C 1010376

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
(M) -	TAKEN FROM BUWEPS DWG C2318944		
(A) A	SEE SHEET 2		4/8
C	SEE SHEET 2 00513	4-	WR

NOTES:

1. GENERAL REQUIREMENTS FOR EACH SECTION, UNLESS OTHERWISE SPECIFIED.
   - A. UNIT SHALL BE IN ACCORDANCE WITH MIL-S-19500, IN ADDITION TO THE REQUIREMENTS SPECIFIED HEREIN.
   - B. ABSOLUTE MAXIMUM RATINGS AT 25 ± 3 DEGREES CENTIGRADE, (AMBIENT):
     COLLECTOR TO EMITTER VOLTAGE (VCEO): 60 VOLTS DC.
     COLLECTOR TO EMITTER VOLTAGE (VCER): 80 VOLTS DC (RBE ≤ 10Ω).
     COLLECTOR TO BASE VOLTAGE (VCBO): 100 VOLTS DC.
     EMITTER TO BASE VOLTAGE (VEBO): 7 VOLTS DC.
     POWER DISSIPATION: (EACH SECTION)
     AT 25°C CASE TEMPERATURE: 1.5 WATTS.
     AT 100°C CASE TEMPERATURE: 860 MILLIWATTS.
     AT 25°C AMBIENT TEMPERATURE: 500 MILLIWATTS.
     POWER DISSIPATION (DUAL) TOTAL:
     AT 25°C CASE TEMPERATURE: 3 WATTS.
     AT 100°C CASE TEMPERATURE: 1.7 WATTS.
     AT 25°C AMBIENT TEMPERATURE: 600 MILLIWATTS.
   - C. TEMPERATURE RANGE:
     STORAGE: MINUS 65 TO PLUS 200 DEGREES CENTIGRADE.
     OPERATING JUNCTION: PLUS 200 DEGREES CENTIGRADE, MAX.
   - D. ELECTRICAL CHARACTERISTICS: PER TABLE I AND II.
     LTPD: AS SPECIFIED HEREIN WITH MAXIMUM ACCEPTANCE NUMBER 3 PER MIL-S-19500.
     TEST DATA SHALL BE FURNISHED UPON REQUEST.
     ORDERS SHALL BE FILLED FROM ONE MANUFACTURING LOT, HOWEVER, ORDERS WHICH ARE GREATER THAN ONE MANUFACTURING LOT MAY BE FILLED FROM ADDITIONAL LOTS. SUPPLIER SHALL CONFORM WITH THE QUALITY ASSURANCE PROVISIONS OF ND1015404 SECTION__.
2. CONSTRUCTION REQUIREMENTS:
   - A. SEMICONDUCTOR: SILICON, NPN, DOUBLE-DIFFUSED,
   - B. CASE: METAL, SUITABLY PROTECTED TO WITHSTAND ENVIRONMENTAL REQUIREMENTS.
   - C. LEADS: SIX (6), SOLDERABLE, FLEXIBLE AND WELDABLE SOLID *KOVAR CONDUCTORS GREASE AND OIL FREE; GOLD FLASHED PER ND PS1015402.
     A CERTIFICATE OF COMPLIANCE FOR LEAD MATERIAL SHALL ACCOMPANY EACH LOT SHIPPED.
     EACH LEAD SHALL WITHSTAND AN AXIAL PULL OF FOUR (4) POUNDS MINIMUM.
   - D. HEADER: SHALL BE HERMETICALLY (GLASS-KOVAR) SEALED AND IMPERVIOUS TO LIGHT.
   - E. MARKING: PER MIL-S-19500 AND SHALL INCLUDE THE MANUFACTURER'S NAME AND OR SYMBOL, DATE CODE, AND TYPE NUMBER. THE NASA NO. SHALL APPEAR ON EACH INTERIOR AND EXTERIOR SHIPPING CONTAINER AS WELL AS ON A TAG TO BE INCLUDED IN EACH SHIPPING CONTAINER.
3. ENVIRONMENTAL REQUIREMENTS: SHALL MEET THE REQUIREMENTS OF ND 1002000
4. PULSE CONDITIONS: WIDTH =300u sec; DUTY CYCLE ≤ 1%.
5. LOWEST VALUE OF hFE SHALL BE hFE1 (NUMERATOR).
6. VALUES SHOWN IN PARENTHESES IN TABLES, ARE APPLICABLE ONLY FOR 1010376-3.
7. INTERPRET DRAWING IN ACCORDANCE WITH STANDARDS PRESCRIBED BY MIL-D-70327.

ORIGINAL SOURCE OF SUPPLY:
FAIRCHILD SEMICONDUCTOR CORP.
545 WHISMAN ROAD
MOUNTAIN VIEW, CALIFORNIA

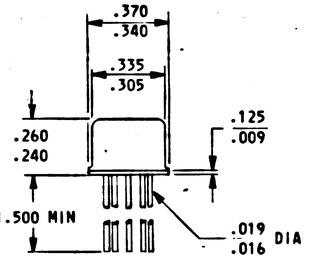
1010376-1 TYPE NO. SP-8126
1010376-2 TYPE NO. SP8127
SAME AS 2318944-1, EXCEPT, SUBSTITUTE FOR hfe (1kc) REQUIREMENTS; hfe=80 TO 120 AT VCE=5V; IC=1nA; f=1kc; TA=25°C

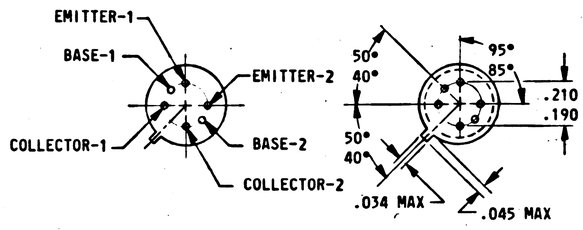
1010376-3 TYPE NO. SP-8143
SAME AS 1010376-1, EXCEPT FOR ADDITIONAL REQUIREMENTS: hFE=75 TO 125 AT VCE=10V; IC=300uA; TA=25°C. (SEE NOTE 7)

(CONTINUED ON SHEET 2)

FOR INFORMATION ONLY

CLASS B RELEASE TDR No. 00162 DATE 12.12.62





MASTER

REV-C	REV-C	REV-
REV-A	REV-A	REV-
SHEET 1	SHEET 2	SHEET 3
REVISION STATUS OF SHEETS		

NEXT ASSY	USED ON
APPLICATION	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS ± DECIMALS ± ANGLES ±
DO NOT SCALE THIS DRAWING
MATERIAL: SEE NOTE 2
HEAT TREATMENT: NONE
FINAL FINISH: NONE

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.

LIST OF MATERIALS

MIT INSTRUMENTATION LAB, CAMBRIDGE, MASS.
DWG. NO. CONTRACT

DRAWN Gary Wheeler DATE 3 Dec 62
CHECKED B M Sluyter 6 DEC 62
APPROVAL D Cushman 10 Dec 62
APPROVAL
NASA APPROVAL W J Robins 12-12-62
MIT APPROVAL W K Coffin 12/12/62

MANNED SPACECRAFT CENTER
HOUSTON, TEXAS

SEMICONDUCTOR DEVICE, TRANSISTOR, SILICON, DUALSECTION
SPECIFICATION CONTROL DRAWING

CODE IDENT NO. | SIZE C | NASA DRAWING NO. 1010376
SCALE NONE | WT | SHEET 1 OF 3

1010376 C

C 1010376

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
C	REPLACES REV B WITH CHANGE PER TDRR 00513	—	WHL

TABLE I

TEST PROCEDURE, INSPECTION & SYMBOLS PER MIL-S-19500						
STANDARD TEST CONDITIONS, UNLESS OTHERWISE SPECIFIED: TA = 25°C; f=1kc						
GROUP A						
PARAMETER	TEST CONDITIONS	SYMBOL	LIMITS MIN	LIMITS MAX	UNITS	LTPD (%)
COLLECTOR CUT-OFF CURRENT	IE=0 VCB=80V	ICBO	--	2	10^{-9}A	5 COMBINED
COLLECTOR CUT-OFF CURRENT	IE=0 VCB=80V TA=150°C	ICBO	--	10	10^{-6}A	
EMITTER CUT-OFF CURRENT	IC=0 VEB=5V	IEBO	--	2	nA	
BREAKDOWN VOLTAGE	IE=100uA IC=0	BVEBO	7	--	VOLTS	
BREAKDOWN VOLTAGE (SEE NOTE 4)	IC=100mA RBE=10Ω	LVCER	80	--	VOLTS	
BREAKDOWN VOLTAGE	IC=100uA IE=0	BVCBO	100	--	VOLTS	
BREAKDOWN VOLTAGE (SEE NOTE 4)	IC=30mA IB=0	LVCED	60	--	VOLTS	
STATIC FORWARD CURRENT TRANSFER RATIO	IC=10uA VCE=10V	hFE	25 (40)	75 (100)	--	5 COMBINED
STATIC FORWARD CURRENT TRANSFER RATIO	IC=100uA VCE=10V	hFE	30 (60)	90 (125)	--	
STATIC FORWARD CURRENT TRANSFER RATIO	IC=1mA VCE=10V	hFE	40 (80)	120 (150)	--	
STATIC FORWARD CURRENT TRANSFER RATIO (SEE NOTE 4)	IC=10mA VCE=10V	hFE	50 (90)	150 (180)	--	
STATIC FORWARD CURRENT TRANSFER RATIO, RATIO (SEE NOTE 5)	IC=1mA VCE=10V	hFE 1 hFE 2	.9	1	--	
STATIC FORWARD CURRENT TRANSFER RATIO, RATIO (SEE NOTE 5)	IC=100uA VCE=10V	hFE 1 hFE 2	.9	1	--	
SATURATION VOLTAGE	IC=50mA IB=5mA	VCE (sat)	--	1.2	VOLTS	
SATURATION VOLTAGE	IC=50mA IB=5mA	VBE (sat)	--	.9	VOLTS	
BASE VOLTAGE DIFFERENTIAL (ABSOLUTE VALUE)	IC=1mA VCE=5V	|VBE 1| - |VBE 2|	--	5	mV	5 COMBINED
BASE VOLTAGE DIFFERENTIAL (ABSOLUTE VALUE)	IC=100uA VCE=5V	|VBE 1| - |VBE 2|	--	5	mV	
BASE VOLTAGE DIFFERENTIAL CHANGE	IC=100uA VCE=5V TA=-55°C TO 125°C	Δ|VBE 1 - VBE 2|	--	10	uV/°C	
SMALL-SIGNAL, SHORT-CIRCUIT INPUT IMPEDANCE	IC=1mA VCB=5V	hib	20	30	OHMS	5 COMBINED
SMALL-SIGNAL, SHORT-CIRCUIT FORWARD CURRENT TRANSFER RATIO	IC=1mA VCE=5V	hfe	50 (75)	150 (180)	--	

FOR INFORMATION ONLY

CLASS B RELEASE TDR No. 00162 DATE 12.12.62

TABLE I (CONTINUED)

PARAMETER	TEST CONDITIONS	SYMBOL	LIMITS MIN	LIMITS MAX	UNIT	LTPD (%)
SMALL-SIGNAL, SHORT-CIRCUIT FORWARD CURRENT TRANSFER RATIO	IC=50mA VCE=10V f=20mc	hfe	3		--	5 COMBINED
SMALL-SIGNAL, SHORT-CIRCUIT INPUT IMPEDANCE	IC=1mA VCE=5V	hie	1000	4000 (5000)	OHMS	
SMALL-SIGNAL, OPEN CIRCUIT OUTPUT ADMITTANCE	IC=1mA VCE=5V	hoe	4	16 (20)	UMHO	
OUTPUT CAPACITANCE	IE=0 VCB=10V f=140KC	Cob	--	15	uuf	5 COMBINED
INPUT CAPACITANCE	IC=0 VEB=0.5V f=140KC	Cib	--	85	uuf	
NOISE FIGURE	IC=300uA VCE=10V BW=1~ Rg=510Ω	NF	--	10	db	5

© REPLACES REV B WITH CHANGE

MASTER

MASTER

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APPROVAL D. Cushman 10 Dec 62
APPROVAL
NASA APPROVAL W. J. Rhine 12-12-62
MIT APPROVAL W. A. Hoffman 12/13/62

MANNED SPACECRAFT CENTER
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SEMICONDUCTOR DEVICE, TRANSISTOR, SILICON, DUALSECTION

SPECIFICATION CONTROL DRAWING

CODE IDENT NO. | SIZE C | NASA DRAWING NO. 1010376
SCALE NONE | WT | SHEET 2 OF 3

1010376 C