

The RF Line UHF Linear Power Transistor

... designed for 1.0 watt stages in Band V TV transposer amplifiers. Gold metallized dice and diffused emitter ballast resistors are used to enhance reliability, ruggedness and linearity.

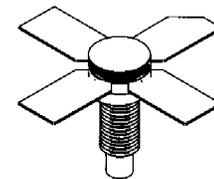
- Band IV and V (470–860 MHz)
- 1.0 W — P_{Ref} @ -58 dB IMD
- 20 V — V_{CC}
- High Gain — 11 dB Typ, Class A @ $f = 860$ MHz
- Gold Metallization for Reliability

TPV597

1.0 W, 470–860 MHz
UHF LINEAR
POWER TRANSISTOR

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CEO}	24	Vdc
Collector–Base Voltage	V_{CBO}	45	Vdc
Emitter–Base Voltage	V_{EBO}	3.5	Vdc
Collector Current — Continuous	I_C	1.4	Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	19 0.11	Watts W/ $^\circ\text{C}$
Operating Junction Temperature	T_J	200	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-65 to +200	$^\circ\text{C}$



CASE 244-04

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	$R_{\theta JC}$	9.0	$^\circ\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
----------------	--------	-----	-----	-----	------

OFF CHARACTERISTICS

Collector–Emitter Breakdown Voltage ($I_C = 40$ mA, $I_B = 0$)	$V_{(BR)CEO}$	24	—	—	Vdc
Collector–Base Breakdown Voltage ($I_C = 2.0$ mA, $I_E = 0$)	$V_{(BR)CBO}$	45	—	—	Vdc
Emitter–Base Breakdown Voltage ($I_E = 4.0$ mA, $I_C = 0$)	$V_{(BR)EBO}$	3.5	—	—	Vdc
Emitter–Base Leakage Current ($V_{EB} = 2.0$ V)	I_{EBO}	—	—	0.5	mA
Collector–Emitter Breakdown Voltage ($I_C = 40$ mA, $R_{BE} = 10 \Omega$)	$V_{(BR)CER}$	50	—	—	Vdc
Collector Cutoff Current ($V_{CB} = 30$ V, $I_E = 0$)	I_{CBO}	—	—	1.2	mAdc

ON CHARACTERISTICS

DC Current Gain ($I_C = 200$ mA, $V_{CE} = 5.0$ V)	h_{FE}	15	—	120	—
---	----------	----	---	-----	---

DYNAMIC CHARACTERISTICS

Output Capacitance ($V_{CB} = 28$ V, $I_E = 0$, $f = 1.0$ MHz)	C_{ob}	—	—	7.0	pF
--	----------	---	---	-----	----

FUNCTIONAL TESTS

Common–Emitter Amplifier Power Gain ($V_{CE} = 20$ V, $P_{out} = 1.0$ W, $f = 860$ MHz, $I_E = 0.44$ A)	G_{PE}	10.5	11	—	dB
Load Mismatch ($V_{CE} = 20$ V, $P_{out} = 2.0$ W, $I_E = 0.44$ A, $f = 860$ MHz, Load VSWR = $\infty:1$, All Phase Angles)	ψ	No Degradation in Output Power			



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors

ELECTRICAL CHARACTERISTICS — continued

Characteristic	Symbol	Min	Typ	Max	Unit
----------------	--------	-----	-----	-----	------

FUNCTIONAL TESTS (continued)

Intermodulation Distortion, 3 Tone (f = 860 MHz, V _{CE} = 20 V, I _E = 0.44 A, P _{ref} = 1.0 W, Vision Carrier = -8.0 dB, Sound Carrier = -7.0 dB, Sideband Signal = -16 dB, Specification TV05001)	IMD ₁	—	-60	-58	dB
Cutoff Frequency (V _{CE} = 20 V, I _E = 0.44 A)	f _t	2.2	2.5	—	GHz
Intermodulation Distortion (IDEM) (f = 860 MHz, V _{CE} = 20 V, I _E = 0.44 A, P _{ref} = 2.0 W, Vision Carrier = -8.0 dB, Sound Carrier = -10 dB, Sideband Signal = -16 dB)	IMD ₂	—	—	-51	dB