TABLE I. DEVICE PARAMETERS 1/

JPL PART # ST12132-	MFG	MFG PART #	PACKAGE STYLE	DETAIL SCREENING TESTS	ELECTRICAL CHARACTERISTICS & GROUP A TESTS	RADIATION (TID) LEVEL RAD(SD)
QEJ103MR	SOD/PPC	96EJ103	TO-228 2/	TABLE 111	TABLE IV	100k 3/

NOTES:

1/ This drawing in, conjunction with MIL-S-19500, imposes all requirements for procurement of these devices.

2/ Physical dimensions shall conform to Figure 1.

3/ Sufficient radiation tolerance to this TID level is guaranteed by design for this device (See CS515581 Paragraph 4.7.7).

4. This standard takes precedence over documents referenced herein.

RELEASED THRU SECTION 356 DATA MANAGEMENT: DATE:

REVISION: C APPROVED BY: DATE:

APPROVED SOURCE(S)

THE ITEM LISTED IN THE APPROVED SOURCE BLOCK AND IDENTIFIED BY VENDOR NAME, ADDRESS, AND PART NUMBER WILL BE EVALUATED AND TESTED BY THE JPL ELECTRONIC PARTS RELIABILITY SECTION OR ITS DELEGATED ALTERNATE BEFORE BEING APPROVED FOR USE. NON-JPL USERS SHALL CHECK WITH THE ELECTRONIC PARTS RELIABILITY SECTION ON THE STATUS OF THE PART'S APPROVAL BEFORE USING.

VENDOR PART NO	VENDOR	JPL PART NO

JET PROPULSION LABORATORY CALIFORNIA INSTITUTE OF TECHNOLOGY

CAGE NO 23835

Procurement specification: CS515581
Screening specification: ZPP-2073-GEN

TITLE:

TRANSISTOR, SILICON, NPN
POWER SWITCHING

DETAIL SPECIFICATION

ST 12132

Custodian: Electronic Parts Reliability Section 514

SHEET 1 OF 3

FILE (Sec. 514): F:\USERS\514\SPECS\ACT-DETL\ST12132.C

TABLE II. MANUFACTURERS MAXIMUM RATINGS (T_C=25°C)

PARAMETER	RATING	UNITS
V_{CBO}	100	Vdc
V_{CEO}	80	Vdc
I_C	25	Adc
P_T (T_C=100°C) $R_{\theta(J-C)}$	125 0.58	W °C/W
T_J, T_{STG}	-55 to 200	°C

TABLE III. DETAIL SCREENING TESTS

SCREEN (SEE MIL-S-19500, TABLE II)	TEST CONDITIONS/REQUIREMENTS
9. INTERIM ELECTRICAL PARAMETERS	I_{CER1} AND h_{FE1} PER TABLE III.
11. INTERIM ELECTRICAL AND DELTA PARAMETERS	I_{CER1} AND h_{FE1} PER TABLE III. DELTA LIMITS: ΔI_{CER1}= ±20% OF INITIAL VALUE OR ±0.5uA WHICHEVER IS GREATER Δh_{FE1}= ±15% OF INITIAL VALUE
12. POWER BURN-IN	MIL-STD-750, METHOD 1039, CONDITION B T_J= 187.5 ±12.5°C, T_A=100°C OR LESS, V_{CE}= 25±5 Vdc
13. FINAL ELECTRICAL TESTS A. PARAMETERS B. DELTA LIMITS	 TABLE III, SUBGROUPS 2 AND 3. SAME PARAMETERS AND DELTA LIMITS AS 11 ABOVE.

TABLE IV. GROUP A ELECTRICAL TESTS

TEST	MIL-STD-750 METHOD	TEST CONDITIONS	LIMITS		
			MIN	MAX	UNITS
SUBGROUP 2 T_A=25°C COLLECTOR-BASE BREAKDOWN VOLTAGE, BV_{CBO}	3001	I_C = 100 uA I_E = 0	120		Vdc
COLLECTOR-EMITTER BREAKDOWN VOLTAGE, BV_{CEO}	3011	I_C = 100 mA 1/	100		Vdc
EMITTER-BASE BREAKDOWN VOLTAGE, BV_{EBO}	3026	I_E = 100 uA I_C = 0	10		Vdc
COLLECTOR-EMITTER LEAKAGE CURRENT, I_{CER1}	3041	V_{CE} = 80 Vdc R_{BE} = 400 Ω		2	uA
EMITTER-BASE LEAKAGE CURRENT, I_{EBO}	3061	V_{EB} = 8 V I_C = 0		10	uA
FORWARD CURRENT TRANSFER RATIO, h_{FE1}	3076	I_C = 2 A 1/ V_{CE} = 2 V	50	150	
FORWARD CURRENT TRANSFER RATIO, h_{FE2}	3076	I_C = 30 A 1/ V_{CE} = 5 V	40		
COLLECTOR-EMITTER SATURATION VOLTAGE, $V_{CE(SAT)1}$	3071	I_C = 8 A 1/ I_B = 0.67 A		0.25	Vdc
COLLECTOR-EMITTER SATURATION VOLTAGE, $V_{CE(SAT)2}$	3071	I_C = 30 A 1/ I_B = 3 A		0.80	Vdc
SUBGROUP 3 COLLECTOR-EMITTER LEAKAGE CURRENT, I_{CER2}	3041	V_{CE} = 80 V R_{BE} = 400 Ω T_A = 150°C		500	uA
FORWARD CURRENT TRANSFER RATIO, H_{FE3}	3076	I_C = 2 A 1/ V_{CE} = 2 V T_A = -55°C	15		
SUBGROUPS 4 THROUGH 7 2/					

NOTES:

1/ PULSE TEST: Pulse width ≤ 300usec; Duty Cycle ≤ 2%.

2/ These tests not required unless specified.

Filename: ST12132.C
Directory: H:\USERS\514\SPECS\ACT-DETL
Template:
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AL.DOT
Title:
Subject:
Author: Jennifer Sansone
Keywords:
Comments:
Creation Date: 08/08/95 11:36 AM
Revision Number: 1
Last Saved On:
Last Saved By:
Total Editing Time: 3 Minutes
Last Printed On: 08/08/95 11:39 AM
As of Last Complete Printing
Number of Pages: 3
Number of Words: 730 (approx.)
Number of Characters: 4,162 (approx.)