

CA3035, CA3035V1



Ultra-High-Gain Wide-Band Amplifier Array

Features:

- Three separate amplifiers - gain and bandwidth for each amplifier can be adjusted with suitable external circuitry
- Amplifiers operable independently or in cascade
- Exceptionally high cascade voltage gain - 129 dB typ. at 40 kHz
- Low noise performance
- Wide-band response
- All amplifiers single-ended - only one power supply required
- Wide operating temperature range - -55°C to $+125^{\circ}\text{C}$

- Built-in temperature compensation
- Hermetically sealed, all-welded 10-lead TO-5 style metal package with straight or formed leads

Applications:

- Three individual general-purpose amplifiers
- Ideal for service in remote-control amplifiers - e.g., TV receivers
- Available in two electrically identical versions: CA3035 with straight leads; CA3035V1 with formed leads

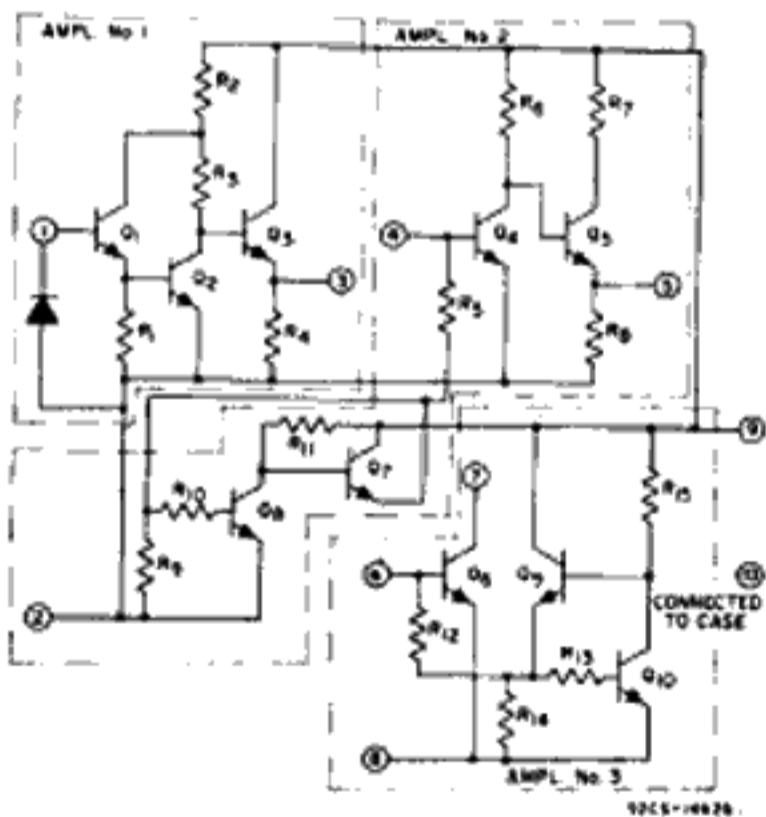


Fig. 1 - Schematic Diagram for CA3035 and CA3035V1

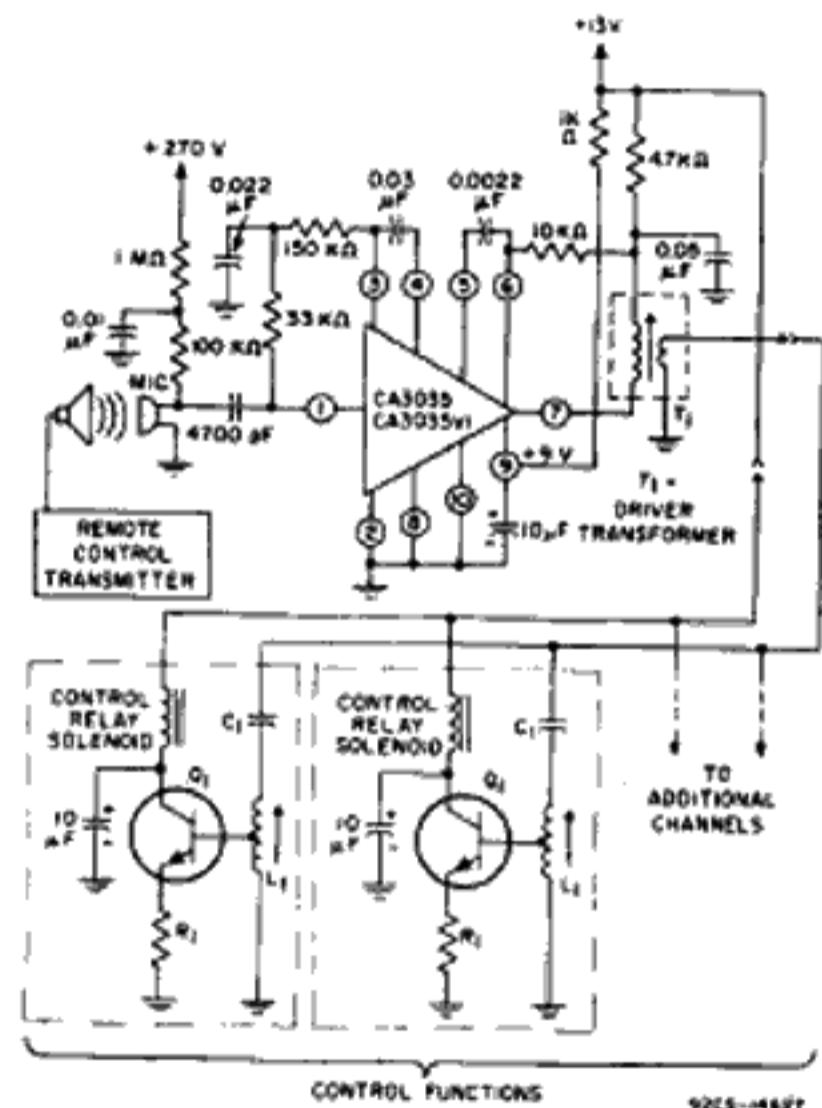


Fig. 2 - Typical Remote Control System

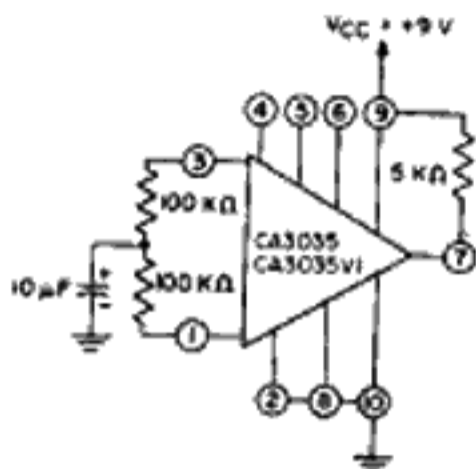
ABSOLUTE-MAXIMUM RATINGS:

Operating Temperature Range	-55°C to +125°C
Storage Temperature Range	-65°C to +200°C
Device Dissipation	300 mW
Input Voltage	1 V p-p
Supply Voltage	+15V

ELECTRICAL CHARACTERISTICS AT $T_A = 25^\circ\text{C}$

CHARACTERISTICS	SYMBOLS	SPECIAL TEST CONDITIONS	TEST CIRCUITS AND CHARACTERISTICS CURVES	LIMITS			UNITS
				CA3035, CA3035V1			
				Min.	Typ.	Max.	
STATIC CHARACTERISTICS							
Quiescent Operating Voltage	V3	$V_{CC} = +9V$	Fig. 5	-	2	-	V
	V5			-	1.9	-	V
	V7			-	4.9	-	V
Total Current Drain	I_d	$V_{CC} = +9V$, $R_{L3} = 5K\Omega$	Fig. 3	3.5	5	7.5	mA
DYNAMIC CHARACTERISTICS							
Voltage Gain: Amplifier No. 1 Amplifier No. 2 Amplifier No. 3	A_1	$f = 40 \text{ kHz}$, $V_{CC} = +9V$		40	44	-	dB
	A_2			40	46	-	dB
	A_3			38	42	-	dB
Output Voltage Swing	V_{out}	$R_{L1} = 10K\Omega$ $R_{L2} = 10K\Omega$ $R_{L3} = 5K\Omega$ Sinusoidal Output, $V_{CC} = +9V$		-	2	-	Vp-p
	V_{1out}			-	2.6	-	Vp-p
	V_{3out}			-	8	-	Vp-p
Input Resistance: Amplifier No. 1 Amplifier No. 2 Amplifier No. 3	R_{1in}	$f = 40 \text{ kHz}$		-	50K	-	Ω
	R_{2in}			-	2K	-	Ω
	R_{3in}			-	670	-	Ω
Output Resistance	R_{1out}	$f = 40 \text{ kHz}$		-	270	-	Ω
	R_{2out}			-	170	-	Ω
	R_{3out}			-	100K	-	Ω
Bandwidth at -3dB point: Amplifier No. 1 Amplifier No. 2 Amplifier No. 3	BW_1	$V_{CC} = +9V$	Fig. 5	-	500	-	kHz
	BW_2		Fig. 6	-	2.5	-	MHz
	BW_3		Fig. 7	-	2.5	-	MHz
Noise Figure Amplifier No. 1	NF_1	$f = 1 \text{ kHz}$, $R_S = 1K\Omega$	Fig. 4	-	6	7	dB
Sensitivity		$V_{CC} = +13V$ Relay $1K_1$ Current = 7.5 mA	Fig. 2	-	100	150	μV

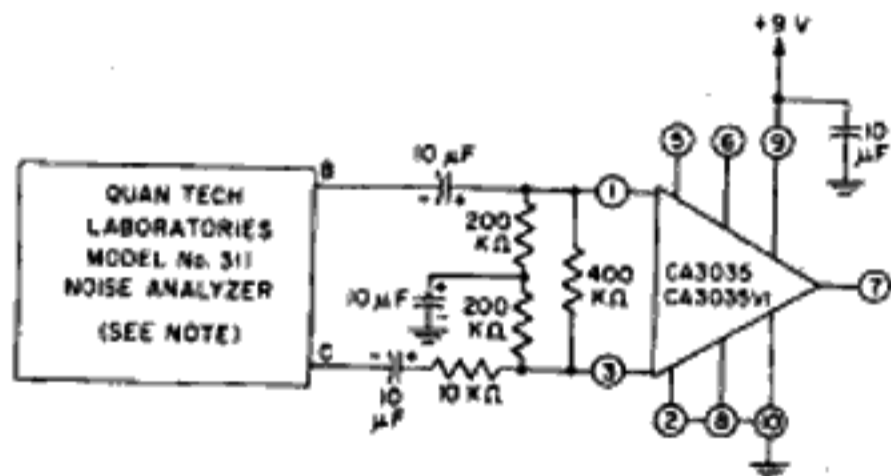
STATIC CHARACTERISTICS TEST CIRCUIT



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Fig.3

NOISE FIGURE TEST CIRCUIT

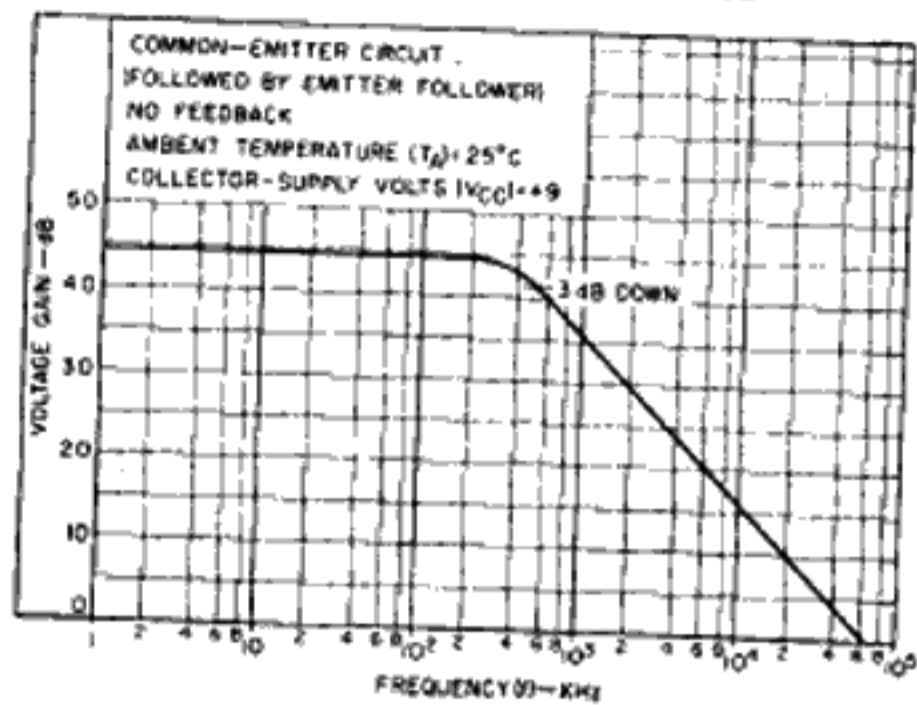


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NOTE: SET ALL INTERNAL POWER SUPPLIES ON QUAN TECH NOISE ANALYZER TO ZERO VOLTS.

Fig.4

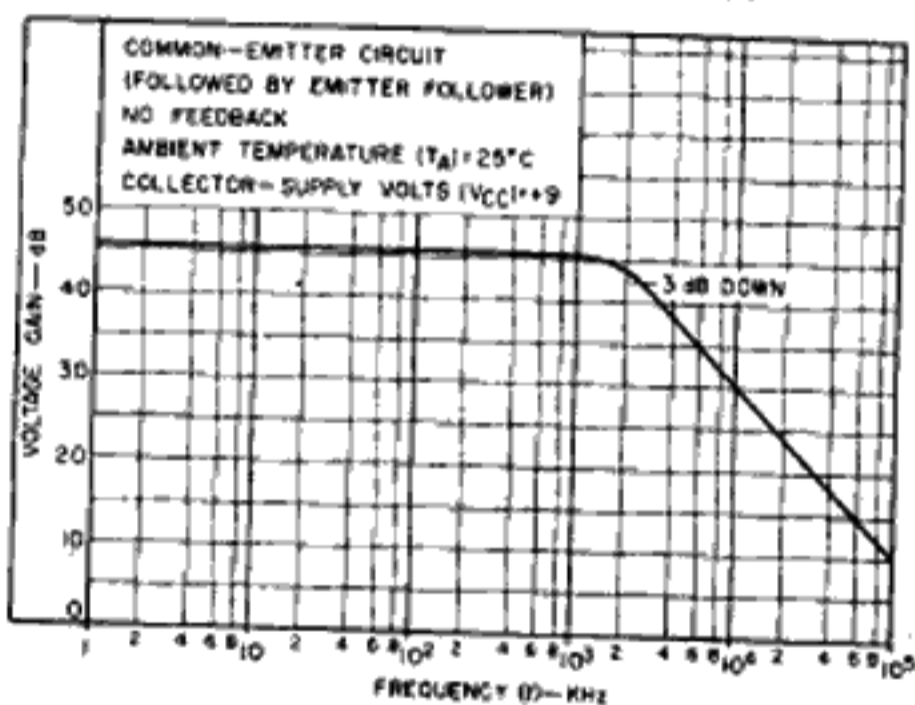
TYPICAL 1st-AMPLIFIER RESPONSE



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Fig.5

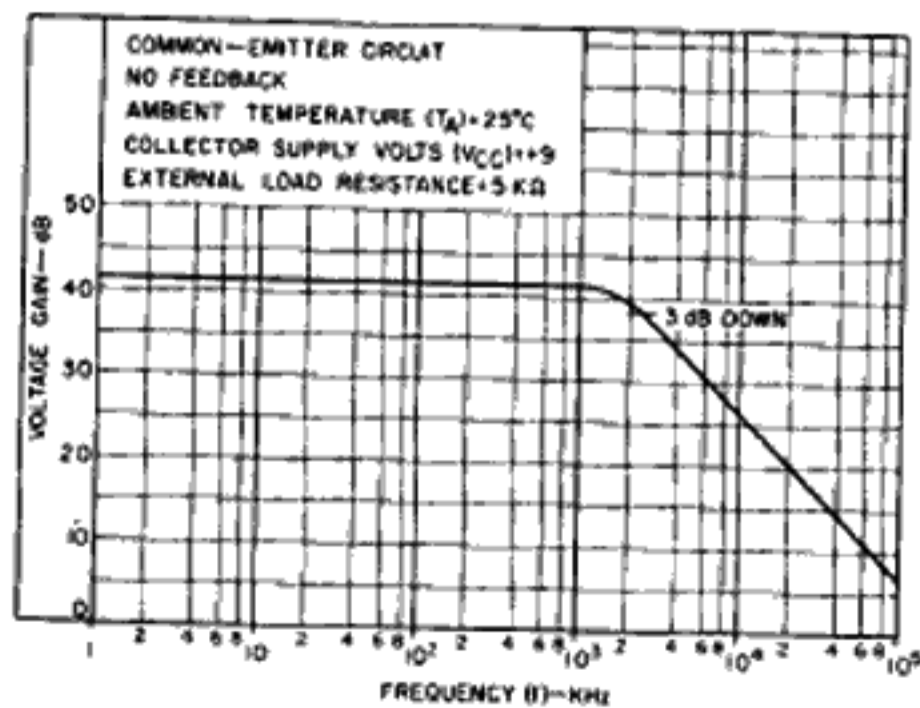
TYPICAL 2nd-AMPLIFIER RESPONSE



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Fig.6

TYPICAL 3rd-AMPLIFIER RESPONSE



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Fig.7