	-53.15V	206.2	-121.4mV	-53.42V	216.4	-112.1mV
57	-52.80V	213.6	-124.6mV	-52.19V	193.8	-112.1mV
58	-54.84V	207.0	-111.7mV	-52.82V	205.2	-129.4mV

SeCoS Corporation

Pressure Cooker Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 121℃, 100%RH, 29.7PSIG, 168Hrs
Test Date: 2017.03.20 ~ 2017.03.28
Test Standard : JESD22 STANDARD Method-A102
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
59	-52.79V	206.5	-107.9mV	-55.15V	195.0	-112.7mV
60	-52.81V	206.8	-113.8mV	-54.19V	216.6	-108.9mV
61	-54.29V	193.2	-124.1mV	-54.14V	206.4	-128.8mV
62	-53.73V	202.8	-112.1mV	-54.31V	213.5	-133.9mV
63	-52.29V	220.1	-109.1mV	-54.52V	194.4	-112.1mV
64	-55.00V	209.0	-130.4mV	-52.69V	205.8	-110.5mV
65	-53.16V	220.0	-115.5mV	-54.18V	207.7	-130.0mV
66	-52.33V	220.6	-117.2mV	-52.69V	216.0	-113.2mV
67	-55.21V	216.7	-116.1mV	-53.33V	218.8	-121.7mV
68	-55.04V	218.1	-117.7mV	-53.27V	220.1	-120.7mV
69	-52.24V	192.7	-132.6mV	-52.88V	193.5	-114.7mV
70	-54.21V	200.5	-126.6mV	-55.34V	197.5	-113.9mV
71	-52.62V	212.8	-111.2mV	-54.61V	212.3	-129.2mV
72	-53.70V	195.5	-127.8mV	-55.36V	195.5	-128.7mV
73	-54.53V	200.1	-119.6mV	-52.78V	193.9	-115.9mV
74	-54.01V	192.9	-116.0mV	-52.53V	208.3	-119.3mV
75	-53.61V	200.0	-114.9mV	-54.87V	200.9	-124.9mV
76	-53.93V	203.6	-110.8mV	-54.73V	217.4	-124.1mV
77	-55.34V	204.6	-124.5mV	-53.33V	216.1	-124.0mV

Made By: King Huang

Approval: Peter Yang

SeCoS Corporation

Temperature Cycle Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: -55℃/30min, 150℃/30min, for1000 Cycle
Test Date: 2017.03.21 ~ 2017.05.12
Test Standard : JESD22 STANDARD Method-A104
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
1	-52.52V	219.0	-115.0mV	-53.36V	220.5	-124.9mV
2	-55.21V	194.9	-127.5mV	-54.30V	199.1	-111.1mV
3	-53.26V	216.9	-126.0mV	-55.12V	201.3	-127.9mV
4	-54.05V	192.6	-113.8mV	-53.86V	214.1	-126.5mV
5	-54.05V	209.7	-131.2mV	-54.69V	205.7	-125.5mV
6	-53.65V	213.6	-130.4mV	-53.10V	214.6	-118.0mV
7	-52.96V	215.0	-108.3mV	-54.01V	192.8	-127.3mV
8	-54.35V	204.6	-117.8mV	-52.82V	197.8	-110.3mV
9	-54.18V	207.9	-114.7mV	-53.45V	217.5	-124.3mV
10	-52.65V	214.8	-123.4mV	-55.26V	204.2	-122.0mV
11	-52.61V	201.6	-111.7mV	-54.72V	197.3	-108.2mV
12	-54.67V	198.3	-121.3mV	-55.37V	200.4	-119.4mV
13	-54.75V	207.3	-128.7mV	-54.41V	195.7	-131.4mV
14	-55.04V	204.8	-108.5mV	-52.24V	210.6	-128.0mV
15	-52.77V	219.8	-109.7mV	-54.82V	219.0	-117.0mV
16	-53.04V	198.9	-112.2mV	-53.85V	204.2	-117.8mV
17	-53.31V	206.5	-114.3mV	-52.25V	208.5	-112.9mV
18	-52.92V	217.5	-128.2mV	-53.05V	195.9	-114.1mV
19	-52.81V	214.1	-127.4mV	-54.53V	219.4	-117.8mV
20	-54.78V	214.0	-111.9mV	-52.89V	204.7	-126.6mV
21	-53.02V	199.1	-116.7mV	-54.27V	195.5	-108.9mV
22	-52.55V	219.9	-120.8mV	-54.35V	210.2	-119.9mV
23	-54.95V	209.7	-125.5mV	-54.03V	205.6	-127.9mV
24	-54.16V	209.7	-120.1mV	-54.46V	203.3	-126.0mV
25	-52.74V	214.0	-114.1mV	-52.40V	194.1	-127.1mV
26	-54.45V	196.3	-117.9mV	-52.36V	200.4	-116.7mV
27	-54.25V	206.9	-117.3mV	-54.79V	216.6	-122.7mV
28	-55.08V	195.5	-127.9mV	-53.73V	207.7	-110.3mV
29	-52.66V	204.7	-127.5mV	-55.01V	199.3	-130.4mV

SeCoS Corporation

Temperature Cycle Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: -55℃/30min, 150℃/30min, for1000 Cycle
Test Date: 2017.03.21 ~ 2017.05.12
Test Standard : JESD22 STANDARD Method-A104
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
30	-54.88V	219.1	-116.6mV	-55.12V	194.8	-114.3mV
31	-52.55V	216.3	-130.8mV	-52.85V	207.0	-114.0mV
32	-54.87V	194.7	-133.7mV	-55.08V	218.6	-130.4mV
33	-53.90V	210.6	-131.5mV	-55.16V	217.6	-131.7mV
34	-52.58V	213.2	-132.6mV	-52.76V	210.0	-116.4mV
35	-55.25V	203.7	-121.2mV	-54.37V	192.7	-118.5mV
36	-52.81V	203.3	-115.1mV	-53.02V	209.3	-114.5mV
37	-54.19V	209.0	-123.1mV	-55.12V	209.1	-111.9mV
38	-53.93V	196.6	-130.0mV	-55.03V	217.4	-110.3mV
39	-52.97V	215.3	-125.6mV	-54.30V	197.7	-119.5mV
40	-52.79V	220.8	-131.5mV	-53.01V	194.3	-121.4mV
41	-53.14V	210.7	-122.1mV	-53.98V	208.3	-131.2mV
42	-54.05V	220.9	-125.0mV	-52.51V	213.3	-112.2mV
43	-52.28V	206.1	-110.4mV	-54.71V	194.0	-125.4mV
44	-53.68V	215.0	-118.8mV	-55.22V	212.7	-114.3mV
45	-54.73V	193.0	-112.2mV	-54.67V	205.0	-120.2mV
46	-53.67V	215.1	-130.1mV	-53.34V	199.1	-111.6mV
47	-53.69V	219.1	-121.5mV	-52.72V	218.5	-117.4mV
48	-53.93V	215.9	-119.0mV	-54.21V	208.3	-117.9mV
49	-53.48V	201.2	-117.6mV	-52.20V	218.1	-117.6mV
50	-54.92V	197.4	-120.1mV	-52.50V	213.5	-132.6mV
51	-54.62V	205.7	-109.7mV	-54.16V	195.9	-118.5mV
52	-53.89V	220.2	-125.0mV	-53.39V	214.5	-109.9mV
53	-52.73V	199.0	-133.5mV	-53.64V	202.6	-131.7mV
54	-52.38V	206.4	-124.1mV	-55.08V	196.6	-119.1mV
55	-53.76V	198.0	-124.2mV	-54.77V	200.3	-111.1mV
56	-52.34V	215.5	-117.5mV	-52.63V	215.3	-122.4mV
57	-53.51V	212.3	-129.4mV	-53.25V	215.9	-125.2mV
58	-54.83V	201.8	-123.6mV	-54.59V	219.4	-132.9mV

SeCoS Corporation

Temperature Cycle Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: -55℃/30min, 150℃/30min, for1000 Cycle
Test Date: 2017.03.21 ~ 2017.05.12
Test Standard : JESD22 STANDARD Method-A104
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
59	-55.17V	203.1	-119.7mV	-53.27V	195.9	-122.7mV
60	-53.37V	194.4	-122.2mV	-52.74V	204.2	-122.4mV
61	-53.67V	211.0	-119.4mV	-52.75V	218.2	-130.1mV
62	-54.27V	196.4	-120.9mV	-52.66V	194.2	-130.4mV
63	-52.71V	219.6	-128.3mV	-52.51V	205.9	-123.5mV
64	-52.95V	202.6	-112.9mV	-53.58V	220.0	-133.4mV
65	-52.62V	206.9	-118.6mV	-55.31V	206.6	-126.3mV
66	-54.39V	218.6	-122.9mV	-54.28V	217.8	-126.1mV
67	-53.31V	198.2	-119.9mV	-53.20V	198.6	-110.5mV
68	-54.82V	203.5	-114.4mV	-53.50V	219.0	-128.9mV
69	-54.62V	218.2	-120.8mV	-55.17V	211.7	-112.3mV
70	-54.79V	210.8	-119.7mV	-52.85V	195.2	-129.0mV
71	-52.38V	218.0	-111.2mV	-53.08V	195.6	-121.9mV
72	-53.51V	193.8	-114.5mV	-52.99V	195.1	-109.3mV
73	-55.13V	206.9	-116.4mV	-53.89V	197.1	-115.9mV
74	-54.59V	206.7	-108.5mV	-52.55V	219.8	-121.6mV
75	-52.35V	219.0	-129.5mV	-54.05V	206.8	-123.3mV
76	-53.34V	217.0	-127.0mV	-53.53V	219.5	-123.9mV
77	-55.22V	199.1	-121.9mV	-54.46V	204.0	-108.1mV

Made By: King Huang

Approval: Peter Yang

SeCoS Corporation

High Temperature High Humidity Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 85±2℃, 85±5%RH, 1000Hrs
Test Date: 2017.03.28 ~ 2017.05.10
Test Standard : JESD22 STANDARD Method-A101
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
1	-52.71V	202.1	-133.7mV	-54.25V	193.8	-109.7mV
2	-52.80V	218.1	-124.4mV	-52.59V	216.0	-125.4mV
3	-54.47V	203.4	-110.8mV	-53.84V	213.6	-133.2mV
4	-53.55V	207.4	-109.4mV	-54.17V	194.6	-130.2mV
5	-54.64V	207.5	-113.6mV	-52.63V	211.4	-109.9mV
6	-54.92V	205.2	-110.0mV	-52.30V	205.5	-115.5mV
7	-54.49V	211.0	-121.5mV	-54.77V	204.5	-117.1mV
8	-53.16V	198.0	-118.3mV	-53.35V	216.0	-129.7mV
9	-53.31V	206.5	-120.1mV	-52.93V	214.8	-108.2mV
10	-52.81V	214.4	-127.4mV	-53.93V	219.4	-133.5mV
11	-53.58V	201.7	-122.1mV	-53.29V	218.1	-129.8mV
12	-54.87V	195.4	-115.4mV	-54.48V	213.3	-113.4mV
13	-54.32V	196.4	-108.0mV	-54.37V	197.4	-114.8mV
14	-55.05V	216.7	-126.0mV	-53.63V	193.1	-114.4mV
15	-53.90V	192.6	-118.3mV	-53.45V	194.7	-125.7mV
16	-54.42V	220.5	-110.8mV	-54.06V	204.1	-111.2mV
17	-53.45V	203.4	-131.9mV	-53.01V	219.1	-126.7mV
18	-54.04V	220.9	-120.9mV	-53.90V	212.9	-118.2mV
19	-53.79V	200.5	-129.0mV	-53.71V	209.3	-116.2mV
20	-52.12V	211.3	-112.9mV	-53.19V	196.0	-128.3mV
21	-54.85V	199.5	-115.2mV	-55.05V	203.0	-131.8mV
22	-54.43V	199.1	-114.2mV	-53.32V	211.4	-117.8mV
23	-53.64V	212.7	-108.8mV	-55.36V	214.6	-131.6mV
24	-53.10V	208.0	-115.8mV	-54.51V	199.0	-111.4mV
25	-52.22V	209.1	-124.0mV	-55.13V	210.9	-133.4mV
26	-53.97V	192.8	-110.6mV	-52.98V	210.6	-129.8mV
27	-53.00V	197.6	-109.2mV	-53.80V	205.3	-111.1mV
28	-53.35V	215.1	-122.2mV	-55.24V	196.6	-109.6mV
29	-53.12V	215.0	-109.6mV	-54.99V	206.5	-123.5mV

SeCoS Corporation

High Temperature High Humidity Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 85±2℃, 85±5%RH, 1000Hrs
Test Date: 2017.03.28 ~ 2017.05.10
Test Standard : JESD22 STANDARD Method-A101
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
30	-54.73V	210.9	-131.5mV	-52.67V	199.4	-120.3mV
31	-53.84V	219.4	-112.8mV	-53.02V	196.2	-127.2mV
32	-52.19V	219.7	-119.3mV	-52.45V	195.1	-120.3mV
33	-54.38V	216.3	-123.2mV	-52.19V	208.0	-133.9mV
34	-52.93V	196.3	-130.5mV	-52.71V	196.5	-128.2mV
35	-53.47V	220.4	-121.1mV	-52.22V	198.3	-112.1mV
36	-52.97V	200.2	-116.1mV	-53.77V	201.5	-108.8mV
37	-54.00V	208.0	-129.1mV	-52.44V	215.1	-117.3mV
38	-55.25V	194.2	-116.3mV	-54.87V	216.8	-122.5mV
39	-53.37V	196.2	-117.7mV	-55.11V	203.6	-123.4mV
40	-54.72V	202.7	-120.8mV	-53.58V	195.0	-125.8mV
41	-53.44V	198.8	-110.5mV	-55.32V	205.7	-128.0mV
42	-52.44V	199.0	-113.1mV	-54.24V	218.8	-130.6mV
43	-54.79V	207.1	-124.1mV	-54.77V	202.0	-112.0mV
44	-53.74V	213.3	-112.2mV	-52.18V	200.8	-132.1mV
45	-53.33V	213.5	-110.3mV	-54.45V	200.3	-110.7mV
46	-55.21V	204.1	-130.3mV	-52.78V	203.3	-122.0mV
47	-54.61V	209.4	-113.9mV	-54.45V	199.4	-119.6mV
48	-52.12V	209.8	-113.3mV	-53.21V	196.5	-125.0mV
49	-52.49V	211.9	-132.8mV	-55.16V	197.6	-112.4mV
50	-54.86V	201.4	-118.0mV	-54.31V	214.7	-119.0mV
51	-53.34V	210.1	-110.4mV	-52.83V	196.5	-109.4mV
52	-54.26V	213.5	-126.0mV	-54.40V	198.7	-121.0mV
53	-55.11V	218.0	-116.3mV	-54.99V	198.0	-109.8mV
54	-53.57V	213.6	-128.5mV	-53.34V	220.3	-131.6mV
55	-53.31V	203.4	-122.8mV	-54.06V	209.0	-132.7mV
56	-53.44V	219.2	-120.9mV	-53.99V	201.5	-121.1mV
57	-52.77V	204.9	-116.4mV	-52.38V	208.2	-124.3mV
58	-53.41V	208.4	-109.8mV	-53.24V	200.5	-133.8mV

SeCoS Corporation

High Temperature High Humidity Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 85±2℃, 85±5%RH, 1000Hrs
Test Date: 2017.03.28 ~ 2017.05.10
Test Standard : JESD22 STANDARD Method-A101
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
59	-52.98V	213.1	-123.8mV	-54.37V	192.9	-124.8mV
60	-52.88V	202.3	-111.8mV	-52.59V	206.5	-121.0mV
61	-52.20V	194.7	-129.2mV	-52.86V	198.8	-112.0mV
62	-52.22V	205.9	-111.9mV	-52.21V	210.9	-122.6mV
63	-54.95V	202.6	-111.7mV	-52.84V	201.7	-116.6mV
64	-52.40V	194.1	-111.9mV	-53.69V	212.2	-124.7mV
65	-53.42V	196.0	-128.5mV	-53.45V	205.1	-109.9mV
66	-55.03V	207.8	-113.4mV	-52.13V	213.7	-112.7mV
67	-52.69V	194.7	-110.0mV	-52.62V	219.3	-129.6mV
68	-53.63V	209.1	-112.9mV	-53.74V	219.6	-124.7mV
69	-53.04V	211.5	-110.0mV	-52.22V	193.0	-119.7mV
70	-54.96V	196.8	-110.9mV	-52.30V	206.4	-115.2mV
71	-52.80V	211.6	-127.0mV	-52.76V	194.4	-130.3mV
72	-54.91V	210.6	-111.3mV	-52.16V	200.1	-133.8mV
73	-54.68V	217.8	-119.1mV	-53.70V	210.8	-116.2mV
74	-54.76V	207.6	-118.4mV	-54.06V	199.1	-110.9mV
75	-53.88V	211.5	-110.9mV	-52.24V	206.5	-133.4mV
76	-52.54V	220.3	-117.3mV	-52.22V	202.8	-126.1mV
77	-53.81V	202.8	-124.0mV	-52.79V	196.1	-125.0mV

Made By: King Huang

Approval: Peter Yang

SeCoS Corporation

High Temper High Humidity Reverse Bies Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 85±2℃, 85±5%RH, 80%VR, 1000Hrs
Test Date: 2017.03.28 ~ 2017.05.10
Test Standard : JESD22 STANDARD Method-A101
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
1	-52.62V	199.8	-109.1mV	-53.37V	214.3	-116.0mV
2	-54.21V	215.4	-117.3mV	-53.07V	196.1	-118.9mV
3	-53.95V	221.1	-113.2mV	-54.78V	196.9	-117.9mV
4	-54.50V	211.9	-118.1mV	-53.26V	202.4	-133.4mV
5	-53.24V	217.4	-130.5mV	-53.74V	195.1	-130.1mV
6	-52.90V	207.8	-133.1mV	-55.16V	207.8	-126.9mV
7	-52.34V	202.3	-112.7mV	-53.60V	212.4	-118.2mV
8	-54.22V	214.9	-120.0mV	-55.19V	202.2	-131.5mV
9	-54.85V	200.0	-126.8mV	-52.85V	197.8	-133.9mV
10	-54.23V	193.1	-114.7mV	-53.43V	193.9	-111.8mV
11	-52.50V	196.2	-126.9mV	-52.59V	195.6	-108.4mV
12	-52.31V	214.4	-108.9mV	-54.41V	195.8	-112.0mV
13	-53.93V	217.9	-123.2mV	-53.00V	213.7	-116.1mV
14	-52.97V	207.8	-131.0mV	-54.73V	220.8	-108.9mV
15	-54.12V	194.5	-123.2mV	-52.29V	202.4	-125.0mV
16	-52.91V	218.0	-119.7mV	-53.46V	211.4	-129.4mV
17	-53.59V	201.8	-119.7mV	-54.90V	219.7	-132.0mV
18	-54.19V	218.5	-127.6mV	-54.79V	209.2	-124.4mV
19	-53.55V	213.1	-129.8mV	-53.65V	211.0	-112.7mV
20	-54.32V	203.7	-114.0mV	-53.55V	214.5	-118.2mV
21	-52.66V	193.8	-108.7mV	-54.28V	196.7	-121.8mV
22	-52.26V	204.2	-114.7mV	-53.29V	203.1	-133.8mV
23	-54.92V	206.8	-120.7mV	-55.03V	208.7	-128.3mV
24	-54.72V	205.7	-110.0mV	-55.24V	204.1	-132.3mV
25	-54.18V	192.9	-124.4mV	-53.85V	194.8	-126.7mV
26	-54.89V	212.8	-125.4mV	-54.64V	216.1	-116.4mV
27	-54.34V	214.0	-119.8mV	-53.07V	209.6	-119.2mV
28	-52.64V	220.5	-118.4mV	-53.58V	195.3	-120.6mV
29	-54.69V	199.3	-109.3mV	-53.55V	202.3	-131.8mV

SeCoS Corporation

High Temper High Humidity Reverse Bies Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 85±2℃, 85±5%RH, 80%VR, 1000Hrs
Test Date: 2017.03.28 ~ 2017.05.10
Test Standard : JESD22 STANDARD Method-A101
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
30	-55.27V	194.1	-119.2mV	-53.13V	217.9	-131.7mV
31	-53.87V	201.0	-124.2mV	-53.63V	213.3	-128.3mV
32	-54.62V	219.0	-115.1mV	-55.07V	208.5	-117.0mV
33	-53.79V	200.7	-117.9mV	-54.42V	205.9	-120.3mV
34	-53.29V	213.9	-131.2mV	-52.36V	204.9	-112.2mV
35	-52.95V	201.8	-125.3mV	-52.79V	201.1	-126.0mV
36	-53.31V	200.7	-120.0mV	-52.43V	201.3	-116.1mV
37	-54.67V	210.1	-121.8mV	-55.40V	193.5	-117.3mV
38	-53.97V	200.0	-115.7mV	-54.88V	201.4	-109.2mV
39	-52.21V	210.6	-120.1mV	-52.18V	201.3	-125.2mV
40	-53.44V	198.1	-120.9mV	-53.81V	220.0	-124.3mV
41	-54.67V	200.4	-123.6mV	-54.26V	196.7	-119.3mV
42	-53.58V	217.0	-132.9mV	-53.89V	209.5	-113.5mV
43	-52.27V	197.7	-121.8mV	-54.34V	207.1	-121.7mV
44	-55.39V	201.3	-125.2mV	-54.56V	215.0	-116.7mV
45	-53.69V	216.3	-117.5mV	-55.19V	199.4	-124.7mV
46	-52.14V	202.1	-121.3mV	-53.05V	201.1	-131.0mV
47	-53.60V	197.9	-129.6mV	-54.34V	206.8	-133.0mV
48	-54.99V	219.3	-113.0mV	-54.22V	203.4	-122.7mV
49	-52.79V	219.4	-124.0mV	-52.63V	198.8	-117.2mV
50	-53.91V	219.1	-127.6mV	-53.92V	212.1	-123.4mV
51	-52.57V	205.9	-120.1mV	-53.20V	218.0	-116.2mV
52	-54.46V	216.9	-108.0mV	-55.18V	212.5	-111.0mV
53	-54.12V	216.8	-126.4mV	-55.37V	208.8	-112.3mV
54	-53.27V	215.3	-123.1mV	-54.36V	209.9	-121.7mV
55	-54.70V	214.2	-117.3mV	-53.54V	199.0	-120.1mV
56	-54.32V	200.2	-120.1mV	-52.19V	207.1	-109.1mV
57	-52.92V	204.4	-120.7mV	-54.08V	216.7	-107.9mV
58	-54.76V	208.9	-118.4mV	-52.18V	209.2	-123.2mV

SeCoS Corporation

High Temper High Humidity Reverse Bies Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 85±2℃, 85±5%RH, 80%VR, 1000Hrs
Test Date: 2017.03.28 ~ 2017.05.10
Test Standard : JESD22 STANDARD Method-A101
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
59	-54.13V	195.1	-118.8mV	-53.40V	215.6	-112.1mV
60	-53.92V	201.6	-114.5mV	-52.35V	207.6	-126.0mV
61	-52.93V	200.5	-115.9mV	-53.15V	198.6	-117.0mV
62	-54.52V	192.9	-132.5mV	-55.12V	215.8	-128.3mV
63	-53.39V	209.6	-122.0mV	-54.51V	209.2	-125.0mV
64	-52.39V	201.2	-110.4mV	-52.44V	211.3	-120.7mV
65	-52.21V	213.6	-122.4mV	-53.51V	210.6	-133.1mV
66	-53.61V	213.3	-126.5mV	-53.67V	207.8	-115.6mV
67	-52.91V	212.4	-128.1mV	-54.49V	195.3	-122.0mV
68	-55.37V	196.2	-128.7mV	-52.23V	212.5	-112.7mV
69	-53.08V	208.9	-129.1mV	-53.51V	214.5	-124.4mV
70	-52.71V	198.7	-108.4mV	-53.77V	209.2	-126.6mV
71	-52.59V	217.3	-112.3mV	-52.85V	211.4	-113.1mV
72	-53.03V	211.2	-130.2mV	-52.21V	220.8	-126.8mV
73	-52.63V	202.3	-121.5mV	-52.56V	196.0	-113.2mV
74	-54.76V	200.7	-121.4mV	-53.94V	221.1	-116.9mV
75	-53.45V	214.5	-111.1mV	-53.67V	211.3	-114.7mV
76	-53.04V	216.5	-112.6mV	-52.18V	218.7	-131.8mV
77	-55.12V	216.1	-122.3mV	-52.35V	192.6	-132.5mV

Made By: King Huang

Approval: Peter Yang

SeCoS Corporation

Resistance to Solder Heat Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 270℃ ± 5℃, 7Sec + 2Sec/-0Sec
Test Date: 2017.05.12
Test Standard : JESD22 STANDARD Method-B106
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
1	-53.75V	204.2	-132.4mV	-52.58V	193.2	-122.9mV
2	-53.43V	195.3	-112.2mV	-52.90V	220.4	-120.4mV
3	-54.55V	194.6	-118.7mV	-52.77V	212.9	-131.1mV
4	-54.21V	212.6	-126.0mV	-54.78V	193.8	-112.5mV
5	-53.89V	217.7	-133.6mV	-52.14V	193.6	-125.2mV
6	-54.47V	208.8	-129.3mV	-52.73V	213.5	-133.7mV
7	-53.01V	196.6	-118.5mV	-53.27V	194.4	-121.0mV
8	-54.46V	198.6	-132.2mV	-53.39V	196.1	-109.8mV
9	-52.69V	207.0	-108.3mV	-55.39V	193.1	-121.7mV
10	-54.76V	211.9	-125.1mV	-53.94V	211.6	-117.1mV
11	-53.13V	207.9	-120.9mV	-52.62V	207.0	-121.7mV
12	-54.31V	207.6	-127.7mV	-53.68V	209.5	-109.1mV
13	-54.57V	208.7	-111.8mV	-54.17V	200.9	-125.9mV
14	-52.69V	214.5	-108.7mV	-53.70V	214.2	-111.4mV
15	-54.96V	208.7	-121.6mV	-54.35V	201.2	-113.7mV
16	-52.46V	220.0	-117.0mV	-52.68V	194.0	-132.5mV
17	-53.43V	195.0	-117.4mV	-55.39V	217.7	-110.8mV
18	-53.04V	193.8	-125.0mV	-52.38V	219.6	-118.5mV
19	-52.87V	200.0	-117.6mV	-52.18V	207.7	-117.1mV
20	-53.74V	199.3	-127.3mV	-52.60V	194.4	-117.7mV
21	-54.27V	206.1	-116.9mV	-55.10V	200.7	-128.7mV
22	-54.62V	208.5	-127.6mV	-52.34V	205.5	-130.3mV
23	-55.11V	195.8	-128.6mV	-55.19V	216.6	-108.1mV
24	-52.11V	213.3	-130.0mV	-53.61V	197.9	-110.6mV
25	-55.12V	207.3	-118.3mV	-54.80V	208.0	-123.1mV
26	-53.40V	220.0	-120.1mV	-52.50V	214.5	-112.1mV
27	-55.04V	208.6	-132.9mV	-53.48V	210.1	-129.8mV
28	-55.02V	220.2	-112.2mV	-52.71V	194.3	-128.6mV
29	-53.72V	199.0	-130.3mV	-52.77V	210.7	-119.5mV

SeCoS Corporation

Resistance to Solder Heat Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 270℃ ± 5℃, 7Sec + 2Sec/-0Sec
Test Date: 2017.05.12
Test Standard : JESD22 STANDARD Method-B106
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
30	-52.63V	209.1	-116.9mV	-52.61V	202.9	-123.9mV
31	-53.69V	196.8	-115.8mV	-53.47V	211.3	-114.3mV
32	-52.15V	194.0	-116.4mV	-52.57V	198.9	-108.2mV
33	-53.82V	217.2	-118.9mV	-52.38V	206.4	-117.9mV
34	-54.95V	209.0	-121.7mV	-54.89V	203.9	-125.1mV
35	-53.46V	218.5	-124.9mV	-54.44V	193.3	-131.0mV
36	-55.11V	215.7	-120.7mV	-53.96V	214.2	-116.7mV
37	-52.46V	205.7	-117.4mV	-54.27V	194.5	-125.9mV
38	-53.20V	193.4	-117.2mV	-55.04V	213.7	-130.2mV
39	-52.29V	198.0	-115.4mV	-53.19V	197.7	-111.0mV
40	-54.83V	219.1	-111.1mV	-54.59V	207.0	-109.2mV
41	-55.14V	196.2	-122.8mV	-53.28V	197.1	-116.1mV
42	-53.91V	212.8	-133.8mV	-53.95V	214.7	-126.8mV
43	-53.69V	192.6	-117.0mV	-53.03V	216.6	-128.6mV
44	-52.66V	202.2	-116.0mV	-52.54V	208.3	-122.2mV
45	-53.23V	219.2	-113.7mV	-53.34V	219.6	-107.9mV
46	-52.24V	210.8	-123.9mV	-52.46V	212.9	-108.2mV
47	-53.40V	205.2	-111.1mV	-52.32V	201.5	-119.5mV
48	-52.16V	196.0	-120.2mV	-54.16V	203.9	-129.7mV
49	-52.52V	199.1	-130.3mV	-53.14V	198.0	-121.6mV
50	-52.73V	195.7	-132.4mV	-53.29V	216.2	-126.4mV
51	-54.35V	215.0	-127.0mV	-53.80V	207.9	-128.7mV
52	-55.24V	217.7	-121.5mV	-52.25V	194.4	-132.0mV
53	-53.56V	205.6	-118.1mV	-55.06V	202.1	-117.7mV
54	-54.70V	217.6	-118.1mV	-54.39V	220.9	-121.2mV
55	-54.18V	207.2	-122.3mV	-52.66V	199.8	-111.5mV
56	-53.33V	208.8	-118.1mV	-53.12V	211.3	-107.9mV
57	-55.14V	202.6	-116.3mV	-52.45V	195.6	-114.4mV
58	-52.47V	204.0	-132.9mV	-52.79V	217.6	-113.6mV

SeCoS Corporation

Resistance to Solder Heat Test Data

Report No : T170512-202
Part No : MMBT3906-C
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > -40V@IC=-1mA, IB=0 ； 100 < hFE < 300@VCE=-1V, IC=-10mA
VCE(sat) < -400mV@IC=-50mA, IB=-5mA
Test Condition: 270℃ ± 5℃, 7Sec + 2Sec/-0Sec
Test Date: 2017.05.12
Test Standard : JESD22 STANDARD Method-B106
Operator: Leo Hsia

Test Result: PASS

	Before			After		
No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
59	-53.09V	214.5	-115.5mV	-52.38V	195.8	-112.3mV
60	-54.38V	199.3	-131.8mV	-53.42V	213.5	-115.9mV
61	-54.84V	210.9	-108.5mV	-53.95V	218.4	-114.6mV
62	-52.89V	216.7	-110.8mV	-52.26V	195.5	-112.2mV
63	-52.79V	209.2	-131.6mV	-54.68V	205.8	-129.6mV
64	-52.89V	197.8	-108.3mV	-53.02V	198.3	-132.0mV
65	-54.68V	203.6	-109.8mV	-53.46V	201.1	-108.8mV
66	-54.75V	203.6	-116.1mV	-54.58V	211.7	-130.4mV
67	-54.29V	199.1	-130.6mV	-52.53V	198.9	-117.8mV
68	-54.14V	198.3	-115.4mV	-55.27V	196.1	-122.2mV
69	-52.98V	206.1	-109.7mV	-54.61V	213.7	-113.0mV
70	-53.20V	216.1	-125.3mV	-53.82V	214.5	-124.4mV
71	-54.47V	205.8	-131.9mV	-54.15V	208.2	-115.0mV
72	-52.23V	199.5	-130.0mV	-54.48V	212.5	-124.2mV
73	-53.83V	212.7	-117.1mV	-53.66V	206.9	-114.7mV
74	-53.98V	194.4	-107.9mV	-54.73V	207.3	-122.3mV
75	-53.76V	216.1	-112.9mV	-54.74V	214.2	-125.9mV
76	-54.83V	206.5	-124.2mV	-55.38V	193.3	-114.4mV
77	-54.82V	218.6	-127.3mV	-53.40V	214.3	-131.4mV

Made By: King Huang

Approval: Peter Yang