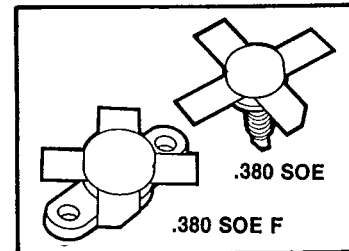




## PT8873/A

### RF Power Transistors

- 15 Watts
- 12.5 Vcc
- 175 MHz
- Gold Metalized
- 20:1 VSWR
- Diffused Ballast Resistor
- Class C Operation
- Common Emitter
- Isolated Package



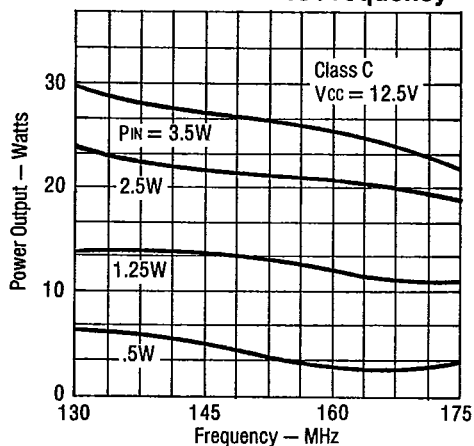
#### Electrical Characteristics (T<sub>case</sub> = 25°C)

	SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
DC TEST	BV <sub>EBO</sub>	Emitter-Base Breakdown Voltage	I <sub>E</sub> = 5mA, I <sub>C</sub> = 0	4			V
	BV <sub>CEO</sub>	Collector-Emitter Breakdown Voltage	I <sub>C</sub> = 50mA, I <sub>B</sub> = 0	16			V
	BV <sub>CBO</sub>	Collector-Base Breakdown Voltage	I <sub>C</sub> = 50mA, I <sub>E</sub> = 0	36			V
	I <sub>CES</sub>	Collector Cutoff Current	V <sub>CE</sub> = 15V, I <sub>B</sub> = 0			10	mA
	h <sub>FE</sub>	D.C. Current Gain	V <sub>CE</sub> = 5V, I <sub>C</sub> = 500mA	10		200	—
RF TEST	P <sub>GAIN</sub>	Power Gain	V <sub>CE</sub> = 12.5V, f = 175MHz P <sub>IN</sub> = 2.5W	7.8			dB
	η	Efficiency	V <sub>CE</sub> = 12.5V, f = 175MHz P <sub>IN</sub> = 2.5W	60			%
	Load VSWR	Mismatch Tolerance	All Phases Angles V <sub>CE</sub> = 15.5V, f = 175MHz P <sub>IN</sub> = 2.5W	20:1			VSWR
THERMAL	I <sub>C</sub>	Continuous Collector Current				6	A
	θ <sub>J-C</sub>	Thermal Resistance	T <sub>C</sub> = 25°C			3.5	°C/W
	T <sub>STG</sub>	Storage Temperature and Junction Temperature		-65		150	°C
	P <sub>D</sub>	Power Dissipation	T <sub>C</sub> = 25°C			30	W

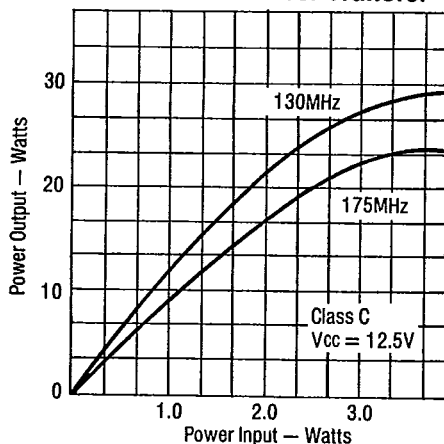
PT8873/A

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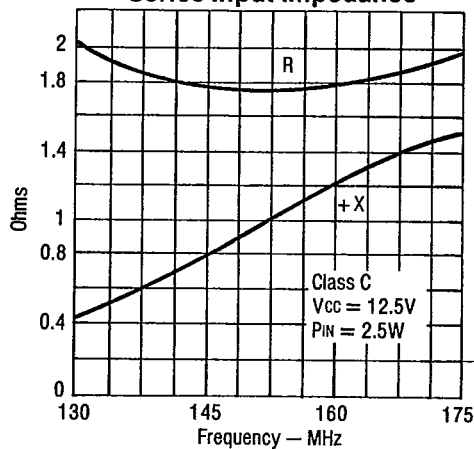
**Broadband P<sub>OUT</sub> vs Frequency**



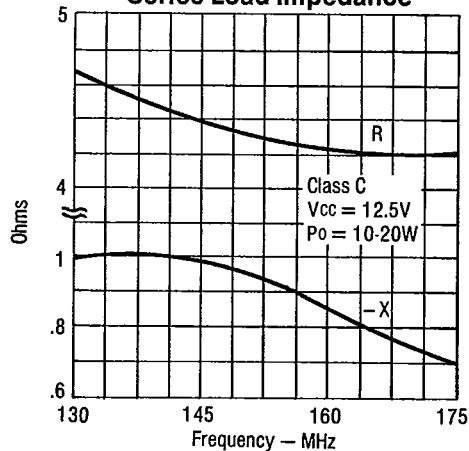
**Broadband Power Transfer**



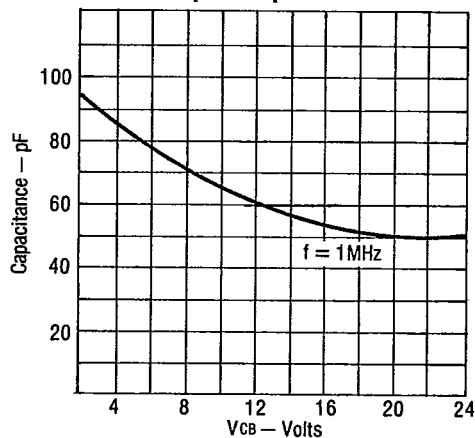
**Series Input Impedance**



**Series Load Impedance**

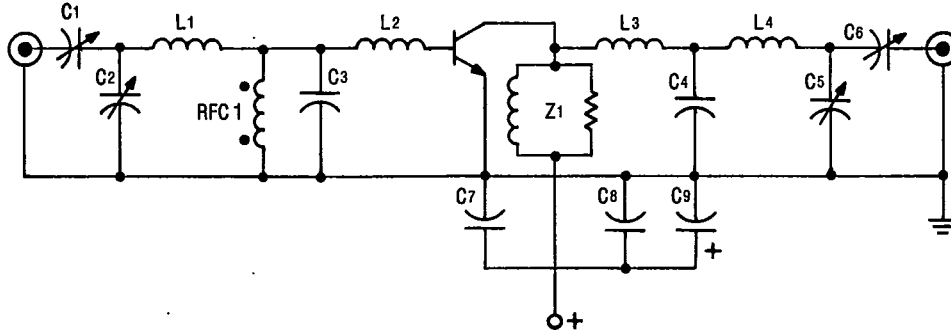


**Output Capacitance**



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T-33-09

**TEST CIRCUIT**

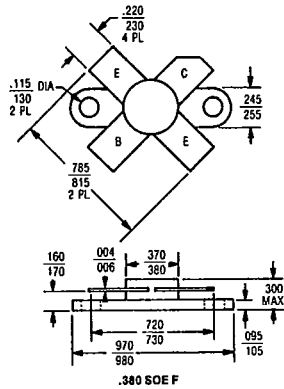


- PARTS LIST:**  
 C1,5 #423 (7-100)pf ARCO  
 C2,6 #403 (3-35)pf ARCO  
 C3,4 (2) each 51pf  
 C7 1000pf  
 C8 .1 μf  
 C9 5 μf

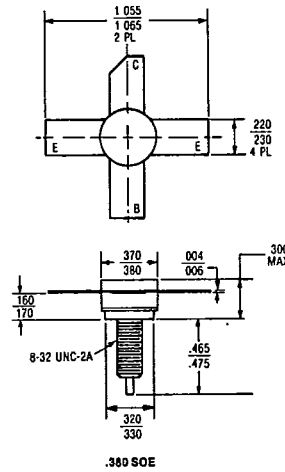
All capacitors in pf are underwood capacitors, others are disc ceramic.

- L1 1-3/8", #14 AWG. hairpin loop.  
 L2,3 Collector pad, 1 mil copper, 9/32" x 5/8" L  
 L4 2-1/8", #14 AWG., 1 T., 5/16" I.D.  
 Z1 5 T., #18 AWG. wound on 390 ohm, 1 watt carbon resistor.  
 RFC1 2-1/2 T., #22 AWG. on Ferroxcube VK211/07-3B.

**PT 8873**



**PT 8873A**



**RF Devices Division**  
 TRW Electronic Components Group  
 8825024 T R W ELEK CMPNT, R F



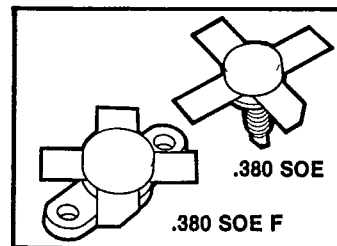
89D 03423 D

PT8874/A

T-33-09

## RF Power Transistors

- 40 Watts
- 12.5 Vcc
- 175 MHz
- High Gain
- 20:1 VSWR
- Class A, B or C Operation
- Gold Metalization
- Diffused Ballast Resistors
- Common Emitter
- Isolated Packages

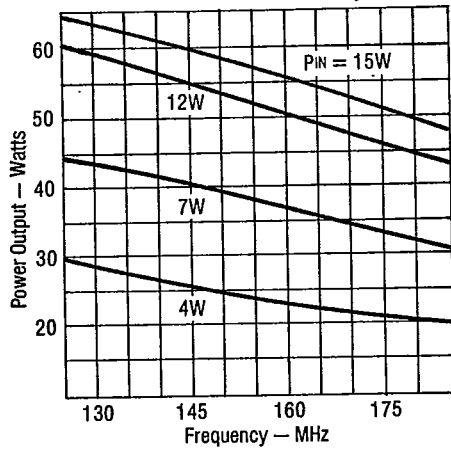


### Electrical Characteristics (T<sub>FLANGE</sub> = 25°C)

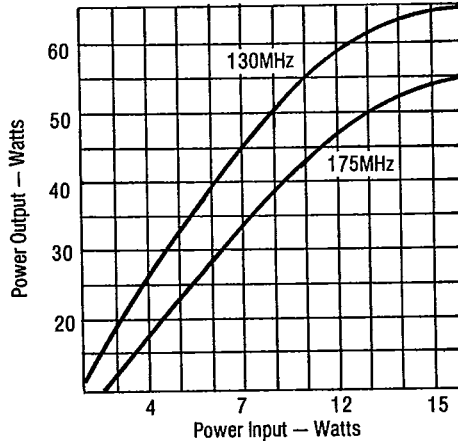
	SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
DC TEST	BVEBO	Emitter-Base Breakdown Voltage	I <sub>E</sub> = 5mA, I <sub>C</sub> = 0	4			V
	BVCEO	Collector-Emitter Breakdown Voltage	I <sub>C</sub> = 50mA, I <sub>B</sub> = 0	16			V
	BVCBO	Collector-Base Breakdown Voltage	I <sub>C</sub> = 50mA, I <sub>E</sub> = 0	36			V
	I <sub>CES</sub>	Collector Cutoff Current	V <sub>CE</sub> = 15V, I <sub>B</sub> = 0			10	mA
	h <sub>FE</sub>	D.C. Current Gain	V <sub>CE</sub> = 5V, I <sub>C</sub> = 1000mA	10		200	—
RF TEST	P <sub>GAIN</sub>	Power Gain	V <sub>CE</sub> = 12.5V, f = 175MHz P <sub>IN</sub> = 12W	5.2			dB
	η	Efficiency	V <sub>CE</sub> = 12.5V, f = 175MHz P <sub>IN</sub> = 12W	60			%
	Load VSWR	Mismatch Tolerance	All Phases Angles V <sub>CE</sub> = 15.5V, f = 175MHz P <sub>IN</sub> = 12W	20:1			VSWR
THERMAL	I <sub>C</sub>	Continuous Collector Current				6	A
	θ <sub>JC</sub>	Thermal Resistance	T <sub>c</sub> = 25°C			2.3	°C/W
	T <sub>STG</sub>	Storage Temperature and Junction Temperature		-65		150	°C
	P <sub>D</sub>	Power Dissipation	T <sub>c</sub> = 25°C			75	W

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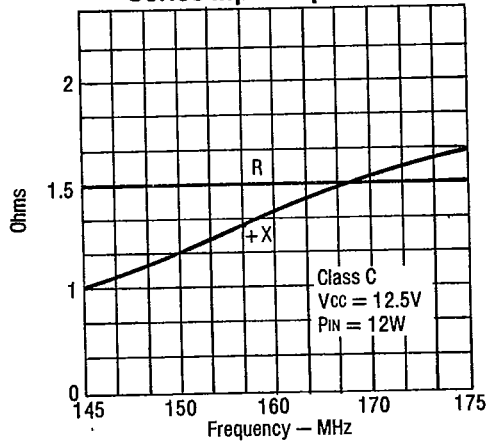
**Broadband P<sub>OUT</sub> vs Frequency**



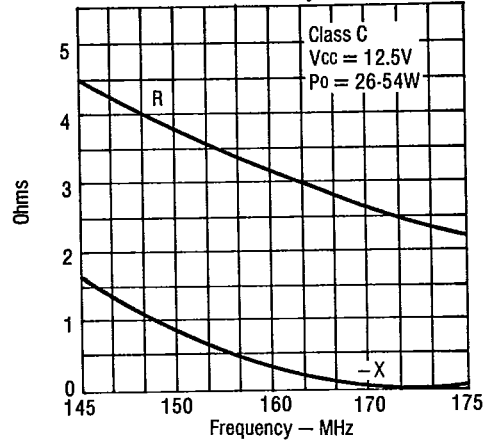
**Broadband Power Transfer**



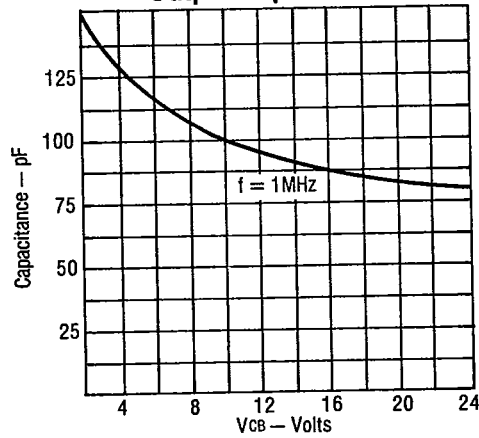
**Series Input Impedance**



**Series Load Impedance**



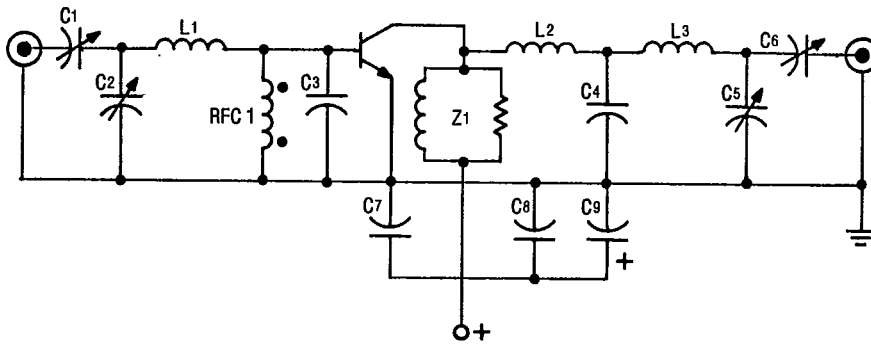
**Output Capacitance**



PT8874/A

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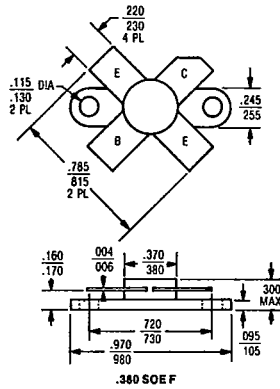
TEST CIRCUIT



PARTS LIST:

- C1,5 #423 ARCO
- C2,6 #425 ARCO
- C3 200pf
- C4 100pf
- C7 1000pf
- C8 01  $\mu$ f
- C9 5  $\mu$ f
- L1 1-1/4" #16 AWG.
- L2 Collector pad, 1 mil copper, 9/32" x 5/8" L
- L3 1 inch #16 AWG., 1 T., 1/4" I.D.
- RFC 1 2-1/2 T., #22 AWG. on Ferroxcube VK211 07-3B
- Z1 5 T., #18 AWG., wound on 390 ohms, 1 watt carbon resistor.

PT 8874



PT 8874A

