



DOCUMENT CHANGE REQUEST

DCR number 166

Changes required for: General

Originator: SAVIN Samuel

Date: 2005/04/07

Date sent: 2005/04/07

Organisation:

Status: IMPLEMENTED

Title: Diode, Silicon, Power Rectifier, Schottky Barrier, based on type STPS6045

Number: 5106/018

Issue: 1

Other documents affected:

Page:

See file attached

Paragraph:

See file attached

Original wording:

Proposed wording:

See file attached

Justification:

The specification Issue 1, has been raised by STMicroelectronics taking into account the electrical results obtained on the SMD1 package (variant 02), but STMicroelectronics has omitted to increase by simulation the VF value on the TO254 package induced by the parasitic resistor due to the raw material used in this package (lead material, Beryllium Oxide, mechanical interface between the lead and Beryllium Oxide)

For example : SMD1 . parasitic resistor $1 \text{ m}\Omega$;

TO254 . parasitic resistor $4 \text{ m}\Omega$;

As a consequence STMicroelectronics is requesting a waiver for the limits of the VF3 and VF4 for variant 01 (TO254).

These new limits have been checked and validated in internal pilot lot.

Note: Without any waiver STMicroelectronics is not able to supply the variant 01 with the actual Die used.

Attachments:

DCR_STPS6045.pdf, null

Modifications:

DCR is approved with the following additions:

T2, T3(a), T6 : Amend the additional note, per DCR166, to read "All Variants" (was "All variant")

Table 3(b), No.4 Forward Voltage Drop 3: Add "All Variants" under Characteristics column

Approval signature:



Date signed:

2005-04-07



DOCUMENT CHANGE REQUEST

DCR Class

TO BE COMPLETED BY ORIGINATOR

Change Request No.

Originator (1)
S.SAVIN

Originator Signature (2)

Affiliation
STMicroelectronics RENNES

Date: 18/03/2005

Page 1 of 3 (3)

DOCUMENT AFFECTED

Other documents affected (8)

Doc No. (4)
5106/018

Status (5)
Issue 1

Title: (6)
DIODES, SILICON, POWER RECTIFIER,
SCHOTTKY BARRIER, BASED ON TYPE
STPS6045

Paragraph(s) and page(s) affected (7)

PROPOSED WORDING OF CHANGE (9)

See attached documents

Continuation sheet(s) attached

Yes No

JUSTIFICATION (10)

The specification Issue 1, has been raised by STMicroelectronics taking into account the electrical results obtained on the SMD1 package (variant 02), but STMicroelectronics has omitted to increase by simulation the V_F value on the TO254 package induced by the parasitic resistor due to the raw material used in this package (lead material, Beryllium Oxide, mechanical interface between the lead and Beryllium Oxide)

For example : SMD1 – parasitic resistor $\approx 1 \text{ m}\Omega$
TO254 – parasitic resistor $\approx 4 \text{ m}\Omega$

As a consequence STMicroelectronics is requesting a waiver for the limits of the V_{F3} and V_{F4} for variant 01 (TO254). These new limits have been checked and validated in internal pilot lot.

Note: Without any waiver STMicroelectronics is not able to supply the variant 01 with the actual Die used.

Continuation sheet(s) attached

Yes No

Changes required for:
(11)

Procurement (project)

Qualification

MRB Decision

General improvement of Spec.

Other

RESERVED FOR USE BY THE ESCC EXECUTIVE SECRETARIAT

Date of Registration:

Order of Priority for Appr/Impl.:

1 (high)

2 (medium)

3 (low)

Attachments:

Qualification Status: Qualified

In process of qualification

N/A

RESERVED FOR USE BY APPROVING AUTHORITY

Approved

Yes

No

Signature

Reference to SCSB / PSWG
decision

Priority

Role

Date

Approved wording if different from box 9 or reason for rejection

Continuation sheet(s) attached

Yes No



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CONTINUATION SHEET FOR BOX []

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TABLE 2 - ELECTRICAL MEASUREMENTS AT ROOM TEMPERATURE , D.C.PARAMETERS

| No. | CHARACTERISTICS | SYMBOL | MIL-STD-750 TEST METHOD | TEST CONDITIONS (NOTE 1) | LIMITS | | UNIT |
|-----|--|----------|----------------------------|----------------------------------|--------|------------|---------------|
| | | | | | MIN. | MAX. | |
| 1 | Reverse Current All variant | I_R | 4016 | $V_R=V_{RWM}= 45 \text{ Vdc}$ | | 500 | μA |
| 2 | Forward Voltage Drop 1 All variant | V_{F1} | 4011 | $I_{F1}=5 \text{ A}$ Note 2 | | 520 | mV |
| 3 | Forward Voltage Drop 2 All variant | V_{F2} | 4011 | $I_{F2}=10 \text{ A}$ Note 2 | | 590 | mV |
| 4 | Forward Voltage Drop 3 Variant 01 Variant 02 | V_{F3} | 4011 | $I_{F3}= 20 \text{ A}$ Note 2 | | 650 630 | mV |
| 5 | Forward Voltage Drop 4 Variant 01 Variant 02 | V_{F4} | 4011 | $I_{F4}= 35 \text{ A}$ Note 2 | | 820 750 | mV |

NOTES

- 1 Measurements per each diode
- 2 Pulsed measurement : Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$.

TABLE 3(a) - ELECTRICAL MEASUREMENTS AT HIGH TEMPERATURES (125°C)

| No. | CHARACTERISTICS | SYMBOL | MIL-STD-750 TEST METHOD | TEST CONDITIONS (NOTE 1) | LIMITS | | UNIT |
|-----|--|----------|----------------------------|----------------------------------|--------|------------|------|
| | | | | | MIN. | MAX. | |
| 1 | Reverse Current All variant | I_R | 4016 | $V_R=V_{RWM}= 45 \text{ Vdc}$ | | 40 | mA |
| 3 | Forward Voltage Drop 2 All variant | V_{F2} | 4011 | $I_{F2}=10 \text{ A}$ Note 2 | | 530 | mV |
| 4 | Forward Voltage Drop 3 Variant 01 Variant 02 | V_{F3} | 4011 | $I_{F3}= 20 \text{ A}$ Note 2 | | 610 570 | mV |
| 5 | Forward Voltage Drop 4 Variant 01 Variant 02 | V_{F4} | 4011 | $I_{F4}= 35 \text{ A}$ Note 2 | | 790 710 | mV |

NOTES

- 1 Measurements per each diode
- 2 Pulsed measurement : Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$.



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CONTINUATION SHEET FOR BOX []

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TABLE 6 - ELECTRICAL MEASUREMENTS AT INTERMEDIATE POINTS AND ON COMPLETION OF ENDURANCE TESTING

| No. | CHARACTERISTICS | SYMBOL | SPEC. AND/OR TEST METHOD | TEST CONDITIONS (Note1) | ABSOLUTE | | UNIT |
|-----|--|----------|--------------------------|-------------------------|----------|------------|---------|
| | | | | | MIN. | MAX. | |
| 1 | Reverse Current All variant | I_R | As per Table 2 | As per Table 2 | | 500 | μA |
| 2 | Forward Voltage Drop 1 All variant | V_{F1} | As per Table 2 | As per Table 2 (Note2) | | 520 | mV |
| 3 | Forward Voltage Drop 2 All variant | V_{F2} | As per Table 2 | As per Table 2 (Note2) | | 690 | mV |
| 4 | Forward Voltage Drop 3 Variant 01 Variant 02 | V_{F3} | As per Table 2 | As per Table 2 (Note2) | | 650 630 | mV |
| 5 | Forward Voltage Drop 4 Variant 01 Variant 02 | V_{F4} | As per Table 2 | As per Table 2 (Note2) | | 820 750 | mV |

NOTES

- 1 Measurements per each diode.
- 2 Pulsed measurement : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$.