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
FAX: +886-2-26620488

Product/Process Change Notification

PCN#	Effective Date	Issue Date
2015-10-21C-05	2016/2/1	2015/10/21

PCN Classification	Product Category
Major	Transistor

Subject
Change the assembly house.

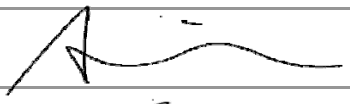
Affected Product(s)
MMBT2222Q

Description of Change(s)
The original assembly house, GTM Corporation, was shut down; thus, we change to the second assembly house.

Content of Change(s)
Assembly house.

Impact(s)
None

Attachment(s)
Reliability Test Report.

Approval		
Issue by	Alice Lai	e-mail: alice@secosgmbh.com
Development Engineer		Alice Lai
QA Manager		Peter Yang
General Manger		Mathew Liu
Customer Approval		
Customer's Comment		
Customer's Consent with Signature		

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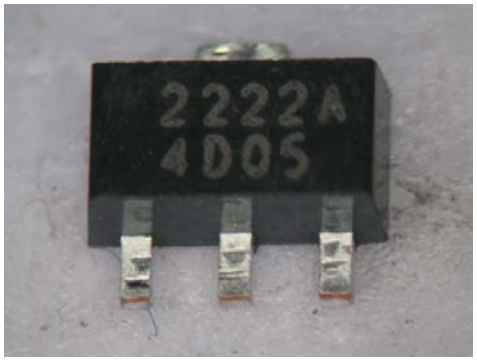
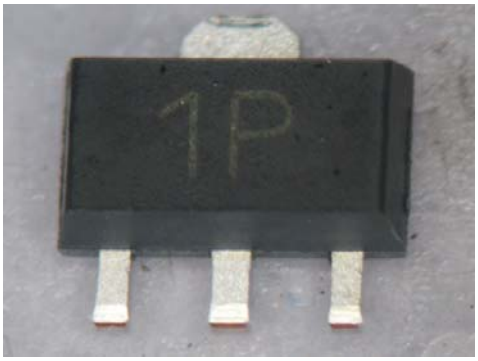
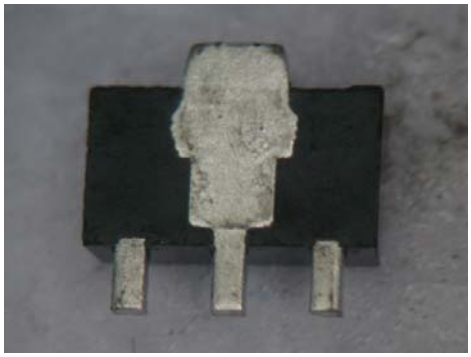
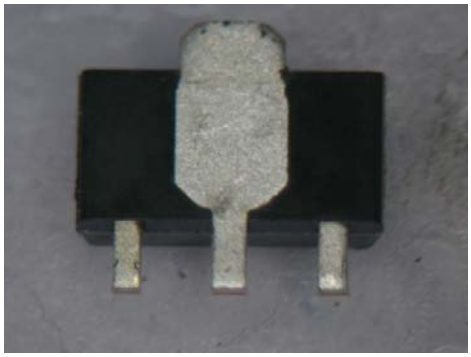
Exterior comparison Chart	
Original	New
	
Top View	Top View
	
Back View	Back View

SeCoS Corporation

Reliability Testing Summary Report

Date: 2015/10/08 Document No.: SI15 -10-110

Test Item	P/N	Test Condition	(LTPD)	Sample Numbers	Allow Fall Numbers	Fall Numbers	Result
HTRB High Temp Reverse Bias	MMBT2222Q	150 ± 5℃, 80%VR, T = 1000hrs		77	0	0	ACC
HTSL High Temperature Storage Life	MMBT2222Q	150℃, T = 1000 hrs		77	0	0	ACC
PCT Pressure Cooker Test	MMBT2222Q	121℃, 29.7PSIG, 168 hrs		77	0	0	ACC
TCT Temperature Cycle Test	MMBT2222Q	-55℃/30min, 150℃/30min, For 1000 Cycle		77	0	0	ACC
THT High Temperature High Humidity Test	MMBT2222Q	85 ± 2℃, RH=85±5%, 1000 hrs		77	0	0	ACC
H3TRB High Temper High Humidity Reverse Bies Test	MMBT2222Q	85 ± 2℃, RH=85±5%, 1000 hrs		77	0	0	ACC
Solderability	MMBT2222Q	245 ± 5℃, 5Sec the inspected area of each lead must have 95% solder coverage minimum		10	0	0	ACC

Judgment:

■ **qualified** □ **unqualified**

Testing Start Date: 2015.08.17 Testing End Date: 2015.10.08

Tester: King Huang Approval: Peter Yang

SeCoS Corporation

Electrical Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 25℃
Test Date: 2015.08.17
Test Standard : Specifications
Operator: Leo Hsia

Test Result: PASS

No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
1	59.51V	168.6	211.5mV
2	57.15V	185.0	204.7mV
3	58.29V	194.8	196.7mV
4	62.34V	187.8	200.4mV
5	58.96V	195.3	207.0mV
6	58.79V	194.2	207.2mV
7	56.95V	184.0	200.2mV
8	58.45V	171.6	204.8mV
9	62.07V	194.6	201.3mV
10	61.07V	179.3	209.1mV
11	57.61V	195.1	201.9mV
12	60.83V	192.5	198.4mV
13	57.50V	188.5	210.5mV
14	60.52V	179.8	203.1mV
15	58.68V	175.9	202.0mV
16	58.49V	187.8	208.6mV
17	58.22V	169.5	199.3mV
18	59.52V	192.9	208.3mV
19	57.29V	177.4	211.0mV
20	61.09V	177.9	200.7mV
21	61.34V	171.2	203.7mV
22	57.57V	175.3	203.2mV
23	59.35V	185.0	197.9mV
24	62.59V	184.8	208.6mV
25	59.04V	190.2	196.5mV
26	59.61V	182.5	211.4mV
27	61.18V	194.9	208.1mV
28	61.64V	192.2	201.2mV
29	59.92V	170.0	204.4mV
30	58.37V	181.4	211.8mV

SeCoS Corporation

Electrical Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 25℃
Test Date: 2015.08.17
Test Standard : Specifications
Operator: Leo Hsia

Test Result: PASS

No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
31	58.04V	172.9	207.8mV
32	61.19V	168.0	208.0mV
33	60.11V	177.0	197.4mV
34	58.40V	168.4	201.0mV
35	58.35V	193.3	200.2mV
36	58.78V	171.1	207.5mV
37	61.41V	180.7	200.2mV
38	63.17V	174.9	201.5mV
39	57.19V	183.3	202.5mV
40	60.19V	191.1	207.6mV
41	57.45V	183.3	198.6mV
42	57.51V	180.7	201.6mV
43	62.92V	185.9	209.2mV
44	62.13V	190.9	204.4mV
45	57.03V	192.0	203.3mV
46	58.19V	169.2	196.9mV
47	61.98V	173.9	209.9mV
48	58.29V	183.4	203.1mV
49	61.82V	180.7	206.4mV
50	60.07V	190.6	206.2mV
51	57.85V	183.8	201.6mV
52	57.60V	184.3	205.2mV
53	57.70V	177.2	198.0mV
54	59.36V	195.4	210.5mV
55	62.14V	177.4	207.9mV
56	60.44V	182.7	204.5mV
57	60.89V	177.4	211.8mV
58	59.12V	167.5	205.0mV
59	60.92V	168.9	202.8mV
60	61.37V	171.3	201.8mV

SeCoS Corporation

Electrical Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 25℃
Test Date: 2015.08.17
Test Standard : Specifications
Operator: Leo Hsia

Test Result: PASS

No	$V_{(BR)CEO}$ (V)	h_{FE}	$V_{CE(sat)}$ (mV)
61	61.46V	183.4	210.9mV
62	57.75V	168.4	201.7mV
63	58.62V	191.9	201.3mV
64	60.84V	185.4	210.0mV
65	62.44V	171.4	209.6mV
66	61.68V	170.1	202.9mV
67	62.11V	174.2	199.7mV
68	60.27V	175.7	207.8mV
69	59.31V	176.7	204.6mV
70	61.64V	182.4	207.0mV
71	56.76V	177.7	197.1mV
72	62.22V	191.9	198.2mV
73	62.96V	185.3	207.0mV
74	61.96V	170.4	204.9mV
75	63.12V	194.6	210.6mV
76	57.82V	193.6	196.6mV
77	61.30V	188.8	206.9mV

Made By: King Huang

Approval: Peter Yang

SeCoS Corporation

High Temperature Reverse Bias Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 150 ± 5℃, 80%VR, T = 1000 hrs
Test Date: 2015.08.17 ~ 2015.09.29
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	56.88V	182.8	196.3mV	58.24V	172.5	202.4mV
2	59.10V	186.8	206.5mV	59.16V	184.0	199.2mV
3	63.00V	190.5	211.6mV	58.64V	177.3	205.9mV
4	61.07V	181.2	200.2mV	62.99V	182.7	200.0mV
5	61.20V	167.5	197.7mV	62.85V	172.1	205.3mV
6	56.98V	174.4	209.3mV	62.67V	190.6	202.3mV
7	59.42V	189.9	204.4mV	57.00V	194.8	208.1mV
8	56.86V	189.9	199.5mV	63.21V	191.2	199.1mV
9	57.55V	168.9	198.5mV	61.14V	172.0	205.4mV
10	62.80V	186.3	211.5mV	61.34V	171.9	208.0mV
11	58.89V	176.0	201.0mV	56.99V	168.3	210.8mV
12	60.37V	167.3	202.0mV	61.09V	187.6	198.6mV
13	59.56V	182.5	200.9mV	58.66V	190.3	199.1mV
14	59.92V	192.1	199.7mV	60.06V	193.4	209.7mV
15	62.34V	169.2	196.5mV	61.59V	170.7	208.7mV
16	62.66V	176.2	207.0mV	58.06V	195.4	208.2mV
17	61.23V	184.3	201.0mV	58.55V	168.0	208.2mV
18	59.72V	175.9	196.6mV	59.79V	180.3	209.6mV
19	60.94V	189.3	203.5mV	63.07V	171.7	200.5mV
20	62.55V	186.4	209.1mV	58.54V	189.2	211.4mV
21	60.13V	178.1	210.8mV	61.53V	181.3	209.9mV
22	61.04V	176.5	199.5mV	62.11V	172.3	210.8mV
23	59.01V	185.0	199.1mV	62.28V	188.9	202.8mV
24	57.60V	177.7	203.3mV	62.05V	191.7	210.5mV
25	61.31V	182.2	201.9mV	59.14V	181.7	199.9mV
26	57.30V	171.8	205.1mV	59.62V	167.3	200.5mV
27	56.75V	184.9	197.0mV	59.34V	173.8	206.3mV
28	60.16V	178.3	209.7mV	61.81V	168.9	199.8mV
29	62.33V	181.8	206.2mV	59.35V	194.5	201.4mV

SeCoS Corporation

High Temperature Reverse Bias Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 150 ± 5℃, 80%VR, T = 1000 hrs
Test Date: 2015.08.17 ~ 2015.09.29
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	56.81V	177.1	205.9mV	61.17V	192.5	206.9mV
31	60.44V	178.6	197.4mV	63.18V	170.7	201.3mV
32	59.76V	187.2	201.7mV	60.46V	175.8	204.3mV
33	62.82V	171.5	208.2mV	59.97V	170.6	200.6mV
34	58.52V	194.3	204.5mV	62.14V	171.0	202.8mV
35	57.17V	184.1	201.1mV	62.43V	172.3	209.9mV
36	62.90V	182.2	201.7mV	61.67V	186.3	201.5mV
37	62.61V	188.5	205.8mV	62.87V	183.8	205.1mV
38	60.50V	170.2	210.5mV	63.10V	190.6	197.0mV
39	59.95V	186.6	207.8mV	60.81V	169.9	201.5mV
40	59.96V	184.9	210.1mV	61.09V	180.2	209.3mV
41	57.09V	179.9	201.2mV	57.76V	183.4	197.4mV
42	59.63V	175.1	203.7mV	60.34V	169.2	198.2mV
43	60.99V	181.1	203.0mV	60.29V	194.9	205.0mV
44	62.69V	191.5	202.5mV	60.59V	176.4	198.4mV
45	57.52V	183.1	209.9mV	57.00V	191.6	210.0mV
46	60.74V	173.4	205.6mV	61.90V	178.3	204.4mV
47	62.89V	180.6	208.8mV	61.64V	184.2	198.8mV
48	57.89V	193.7	208.1mV	59.14V	179.1	208.4mV
49	60.93V	182.3	198.4mV	62.98V	172.1	205.2mV
50	62.36V	188.8	209.1mV	58.32V	188.1	208.9mV
51	63.21V	169.8	209.7mV	59.49V	188.1	211.5mV
52	61.23V	169.1	201.0mV	58.43V	173.4	207.8mV
53	62.46V	190.7	203.4mV	58.18V	180.5	206.4mV
54	60.10V	175.4	200.0mV	57.94V	181.5	197.0mV
55	62.34V	174.2	196.0mV	59.14V	194.4	198.7mV
56	61.29V	172.5	209.6mV	59.58V	175.4	209.6mV
57	59.26V	168.2	200.0mV	61.36V	178.0	204.6mV
58	57.75V	181.0	204.6mV	59.49V	168.7	197.3mV

SeCoS Corporation

High Temperature Reverse Bias Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 150 ± 5℃, 80%VR, T = 1000 hrs
Test Date: 2015.08.17 ~ 2015.09.29
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	62.76V	187.6	206.6mV	62.05V	185.3	201.7mV
60	60.25V	167.2	200.9mV	56.95V	184.7	208.8mV
61	62.48V	167.6	199.2mV	63.14V	178.3	210.5mV
62	59.04V	186.1	196.3mV	60.14V	179.5	197.2mV
63	61.64V	171.9	205.0mV	58.71V	171.8	196.6mV
64	59.37V	178.2	211.5mV	59.47V	189.9	211.9mV
65	58.10V	178.5	203.4mV	60.15V	171.5	204.5mV
66	58.10V	169.0	208.6mV	59.14V	172.4	210.9mV
67	57.83V	191.0	207.7mV	63.20V	170.7	203.9mV
68	63.07V	174.7	203.2mV	60.24V	183.3	207.4mV
69	57.06V	192.7	202.5mV	59.38V	171.8	201.5mV
70	60.16V	181.5	207.4mV	60.31V	168.3	205.7mV
71	57.78V	179.3	207.8mV	62.90V	189.7	198.4mV
72	57.29V	170.3	208.7mV	56.87V	172.4	198.0mV
73	60.21V	176.2	196.3mV	57.64V	170.7	203.9mV
74	58.47V	177.4	199.6mV	59.92V	174.7	197.3mV
75	61.86V	190.9	200.4mV	61.21V	172.9	207.9mV
76	59.90V	193.1	211.8mV	58.22V	193.0	202.8mV
77	61.13V	180.1	198.2mV	57.01V	183.2	202.5mV

Made By: King Huang

Approval: Peter Yang

SeCoS Corporation

High Temperature Storage Life Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 150℃, 1000Hrs
Test Date: 2015.08.17 ~ 2015.09.29
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	59.18V	177.9	203.6mV	62.45V	178.7	207.3mV
2	59.81V	170.6	208.5mV	60.71V	173.3	210.0mV
3	59.69V	186.8	200.7mV	58.79V	189.6	210.0mV
4	60.85V	175.3	201.5mV	60.53V	183.8	201.6mV
5	60.15V	182.5	207.4mV	59.17V	177.6	197.2mV
6	61.53V	168.5	209.6mV	60.95V	178.5	200.9mV
7	62.65V	175.0	201.0mV	62.46V	170.0	207.2mV
8	60.18V	168.6	205.6mV	61.83V	178.2	210.3mV
9	62.70V	194.2	199.5mV	61.12V	191.2	211.5mV
10	60.19V	181.8	198.9mV	57.59V	168.7	204.7mV
11	58.90V	184.3	207.7mV	59.52V	180.9	202.9mV
12	59.05V	172.6	199.2mV	60.43V	182.1	206.1mV
13	62.69V	171.8	208.9mV	59.80V	170.6	197.0mV
14	60.54V	175.3	210.6mV	59.60V	176.5	198.3mV
15	60.32V	195.4	209.9mV	59.68V	195.1	208.0mV
16	57.94V	174.3	204.2mV	63.01V	192.8	196.5mV
17	59.25V	170.7	207.3mV	58.83V	186.8	198.6mV
18	59.21V	172.2	199.2mV	58.38V	168.1	206.9mV
19	56.81V	175.4	205.4mV	62.06V	167.9	198.3mV
20	59.43V	182.2	203.6mV	59.99V	189.9	211.1mV
21	62.90V	177.5	208.2mV	62.75V	191.6	210.0mV
22	58.07V	181.2	197.9mV	58.21V	183.5	206.6mV
23	59.95V	190.0	196.8mV	62.63V	182.1	202.0mV
24	61.96V	172.0	200.7mV	59.26V	192.9	201.3mV
25	59.46V	173.7	201.7mV	62.88V	169.9	200.0mV
26	59.92V	192.3	198.4mV	61.06V	180.5	206.9mV
27	61.19V	194.1	203.1mV	58.76V	170.6	208.1mV
28	58.31V	191.3	198.1mV	57.55V	191.6	211.2mV
29	59.91V	182.4	208.1mV	57.51V	179.5	196.4mV

SeCoS Corporation

High Temperature Storage Life Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 150℃, 1000Hrs
Test Date: 2015.08.17 ~ 2015.09.29
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	60.76V	193.0	208.4mV	57.19V	189.1	210.1mV
31	56.95V	178.2	205.1mV	62.57V	195.0	201.5mV
32	57.73V	189.5	201.1mV	63.00V	178.0	199.6mV
33	56.91V	175.0	199.3mV	59.01V	179.7	196.8mV
34	61.44V	191.4	205.9mV	57.78V	188.8	206.1mV
35	57.62V	182.3	209.5mV	62.83V	187.5	201.0mV
36	61.30V	184.2	201.4mV	58.52V	168.9	202.5mV
37	60.02V	192.9	201.7mV	61.72V	174.7	197.9mV
38	57.62V	191.3	204.1mV	61.10V	179.9	201.0mV
39	63.13V	190.1	197.8mV	57.83V	183.5	196.6mV
40	60.13V	178.1	196.6mV	59.91V	192.6	208.2mV
41	58.99V	183.3	210.5mV	60.09V	181.2	205.4mV
42	61.57V	179.1	199.2mV	60.19V	168.0	202.1mV
43	57.58V	188.8	197.7mV	61.28V	177.2	199.4mV
44	58.53V	189.9	201.4mV	61.31V	180.7	204.3mV
45	59.41V	186.8	210.3mV	58.38V	173.6	211.7mV
46	60.49V	195.0	205.0mV	57.49V	193.0	206.7mV
47	57.87V	183.5	200.6mV	62.11V	176.9	197.5mV
48	61.27V	180.4	199.8mV	60.64V	192.7	211.9mV
49	58.56V	187.6	200.1mV	62.60V	194.6	203.9mV
50	58.04V	182.1	208.2mV	61.66V	177.2	210.6mV
51	62.55V	173.8	211.9mV	57.29V	194.1	205.9mV
52	59.02V	183.8	196.4mV	61.61V	186.3	200.8mV
53	60.71V	188.2	197.7mV	59.23V	192.1	203.6mV
54	62.86V	172.6	211.3mV	57.71V	185.2	210.9mV
55	58.13V	178.2	206.7mV	57.55V	168.9	204.4mV
56	60.66V	177.5	199.8mV	60.72V	190.1	205.3mV
57	61.85V	192.2	206.6mV	61.82V	181.1	204.6mV
58	57.60V	179.3	207.2mV	58.69V	178.0	209.7mV

SeCoS Corporation

High Temperature Storage Life Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 150℃, 1000Hrs
Test Date: 2015.08.17 ~ 2015.09.29
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	58.12V	173.2	200.0mV	62.69V	193.9	203.0mV
60	60.04V	174.0	205.2mV	58.74V	177.1	209.9mV
61	60.90V	187.1	196.1mV	62.39V	171.0	203.0mV
62	57.16V	184.2	211.4mV	58.17V	172.7	196.5mV
63	59.70V	189.2	209.9mV	59.94V	179.1	197.1mV
64	62.93V	180.0	202.8mV	60.28V	175.6	196.3mV
65	57.90V	195.5	200.6mV	62.07V	186.1	211.7mV
66	62.04V	190.3	199.1mV	57.74V	180.0	209.7mV
67	57.74V	194.7	197.8mV	59.61V	171.0	211.5mV
68	59.22V	190.3	200.4mV	57.53V	181.1	203.1mV
69	57.46V	169.0	206.3mV	56.85V	167.9	208.1mV
70	57.98V	167.8	197.5mV	58.02V	192.6	203.5mV
71	59.50V	172.1	201.6mV	58.19V	182.1	205.0mV
72	60.29V	194.9	203.2mV	57.64V	174.7	206.4mV
73	63.19V	175.3	207.0mV	61.80V	171.5	206.2mV
74	59.41V	173.0	211.1mV	62.35V	185.6	207.0mV
75	62.97V	178.4	199.7mV	59.40V	171.0	211.9mV
76	56.87V	189.8	210.4mV	60.60V	189.0	198.4mV
77	62.83V	194.4	202.2mV	57.07V	181.0	204.3mV

Made By: King Huang

Approval: Peter Yang

SeCoS Corporation

Pressure Cooker Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 121℃, 100%RH, 29.7PSIG, 168Hrs
Test Date: 2015.08.17 ~ 2015.08.25
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	63.18V	178.9	197.8mV	61.72V	167.9	206.4mV
2	60.85V	194.3	210.8mV	58.94V	171.2	210.0mV
3	56.86V	183.8	205.6mV	60.80V	172.1	206.8mV
4	61.81V	177.8	210.1mV	61.58V	167.4	208.2mV
5	61.65V	175.2	202.1mV	58.54V	175.9	210.9mV
6	63.06V	180.8	206.1mV	59.70V	168.3	200.7mV
7	62.22V	188.2	209.7mV	60.75V	180.9	202.6mV
8	58.78V	167.3	210.9mV	61.27V	189.6	201.9mV
9	62.40V	168.7	211.6mV	61.09V	170.9	205.5mV
10	62.07V	194.1	198.6mV	57.90V	189.3	207.3mV
11	59.59V	177.6	207.4mV	58.17V	177.5	202.2mV
12	56.74V	192.2	208.0mV	61.72V	171.7	202.4mV
13	62.99V	167.5	211.7mV	59.58V	180.4	198.8mV
14	62.87V	191.0	204.5mV	58.63V	193.5	209.1mV
15	58.86V	178.1	197.5mV	61.74V	174.6	203.7mV
16	58.29V	189.1	206.0mV	62.57V	172.8	205.1mV
17	60.83V	173.3	207.5mV	61.83V	180.9	201.1mV
18	63.17V	195.3	197.3mV	61.86V	173.9	211.3mV
19	57.61V	186.1	202.1mV	57.30V	178.4	196.7mV
20	59.73V	177.8	203.2mV	58.91V	181.8	207.2mV
21	57.96V	186.3	208.0mV	58.47V	191.9	196.5mV
22	59.05V	183.3	204.8mV	58.47V	186.0	206.2mV
23	57.15V	194.8	211.1mV	63.08V	169.1	204.4mV
24	59.04V	179.4	207.8mV	61.67V	185.5	202.8mV
25	62.36V	189.3	208.6mV	58.35V	176.0	198.4mV
26	61.75V	177.3	202.5mV	62.63V	178.1	205.2mV
27	61.50V	173.4	202.7mV	58.58V	188.4	208.6mV
28	62.95V	168.6	197.0mV	56.93V	180.1	199.2mV
29	58.32V	174.9	204.4mV	59.50V	190.4	203.7mV

SeCoS Corporation

Pressure Cooker Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 121℃, 100%RH, 29.7PSIG, 168Hrs
Test Date: 2015.08.17 ~ 2015.08.25
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	60.40V	192.5	208.2mV	58.43V	176.2	200.4mV
31	62.22V	172.1	202.0mV	56.92V	189.8	203.3mV
32	59.60V	190.1	203.2mV	57.84V	191.4	202.2mV
33	58.15V	184.3	211.8mV	60.34V	190.1	211.7mV
34	62.51V	182.7	211.5mV	60.53V	172.1	197.1mV
35	60.77V	172.2	200.3mV	59.57V	191.5	209.1mV
36	59.90V	174.5	201.9mV	61.66V	193.8	200.2mV
37	57.88V	176.0	208.8mV	59.65V	184.1	205.8mV
38	59.14V	181.6	199.0mV	59.64V	190.9	197.1mV
39	58.62V	190.9	201.5mV	61.96V	169.2	202.6mV
40	58.80V	185.2	205.4mV	59.49V	190.3	200.7mV
41	62.63V	180.6	205.2mV	57.32V	182.5	206.6mV
42	61.55V	170.1	211.6mV	56.89V	169.7	204.3mV
43	59.89V	190.5	198.6mV	57.32V	179.7	211.2mV
44	61.65V	180.4	198.3mV	61.27V	193.6	207.9mV
45	62.82V	181.6	209.2mV	60.27V	192.7	197.4mV
46	59.58V	184.7	207.3mV	58.87V	186.8	209.4mV
47	58.77V	167.8	207.6mV	57.45V	167.2	211.2mV
48	62.47V	192.7	208.1mV	62.75V	182.8	203.7mV
49	63.06V	181.4	204.4mV	56.77V	188.5	203.2mV
50	57.32V	185.3	199.7mV	61.63V	167.4	205.4mV
51	58.91V	183.6	203.3mV	57.72V	171.3	205.0mV
52	60.16V	177.5	203.7mV	56.76V	194.9	205.9mV
53	61.24V	190.7	198.5mV	63.03V	180.8	200.1mV
54	58.09V	168.9	204.0mV	56.76V	186.6	199.4mV
55	61.15V	180.8	198.1mV	61.29V	178.7	198.9mV
56	60.37V	185.4	211.9mV	59.46V	171.1	197.9mV
57	61.19V	169.4	199.5mV	62.37V	178.7	208.1mV
58	60.28V	192.8	211.7mV	58.80V	169.5	199.0mV

SeCoS Corporation

Pressure Cooker Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 121℃, 100%RH, 29.7PSIG, 168Hrs
Test Date: 2015.08.17 ~ 2015.08.25
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	60.35V	170.1	196.5mV	57.63V	191.8	205.2mV
60	59.31V	178.6	200.2mV	58.27V	191.4	207.7mV
61	59.66V	180.4	196.3mV	60.03V	182.3	211.6mV
62	60.47V	191.6	199.3mV	59.74V	186.4	210.1mV
63	60.03V	180.3	209.7mV	63.16V	178.0	209.5mV
64	57.78V	195.1	203.1mV	58.75V	193.9	201.7mV
65	59.04V	181.0	197.9mV	63.14V	176.7	200.6mV
66	60.63V	173.1	209.6mV	60.10V	183.4	203.1mV
67	59.69V	168.3	205.4mV	57.00V	180.4	210.3mV
68	61.06V	176.3	205.7mV	61.65V	174.4	198.2mV
69	59.21V	175.7	202.9mV	59.80V	175.7	205.0mV
70	59.93V	193.5	199.1mV	62.22V	168.7	211.9mV
71	59.63V	193.0	210.5mV	60.30V	169.8	203.9mV
72	60.51V	174.2	203.5mV	59.43V	173.9	200.5mV
73	62.90V	169.2	200.9mV	60.74V	194.8	198.9mV
74	57.43V	181.0	202.8mV	61.75V	195.2	201.2mV
75	56.91V	185.2	201.7mV	62.86V	190.1	207.0mV
76	62.32V	189.1	201.2mV	59.08V	183.3	211.0mV
77	57.22V	174.4	205.3mV	57.44V	191.1	205.3mV

Made By: King Huang

Approval: Peter Yang

SeCoS Corporation

Temperature Cycle Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: -55℃/30min, 150℃/30min, for1000 Cycle
Test Date: 2015.08.17 ~ 2015.10.08
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	62.58V	189.1	206.9mV	61.32V	192.5	200.6mV
2	58.38V	175.0	207.8mV	57.28V	188.8	210.6mV
3	62.15V	170.3	204.6mV	57.55V	181.7	203.4mV
4	60.07V	173.8	198.9mV	59.79V	170.8	207.5mV
5	57.78V	180.6	196.4mV	61.68V	181.0	197.7mV
6	57.86V	177.0	198.7mV	60.75V	181.3	211.0mV
7	61.23V	168.7	210.5mV	60.94V	180.1	204.8mV
8	62.65V	168.5	211.7mV	63.19V	181.1	211.7mV
9	60.87V	168.3	203.5mV	59.50V	187.0	208.0mV
10	58.28V	177.6	204.7mV	60.03V	184.1	196.2mV
11	60.77V	183.3	201.6mV	61.18V	183.0	200.8mV
12	59.27V	173.5	201.6mV	62.45V	168.5	211.6mV
13	63.04V	188.7	212.0mV	58.07V	182.5	203.2mV
14	59.28V	189.7	201.7mV	57.83V	180.2	207.1mV
15	57.05V	191.9	198.4mV	58.98V	168.1	203.5mV
16	59.53V	171.0	197.5mV	62.53V	182.2	203.3mV
17	61.56V	176.2	206.1mV	58.54V	188.0	199.8mV
18	63.14V	190.7	206.2mV	59.04V	178.9	199.8mV
19	62.58V	169.5	200.1mV	60.34V	190.7	198.1mV
20	62.21V	188.7	206.1mV	57.96V	172.5	202.3mV
21	59.48V	193.1	208.6mV	59.99V	192.4	200.1mV
22	58.35V	168.6	205.5mV	61.77V	178.4	202.1mV
23	58.95V	187.1	205.9mV	60.81V	194.5	208.5mV
24	60.26V	188.0	209.6mV	63.09V	191.1	197.6mV
25	59.62V	183.7	202.0mV	62.50V	189.4	208.6mV
26	62.27V	177.4	209.8mV	58.14V	179.0	198.9mV
27	60.73V	193.3	209.4mV	59.56V	178.3	205.7mV
28	61.97V	191.0	202.8mV	57.04V	176.5	196.3mV
29	57.86V	185.5	211.2mV	59.72V	195.0	199.8mV

SeCoS Corporation

Temperature Cycle Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: -55℃/30min, 150℃/30min, for1000 Cycle
Test Date: 2015.08.17 ~ 2015.10.08
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	61.80V	185.0	203.7mV	56.76V	185.0	196.0mV
31	57.75V	190.9	196.9mV	60.50V	168.0	206.6mV
32	59.83V	194.0	202.9mV	62.52V	179.5	204.3mV
33	59.65V	183.1	206.1mV	61.92V	168.2	207.7mV
34	57.21V	179.4	202.1mV	57.74V	175.2	199.9mV
35	62.33V	183.0	208.0mV	60.56V	177.7	207.3mV
36	61.34V	180.6	203.5mV	58.35V	192.9	197.7mV
37	58.27V	167.6	207.3mV	57.30V	179.9	199.5mV
38	57.16V	189.7	202.6mV	59.23V	182.3	199.7mV
39	57.89V	184.0	205.0mV	62.01V	177.8	196.8mV
40	57.71V	175.0	198.8mV	57.97V	182.8	199.9mV
41	57.74V	181.5	207.2mV	59.41V	171.4	197.9mV
42	58.46V	195.6	198.8mV	57.34V	183.4	206.7mV
43	57.37V	184.5	201.5mV	62.74V	189.7	197.8mV
44	59.82V	173.6	197.7mV	60.89V	184.7	209.5mV
45	61.57V	172.9	200.9mV	58.32V	177.4	199.1mV
46	62.10V	181.8	198.0mV	57.12V	178.1	198.8mV
47	61.98V	190.5	198.3mV	62.48V	180.6	208.1mV
48	60.44V	182.4	201.9mV	57.12V	168.1	197.4mV
49	59.03V	194.2	196.2mV	59.98V	182.1	198.8mV
50	60.47V	188.0	202.5mV	61.33V	175.0	199.2mV
51	60.64V	179.1	210.6mV	57.33V	169.9	199.9mV
52	60.97V	179.4	196.3mV	62.97V	178.8	202.9mV
53	57.90V	172.2	204.1mV	60.19V	185.4	206.4mV
54	59.55V	182.9	208.0mV	59.62V	182.4	211.6mV
55	58.70V	191.1	196.6mV	60.83V	190.8	199.4mV
56	57.82V	171.3	211.1mV	58.69V	192.4	201.7mV
57	57.03V	172.5	204.0mV	63.00V	170.9	210.8mV
58	62.32V	189.0	200.2mV	57.78V	184.6	199.1mV

SeCoS Corporation

Temperature Cycle Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: -55℃/30min, 150℃/30min, for1000 Cycle
Test Date: 2015.08.17 ~ 2015.10.08
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	58.93V	172.4	209.4mV	58.12V	172.6	212.1mV
60	62.77V	179.4	203.6mV	56.96V	176.1	206.6mV
61	57.33V	175.7	199.4mV	59.83V	190.2	206.7mV
62	62.64V	167.3	203.0mV	61.94V	189.9	196.6mV
63	58.44V	185.7	210.8mV	58.80V	190.2	211.8mV
64	56.96V	175.4	201.6mV	58.68V	176.2	204.9mV
65	58.53V	192.5	205.7mV	58.32V	182.0	208.3mV
66	57.31V	180.9	198.7mV	61.99V	170.8	197.9mV
67	61.32V	189.4	196.8mV	59.91V	189.5	209.7mV
68	60.93V	189.2	205.6mV	59.49V	173.3	210.3mV
69	56.95V	181.4	197.1mV	57.15V	181.6	198.8mV
70	59.27V	173.4	198.5mV	61.67V	175.0	211.2mV
71	57.93V	180.3	208.8mV	62.87V	193.1	207.1mV
72	60.40V	182.8	206.2mV	60.61V	193.8	206.3mV
73	59.09V	168.7	200.6mV	61.90V	170.5	210.7mV
74	60.02V	189.2	206.5mV	61.30V	178.3	201.2mV
75	61.90V	180.3	208.2mV	58.30V	173.0	208.2mV
76	58.79V	179.2	204.4mV	62.96V	186.3	205.3mV
77	61.72V	172.3	207.2mV	58.81V	173.8	206.4mV

Made By: King Huang

Approval: Peter Yang

SeCoS Corporation

High Temperature High Humidity Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 85±2℃, 85±5%RH, 1000Hrs
Test Date: 2015.08.25 ~ 2015.10.06
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	57.60V	172.2	199.2mV	62.31V	177.9	204.0mV
2	62.24V	192.6	196.8mV	59.28V	189.7	201.4mV
3	59.15V	183.5	196.2mV	59.27V	181.5	203.5mV
4	60.40V	174.4	203.0mV	61.12V	169.6	211.3mV
5	59.34V	185.0	205.2mV	60.16V	192.5	210.4mV
6	60.05V	178.6	206.2mV	58.15V	193.4	207.2mV
7	62.79V	187.1	201.4mV	61.77V	167.3	201.5mV
8	62.19V	171.1	206.4mV	60.95V	178.9	197.0mV
9	62.24V	178.3	197.9mV	60.76V	194.1	200.8mV
10	59.53V	181.7	207.2mV	62.47V	171.4	198.9mV
11	63.20V	180.5	199.8mV	58.37V	174.3	211.0mV
12	56.99V	174.5	198.2mV	57.63V	185.2	204.0mV
13	56.82V	174.3	207.9mV	59.39V	168.8	208.9mV
14	57.98V	191.4	200.4mV	61.62V	187.7	197.5mV
15	59.21V	184.1	205.9mV	58.83V	168.1	204.1mV
16	58.38V	186.2	201.1mV	62.20V	187.6	199.9mV
17	56.97V	175.3	203.5mV	61.19V	173.2	207.4mV
18	59.67V	170.2	208.4mV	61.97V	176.7	198.7mV
19	60.18V	194.1	199.2mV	61.84V	190.6	208.0mV
20	58.55V	190.2	199.1mV	59.65V	183.4	211.1mV
21	60.86V	169.4	199.3mV	59.46V	175.9	211.9mV
22	60.59V	173.9	208.4mV	61.19V	194.6	208.1mV
23	62.33V	193.3	197.4mV	57.89V	176.3	209.0mV
24	59.95V	181.8	197.7mV	57.81V	172.4	209.0mV
25	60.81V	179.7	206.5mV	62.44V	193.5	196.6mV
26	58.13V	179.4	204.0mV	58.01V	184.9	209.7mV
27	62.80V	184.5	197.1mV	57.82V	170.6	210.0mV
28	59.59V	168.6	212.0mV	57.82V	178.2	209.7mV
29	61.64V	178.3	205.9mV	59.23V	178.6	199.1mV

SeCoS Corporation

High Temperature High Humidity Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 85±2℃, 85±5%RH, 1000Hrs
Test Date: 2015.08.25 ~ 2015.10.06
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	57.22V	177.9	196.1mV	61.83V	184.4	198.9mV
31	58.21V	173.9	209.6mV	60.39V	170.5	199.2mV
32	61.97V	168.7	211.0mV	57.61V	182.9	211.9mV
33	58.57V	169.5	208.9mV	59.28V	171.7	204.1mV
34	58.45V	180.2	198.9mV	57.71V	175.4	211.5mV
35	60.03V	180.4	205.3mV	58.89V	186.8	197.4mV
36	62.61V	168.8	207.9mV	60.21V	192.7	201.4mV
37	61.77V	173.1	196.3mV	57.77V	177.0	205.0mV
38	62.70V	193.9	210.6mV	59.06V	177.6	207.2mV
39	60.77V	188.6	202.1mV	60.36V	187.3	211.1mV
40	62.96V	185.7	206.5mV	57.19V	177.3	205.0mV
41	56.83V	177.4	199.6mV	61.16V	179.5	207.1mV
42	59.78V	185.6	210.6mV	59.97V	168.5	200.2mV
43	57.49V	186.8	209.5mV	59.92V	174.5	209.3mV
44	63.18V	171.5	201.5mV	58.26V	195.0	198.3mV
45	62.49V	177.7	199.3mV	61.68V	174.7	199.2mV
46	58.92V	178.2	196.9mV	59.55V	183.3	208.4mV
47	61.10V	167.9	204.8mV	62.85V	177.9	198.4mV
48	59.28V	171.3	210.3mV	60.79V	187.8	199.3mV
49	60.87V	187.3	197.3mV	57.32V	185.3	202.4mV
50	59.50V	180.4	203.2mV	61.50V	180.5	200.0mV
51	63.16V	187.7	197.6mV	61.29V	170.4	207.6mV
52	62.77V	183.2	209.3mV	58.16V	178.9	196.6mV
53	60.01V	192.9	200.6mV	62.73V	193.4	202.8mV
54	60.05V	192.9	202.0mV	62.10V	194.3	209.3mV
55	60.22V	183.5	209.6mV	58.56V	177.1	199.0mV
56	60.24V	184.8	207.1mV	60.25V	172.1	207.3mV
57	58.44V	184.0	211.5mV	56.90V	169.4	202.9mV
58	62.87V	187.0	198.7mV	59.16V	191.3	205.8mV

SeCoS Corporation

High Temperature High Humidity Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 85±2℃, 85±5%RH, 1000Hrs
Test Date: 2015.08.25 ~ 2015.10.06
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	61.73V	174.2	204.2mV	59.18V	193.1	210.2mV
60	59.14V	195.2	205.7mV	63.04V	173.3	207.4mV
61	61.50V	193.8	203.6mV	62.08V	168.3	196.3mV
62	60.87V	193.1	197.6mV	57.95V	195.2	204.5mV
63	60.29V	175.1	200.6mV	58.12V	184.5	211.0mV
64	59.12V	193.8	201.1mV	58.84V	184.1	196.6mV
65	62.80V	178.6	208.0mV	57.94V	173.0	205.8mV
66	58.68V	188.4	208.8mV	62.50V	188.1	205.5mV
67	58.31V	191.8	209.7mV	60.52V	183.8	196.4mV
68	63.11V	193.6	210.8mV	62.84V	186.9	197.8mV
69	60.51V	192.5	203.7mV	63.01V	169.8	203.4mV
70	57.30V	176.2	203.6mV	62.87V	185.9	209.9mV
71	57.53V	181.0	199.5mV	59.36V	176.6	204.4mV
72	57.70V	182.1	196.5mV	59.16V	182.6	207.0mV
73	58.26V	177.4	203.5mV	62.94V	171.3	200.3mV
74	58.90V	192.9	205.4mV	58.45V	179.3	207.1mV
75	60.53V	194.1	201.5mV	57.40V	175.1	205.8mV
76	57.34V	193.0	202.8mV	59.45V	180.3	208.9mV
77	62.68V	168.2	205.6mV	57.00V	179.4	207.0mV

Made By: King Huang

Approval: Peter Yang

SeCoS Corporation

High Temper High Humidity Reverse Bies Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 85±2℃, 85±5%RH, 1000Hrs
Test Date: 2015.08.25 ~ 2015.10.06
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	61.70V	184.9	196.1mV	56.90V	193.2	203.5mV
2	59.61V	172.7	197.0mV	62.76V	174.5	211.6mV
3	62.57V	179.8	202.5mV	58.08V	188.2	211.2mV
4	58.63V	172.2	200.5mV	61.27V	180.2	205.8mV
5	62.66V	171.2	199.1mV	57.72V	179.1	206.1mV
6	57.67V	185.9	199.0mV	58.00V	182.2	209.4mV
7	58.17V	176.0	199.4mV	57.93V	187.7	210.7mV
8	58.69V	178.8	202.7mV	62.95V	182.0	211.6mV
9	63.18V	174.3	196.6mV	57.11V	171.8	202.8mV
10	56.84V	190.7	210.6mV	58.96V	179.8	202.0mV
11	57.44V	192.8	211.0mV	60.86V	192.4	198.6mV
12	58.54V	177.7	211.5mV	57.86V	194.0	209.3mV
13	57.48V	194.4	202.6mV	62.92V	183.3	197.4mV
14	61.04V	193.7	207.4mV	60.01V	191.3	208.5mV
15	61.10V	182.1	199.5mV	56.80V	184.0	203.2mV
16	62.64V	170.9	205.6mV	59.60V	178.0	204.3mV
17	59.40V	182.8	197.9mV	62.60V	169.4	196.2mV
18	57.02V	191.2	200.2mV	61.95V	193.4	202.8mV
19	59.04V	169.8	198.6mV	59.25V	167.5	210.6mV
20	58.44V	171.5	202.3mV	57.94V	182.1	198.8mV
21	59.07V	177.8	211.1mV	60.84V	188.4	207.0mV
22	62.12V	193.9	203.1mV	63.04V	175.5	211.6mV
23	61.48V	179.3	210.7mV	56.82V	173.9	210.9mV
24	57.78V	176.4	202.7mV	58.79V	177.2	206.7mV
25	59.27V	188.9	197.3mV	59.01V	167.9	201.8mV
26	58.18V	195.1	201.0mV	57.83V	171.0	203.8mV
27	59.98V	190.3	198.3mV	57.27V	173.1	204.1mV
28	57.93V	192.8	207.3mV	57.86V	183.4	202.0mV
29	59.71V	179.5	208.0mV	58.10V	184.6	210.0mV

SeCoS Corporation

High Temper High Humidity Reverse Bies Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 85±2℃, 85±5%RH, 1000Hrs
Test Date: 2015.08.25 ~ 2015.10.06
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	61.01V	169.0	210.3mV	59.77V	191.5	204.1mV
31	58.77V	187.7	208.8mV	58.67V	181.0	203.9mV
32	56.98V	192.8	200.7mV	62.06V	185.8	207.4mV
33	61.54V	175.8	199.4mV	60.35V	192.8	204.8mV
34	62.52V	194.5	206.3mV	58.51V	180.2	209.2mV
35	58.89V	189.6	202.9mV	61.61V	193.6	209.2mV
36	58.48V	193.2	208.9mV	58.57V	194.6	203.2mV
37	61.50V	194.0	198.9mV	58.24V	172.5	211.5mV
38	57.54V	175.7	197.0mV	59.50V	195.7	203.3mV
39	61.82V	191.6	202.8mV	62.95V	178.5	208.0mV
40	61.24V	167.9	203.4mV	62.69V	176.1	208.4mV
41	58.36V	173.3	198.5mV	62.45V	194.1	208.5mV
42	58.12V	170.0	207.2mV	58.93V	189.3	210.4mV
43	60.02V	182.4	205.8mV	58.71V	194.5	204.9mV
44	61.32V	192.6	201.7mV	61.37V	181.4	211.3mV
45	63.12V	183.5	207.7mV	61.93V	190.9	211.3mV
46	59.78V	194.0	207.6mV	60.73V	186.5	201.0mV
47	61.22V	174.1	200.4mV	60.03V	185.6	206.6mV
48	58.71V	173.2	206.4mV	56.83V	178.0	201.3mV
49	56.81V	189.4	197.4mV	62.29V	168.3	199.9mV
50	59.81V	194.0	207.3mV	60.39V	179.7	196.6mV
51	58.33V	173.8	203.9mV	60.66V	169.2	198.4mV
52	59.30V	191.7	208.4mV	62.45V	169.8	200.5mV
53	61.63V	181.7	198.5mV	62.94V	179.2	203.2mV
54	57.56V	175.5	200.9mV	60.97V	170.8	196.4mV
55	61.18V	194.7	205.3mV	61.34V	182.5	204.6mV
56	57.58V	178.0	203.3mV	59.01V	175.7	200.5mV
57	61.86V	194.4	205.7mV	62.97V	167.4	210.8mV
58	63.06V	188.4	205.1mV	58.06V	177.8	198.9mV

SeCoS Corporation

High Temper High Humidity Reverse Bies Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 85±2℃, 85±5%RH, 1000Hrs
Test Date: 2015.08.25 ~ 2015.10.06
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	61.05V	194.7	199.6mV	58.15V	173.5	205.9mV
60	62.55V	175.5	204.4mV	58.87V	189.8	211.1mV
61	59.89V	193.9	200.6mV	63.05V	173.0	204.6mV
62	61.72V	194.1	200.1mV	61.55V	167.9	204.9mV
63	61.31V	191.8	207.9mV	60.81V	171.8	196.2mV
64	58.67V	178.5	205.7mV	57.86V	170.3	197.6mV
65	60.21V	177.5	199.7mV	58.19V	173.1	203.6mV
66	57.02V	173.3	203.6mV	61.96V	176.1	207.1mV
67	58.30V	190.9	198.5mV	61.58V	174.7	200.3mV
68	61.80V	178.8	204.1mV	62.60V	180.8	202.4mV
69	60.26V	188.0	197.2mV	57.41V	183.0	207.0mV
70	63.12V	174.7	206.9mV	59.88V	193.5	206.4mV
71	57.24V	192.7	211.7mV	61.06V	191.9	201.5mV
72	57.17V	192.1	205.3mV	57.53V	167.7	199.4mV
73	60.71V	193.3	201.7mV	60.96V	173.0	209.6mV
74	56.82V	195.6	204.3mV	57.71V	193.7	208.4mV
75	61.09V	171.5	204.1mV	60.66V	175.7	203.6mV
76	58.21V	175.1	198.6mV	60.04V	190.9	196.4mV
77	60.96V	186.8	206.1mV	60.02V	189.2	201.7mV

Made By: King Huang

Approval: Peter Yang

SeCoS Corporation

Solderability Test Data

Report No : T151008-110
Part No : MMBT2222Q
Test Equipment: JUNO Test System DTS-1000
Test Condition : V(BR)CEO > 40V@IC=10mA, IB=0 ； 100 < hFE @VCE=10V, IC=150mA
VCE(sat) < 1000mV@IC=500mA, IB=50mA
Test Condition: 245℃ ± 5℃, 5Sec
Test Date: 2015.10.08
Test Standard : JESD22 STANDER Method-B102
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	63.15V	188.3	206.0mV	58.40V	175.0	209.4mV
2	57.16V	194.6	202.7mV	57.91V	195.0	209.2mV
3	56.79V	192.2	210.2mV	57.93V	181.1	210.4mV
4	58.79V	175.2	207.3mV	57.20V	177.7	210.6mV
5	58.54V	182.4	204.9mV	62.44V	171.4	207.4mV
6	59.35V	172.1	205.2mV	60.92V	175.9	198.6mV
7	60.41V	172.9	201.9mV	60.16V	185.3	199.6mV
8	61.40V	169.2	202.1mV	57.07V	184.9	203.1mV
9	60.34V	191.3	209.2mV	57.51V	184.0	210.6mV
10	63.07V	186.8	212.0mV	60.44V	191.0	198.7mV

Made By: King Huang

Approval: Peter Yang