

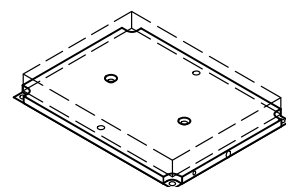
The RF Line Broadband RF Array for TV Transmitter

The RFA8180B 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 — 180 Watts (CW)
Gain — 8 dB Min (@ 180 W)
- 50 Ω Input and Output Impedance

RFA8180B

180 W C.W. (28 V)
270 W P. SYNC. (32 V)
470–860 MHz
RF POWER AMPLIFIER



CASE 429-02, STYLE 1

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Supply Voltage	V_{CC}	32	Vdc
Quiescent Current	I_{CQ}	2 [2 x 300]	mAdc
Input Power	P_{in}	35	W
Storage Temperature Range	T_{stg}	–40 to +100	°C
Operating Temperature (1)	T_{op}	–20 to +70	°C

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$, $V_{CC} = 28\text{ V}$, $I_{CQ} = 2 \times 200\text{ mA}$, unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Instantaneous Bandwidth	BW	470	—	860	MHz
Input Return Loss	IRL	—	—	–15	dB

FUNCTIONAL TESTS IN CW (SOUND) ($T_C = 25^\circ\text{C}$, $V_{CC} = 28\text{ V}$, $I_{CQ} = 2 \times 200\text{ mA}$, $f = 470\text{--}860\text{ MHz}$, unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Power Gain ($P_{out} = 180\text{ W}$)	G_p	8	—	—	dB
Gain Ripple ($P_{out} = 180\text{ W}$)	G_{rple}	—	—	± 1	dB
Output Power @ 1 dB Compression	P_{out}	180	—	—	W
Mismatch Tolerance ($P_{out} = 180\text{ W}$)	VSWR	3:1	—	—	—
Efficiency ($P_{out} = 180\text{ W}$)	η	48	51	—	%

FUNCTIONAL TESTS IN VIDEO (standard black level)

Characteristic	Symbol	Min	Typ	Max	Unit
Peak Output Power (synch.) ($V_{CC} = 28\text{ Vdc}$)	P_{out1}	230	—	—	W
Peak Output Power (synch.) ($V_{CC} = 32\text{ Vdc}$)	P_{out2}	270	—	—	W

NOTE:

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

TYPICAL CHARACTERISTICS **CW — WIDEBAND**

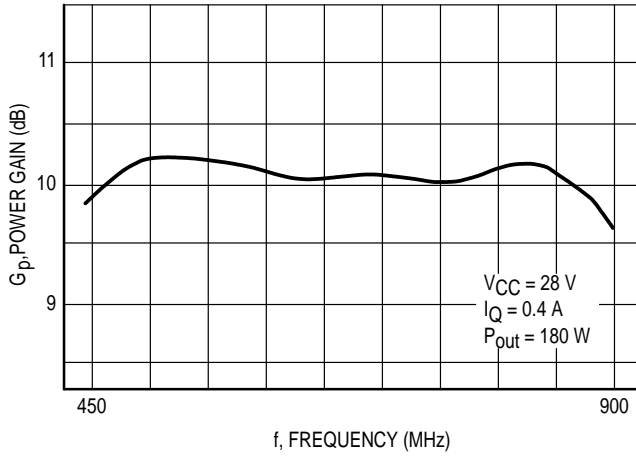


Figure 1. Power Gain versus Frequency

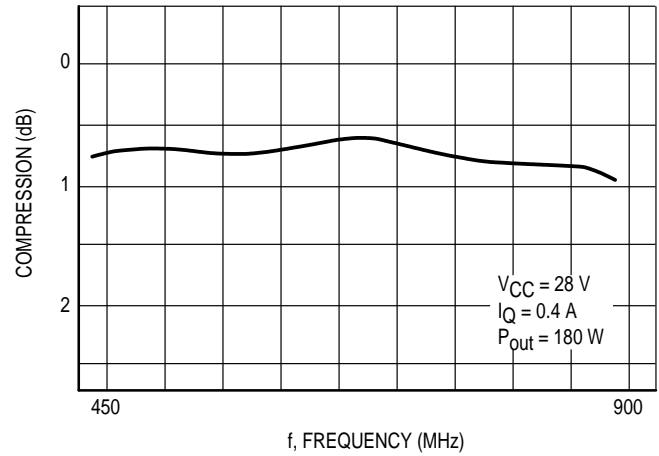


Figure 2. Gain Compression versus Frequency

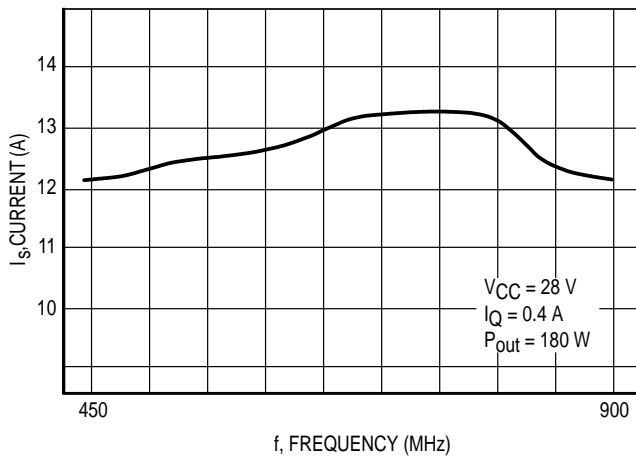


Figure 3. Supply Current versus Frequency

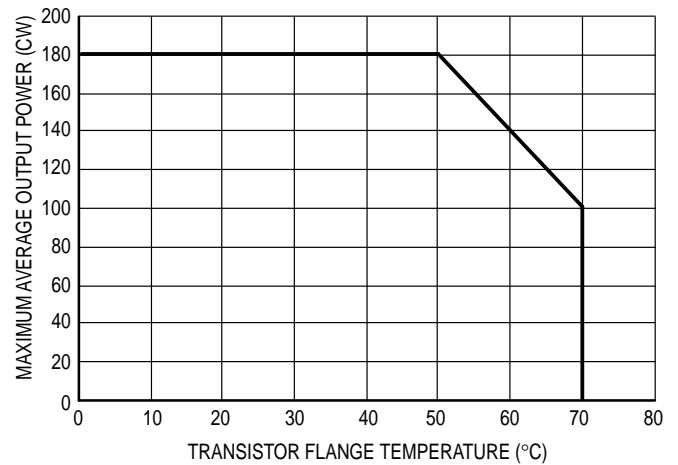


Figure 4. Maximum Average Output Power versus Temperature

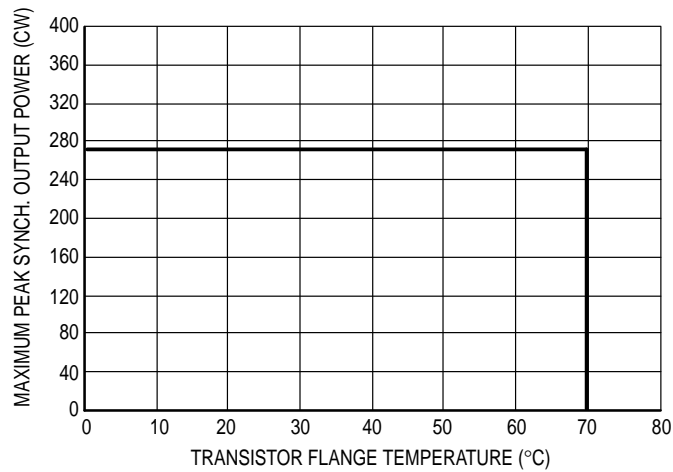
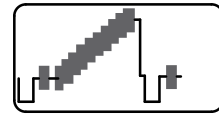


Figure 5. Maximum Peak Synch. Output Power (B/G Standard) versus Temperature

TYPICAL VIDEO CHARACTERISTICS @ $f = 860 \text{ MHz}$

TEST CONDITIONS:
 DIFF. Gain, 10 Steps
 Channel 61
 $V_{CE} = 28 \text{ V}$
 $I_Q = 0.4 \text{ A}$



VIDEO SIGNAL

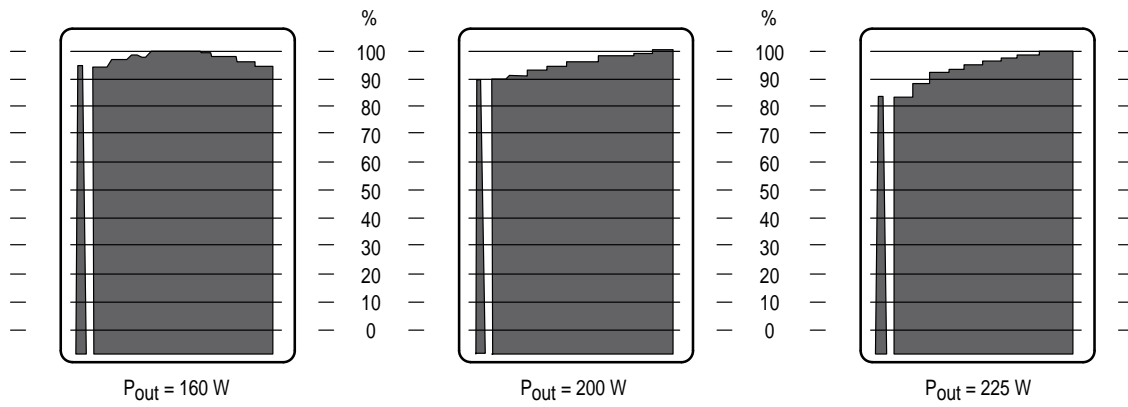
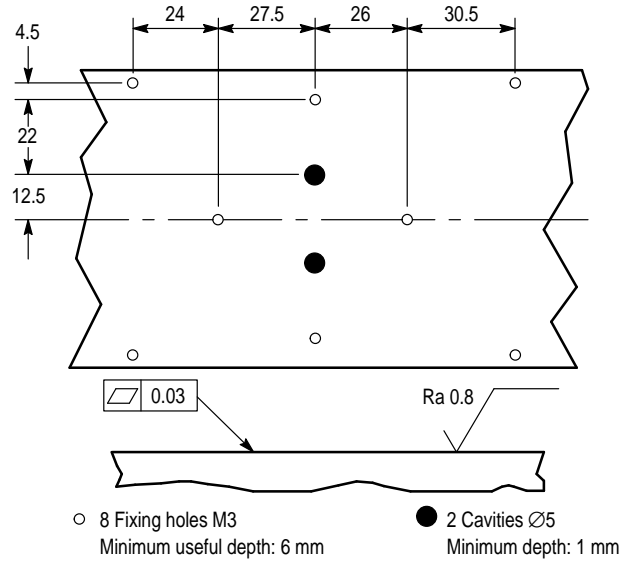


Figure 6. Differential Gain

APPLICATIONS INFORMATION

HEATSINK TOOLING



MOUNTING RECOMMENDATIONS

THERMAL COMPOUND

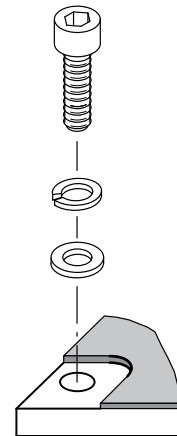
- Paste with silicones: SICERONT KF Ref. 1201 Recommended.
- Thickness: Optimum between 0.06 mm and 0.15 mm, on the whole back surface of the amplifier.
(Typical volume: 700 mm³ for 0.1 mm thickness)
(Equivalent weight: 1.5g for 2.2 density paste).

SCREWS

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

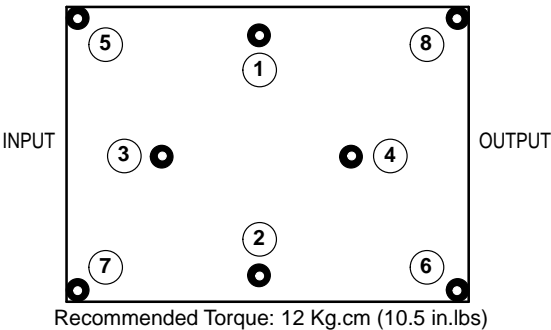
WASHERS

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



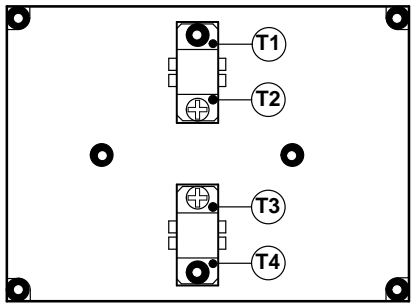
MOUNTING RECOMMENDATIONS (continued)

TIGHTENING ORDER



MOUNTING VERIFICATION

Make the amplifier work at nominal RF conditions, and measure temperature on points 1, 2, 3, and 4.

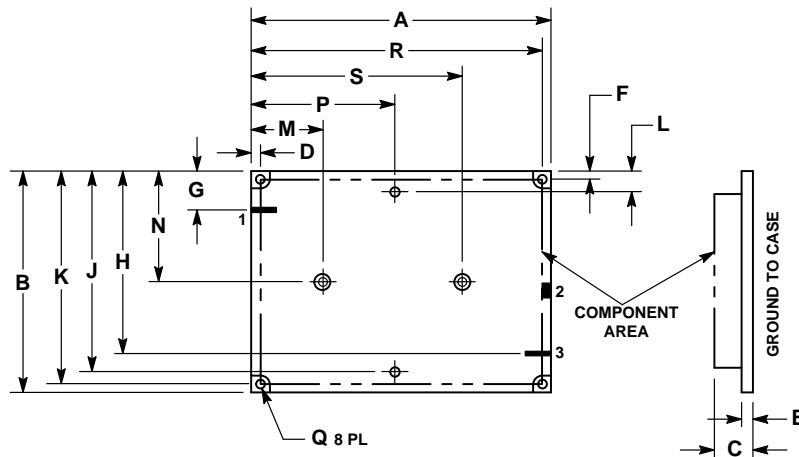


Characteristic	Typ	Max	Unit
T1, T2, T3, T4	—	70	°C
$\Delta(T1, T2), \Delta(T3, T4)$	3	5	°C

CLEANING

Some components of the RFA8180B amplifier 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: MILLIMETER.

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	114.88	115.12	4.523	4.532
B	84.88	85.12	3.342	3.351
C	—	15.00	—	0.591
D	3.40	3.60	0.134	0.142
E	4.50	4.90	0.177	0.193
F	3.40	3.60	0.134	0.142
G	14.60	15.40	0.575	0.606
H	69.60	70.40	2.740	2.772
J	76.90	77.10	3.205	3.035
K	81.40	81.60	3.205	3.213
L	7.90	8.10	0.311	0.319
M	27.40	27.60	1.079	1.087
N	42.40	42.60	1.669	1.677
P	54.90	55.10	2.161	2.169
Q	3.10	3.40	0.122	0.134
R	111.40	111.60	4.386	4.394
S	80.90	81.10	3.185	3.193

- STYLE 1:
 PIN 1. RF INPUT
 2. DC VOLTAGE
 3. RF OUTPUT
 GROUND TO PLANE

**CASE 429-02
 ISSUE A**

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RFA8180B/D

