

# ARS1047 100 TO 1000 MHz TO-8 CASCADABLE AMPLIFIER

**Typical Values**

**ARS1047**

**Push Pull Design Configuration**

Ultra High IP2 (2nd order suppressed) .....	75 dB
Medium Gain .....	11 dB
Medium Output Power .....	+28.0 dBm
High Performance Thin Film	
Standard Size SMTO-8B and TO-8B Package	

## SPECIFICATIONS\*

Parameter	Typical	Guaranteed	
		0 to 50 °C	-55 to +85 °C
Frequency (Min.)	100-1000 MHz	100-1000 MHz	100-1000 MHz
Small Signal Gain (Min.)	11.0 dB	10.0 dB	9.0 dB
Gain Flatness (Max.)	±0.5 dB	±0.65 dB	±0.75 dB
Noise Figure (Max.)			
100-200 MHz	4.0 dB	4.5 dB	6.0 dB
200-1000 MHz	4.0 dB	4.5 dB	5.0 dB
VSWR (Max.)			
100-200 MHz	2.2:1	2.3:1	2.3:1
200-1000 MHz	1.9:1	2.0:1	2.0:1
Power Output (Min.)			
@ 1 dB comp. 100-500 MHz	+28.0 dBm	+27.0 dBm	+26.0 dBm
500-1000 MHz	+29.0 dBm	+28.5 dBm	+27.5 dBm
Reverse Isolation	20.0 dB	19.0 dB	18.5 dB
DC Current (Max.)	350 mA	360 mA	370 mA

\* Measured in a 50-ohm system at +12 Vdc unless otherwise specified.

## INTERMODULATION PERFORMANCE

**Typical @ 25 °C; 100 MHz**

**ARS1047**

Second Order Harmonic Intercept Point .....	+78 dBm
Second Order Two Tone Intercept Point .....	+72 dBm
Third Order Two Tone Intercept Point .....	+43 dBm

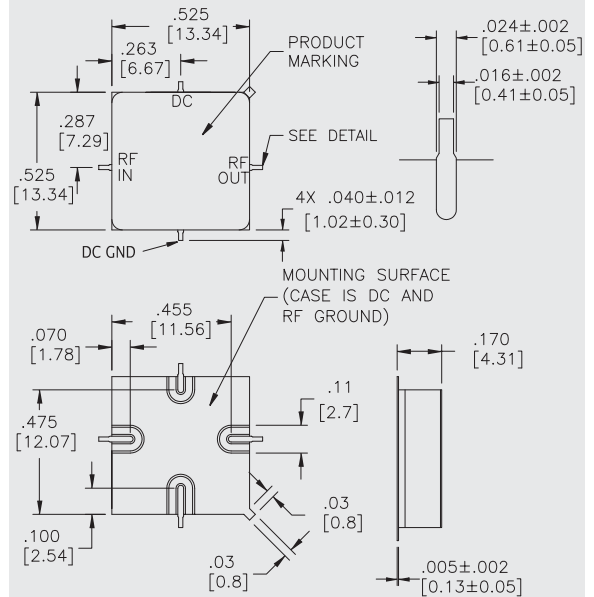
## ABSOLUTE MAXIMUM RATINGS

Storage Temperature .....	-62 to +125 °C
Maximum Case Temperature .....	+125 °C
Maximum DC Voltage .....	+17 Volts
Maximum Continuous RF Input Power .....	+22 dBm
Maximum Short Term Input Power (1 Minute Max.) .....	+24 dBm
Maximum Peak Power (3 µsec Max.) .....	+26 dBm
Burn-in Temperature (+12 Volts) .....	+125 °C
Thermal Data: VCC = +12 Vdc .....	
Thermal Resistance <sup>1</sup> (θjc) .....	+17.0 °C/Watt
Junction Temperature Rise Above Case (Tjc) .....	+28 °C

<sup>1</sup> Thermal resistance is based on total power dissipation.

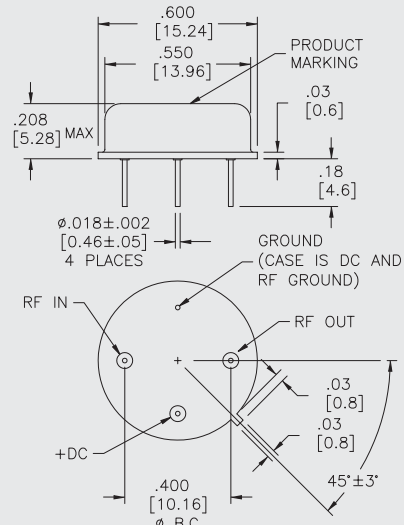
## ARS1047

### SMTO-8B Package for Amplifiers



## AR1047

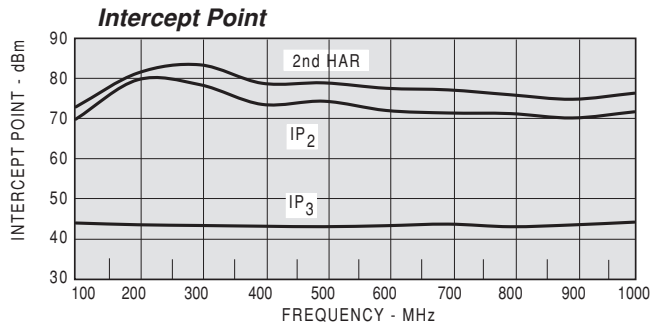
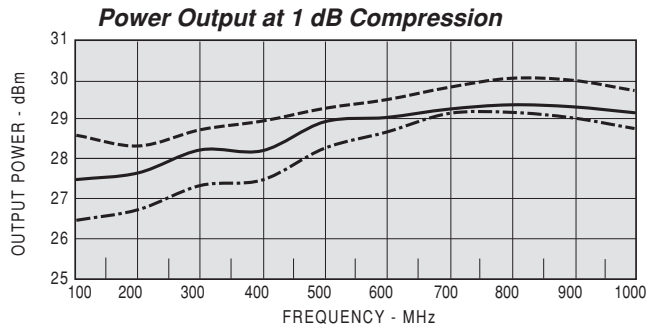
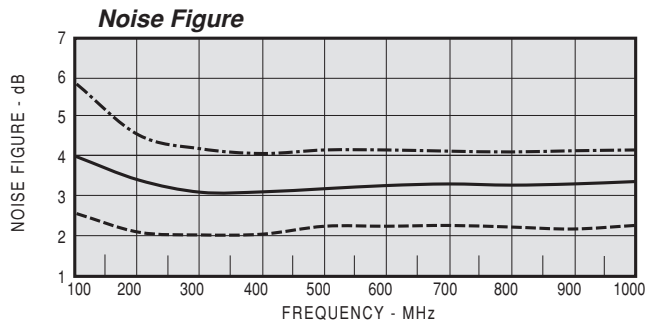
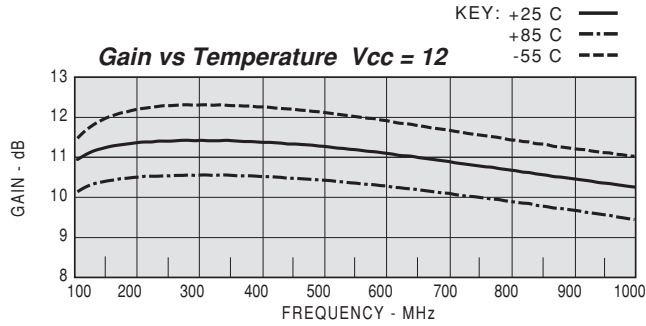
### TO-8B Package for Amplifiers



DIMENSIONS ARE IN INCHES [MILLIMETERS]

**TYPICAL PERFORMANCE**

**TYPICAL AUTOMATIC TEST DATA**



Model: ARS1047			Vcc=+12V			Icc=355.2	
FREQ	SWR	SWR	GAIN	PHASE	DELAY	REV/ISO	
MHZ	IN	OUT	DB	DEG	NSEC	DB	
100	2.18	1.41	10.98	-8.55	1.04	-19.37	
150	1.99	1.31	11.29	-24.65	0.85	-19.73	
200	1.86	1.25	11.40	-38.82	0.76	-19.77	
250	1.75	1.21	11.43	-52.08	0.71	-19.75	
300	1.64	1.19	11.45	-64.89	0.71	-19.88	
350	1.53	1.20	11.44	-77.42	0.69	-19.91	
400	1.42	1.23	11.40	-89.85	0.68	-19.96	
450	1.32	1.27	11.36	-102.18	0.69	-20.00	
500	1.23	1.33	11.30	-114.40	0.69	-20.12	
550	1.15	1.39	11.22	-126.52	0.67	-20.27	
600	1.07	1.45	11.13	-138.49	0.66	-20.34	
650	1.02	1.52	11.03	-150.42	0.65	-20.46	
700	1.06	1.59	10.93	-162.30	0.66	-20.57	
750	1.12	1.65	10.82	-174.09	0.66	-20.79	
800	1.18	1.70	10.72	174.27	0.63	-20.95	
850	1.23	1.74	10.61	162.49	0.65	-21.06	
900	1.28	1.77	10.51	150.91	0.62	-21.24	
950	1.32	1.78	10.40	139.11	0.65	-21.42	
1000	1.36	1.77	10.30	127.44	0.67	-21.52	

Model: ARS1047		LINEAR S-PARAMETERS						Icc=355.2	
FREQ.		S11		S21		S12		S22	
MHZ		MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
100		-8.91	-37.60	11.20	-10.10	-19.40	157.00	-15.60	-31.30
150		-9.89	-46.50	11.50	-26.20	-19.70	147.00	-18.00	-32.50
200		-10.70	-55.80	11.60	-40.50	-19.80	136.00	-19.70	-29.30
250		-11.50	-65.70	11.60	-53.90	-19.80	127.00	-21.00	-22.70
300		-12.40	-75.70	11.60	-66.90	-19.80	117.00	-21.60	-14.60
350		-13.50	-85.80	11.60	-79.60	-19.90	106.00	-21.30	-5.45
400		-14.90	-95.80	11.60	-92.10	-19.90	95.20	-20.30	2.05
450		-16.50	-105.00	11.50	-105.00	-20.10	85.10	-19.10	5.25
500		-18.50	-114.00	11.50	-117.00	-20.10	74.80	-17.60	4.96
550		-21.10	-122.00	11.40	-129.00	-20.20	64.10	-16.40	2.73
600		-24.80	-127.00	11.30	-142.00	-20.30	53.90	-15.20	-1.93
650		-30.30	-123.00	11.20	-154.00	-20.40	43.40	-14.20	-7.53
700		-36.40	-68.90	11.10	-166.00	-20.60	33.20	-13.40	-13.80
750		-30.30	-22.30	11.00	-178.00	-20.80	22.90	-12.70	-21.30
800		-25.60	-18.50	11.00	170.00	-20.80	12.50	-12.10	-29.00
850		-22.80	-23.20	10.90	158.00	-21.00	2.06	-11.70	-37.40
900		-20.90	-29.90	10.70	146.00	-21.20	-8.00	-11.30	-45.80
950		-19.50	-37.30	10.60	134.00	-21.30	-17.50	-11.10	-55.30
1000		-18.50	-45.30	10.50	122.00	-21.40	-27.70	-11.00	-64.60