DOCUMENT CHANGE REQUEST

DCR number 1592

Changes required for: General

Originator: Steve Thacker

Date: 2023/10/09

Date sent: 2023/08/18

Organisation: ESCC Executive Secretariat

Status: IMPLEMENTED

Title:	Transistors, Low Power, NPN, based on type 2ST15300		
Number:	5201/020	Issue:	3

Other documents affected:

Page:

9, 12, 13, 14

Paragraph:

2.4.1, 2.10.1, 2.10.2, Appendix A

Original wording:

As per 5201/020 issue 3

Proposed wording:

In conjunction with open DCR1533:
Amend/replace and add to the proposed new deviation per open DCR1533 to be as follows
(see also attached draft spec mark-up with changes to 5201/020 issue 3 highlighted yellow & green):

A) 5201/020 Paras 2.4.1, 2.10.1, 2.10.2 (same as DCR1533)
Paras. 2.4.1: correct the test condition for ICBO to be VCB
Para. 2.10.1: correct bias condition 1 to be Collector-Base Voltage, VCBS 80% V(BR)CBO
Para. 2.10.2: clarify the test condition for ICBO to be VCB = 240V
....

B) Appendix A for ST
Add new deviations B1 & B2 as follows:

B1) (similar to DCR1533)
ITEMS AFFECTED:
5201/020 Para. 2.10 & 2.10.2 (same as DCR1533).

DESCRIPTION OF DEVIATIONS
Add an additional radiation test exposure at 30krad(Si) to the existing required exposures specified in ESCC No. 22900 (but see item B2 below).

The parameters to be measured after the additional exposure at 30krad(Si) shall be as specified in Para. 2.10.2 herein except as follows:
Collector-Base Breakdown Voltage, V(BR)CBO, See Para. 2.4.1: Min: 270V / Max: -
Collector-Base Cut off Current, ICBO, See Para. 2.4.1 except VCB = 270V: Min: - / Max: 10µA
....

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B2) (additional changes to the contents of DCR1533)
ITEMS AFFECTED:
ESCC 22900 Para. 4.2(b) (and 5201/020 Para. 2.10 & 2.10.2).

DESCRIPTION OF DEVIATIONS
Amend the required 3 minimum radiation test exposure levels for all Variants tested to the ESCC radiation hardness assurance, RHA, qualification level 100krad(Si) = letter R, to be as follows:

Letter R; RHA level (TID) 100k:
Corresponding Exposure levels: 25krad(Si) / 50krad(Si) / 100krad(Si)

i.e. remove the 150krad(Si) exposure but add an exposure at 25krad(Si)

The parameters to be measured specifically after the new exposure at 25krad(Si) shall be as specified in Para. 2.10.2 herein except as follows:
Collector-Base Breakdown Voltage, V(BR)CBO, See Para. 2.4.1: Min: 270V / Max: -
Collector-Base Cut off Current, ICBO, See Para. 2.4.1 except VCB = 270V: Min: - / Max: 10µA

Justification:

Note: This DCR is raised by the ESCC technical writer on behalf of Manufacturer ST.

ST want to add, with respect to radiation performance, a 30krad(Si) intermediate test step guarantee to the spec (same as per DCR1533).

In addition, ST want to remove the mandated 1.5 x 100k 'overtest' exposure level (i.e. 150krad(Si)) required by ESCC22900.
In order to maintain the requirement for 3 exposures, a new exposures at 25krad(Si) is added.

Note: if this DCR is approved, DCR1533 can be withdrawn.

Attachments:

escc5201020iss_draft_4a+_in_review.docx

Modifications:

N/A

Approval signature:

Date signed:

2023-10-09