

**TP2037**

*Advance Information*  
**The RF Line**

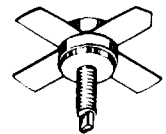
**35 W — 225 MHz**  
**VHF POWER**  
**TRANSISTOR**  
**NPN SILICON**

**VHF Power Transistor**

The TP2037 has been specifically designed and characterized for 12.5 V operation in 225 MHz high power amplifiers.

Its construction which incorporates gold metallization and diffused ballast resistors enables the part to withstand infinite VSWR at all phase angles at rated output power. It can be operated under Class A, B or C.

- 225 MHz
- 35 W — P<sub>out</sub>
- 12.5 V — V<sub>CC</sub>
- Gold Metallization for Reliability



**CASE 145D-01, STYLE 1**  
**(.380 SOE)**

**MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	16	Vdc
Collector-Base Voltage	V <sub>CBO</sub>	36	Vdc
Emitter-Base Voltage	V <sub>EBO</sub>	4	Vdc
Collector Current — Continuous	I <sub>C</sub>	8	Adc
Total Device Dissipation (at T <sub>C</sub> = 25°C Derate above 25°C)	P <sub>D</sub>	80 0.46	Watts W/°C
Operating Junction Temperature	T <sub>J</sub>	200	°C
Storage Temperature Range	T <sub>stg</sub>	-65 to +200	°C

**THERMAL CHARACTERISTICS**

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	2.2	°C/W

**ELECTRICAL CHARACTERISTICS**

Characteristic	Symbol	Min	Typ	Max	Unit
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**OFF CHARACTERISTICS**

Collector-Emitter Breakdown Voltage (I <sub>C</sub> = 50 mA, I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	16	—	—	Vdc
Collector-Base Breakdown Voltage (I <sub>C</sub> = 50 mA, I <sub>E</sub> = 0)	V <sub>(BR)CBO</sub>	36	—	—	Vdc
Emitter-Base Breakdown Voltage (I <sub>E</sub> = 5 mA, I <sub>C</sub> = 0)	V <sub>(BR)EBO</sub>	4	—	—	Vdc
Collector Cutoff Current (V <sub>CB</sub> = 15 V, I <sub>E</sub> = 0)	I <sub>CBO</sub>	—	—	10	mAdc

**ON CHARACTERISTICS**

DC Current Gain (I <sub>C</sub> = 1 A, V <sub>CE</sub> = 5 V)	h <sub>FE</sub>	10	—	—	—
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**DYNAMIC CHARACTERISTICS**

Output Capacitance (V <sub>CB</sub> = 20 V, I <sub>E</sub> = 0, f = 1 MHz)	C <sub>ob</sub>	—	70	100	pF
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(continued)

This document contains information on a new product. Specifications and information herein are subject to change without notice.

# TP2037

## ELECTRICAL CHARACTERISTICS — continued

Characteristic	Symbol	Min	Typ	Max	Unit
<b>FUNCTIONAL TESTS</b>					
Common-Emitter Amplifier Power Gain ( $V_{CE} = 12.5 \text{ V}$ , $P_{Out} = 35 \text{ W}$ , $f = 225 \text{ MHz}$ )	$G_{PE}$	8.9	—	—	dB
Collector Efficiency ( $V_{CE} = 12.5 \text{ V}$ , $P_{Out} = 35 \text{ W}$ , $f = 225 \text{ MHz}$ )	$\eta_c$	60	—	—	%
Load Mismatch ( $V_{CE} = 12.5 \text{ V}$ , $P_{Out} = 40 \text{ W}$ , $f = 225 \text{ MHz}$ , Load VSWR = $\infty:1$ , All Phase Angles)	$\psi$	No Degradation in Output Power			
Input Impedance, Common Emitter (Typ) ( $V_{CE} = 12.5 \text{ V}$ , $P_{Out} = 40 \text{ W}$ , $f = 225 \text{ MHz}$ )	$Z_{in} = 1 + j0.6 \text{ Ohms}$				
Output Impedance, Common Emitter (Typ) ( $V_{CE} = 12.5 \text{ V}$ , $P_{Out} = 40 \text{ W}$ , $f = 225 \text{ MHz}$ )	$Z_{output} = 2.6 - j0.13 \text{ Ohms}$				

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