

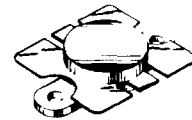
JO4045

The RF Line
NPN Silicon
VHF Power Transistor

... designed primarily for 12.5 Volt wideband, large-signal amplifier applications in industrial and commercial FM equipment operating to 175 MHz.

- Specified 12.5 Volt, 175 MHz Characteristics:
 Output Power — 45 Watts
 Gain — 6.5 dB, Min
- Internally Matched for Broadband Operation
- Tested for Load Mismatch Stress
- Gold Metallization for Improved Reliability
- Diffused Ballast Resistors

45 W — 175 MHz
RF POWER
TRANSISTOR
NPN SILICON



CASE 316A-01, STYLE 1
(.500 J ZERO)

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	16	Vdc
Collector-Base Voltage	V_{CES}	36	Vdc
Collector Current — Continuous	I_C	6.5	Adc
Total Device Dissipation ⁽¹⁾ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	100 0.57	Watts W/°C
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	$R_{\theta JC}$	1.75	°C/W

ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage ($I_C = 50\text{ mA}$, $I_B = 0$)	$V_{(BR)CEO}$	16	—	—	Vdc
Collector-Emitter Breakdown Voltage ($I_C = 50\text{ mA}$, $V_{BE} = 0$)	$V_{(BR)CES}$	36	—	—	Vdc
Collector Cutoff Current ($V_{CE} = 15\text{ V}$, $V_{BE} = 0$)	I_{CES}	—	—	10	mAdc

ON CHARACTERISTICS

DC Current Gain ($I_C = 1\text{ A}$, $V_{CE} = 5\text{ V}$)	h_{FE}	10	—	200	—
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FUNCTIONAL TESTS

Common-Emitter Amplifier Power Gain ($V_{CE} = 12.5\text{ V}$, $P_{in} = 10\text{ W}$, $f = 175\text{ MHz}$)	GPE	6.5	—	—	dB
Load Mismatch ($V_{CE} = 15.5\text{ V}$, $P_{in} = 10\text{ W}$, $f = 175\text{ MHz}$, Load VSWR = 20:1, All Phase Angles)	ψ	No Degradation in Output Power			
Input Return Loss ($V_{CE} = 12.5\text{ V}$, $P_{in} = 10\text{ W}$, $f = 175\text{ MHz}$, Circuit in Figure 7)	IRL	10	—	—	dB

JO4045

TYPICAL CHARACTERISTICS

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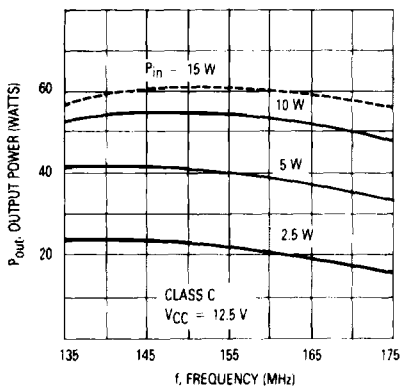


Figure 1. Output Power versus Frequency

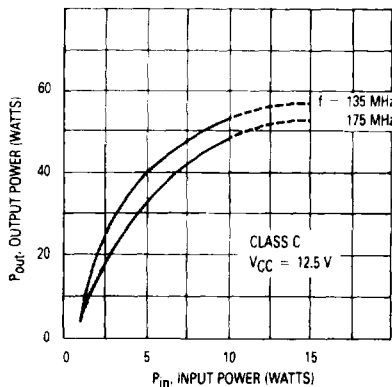


Figure 2. Output Power versus Input Power

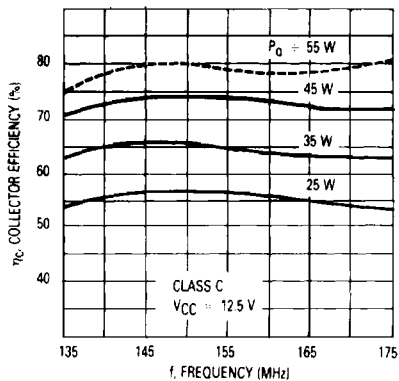


Figure 3. Broadband Collector Efficiency

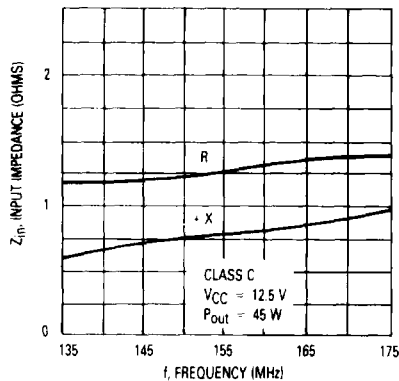


Figure 4. Series Input Impedance

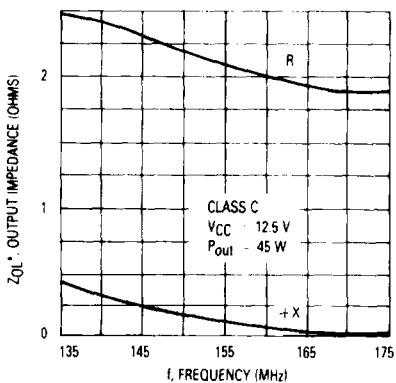


Figure 5. Series Output Impedance

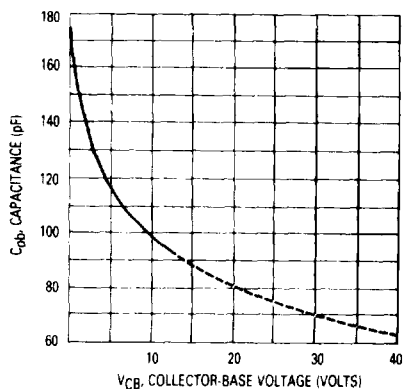


Figure 6. Output Capacitance

