

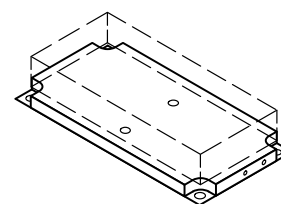
The RF Line Broadband RF Array for TV Transmitter

The RFA8090B is a solid state class AB amplifier and is specifically designed for TV transposers and transmitters. This amplifier incorporates microstrip technology and reliable Motorola push-pull transistors.

- Specified 28 Volts, 470–860 MHz Characteristics
 - Output Power — 95 Watts (CW)
 - Output Power — 140 Watts (peak)
 - Gain — 8 dB min (@ 95 Watts)
- 50 Ω Input and Output Impedance

RFA8090B

**140 W, 470–860 MHz
CLASS AB
RF POWER AMPLIFIER**



CASE 429E-01, STYLE 1

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Supply Voltage	V_{CC}	32	Vdc
Quiescent Current	I_{CQ}	2 x 300	mAdc
Input Power	P_{in}	20	Watts
Storage Temperature Range	T_{stg}	–40 to +100	°C
Operating Temperature (1)	T_{op}	–20 to +70	°C

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$, $V_{CC} = 28\text{ V}$, $I_{CQ} = 200\text{ mA}$, unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
Instantaneous Bandwidth	BW	470	860	MHz

FUNCTIONAL TESTS IN CW (SOUND) ($T_C = 25^\circ\text{C}$, $V_{CC} = 28\text{ V}$, $I_{CQ} = 200\text{ mA}$, unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
Power Gain ($P_{out} = 95\text{ W}$)	G_p	8	—	dB
Gain Ripple ($P_{out} = 95\text{ W}$)	G_{rple}	—	± 0.7	dB
Output Power @ 1 dB Compression	P_{out}	95	—	Watts
Mismatch Tolerance ($P_{out} = 95\text{ W}$)	VSWR	3:1	—	—
Efficiency ($P_{out} = 95\text{ W}$)	η	50	—	%

FUNCTIONAL TESTS IN VIDEO (standard black level)

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Output Power (synch.) ($V_{CC} = 28\text{ Vdc}$, $I_{CQ} = 200\text{ mA}$, $f = 860\text{ MHz}$)	P_{out}	120	—	—	Watts
Peak Output Power (synch.) ($V_{CC} = 32\text{ Vdc}$, $I_{CQ} = 100\text{ mA}$, $f = 860\text{ MHz}$)	P_{out}	140	—	—	Watts

NOTE:

- Temperature is measured at temperature test point (on the flange of the transistor).

TYPICAL CHARACTERISTICS

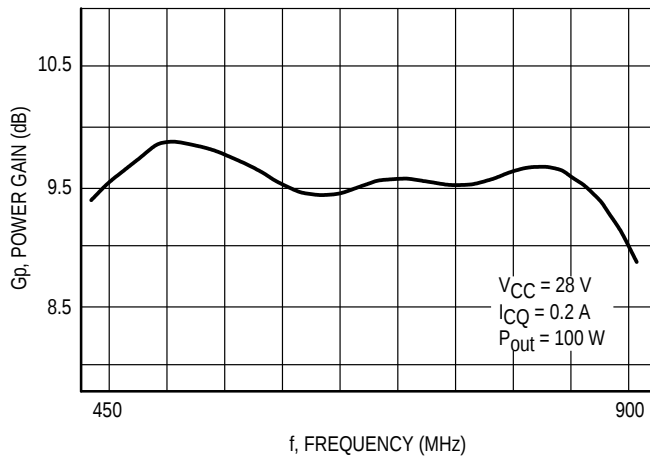


Figure 1. Power Gain versus Frequency

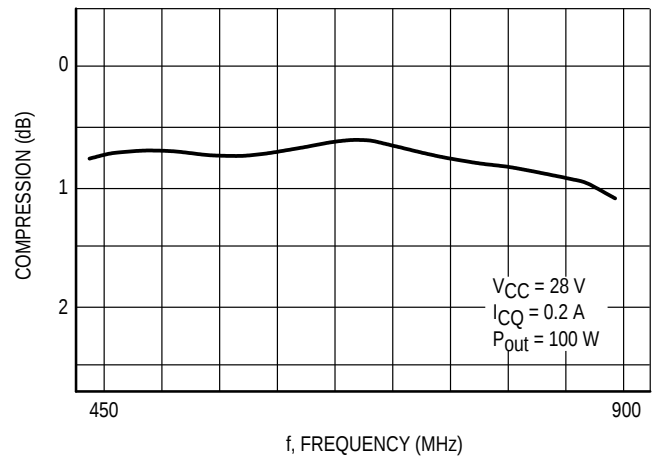


Figure 2. Gain Compression versus Frequency

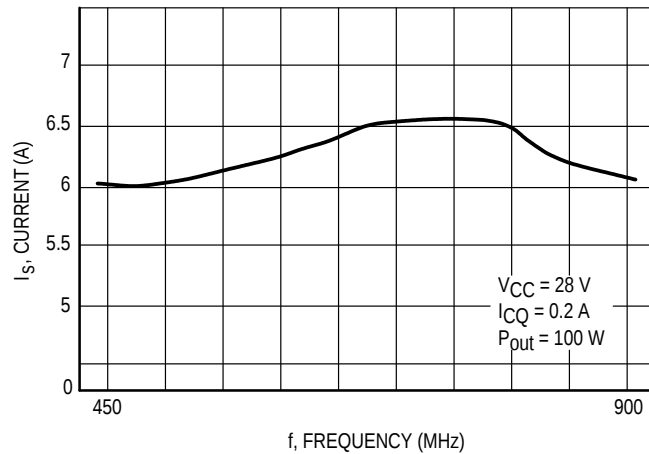


Figure 3. Supply Current versus Frequency

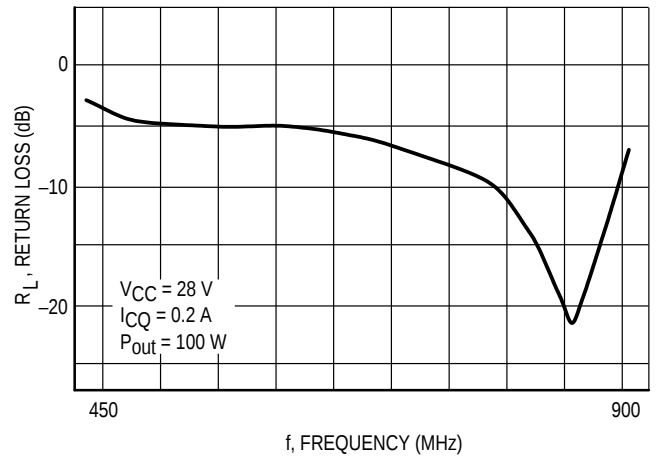


Figure 4. Input Return Loss versus Frequency

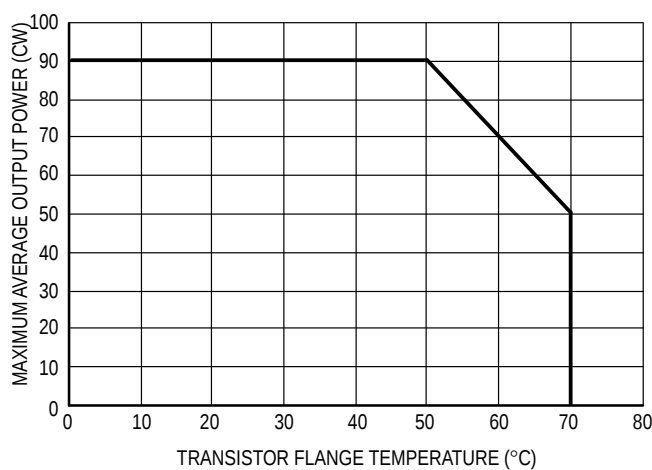


Figure 5. Maximum Average Output Power versus Temperature

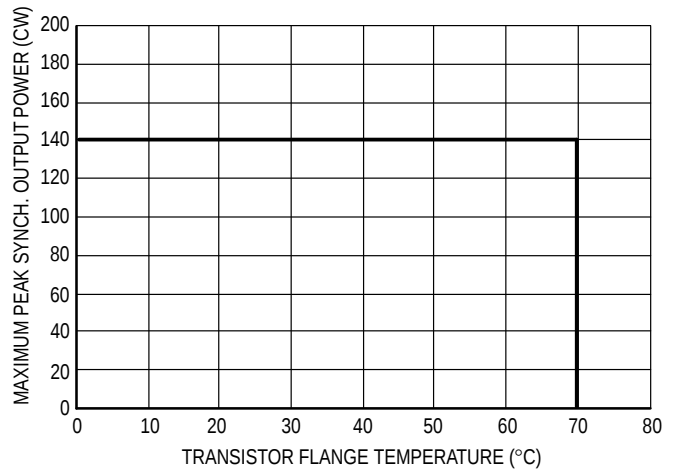


Figure 6. Maximum Peak Synch. Output Power (B/G Standard) versus Temperature

TYPICAL VIDEO CHARACTERISTICS

TEST CONDITIONS:

DIFF. Gain, 10 Steps
Channel 61, 10% rest carrier
 $V_{CE} = 28 \text{ V}$
 $I_Q = 0.2 \text{ A}$

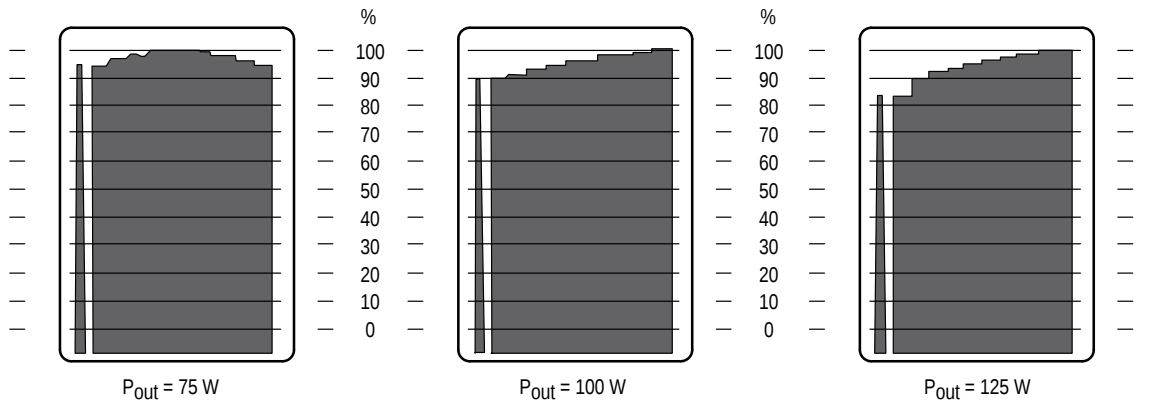
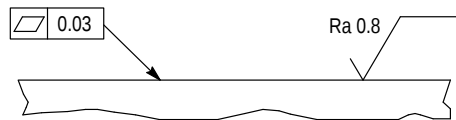


Figure 7. Differential Gain

MOUNTING RECOMMENDATIONS

HEATSINK TOOLING

- Planarity: Better than 0.03 mm
- Roughness: Typical value 0.8
- 6 fixing holes M3



THERMAL COMPOUND

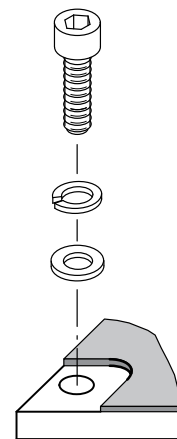
- Paste with silicones: SICERONT KF Ref. 1201 Recommended.
- Thickness: Optimum between 0.06 mm and 0.15 mm, on the whole back surface of the amplifier.
(Typical volume: 215 mm³ for 0.1 mm thickness)
(Equivalent weight: 0.5g for 2.2 density paste).

SCREWS

- Socket head cap screws: CHC M3 x 10 for Copper/Aluminum Heatsink.
- Material: Nickel plated steel.

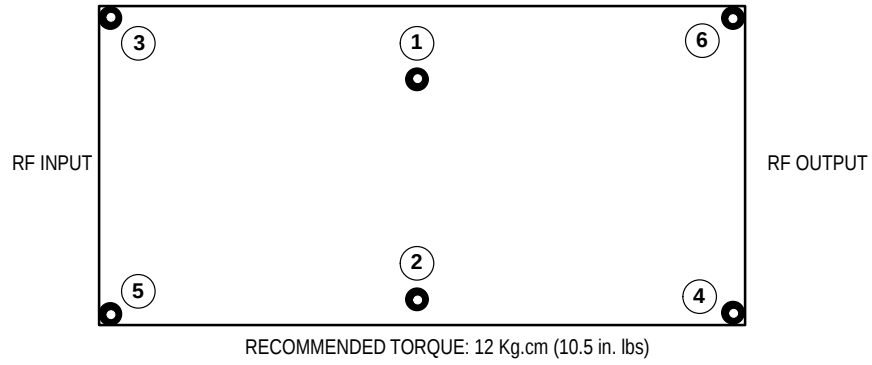
WASHERS

- Split lock washers WZ Ø3 + Flat washers ZU Ø3.



MOUNTING RECOMMENDATIONS (continued)

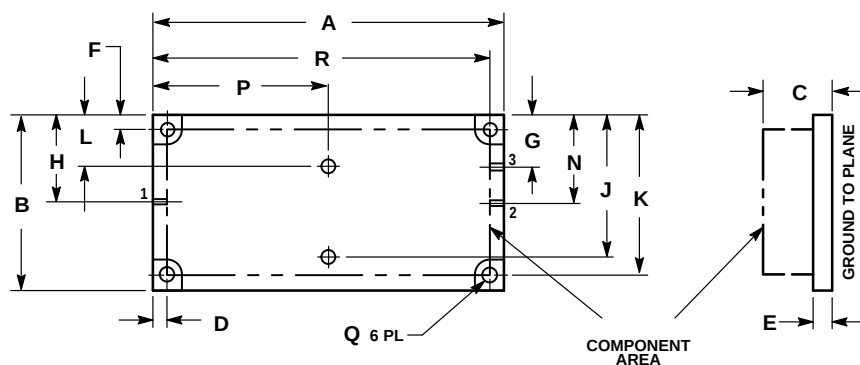
TIGHTENING ORDER



CLEANING

Some components of the RFA8090B are not qualified for every kind of cleaning solvent; do not clean the amplifier in a solvent bath. Local cleaning is recommended.

PACKAGE DIMENSIONS



- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	3.342	3.351	84.88	85.12
B	1.669	1.678	42.38	42.62
C	—	0.669	—	17.00
D	0.124	0.132	3.15	3.35
E	0.177	0.193	4.50	4.90
F	0.124	0.132	3.15	3.35
G	0.476	0.508	12.10	12.90
H	0.909	0.941	23.10	23.90
J	1.354	1.362	34.40	34.60
K	1.541	1.549	39.15	39.35
L	0.488	0.496	12.40	12.60
N	0.909	0.941	23.10	23.90
P	1.569	1.577	39.85	40.05
Q	0.122	0.134	3.10	3.40
R	3.215	3.222	81.65	81.85

- STYLE 1:
- PIN 1. RF INPUT
 - RF OUTPUT
 - +V_{CC}
- GROUND TO CASE

**CASE 429E-01
ISSUE O**

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RFA8090B/D

