

MOTOROLA
SEMICONDUCTOR
TECHNICAL DATA

Advance Information
The RF Line

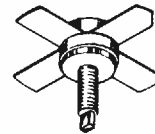
VHF Power Transistor

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_{out}
- 12.5 V — V_{CC}
- Gold Metallization for Reliability

TP2037

35 W — 225 MHz
VHF POWER
TRANSISTOR
NPN SILICON



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

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	16	Vdc
Collector-Base Voltage	V _{CBO}	36	Vdc
Emitter-Base Voltage	V _{EBO}	4	Vdc
Collector Current — Continuous	I _C	8	Adc
Total Device Dissipation @ T _C = 25°C Derate above 25°C	P _D	80 0.46	Watts W/°C
Operating Junction Temperature	T _J	200	°C
Storage Temperature Range	T _{stg}	-65 to +200	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	R _{θJC}	2.2	°C/W

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage (I _C = 50 mA, I _B = 0)	V _{(BR)CEO}	16	—	—	Vdc
Collector-Base Breakdown Voltage (I _C = 50 mA, I _E = 0)	V _{(BR)CBO}	36	—	—	Vdc
Emitter-Base Breakdown Voltage (I _E = 5 mA, I _C = 0)	V _{(BR)EBO}	4	—	—	Vdc
Collector Cutoff Current (V _{CB} = 15 V, I _E = 0)	I _{CBO}	—	—	10	mAdc

ON CHARACTERISTICS

DC Current Gain (I _C = 1 A, V _{CE} = 5 V)	h _{FE}	10	—	—	—
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DYNAMIC CHARACTERISTICS

Output Capacitance (V _{CB} = 20 V, I _E = 0, f = 1 MHz)	C _{ob}	—	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.



ELECTRICAL CHARACTERISTICS — continued

Characteristic	Symbol	Min	Typ	Max	Unit
FUNCTIONAL TESTS					
Common-Emitter Amplifier Power Gain (V _{CE} = 12.5 V, P _{out} = 35 W, f = 225 MHz)	GPE	8.9	—	—	dB
Collector Efficiency (V _{CE} = 12.5 V, P _{out} = 35 W, f = 225 MHz)	η_c	60	—	—	%
Load Mismatch (V _{CE} = 12.5 V, P _{out} = 40 W, f = 225 MHz, Load VSWR = ∞ :1, All Phase Angles)	ψ	No Degradation in Output Power			
Input Impedance, Common Emitter (Typ) (V _{CE} = 12.5 V, P _{out} = 40 W, f = 225 MHz)	$Z_{in} = 1 + j0.6 \text{ Ohms}$				
Output Impedance, Common Emitter (Typ) (V _{CE} = 12.5 V, P _{out} = 40 W, f = 225 MHz)	$Z_{output} = 2.6 - j0.13 \text{ Ohms}$				

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