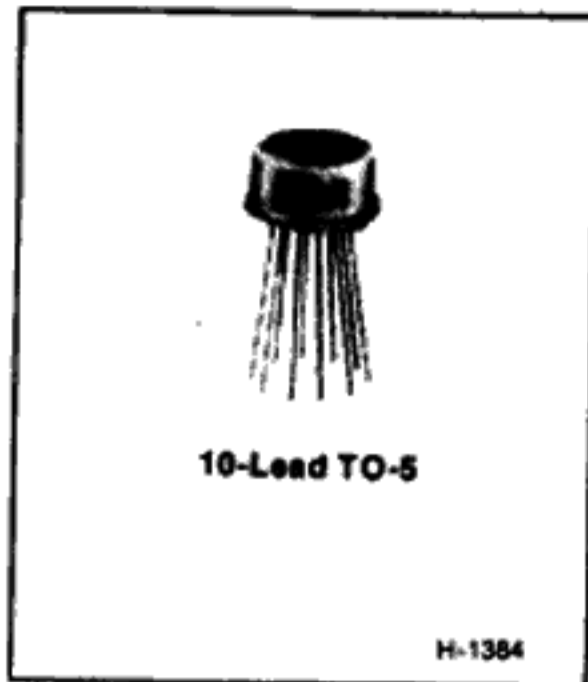


CA3035, CA3035V1



## 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 -  $-55^{\circ}\text{C}$  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

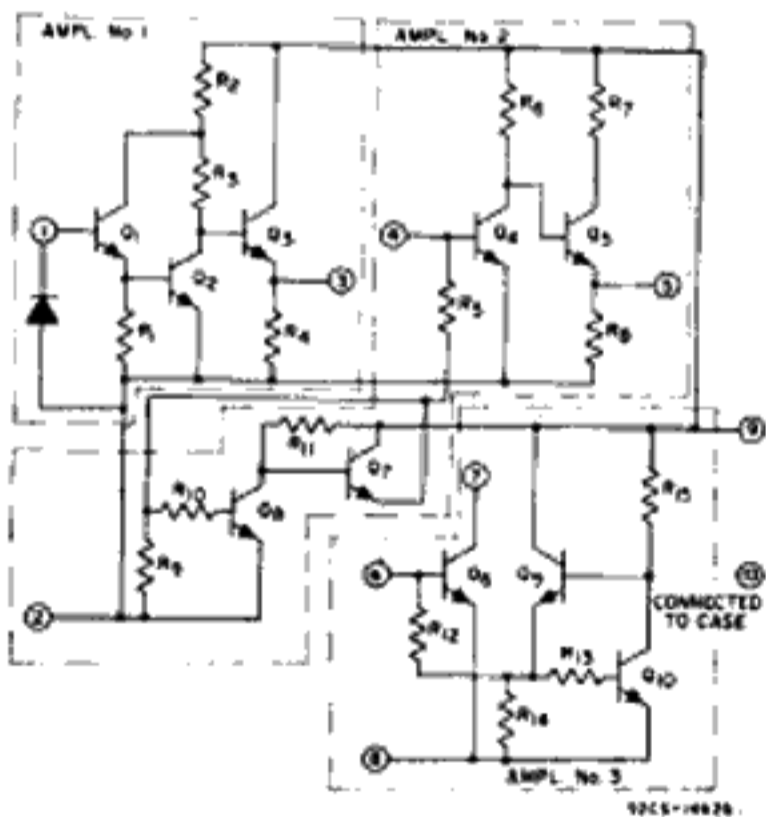


Fig. 1 - Schematic Diagram for CA3035 and CA3035V1

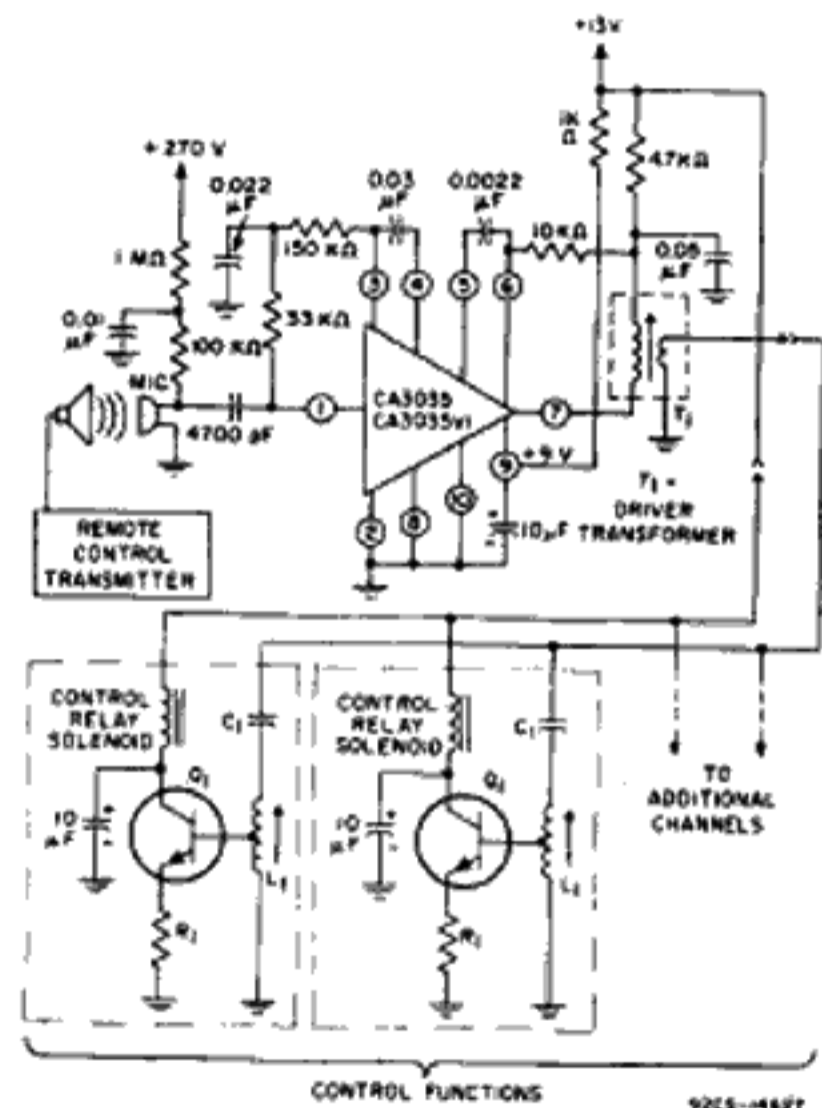


Fig. 2 - Typical Remote Control System

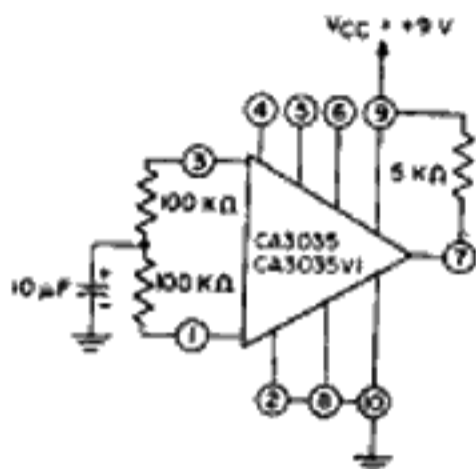
## ABSOLUTE-MAXIMUM RATINGS:

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	-	$\Omega$
	$R_{2in}$			-	2K	-	$\Omega$
	$R_{3in}$			-	670	-	$\Omega$
Output Resistance	$R_{1out}$	$f = 40 \text{ kHz}$		-	270	-	$\Omega$
	$R_{2out}$			-	170	-	$\Omega$
	$R_{3out}$			-	100K	-	$\Omega$
Bandwidth at -3dB point: Amplifier No. 1 Amplifier No. 2 Amplifier No. 3	$BW_1$	$V_{CC} = +9V$	Fig. 5 Fig. 6 Fig. 7	-	500	-	kHz
	$BW_2$			-	2.5	-	MHz
	$BW_3$			-	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	$\mu V$

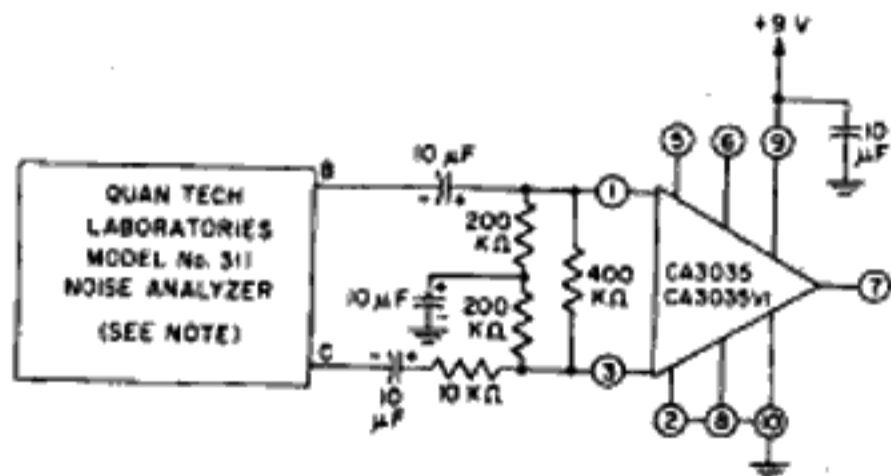
### STATIC CHARACTERISTICS TEST CIRCUIT



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Fig.3

### NOISE FIGURE TEST CIRCUIT

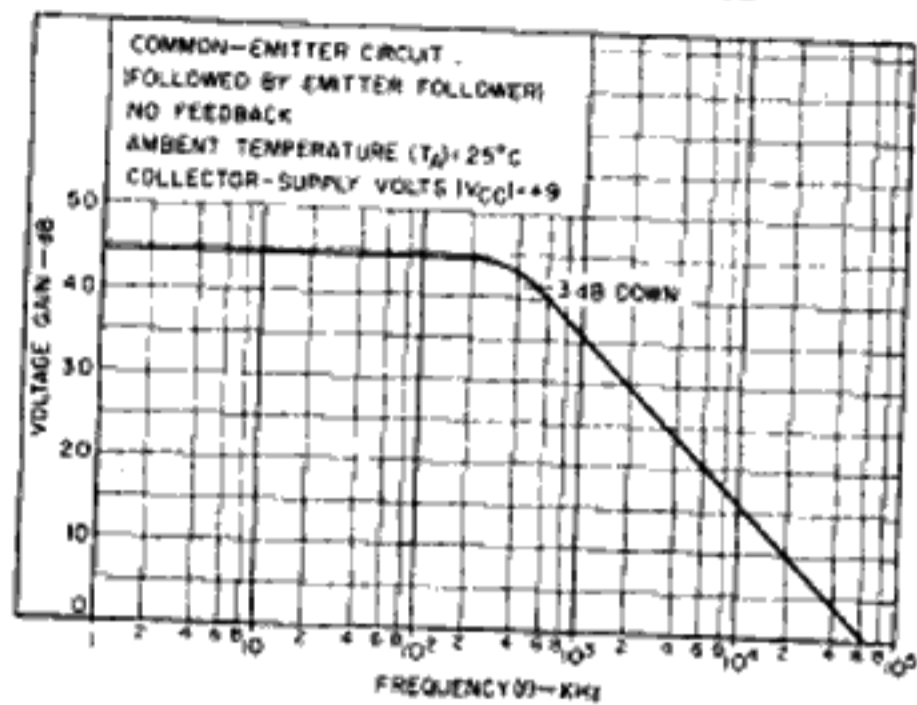


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NOTE: SET ALL INTERNAL POWER SUPPLIES ON QUAN TECH NOISE ANALYZER TO ZERO VOLTS.

Fig.4

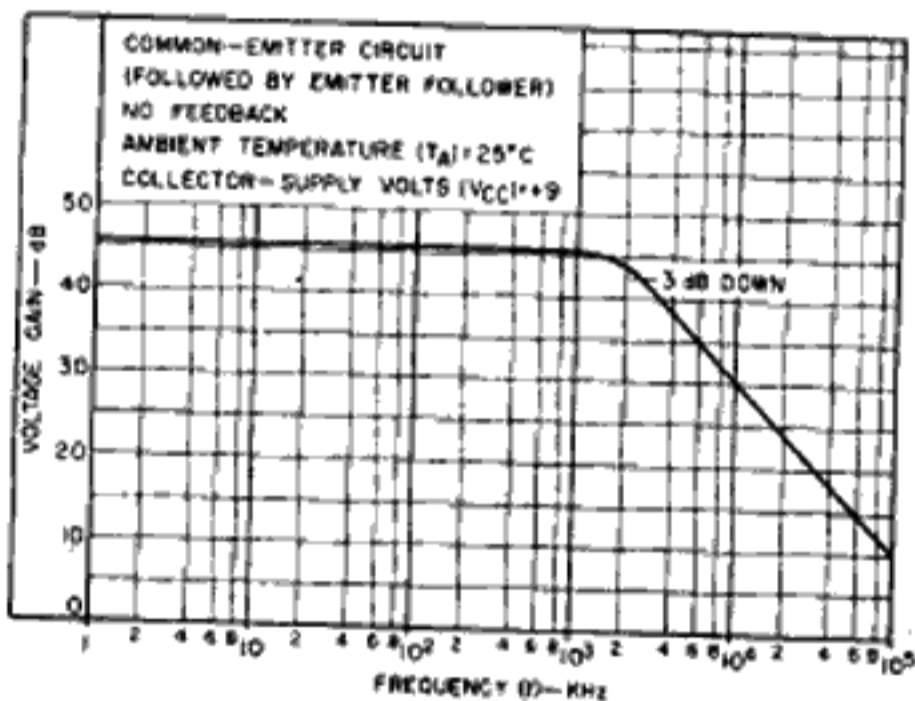
### TYPICAL 1st-AMPLIFIER RESPONSE



92CS-14635

Fig.5

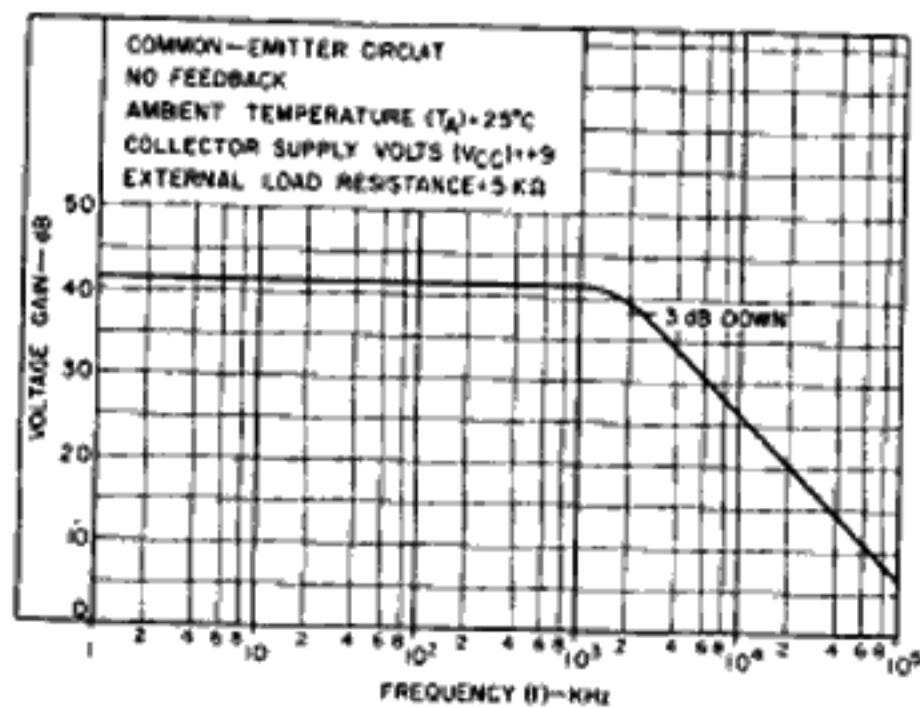
### TYPICAL 2nd-AMPLIFIER RESPONSE



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Fig.6

### TYPICAL 3rd-AMPLIFIER RESPONSE



92CS-14637

Fig.7