

S175 - 50

175 Watts, 50 Volts, Class AB

Milcom 1.5 - 30 MHz

GENERAL DESCRIPTION

The S175-50 is a 50 Volt, COMMON EMITTER device designed for Class A, AB or C operation in the HF/VHF frequency bands. Its high collector voltage simplifies the design of wideband, SSB linear amplifiers. The transistor chip is built using Gold Topside Metal, diffused emitter ballast resistors and silicon nitride passivation, providing the user with the Highest MTTF available.

ABSOLUTE MAXIMUM RATINGS

Maximum Power Dissipation @ 25°C 270 Watts

Maximum Voltage and Current

BVces Collector to Emitter Voltage 110 Volts

BVebo Emitter to Base Voltage 4.0 Volts

Ic Collector Current 20 A

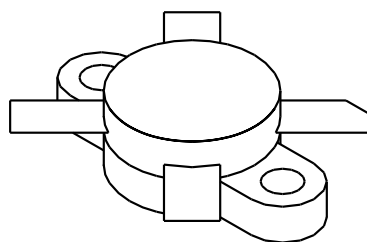
Maximum Temperatures

Storage Temperature - 65 to +150°C

Operating Junction Temperature +200°C

CASE OUTLINE

55HX, Style 2



ELECTRICAL CHARACTERISTICS @ 25 °C

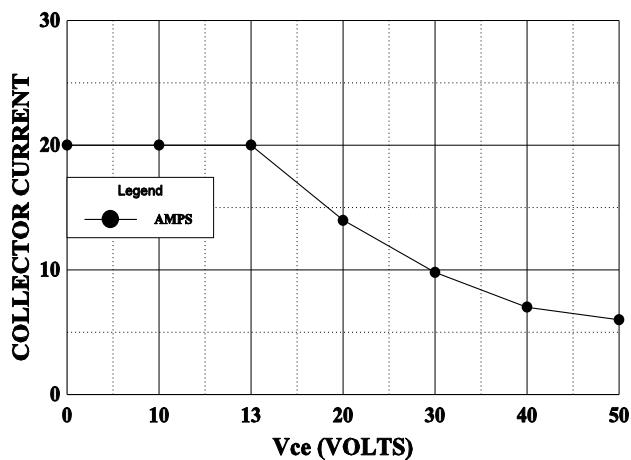
SYMBOL	CHARACTERISTICS	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Pout	Power Output	F = 30 MHz	175			Watts
Pin	Power Input	Vcc = 50 Volts			3.5	Watts
Pg	Power Gain	At Rated Power Out	17	17.5		dB
ηc	Efficiency			65		%
VSWR	Load Mismatch Tolerance				30:1	

BVebo	Emitter to Base Breakdown	Ie = 10 mA	4			Volts
BVces	Collector to Emitter	Ic = 100 mA	110			Volts
BVceo	Breakdown	Ie = 100 mA	53			Volts
Zin	Collector to Emitter	At Rated Pout & Freq.		0.6-j0.4		OHMS
ZI	Breakdown	At Rated Pout & Freq.		4.6+2.1		OHMS
Cob	Series Input Impedance	Vcb = 50 V, Ie = 0		180		
hFE	Series Load Impedance	Vce = 5 V, Ic = 2 A	10			
IMD	Output Capacitance	At Rated Pout		-35		dBc
	DC - Current Gain					
	Intermodulation Distortion Lev.					

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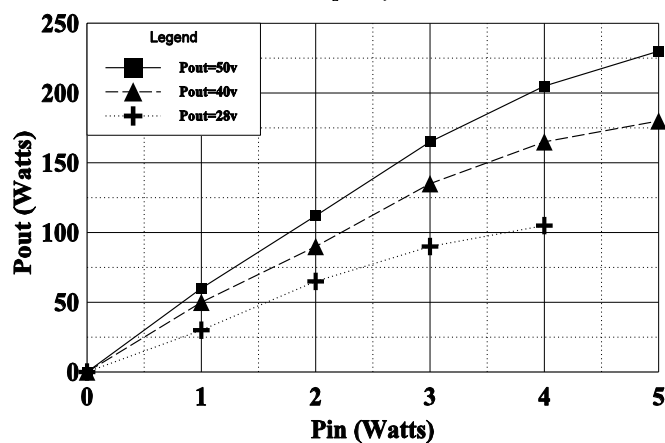
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DC SAFE OPERATING AREA



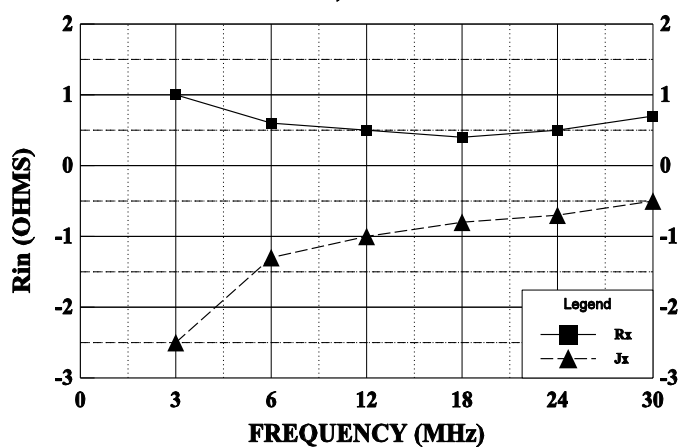
POWER OUTPUT vs POWER INPUT

Vcc = 50V, Frequency 30MHz

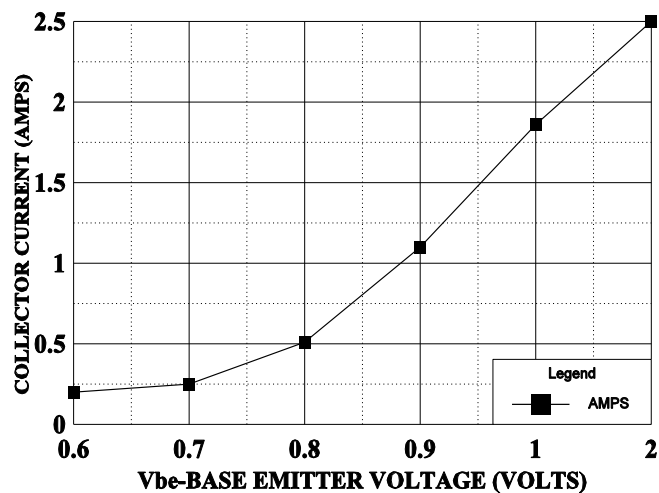


SERIES INPUT IMPEDANCE vs FREQUENCY

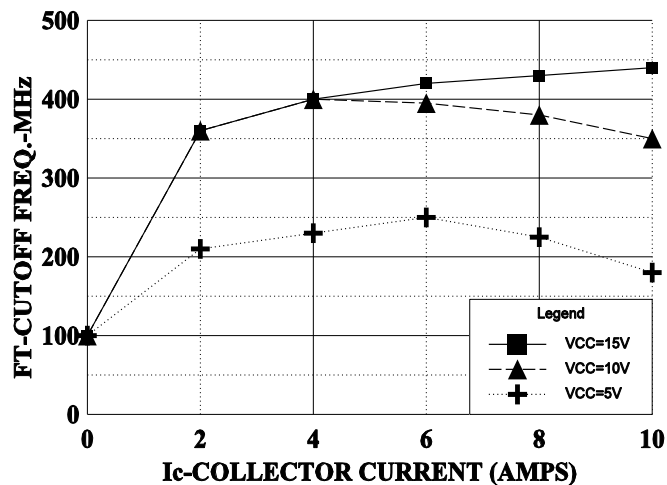
Vcc = 50V, Pin = W



COLLECTOR CUR. vs BASE EMITTER VOLTAGE

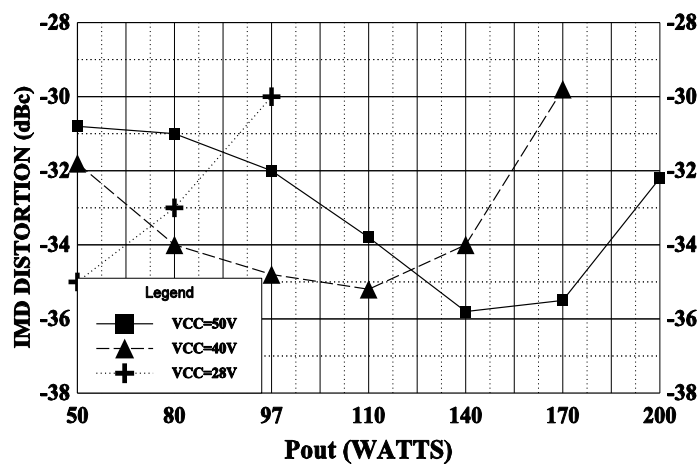


CUTOFF FREQUENCY vs COLLECTOR CURRENT

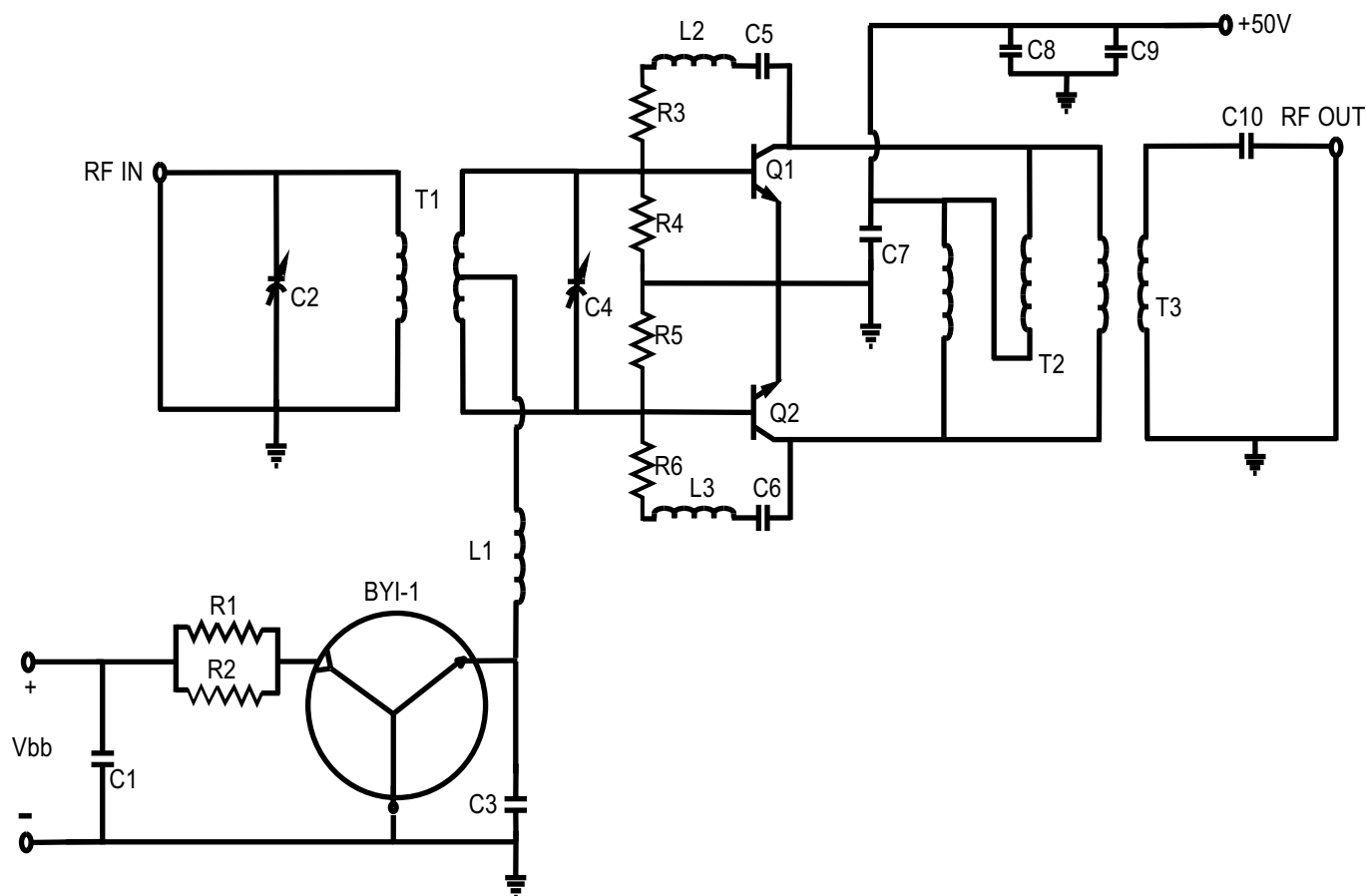


3RD ORDER IMD vs Pout

Vcc = 50V, Pin = W



2-30 MHz, 300 Watts Linear Amplifier



Q1,Q2=GHZ S175-50

BYISTOR=GHZ BYI-1

C1,C3,C5,C6,C7,C8=0.1mF ceramic

C2=25-240pF Compression Mica

C4=75-480pF Compression Mica

C9=10mF, 50V, Electrolytic

C10=2700pF DM15

L1=6 turns on Indiana General F627-9, H Material

L2,L3=2.2mH, Molded Inductor

R1,R2=22W, 2 Watts

R3,R6=220W, 2 Watts

R4,R5=10W, 1/4 Watt

TRANSFORMER DETAILS

T1: 8 beads of Indiana General F625-9, H material on two brass tubes. The primary is four turns of #20 vinyl clad wire wound through the brass tubes

T2: #20 twisted pair, approximately 2 crests per centimeter, wound on Indiana General F624-19, H material

T3: 10 beads of Indiana General F627-8, H material mounted on two brass tubes. The secondary consist of 3 #20 vinyl clad wires in parallel. The three wires should be wound to produce a 2:1 turns ratio