

T-33-01

MOTOROLA SEMICONDUCTOR TECHNICAL DATA

The RF Line

NPN Silicon

UHF Power Transistors

... designed for 24 Volt UHF large-signal applications in industrial and commercial FM equipment operating at frequencies to 960 MHz.

- Specified 24 Volt, 960 MHz Characteristics:

	PTE801	JO3501	JO3502
Output Power	2 W	15 W	35 W
Gain, Min	9 dB	9.2 dB	7.7 dB
Efficiency	45%	55%	55%
Configuration	C.E.	C.B.	C.B.

- Gold Metallization for Improved Reliability
- Diffused Ballast Resistors

JO3501
JO3502
PTE801

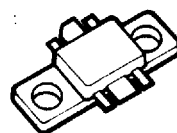
2 W, 15 W, 35 W
960 MHz
UHF POWER
TRANSISTORS
NPN SILICON

MAXIMUM RATINGS

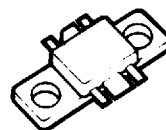
Rating	Symbol	PTE801	JO3501	JO3502	Unit
Collector-Emitter Voltage	V _{CEO}	30	20	20	V _{dc}
Collector-Base Voltage	V _{CES}	55	50	50	V _{dc}
Emitter-Base Voltage	V _{EB0}	4			V _{dc}
Collector Current — Continuous	I _C	0.75	2	4	A _{dc}
Operating Junction Temperature	T _J	200			°C
Storage Temperature Range	T _{stg}	- 65 to + 150			°C

THERMAL CHARACTERISTICS

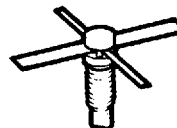
Characteristic	Symbol	Max			Unit
Thermal Resistance, Junction to Case	R _{θJC}	22	4.6	2.3	°C/W



EA
CASE 828-01, STYLE 1
JO3501



EB
CASE 319C-01, STYLE 1
JO3502



.200 SOE
CASE 305B-01, STYLE 1
PTE801

ELECTRICAL CHARACTERISTICS

Characteristic		Symbol	Min	Typ	Max	Unit
Collector-Emitter Breakdown Voltage ($I_C = 5 \text{ mA}$, $I_B = 0$) ($I_C = 5 \text{ mA}$, $I_B = 0$) ($I_C = 25 \text{ mA}$, $I_B = 0$)	PTE801 JO3501 JO3502	$V_{(BR)CEO}$	30 20 20	— — —	— — —	Vdc
Collector-Emitter Breakdown Voltage ($I_C = 5 \text{ mA}$, $V_{BE} = 0$) ($I_C = 25 \text{ mA}$, $V_{BE} = 0$) ($I_C = 25 \text{ mA}$, $V_{BE} = 0$)	PTE801 JO3501 JO3502	$V_{(BR)CES}$	55 50 50	— — —	— — —	Vdc
Emitter-Base Breakdown Voltage ($I_E = 1 \text{ mA}$, $I_C = 0$) ($I_E = 5 \text{ mA}$, $I_C = 0$) ($I_E = 5 \text{ mA}$, $I_C = 0$)	PTE801 JO3501 JO3502	$V_{(BR)EBO}$	4 4 4	— — —	— — —	Vdc
Collector Cutoff Current ($V_{CE} = 25 \text{ V}$, $V_{BE} = 0$)	PTE801 JO3501 JO3502	I_{CES}	— — —	— — —	2 5 10	mA _{dc}

ON CHARACTERISTICS

DC Current Gain ($I_C = 100 \text{ mA}$, $V_{CE} = 5 \text{ V}$) ($I_C = 1 \text{ A}$, $V_{CE} = 5 \text{ V}$) ($I_C = 1 \text{ A}$, $V_{CE} = 5 \text{ V}$)	PTE801 JO3501 JO3502	h_{FE}	10 10 10	— — —	150 100 100	—
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FUNCTIONAL TESTS

Common-Emitter Amplifier Power Gain ($V_{CE} = 24 \text{ V}$, $P_{out} = 2 \text{ W}$, $f = 960 \text{ MHz}$)	PTE801	G_{PE}	9	—	—	dB
Common-Base Amplifier Power Gain ($V_{CE} = 24 \text{ V}$, $P_{out} = 15 \text{ W}$, $f = 960 \text{ MHz}$) ($V_{CE} = 24 \text{ V}$, $P_{out} = 35 \text{ W}$, $f = 960 \text{ MHz}$)	JO3501 JO3502	G_{PB}	9.2 7.7	— —	— —	dB
Collector Efficiency ($V_{CE} = 24 \text{ V}$, $P_{out} = 2 \text{ W}$, $f = 960 \text{ MHz}$) ($V_{CE} = 24 \text{ V}$, $P_{out} = 15 \text{ W}$, $f = 960 \text{ MHz}$) ($V_{CE} = 24 \text{ V}$, $P_{out} = 35 \text{ W}$, $f = 960 \text{ MHz}$)	PTE801 JO3501 JO3502	η	45 55 55	— — —	— — —	%

2