





## SPECIFICATIONS

**Power Rating:** 400 watts per channel into 4 ohms at less than 0.04% THD from 20 Hz to 20 kHz with both channels driven.  
255 watts per channel into 8 ohms at less than 0.025% THD from 20 Hz to 20 kHz with both channels driven.  
800 watts into 8 ohms at less than 0.04% THD from 20 Hz to 20 kHz in monophonic bridged operation.

**IM Distortion (SMPTE):** Less than 0.007% from 1 watt to 225 watts, each channel, into 8 ohms.

**Typical THD at 255 watts into 8 ohms:** 1 kHz—0.002%  
10 kHz—0.007%

**Frequency Response into 8 ohms:** Through balanced-to-unbalanced input circuit:  
– 3 dB, 8 Hz to 85 kHz at 1 watt  
– 0.5 dB, 25 Hz to 24 kHz at 255 watts  
With balanced-to-unbalanced input circuit bypassed:  
– 3 dB, 4 Hz to 160 kHz @ 1 watt  
– 0.5 dB, 10 Hz to 60 kHz @ 255 watts

**Typical Channel Separation at 1 kHz:** 65 dB

**Signal to Noise ratio:** Exceeds 95 dB referred to 255 watts into 8 ohms, unweighted.  
Exceeds 85 dB referred to 1 watt into 8 ohms, A weighting.

**Input Impedance:** 25,000 ohms

**Input Sensitivity:** Through balanced-to-unbalanced input circuit: 1.55 Vrms for 255 watts into 8 ohms.  
With balanced-to-unbalanced input circuit bypassed (direct input): 2.35 Vrms for 255 watts into 8 ohms; 0.145 Vrms for 1 watt into 8 ohms.

**Damping Factor:** 200 to 1 kHz into 8 ohms; 60 to 10 kHz into 8 ohms

**Rise Time:** 10 kHz, 120 volts p/p square wave, 10% to 90%:  
Through balanced-to-unbalanced input circuit: 5  $\mu$ s.  
With balanced-to-unbalanced input circuit bypassed: 2.5  $\mu$ s.

**Slew Rate:** 1 kHz, 120 volts p/p square wave:  
Through balanced-to-unbalanced input circuit: 35 V/ $\mu$ s.  
With balanced-to-unbalanced input circuit bypassed: 45 V/ $\mu$ s.

**Semiconductor Complement:** 27 transistors, 12 power MOSFETS, 35 diodes, 8 zener diodes, 7 integrated circuits, 6 LEDs, 1 diode bridge, 1 thermistor.

**Power Consumption:** 240 VA quiescent; 1200 VA @ rated power into 8 ohms, both channels driven.

**Size:** 7" high plus ¼" feet, 19" wide, 13" deep plus 1" for handles.

**Net Weight:** 53 lbs.

**Shipping Weight:** 55 lbs.

## COMPONENT VALUES

All capacitors are 100 volt minimum unless otherwise noted.

		Part No.			Part No.
C1	2 mfd, 50V, Film	CP115	D1	1N4148 Diode	QD116
C2	330 pF, Film	CP134	D2	1N4148 Diode	QD116
C3	.01 mfd, Film	CC124	D3	1N4148 Diode	QD116
C4	.001 mfd, Film	CP136	D4	1N4148 Diode	QD116
C5	.001 mfd, Film	CP136	D5	1N4148 Diode	QD116
C6	.1 mfd, Film	CC125	D6	1N4148 Diode	QD116
C7	.1 mfd, Film	CC125	D7	1N4148 Diode	QD116
C8	220 mfd, 10V, N.P. Electrolytic	CN112	D8	1N4148 Diode	QD116
C9	150 pF, Film	CP133	D9	FDH-400 Diode	QD121
C10	330 pF, Film	CP134	D10	FDH-400 Diode	QD121
C11	.01 mfd, Film	CC124	D11	1N4148 Diode	QD116
C12	100 mfd, 100V, Electrolytic	CL122	D12	1N5240B 10V Zener Diode	QD111
C13	.01 mfd, Film	CC124	D13	1N5240B 10V Zener Diode	QD111
C14	100 mfd, 100V, Electrolytic	CL122	D14	1N4148 Diode	QD116
C15	.01 mfd, Film	CC124	D15	1N4003 Diode	QD115
C16	.01 mfd, Film	CC124	D16	1N4003 Diode	QD115
C17	120 pF, Film	CP112	D101	1N4148 Diode	QD116
C18	.01 mfd, Film	CC124	D102	1N4148 Diode	QD116
C19	.01 mfd, Film	CC124	D103	1N4148 Diode	QD116
C20	.1 mfd, Film	CC125	D104	1N4148 Diode	QD116
C21	.1 mfd, Film	CC125	D105	1N4003 Diode	QD115
C22	.1 mfd, Film	CC125	D106	1N4003 Diode	QD115
C23	.001 mfd, 250V, Film	CP136	D107	1N5352 15V Zener Diode	QD132
C101	2.2 mfd, 100V, Film	CC127	D108	1N5352 15V Zener Diode	QD132
C102	680 pF, Mica	CM121	D109	1N5352 15V Zener Diode	QD132
C103	680 pF, Mica	CM121	D110	1N5352 15V Zener Diode	QD132
C104	.47 mfd, Film	CE125	D201	MV5754S Green LED	QD125
C105	.47 mfd, Film	CE125	D202	MV64530 Red LED	QD123
C106	.33 mfd, Film	CE127	D301	MV9475 Bi-Color LED	QD124
C107	4.7 mfd, 25V, N.P. Electrolytic	CN118	D302	1N4004 Diode	QD128
C108	.33 mfd, Film	CE127	D303	MV5754S Red LED	QD123
C109	.033 mfd, Film	CP138			
C110	.1 mfd, Film	CE115			
C111	.39 mfd, Film	CE117	DB401	Diode Bridge	QD117
C112	.39 mfd, Film	CE117			
C113	.39 mfd, Film	CE117			
C114	1 mfd, 25V, N.P. Electrolytic	CN114			
C115	22 mfd, 25V, Electrolytic	CL125	F401	Fuse 15A, slo-blo, MDA	SF014
C116	.01 mfd, 1000V, Electrolytic	CZ112	F402	Fuse 10A, 3AC	SF013
C117	470 mfd, 25V, Electrolytic	CL117	F403	Fuse 10A, 3AC	SF013
C118	470 mfd, 25V, Electrolytic	CL117	F404	Fuse 5A, 3AC (value optional)	SF012
C119	.01 mfd	CE111	F405	Fuse 7A, slo-blo	SF021
C120	.01 mfd	CE111			
C121	.01 mfd	CE111	Q1	2N5401	QP122
C122	.01 mfd	CE111	Q2	2N5550	QN128
C201	4.7 mfd, 35V, Electrolytic	CL127	Q3	2N5550	QN128
C401	680 pF, Mica	CM121	Q4	2N5550	QN128
C402	.1 mfd, Film	CC125	Q5	2N5401	QP122
C403	.1 mfd, Film	CC125	Q6	2N5401	QP122
C404	20,000 mfd, 100V, Electrolytic	CL123	Q7	2N5401	QP122
C405	20,000 mfd, 100V, Electrolytic	CL123	Q8	2N5415	QP123
C406	.01 mfd, 1000V, Disc	CZ112	Q9	NP2222A	QN124
C407	.01 mfd, 1000V, Disc	CZ112	Q10	2N5550	QN126
C408	.01 mfd, 1000V, Disc	CZ112	Q11	2N3440	QN125
			Q12	2N3440	QN125
			Q13	2N5415	QP123
IC101	5532	QB118	Q101	2N5550	QN128
IC102	5532	QB118	Q401	2SK176	QN113
IC103	5532	QB118	Q402	2SK176	QN113
IC104	LM393	QB116	Q403	2SK176	QP113
IC105	TL082	QB122	Q404	2SJ56	QP113
IC106	LM393	QB116	Q405	2SJ56	QP113
IC107	LM339	QB115	Q406	2SJ56	QP113

All resistors are 1/4 watt 5% carbon film unless otherwise noted.

		Part No.			Part No.
R1	470,000 ohms	RC044	R130	150,000 ohms	RC021
R2	1,800 ohms	RC023	R131	150,000 ohms	RC021
R3	47,000 ohms	RC043	R132	22,000 ohms	RC026
R4	47,000 ohms	RC043	R133	4,700 ohms	RC042
R5	560 ohms	RC045	R134	4,700 ohms	RC042
R6	560 ohms	RC045	R135	22,000 ohms	RC026
R7	47,000 ohms	RC043	R136	10 megohms	RC018
R8	560 ohms	RC045	R137	10 megohms	RC018
R9	560 ohms	RC045	R138	1 megohms	RC047
R10	1,800 ohms	RC023	R139	4,700 ohms	RC042
R11	1,800 ohms	RC023	R140	10,000 ohms	RC016
R12	270 ohms	RC029	R141	100,000 ohms	RC017
R13	47 ohms	RC039	R142	150,000 ohms	RC021
R14	47 ohms	RC039	R143	10 megohms	RC018
R15	47 ohms	RC039	R144	22,000 ohms	RC026
R16	47 ohms	RC039	R145	1,500 ohms, 2 W, metal film	RZ015
R17	1,800 ohms	RC023	R146	820 ohms, 20 W, wirewound	RW017
R18	1,800 ohms	RC023	R147	820 ohms, 20 W, wirewound	RW017
R19	270 ohms	RC029	R201	6,800 ohms	RC049
R20	1,800 ohms	RC023	R202	6,800 ohms	RC049
R21	82 ohms	RC053	R301	27,000 ohms, 1/2 W	RD122
R22	560 ohms	RC045	R302	39,000 ohms, 1/2 W	RD128
R23	470 ohms	RC041	R303	33,000 ohms, 1/2 W	RD126
R24	10 ohms	RC013	R401	470 ohms, 1/2W	RD117
R25	33,000 ohms	RC036	R402	470 ohms, 1/2W	RD117
R26	3,300 ohms, 1W, metal film	RZ013	R403	470 ohms, 1/2 W	RD117
R27	1,000 ohms, 1/4 W, metal film	RM021	R404	220 ohms, 1/2 W	RD114
R28	150 ohms, 1/4 W, metal film	RM013	R405	220 ohms, 1/2 W	RD114
R29	1,800 ohms	RC023	R406	220 ohms, 1/2 W	RD114
R30	82 ohms	RC053	R407	3,000 ohms, 1 W, metal film	RZ017
R31	47 ohms, 1/4 W, carbon comp.	RZ011	R408	150 ohms, 20 W, wire wound	RW016
R32	47 ohms, 1/4 W, carbon comp.	RZ011	R409	150 ohms, 20 W, wire wound	RW016
R33	220 ohms, 1/2 W	RD114			
R34	2,200 ohms, 1/2 W	RD115			
R35	10 ohms	RC013			
R36	1 ohm 10 W	RW012	L1	Inductor, 1.4µH	TA112
R37	10 ohms 5 W	RW013			
R38	28,000 ohms, 1/4 W, metal film	RM053			
R101	2,200 ohms	RC025	P1	1000 ohms trimpot	RP011
R102	2,200 ohms	RC025	P2	1000 ohms trimpot	RP011
R103	47,000 ohms	RC043	P101	50,000 ohms potentiometer	RP027
R104	47,000 ohms	RC043	P102	500 ohms trimpot	RP037
R105	100,000 ohms	RC017	P103	500 ohms trimpot	RP037
R106	100,000 ohms	RC017			
R107	11,000 ohms, metal film	RM024			
R108	39,000 ohms	RC038	TB401	Thermal breaker	SF024
R109	11,000 ohms, metal film	RM024	TB402	Thermal breaker	SF024
R110	11,000 ohms, metal film	RM024			
R111	10,700 ohms, metal film	RM056			
R112	11,000 ohms, metal film	RM024	TR401	Inrush limiter	RZ016
R113	11,000 ohms, metal film	RM024			
R114	100,000 ohms	RC017			
R115	47,000 ohms	RC043			
R116	560 ohms	RC045	TS401	Thermal sensor	SF025
R117	4.7 ohms	RC012	TS402	Thermal sensor	SF025
R118	470,000 ohms	RC044			
R119	470,000 ohms	RC044			
R120	68,000 ohms	RC052			
R121	1,800 ohms	RC023	T401	Power transformer	TA117
R122	100,000 ohms	RC017			
R123	2,200 ohms	RC025			
R124	10,000 ohms	RC016	S401	Power switch, lighted	SL114
R125	100,000 ohms	RC017	S402	Switch, slide, 3PDT	SZ117
R126	39,000 ohms	RC038			
R127	1 megohms	RC047			
R128	100,000 ohms	RC017	Fan	High speed fan 100-120VAC	AA114
R129	120,000 ohms	RC019	Fan	Alternate fan 200-240VAC	AA129