

NOTICE - WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY FOR ANY OBLIGATION WHATSOEVER, AND THE FACT THAT THE GOVERNMENT MAY HAVE FORMULATED, FURNISHED, OR IN ANY WAY SUPPLIED THE SAID DRAWINGS, SPECIFICATIONS OR OTHER DATA IS NOT TO BE REGARDED BY IMPLICATION OR OTHERWISE AS IN ANY MANNER LICENSING THE HOLDER OR ANY OTHER PERSON OR CORPORATION, OR CONVEYING ANY RIGHTS OR PERMISSION TO MANUFACTURE, USE, OR SELL ANY PATENTED INVENTION THAT MAY IN ANY WAY BE RELATED THERETO.

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 (VCE): 80 VOLTS DC (RBE $\leq 10n$).
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 $\approx 300\mu$ sec; DUTY CYCLE $\leq 1\%$.
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. SP-8127

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)

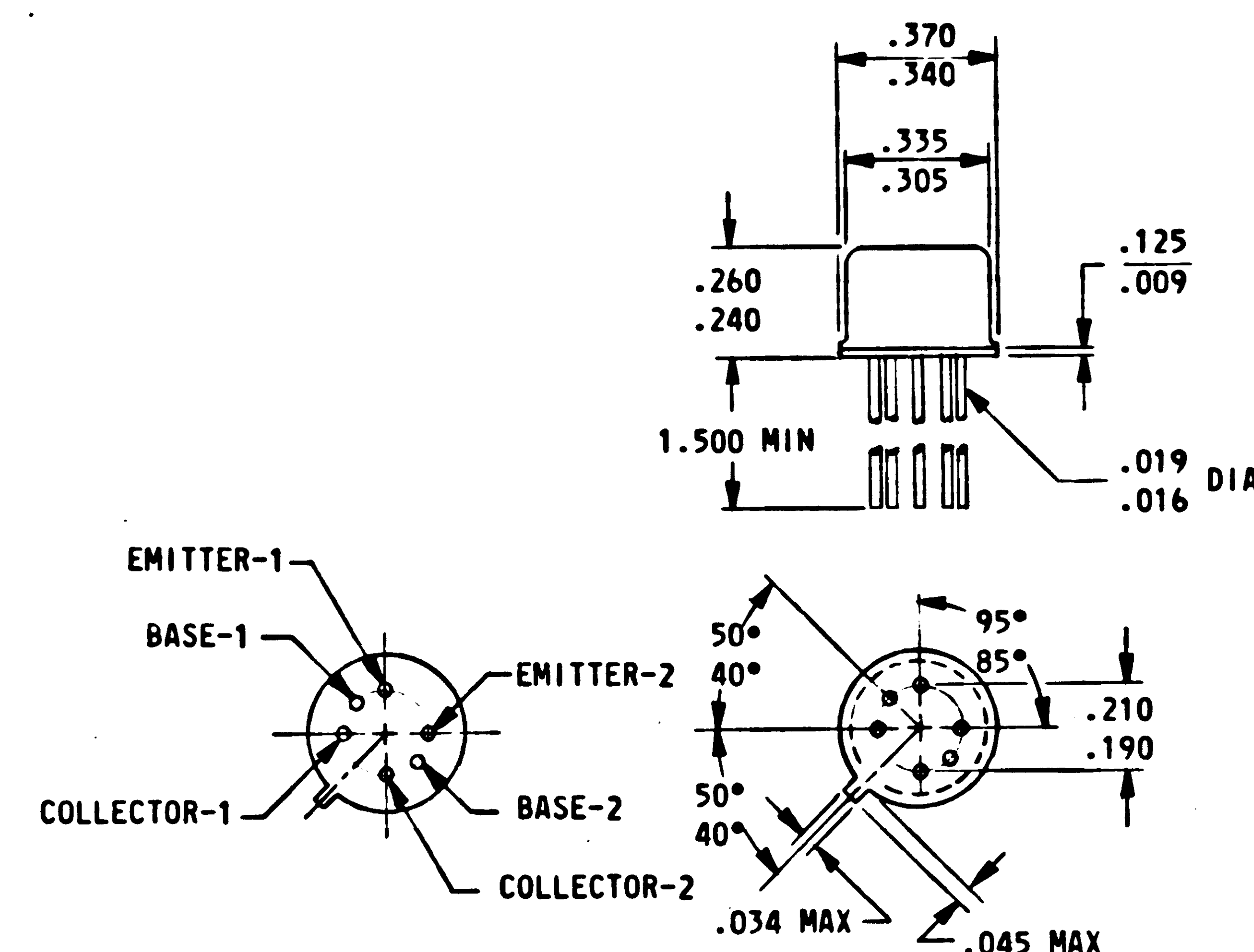
(CONTINUED ON SHEET 2)

1010376

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
-	TAKEN FROM BUWEPs DWG C2318944		
A	SEE SHEET 2		4/8

FOR INFORMATION ONLY

CLASS B RELEASE TDR No. 00162 DATE 12.12.62



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

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON	
FRACTIONS	DECIMALS ANGLES
\pm	\pm \pm
DO NOT SCALE THIS DRAWING	
MATERIAL	
SEE NOTE 2	
HEAT TREATMENT	
NONE	
FINAL FINISH	
NONE	
NEXT ASSY	USED ON
APPLICATION	

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			
MIT INSTRUMENTATION LAB CAMBRIDGE, MASS.		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DWG. NO. CONTRACT		SEMICONDUCTOR DEVICE, TRANSISTOR, SILICON, DUALSECTION	
JRAWN Ray Wheeler DATE 3 Dec 62 CHECKED B.M. Slupen 6 DEC 62 APPROVAL S. Graham 10 Dec 62		SPECIFICATION CONTROL DRAWING	
NASA APPROVAL W.J. R. Davis 12-12-62		CODE IDENT NO. SIZE C	NASA DRAWING NO. 1010376
MIT APPROVAL W.K. Koffler 12/12/62		SCALE NONE WT	SHEET 1 OF 3

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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		UNITS	LTPD (%)
			MIN	MAX		
COLLECTOR CUT-OFF CURRENT	IE=0 VCB=80V	ICBO	--	2	10 ⁻⁹ A	5 COMBINED
COLLECTOR CUT-OFF CURRENT	IF=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	5 COMBINED
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)	--	
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	IC=10mA VCE=10V	hFE	50 (90)	150 (180)	--	5 COMBINED
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	VEB (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)	--	

- 8 A WAIVE AS REQUIRED ALL INFORMATION PRESENTED ON THIS DRAWING EXCEPT LEAD MATERIAL SPEC & PHYSICAL DIMENSIONS.
- B UPON SPECIFIC INSTRUCTION BY (TD) TECHNICAL DIRECTIVE PROCURE THIS PART AS CHANGE LETTER A BY ORDERING TO VENDOR CATALOG NO. & SPECIFICATIONS. REFERENCE NO 1002034.
- C DISREGARD THIS NOTE IN ITS ENTIRETY IF REFERENCE IS MADE TO THIS DRAWING BY OTHER THAN REVISION LETTER A.

NEXT ASSY		USED ON
APPLICATION		

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES ON
FRACTIONS DECIMALS ANGLES
± ± ±
DO NOT SCALE THIS DRAWING
MATERIAL
HEAT TREATMENT
FINAL FINISH

QTY REQD	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	FIND NO.
LIST OF MATERIALS			
MIT INSTRUMENTATION LAB CAMBRIDGE, MASS. DWS. NO. CONTRACT		MANNED SPACECRAFT CENTER HOUSTON, TEXAS	
DRAWN <i>Ray W. Hooley</i> DATE 3 Dec 62 CHECKED <i>D. M. Shaffer</i> 6 DEC 62 APPROVAL <i>D. Cushman</i> 10 Dec 62 APPROVAL		SEMICONDUCTOR DEVICE, TRANSISTOR, SILICON, DUAL SECTION SPECIFICATION CONTROL DRAWING	
NASA APPROVAL <i>W. J. Rhee</i> 12-12-62 MIT APPROVAL <i>W. J. Rhee</i> 12/12/62		CODE IDENT NO. SIZE C	NASA DRAWING NO. 1010376
SCALE NONE WT		SHEET 2 OF 3	

1010376

REVISIONS			
SYM	DESCRIPTION	DATE	APPROVAL
A	ADDED PROCUREMENT NOTE 8 PER IDRR	00433 2-20-62	<i>W. J. Rhee</i>

FOR INFORMATION ONLY

CLASS B RELEASE TDR No. 00162 DATE 12-12-62

TABLE I (CONTINUED)

PARAMETER	TEST CONDITIONS	SYMBOL	LIMITS		UNIT	LTPD (%)
			MIN	MAX		
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