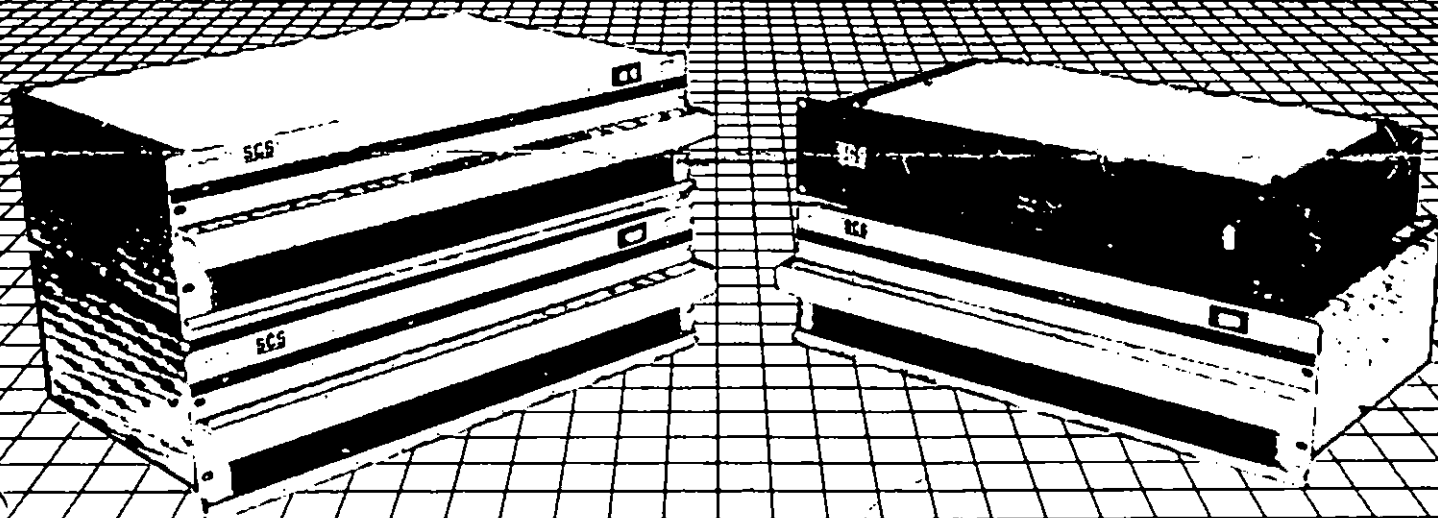




MOS-FET

Audio Amplifiers



FEATURES

MOS-FET Reliability

MOS-FET Audio Quality

Discrete Front End

Bal/unbalanced inputs

Input level controls

True Clipping indicators

5 way Gold binding posts

Over current protection

Circuit breaker protection

In-rush current limiter

Heavy duty construction

Rack mountable

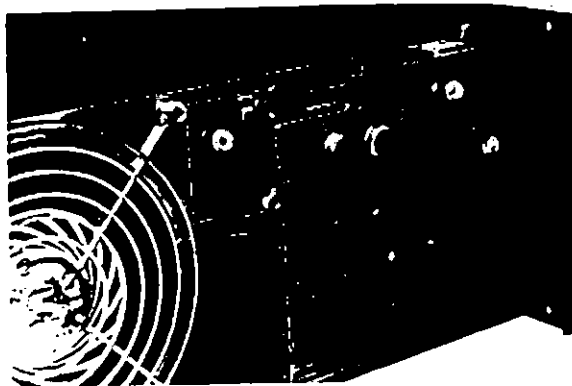
SCS/Sound Code Systems...

The legendary audio performance and reliability of MOS-FET technology is incorporated into every SCS product. Designed for the professional studio, concert sound and permanent installations, SCS Audio Amplifiers can deliver up to 1200 watts of high-fidelity power continuously, 24 hours a day. No threat of thermal shutdown because the output devices have over-heated, thanks to MOS-FET technology and superior heat sink design. The audio performance is world class, perfect for the most demanding studios in this age of digital recordings. Robust construction insures they will withstand the punishment of life on the road, and more. All this and a Two Year Warranty that you may never need.

...The Ultimate No-Frills Amplifier

FUNCTIONAL TOP COVER

- Rear Racking Points
- Rear Panel Protection
- Vertical Resting Place



CONCEPT: SCS Audio Amplifiers are designed to be the best value in the pro audio market. Every detail is carefully thought out. More power, better reliability and audible superiority is achieved with fewer parts in a less complex package.

HI-FI PERFORMANCE: How do they sound? Excellent! MOS-FET amplifiers are the new sweethearts of the home audiophile - their reproduction characteristics are most similar to that of the vacuum tube amplifier.

Fully discrete circuitry means transient-free "turn-on" and "turn-off" (no need for relays), and superior signal to noise specs. The dual differential input stage, using a proprietary thick-film hybrid (no op-amps anywhere), helps drive the output at a 70v/microsecond slew rate. Only the finest capacitors made are used in the audio chain, proof that a no-compromise attitude influenced the design. Our large computer grade filter capacitor store enough current to supply up to 4dB of dynamic headroom in the low frequencies, where you need it the most.

SIMPLICITY; THE KEY TO RELIABILITY: The high reliability of all SCS products is achieved in part by using MOS-FET output devices. MOS-FETs allow for a less complicated design because they are self-protecting, as opposed to the well known self-destructive tendencies of bipolar transistors. Because of the MOS-FET's stability, reliability and current capabilities, you can push them harder, longer and safer.

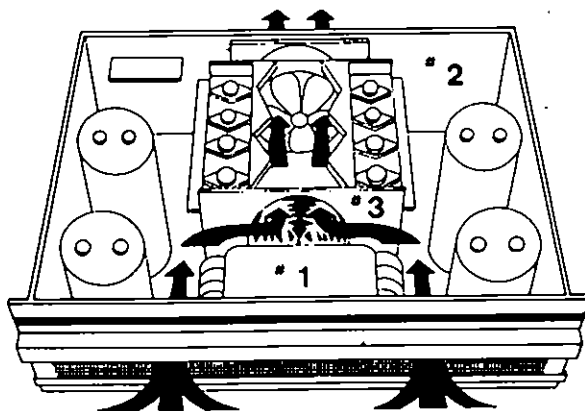
RACK N' ROAD-ABILITY: Intelligent layout & design are responsible for the uncommon strength found in all SCS amplifiers. The transformer, being the heaviest single part of the amplifier, is mounted directly to the front panel. This balances the weight evenly between both rack rails; therefore, the leverage applied to all support components is minimized.

All fan-cooled SCS amplifiers have the advantage of a special extruded aluminum front panel which has strength on all axes (flat panels have strength in one-dimension only), and also serves as a handle. The heatsink attaches at the rear and bottom of the chassis, forming a solid right angle brace.

PEACE OF MIND: In addition the features mentioned above are the automatic two speed fan; rated for 10 years continuous operation - input level controls - In-rush current limiter: allows simultaneous start-up of multiple amplifiers - Circuit breaker: simply push to reset - and our exclusive Over Current Protection, which provides protection from a dead short condition ruining your amplifier. These features assure you years of trouble-free service under the most abusive conditions.

FORCED AIR COOLING

- Cool air enters amp through front panel filters
- Heat is removed from chassis
- Air cools 644 square inch heatsink
- Heat exits rear of amplifier.



AVERAGE WEIGHT DISTRIBUTION

- #1 Power Transformer 39%
- #2 Chassis & Front Panel 28%
- #3 Heatsink 17%
- #4 Misc. Parts 16%

Specifications:	Model 2150A	Model 2350A	Model 2450A	Model 2600A
Power:	100w/8 ohms	260w/8 ohms	275w/8 ohms	350w/8 ohms
	150w/4 ohms	350w/4 ohms	450w/4 ohms	600w/4 ohms
	300w/8 ohms	700w/8 ohms	900w/8 ohms	1200w/8ohms
(mono-bridged)				
Input				
Sensitivity:	8v rms*	1.3v rms*	1.3v rms*	1.5v rms*
Input Jacks:	1/4" TRS	1/4" TRS	1/4" & XLR	1/4" & XLR
Auto mono-bridge:	Yes	Yes	No	No
Fan Cooling:	No	Yes	Yes	Yes
Front Panel:	3.5" x 19"	5.25" x 19"	5.25" x 19"	5.25" x 19"
Depth:	10.25"	12.25"	12.25"	12.25"
Power Supply:	Single 56v	Single 82v	Dual 83v	Dual 95v
Weight:	24 lbs.	38 lbs.	44 lbs.	49 lbs.
Power	125vac 60hz	125vac 60hz	125vac 60hz	125vac 60hz
Requirements:	5 amps	8 amps	12 amps	15 amps

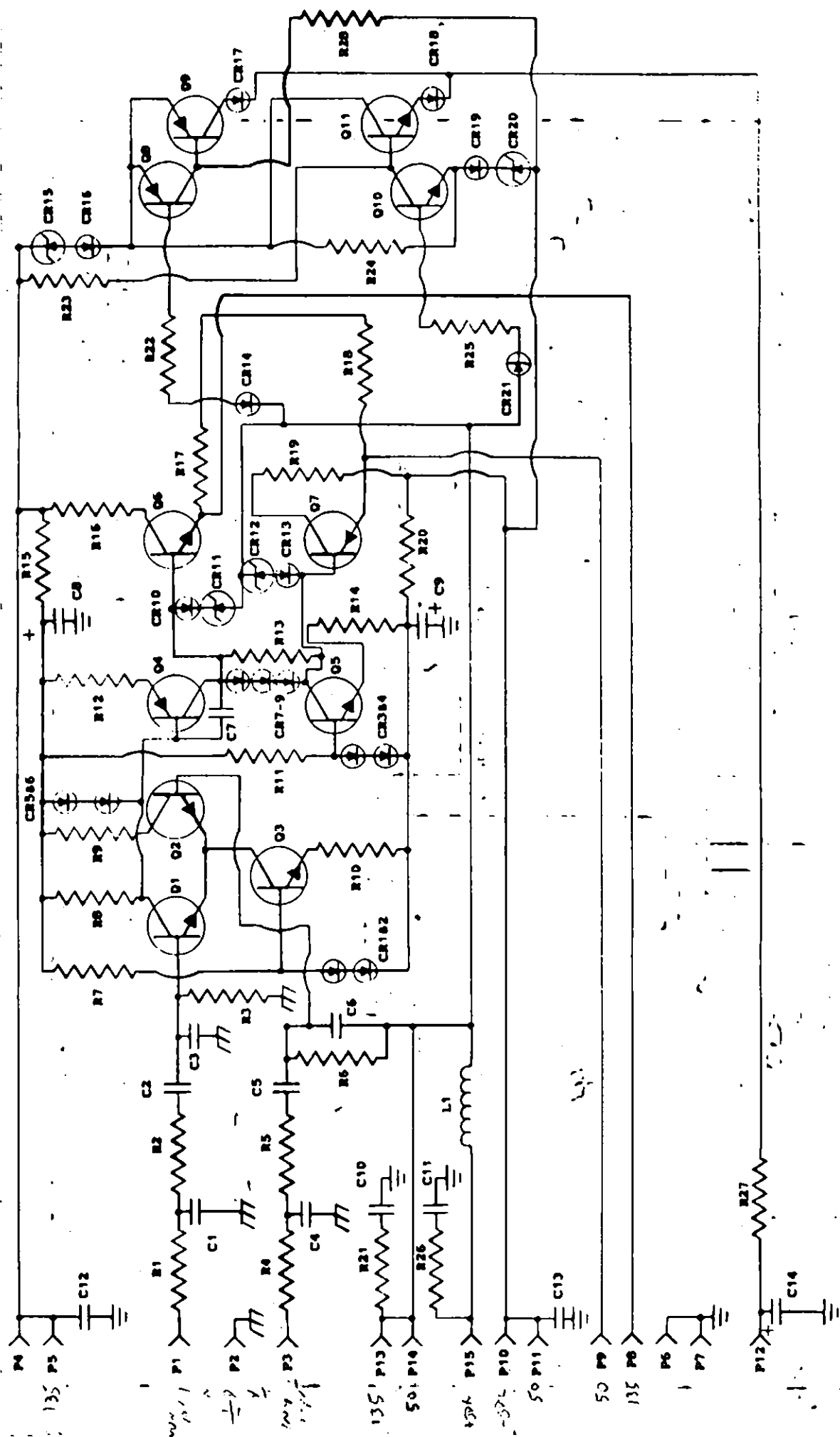
The following specifications will be found in all SCS amplifiers:

Distortion:	.01% THD/1KHZ*	Freq Response:	+0/-3db 10hz-175Khz
	-.025% IMD*		+0/-1db 10hz-90Khz
S/N Unweighted:	95dB*	Damping Factor:	350
Input	25kohms/unbalanced	Clipping	LED sensing positive
Impedance:	7kohms/balanced	Indicators:	& negative output
Slew Rate:	70v/microsecond	Output	5-way, gold plated
*Full Power/8 ohms		Jacks:	binding posts

Two Year Extended Warranty

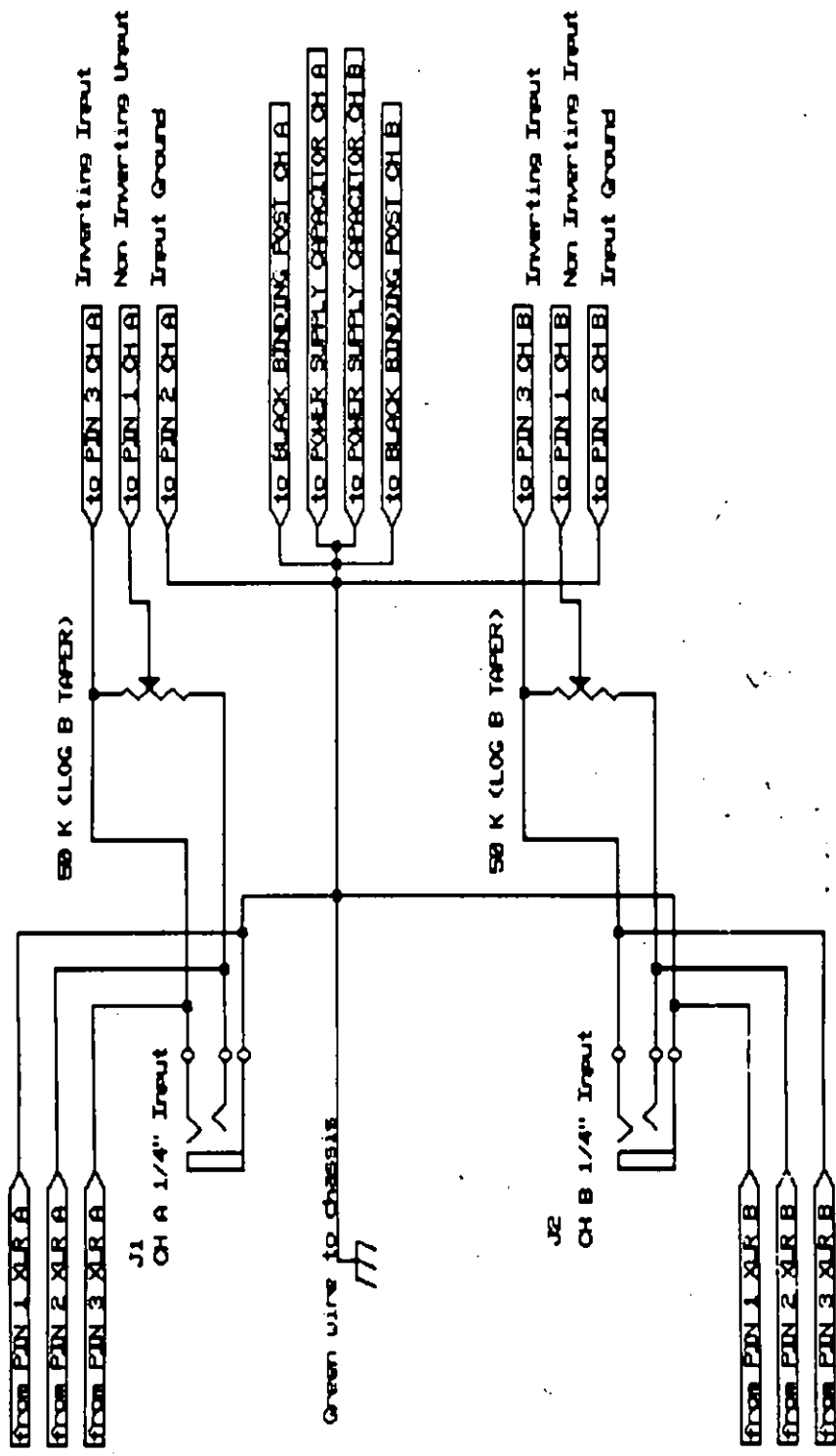


SOUND CODE SYSTEMS, INC.
P.O. BOX 2198
GARDEN GROVE, CA 92642
(714) 554-0903

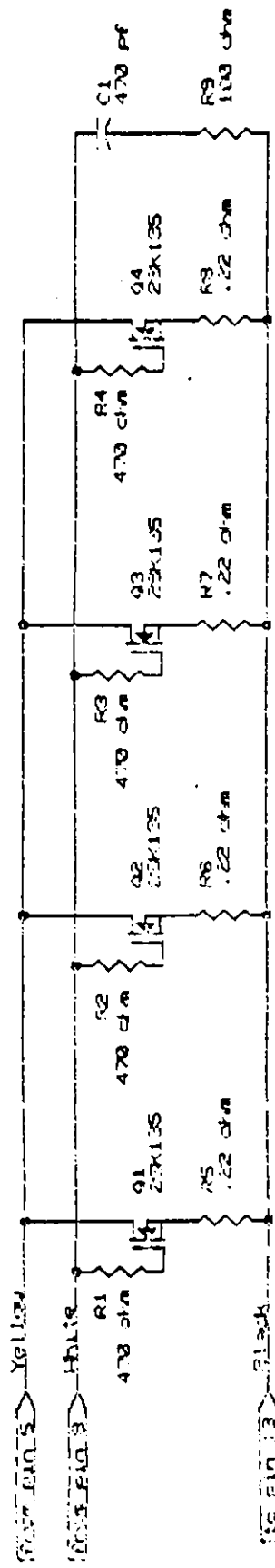


Sound Code Systems, Incorporated

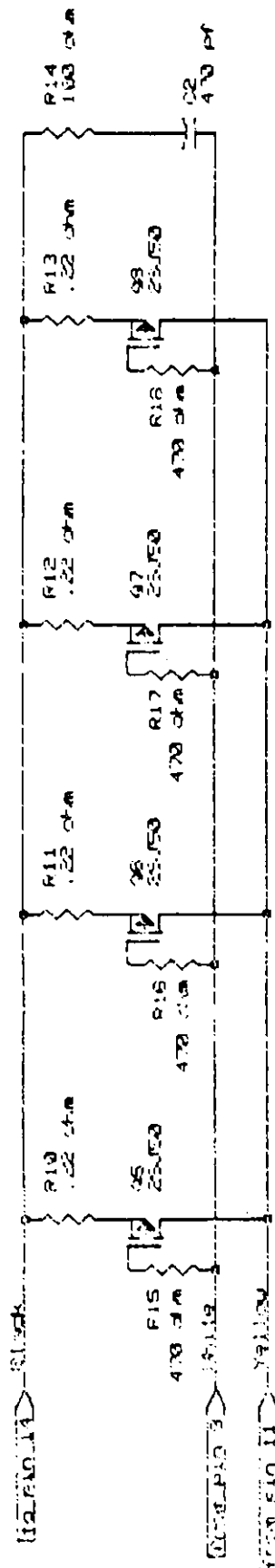
Part# 5.25 Rev L



Positive heat sink board (top)



Negative heat sink board (bottom)



NOTES:

- All .22 ohm resistors are 1 watt Metal Oxide type
- All other resistors are 1/2 watt carbon film 5%
- C1 & C2 are 100 volt axial ceramic NFO

Sound Code Systems, Incorporated	
Slip Document Number	820
A Model 2450A heat sink assembly	
Date: July 24, 1963	Sheet 1 of 1

<u>Designator</u>	<u>Description</u>	<u>Notes</u>
R1, R4	1.3K ohm $\frac{1}{2}$ W CF 5%	
R2, R5	180 ohm $\frac{1}{2}$ W CF 5%	
R3, R6	51K ohm $\frac{1}{2}$ W CF 5%	
R7, R11	51K ohm 1W MOF 5%	
R8, R9	2.2K ohm $\frac{1}{2}$ W CF 5%	
R10	300-360 ohm $\frac{1}{2}$ W CF 5%	FACTORY SELECTED VALUE
R12, R15, R20	91 ohm $\frac{1}{2}$ W CF 5%	
R16, R19	100 ohm $\frac{1}{2}$ W MOF 5%	
R14	120 ohm $\frac{1}{2}$ W CF 5%	
R13	390 ohm $\frac{1}{2}$ W CF 5%	
R17, R18	470 ohm $\frac{1}{2}$ W CF 5%	
R22-R25, R28	100K ohm $\frac{1}{2}$ W CF 5%	
R20, R26	20 ohm 3W MOF 5%	
R27	5.1K ohm $\frac{1}{2}$ W CF 5%	
C1, C4	200 pf 500V dipped mica 5%	
C2, C5	8 mfd 100V axial polyester 5%	SCS Custom part
C3, C6, C7	10 pf 500V dipped mica $\pm \frac{1}{2}$ pf	
C8, C9	2.2 mfd 100V axial electrolytic	
C10-C13	.1 mfd 400V radial polyester 5%	
C14	4.7 mfd 35V axial electrolytic	
CR1-CR10, CR13, CR14, CR16, CR19, CR21	1N4150	Motorola preferred
CR11, CR12, CR15, CR20	1N4740A	
CR17, CR18	1N4005	
Q1-Q3, Q5, Q10, Q11	Motorola 2N5551	MAKE NO SUBSTITUTIONS - Q1 & Q2 matched
Q4	Motorola MPSW92	MAKE NO SUBSTITUTIONS
Q6	Motorola MPSU10	MAKE NO SUBSTITUTIONS
Q7	Motorola MPSU60	MAKE NO SUBSTITUTIONS
Q8, Q9	Motorola 2N5401	MAKE NO SUBSTITUTIONS
L1	6 micro henry .013 ohm DCR	

NOTE: P1 - P15 is .187" fast-on tabs across top of board numbered from left to right as facing component side, with mounting feet down.

IMPORTANT!

Servicing of any component

on this board is contrary to

recommended procedure.

2SJ55, 2SJ56

SILICON P-CHANNEL MOS FET

LOW FREQUENCY POWER AMPLIFIER
Complementary Pair with 2SK175, 2SK176

■ FEATURES

- High Power Gain.
- Excellent Frequency Response.
- High Speed Switching.
- Wide Area of Safe Operation.
- Enhancement-Mode.
- Good Complementary Characteristics.
- Equipped with Gate Protection Diodes.

■ ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

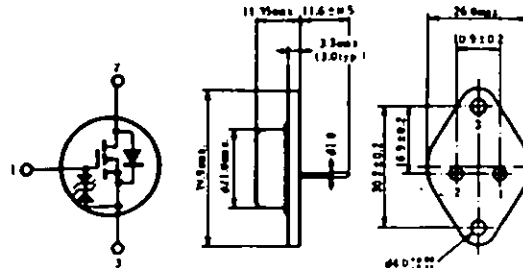
Item	Symbol	Rating		Unit
		2SJ55	2SJ56	
Drain-Source Voltage	V_{DS}	-180	-200	V
Gate-Source Voltage	V_{GS}	± 20		V
Drain Current	I_D	-8		A
Body-Drain Diode Reverse Drain Current	I_{DS}	-8		A
Channel Dissipation	P_{ch}	125		W
Channel Temperature	T_{ch}	150		$^\circ\text{C}$
Storage Temperature	T_{stg}	$-65 \sim +150$		$^\circ\text{C}$

*Value at $T_a=25^\circ\text{C}$

■ ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{DS(BR)}$	$I_D=-10\text{mA}, V_{GS}=10\text{V}$	-180	—	—	V
			-200	—	—	V
Gate-Source Breakdown Voltage	$V_{GS(BR)}$	$I_D=\pm 100\mu\text{A}, V_{DS}=0$	± 20	—	—	V
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D=-100\text{mA}, V_{DS}=-10\text{V}$	-0.15	—	-1.45	V
Drain-Source Saturation Voltage	$V_{DS(sat)}$	$I_D=-8\text{A}, V_{GS}=0^*$	—	—	-12	V
Forward Transfer Admittance	$ y_{fs} $	$I_D=-3\text{A}, V_{DS}=-10\text{V}^*$	0.7	1.0	1.4	S
Input Capacitance	C_{iss}	$V_{GS}=5\text{V}, V_{DS}=-10\text{V}, f=1\text{MHz}$	—	1200	—	pF
Output Capacitance	C_{oss}		—	700	—	pF
Reverse Transfer Capacitance	C_{rss}		—	60	—	pF
Turn-on Time	t_{on}	$V_{DS}=-30\text{V}, I_D=-4\text{A}$	—	320	—	ns
Turn-off Time	t_{off}		—	120	—	ns

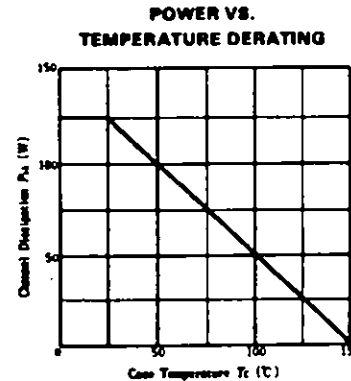
*Pulse Test



(JEDEC TO-3)

1. Gate
2. Drain
3. Source
(Case)

(Dimensions in mm)



2SK175, 2SK176

SILICON N-CHANNEL MOS FET

LOW FREQUENCY POWER AMPLIFIER
Complementary pair with 2SJ55, 2SJ56

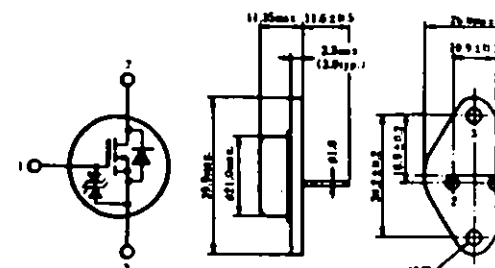
■ FEATURES

- High Power Gain.
- Excellent Frequency Response.
- High Speed Switching.
- Wide Area of Safe Operation.
- Enhancement-Mode.
- Good Complementary Characteristics.
- Equipped with Gate Protection Diodes.

■ ABSOLUTE MAXIMUM RATINGS ($T_a=25^\circ\text{C}$)

Item	Symbol	Rating		Unit
		2SK175	2SK176	
Drain-Source Voltage	V_{DS}	180	200	V
Gate-Source Voltage	V_{GS}	± 20		V
Drain Current	I_D	8		A
Body-Drain Diode Reverse Drain Current	I_{DS}	8		A
Channel Dissipation	P_{ch}	125		W
Channel Temperature	T_{ch}	150		$^\circ\text{C}$
Storage Temperature	T_{stg}	$-55 \sim +150$		$^\circ\text{C}$

*Value at $T_a=25^\circ\text{C}$

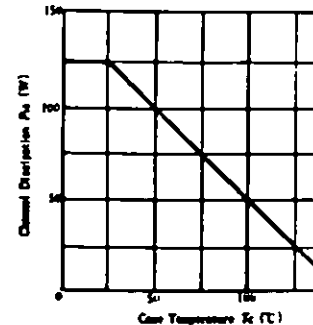


(JEDEC TO-3)

1. Gate
2. Drain
3. Source
(Case)

(Dimensions in mm)

POWER VS. TEMPERATURE DERATING

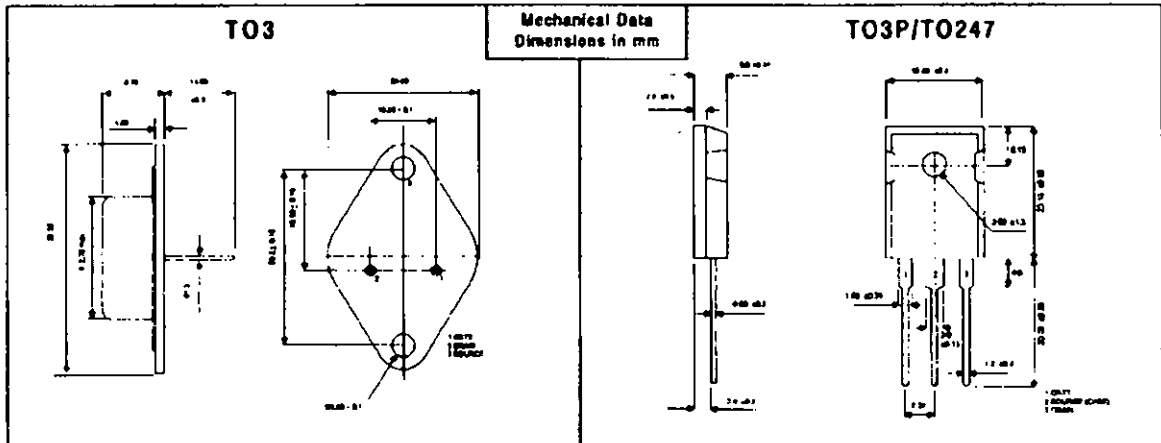


■ ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{DS(BR)}$	$I_D=10\text{mA}, V_{GS}=-10\text{V}$	180	—	—	V
			200	—	—	V
Gate-Source Breakdown Voltage	$V_{GS(BR)}$	$I_D=\pm 100\mu\text{A}, V_{DS}=0$	± 20	—	—	V
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D=100\text{mA}, V_{DS}=10\text{V}$	0.15	—	1.45	V
Drain-Source Saturation Voltage	$V_{DS(sat)}$	$I_D=8\text{A}, V_{GS}=0^*$	—	—	12	V
Forward Transfer Admittance	$ y_{fs} $	$I_D=3\text{A}, V_{DS}=10\text{V}^*$	0.7	1.0	1.4	S
Input Capacitance	C_{iss}	$V_{GS}=-6\text{V}, V_{DS}=10\text{V}, f=1\text{MHz}$	—	800	—	pF
Output Capacitance	C_{oss}		—	600	—	pF
Reverse Transfer Capacitance	C_{rss}		—	15	—	pF
Turn-on Time	t_{on}	$V_{DS}=30\text{V}, I_D=4\text{A}$	—	250	—	ns
Turn-off Time	t_{off}		—	90	—	ns

*Pulse Test

*Pulse Test



ABSOLUTE MAXIMUM RATING (T case = 25°C unless otherwise stated)		(EC-10)18	(EC-10)20
V _{DSX}	Drain - Source Voltage	100V	200V
V _{GSS}	Gate - Source Voltage		±14V
I _D	Continuous Drain Current		8A
I _{D(PK)}	Body Drain Diode		8A
P _D	Total Power Dissipation @ (T case = 25°C)		125W
T _{stg}	Storage Temperature Range		-55 to 150°C
T _j	Maximum Operating Junction Temperature		150°C
R _{θJC}	Thermal Resistance Junction - case		1.0°C/W

STATIC CHARACTERISTICS (T case = 25°C unless otherwise stated)

Characteristic	Test Conditions	MIN	TYP	MAX	UNIT
BV_{DSX} Drain - Source Breakdown Voltage	$V_{GS} = -10V$ $I_D = 10\mu A$	(EC-10)16 (EC-10)20	100 200		V
BV_{DSS} Gate - Source Breakdown Voltage	$V_{DS} = 0$ $I_G = 1100\mu A$	± 10			V
$V_{GS(Off)}$ Gate-Source Cut-Off Voltage	$V_{DS} = 10V$ $I_D = 100\mu A$	0.10		1.5	V
$V_{DS(SAT)}$ Drain - Source Saturation Voltage	$V_{GD} = 0$ $I_D = 1A$			12	V
I_{DSX} Drain - Source Cut - Off Current	$V_{GS} = -10V$ $V_{DS} = 100V$ (EC-10)16 $V_{DS} = 200V$ (EC-10)20			10 10	μA
Y_{fs} Forward Transfer Admittance	$V_{DS} = 10V$ $I_D = 1A$	0.7		2	S

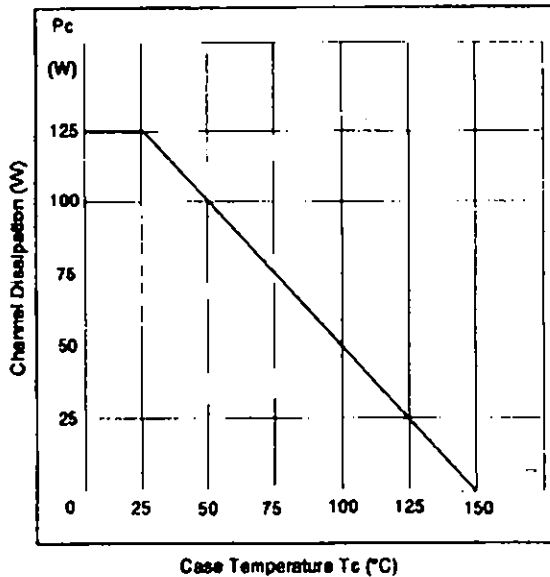
DYNAMIC CHARACTERISTICS (T case = 25°C unless otherwise stated)

Characteristic	Test Conditions	N-Channel	P-Channel	UNIT
C_{iss} Input Capacitance	$V_{DS} = 10V$	500	700	
C_{oss} Output Capacitance	$f = 1MHz$	600	200	pF
C_{res} Reverse Transfer Capacitance		10	25	
t_{on} Turn-on Time	$V_{DS} = 20V$	100	120	ns
t_{off} Turn-off Time	$I_D = 6A$	60	60	

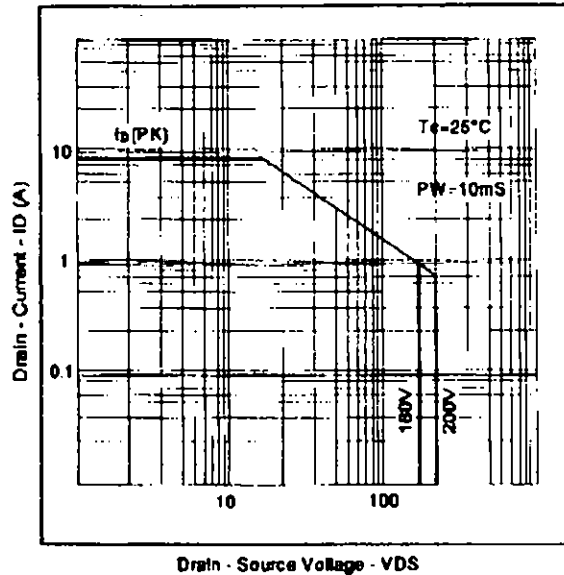
*Pulse Test: Pulse width = 300 μ s. Duty Cycle = 2%

Typical Characteristics for 125W Devices.

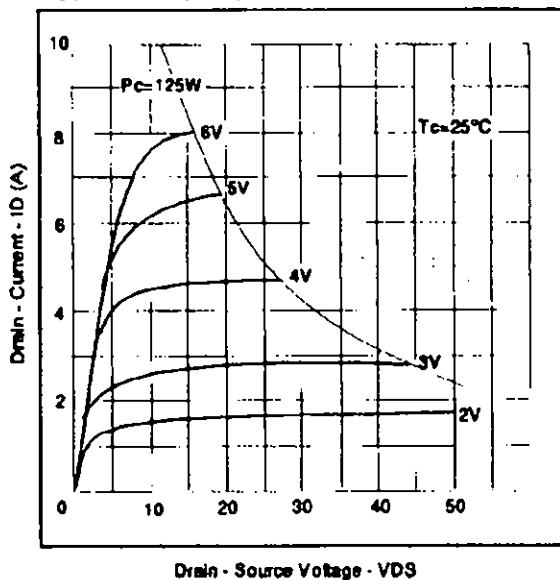
Power vs. Temperature Derating



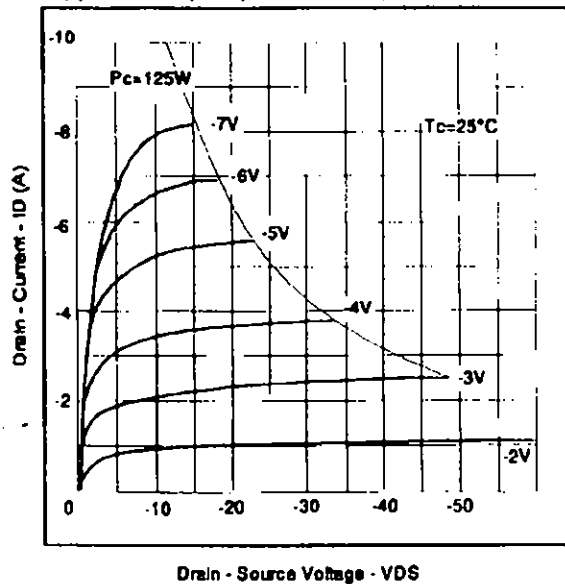
Maximum Safe Operating Area



Typical Output (N-Channel)

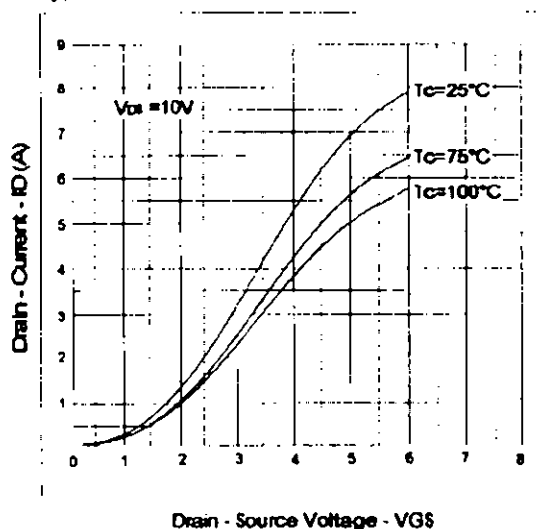


Typical Output (P-Channel)

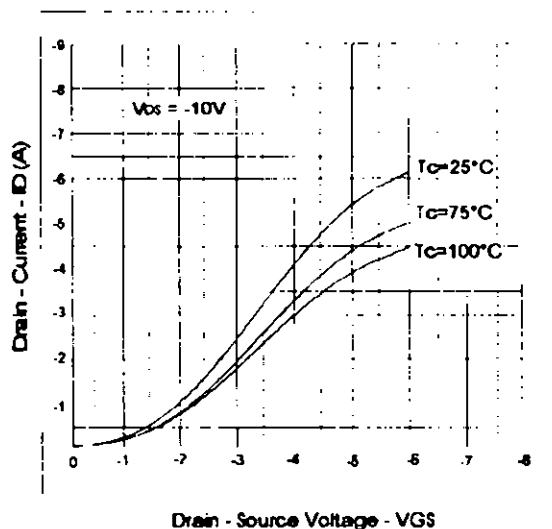


Typical Characteristics for 125W Devices (cont.)

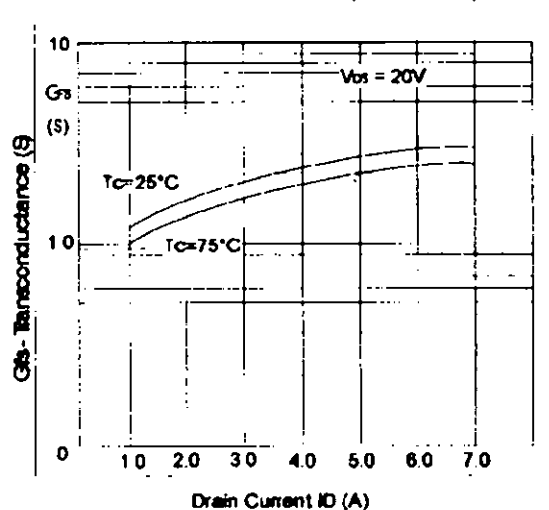
Typical Transfer Characteristics (N-Channel)



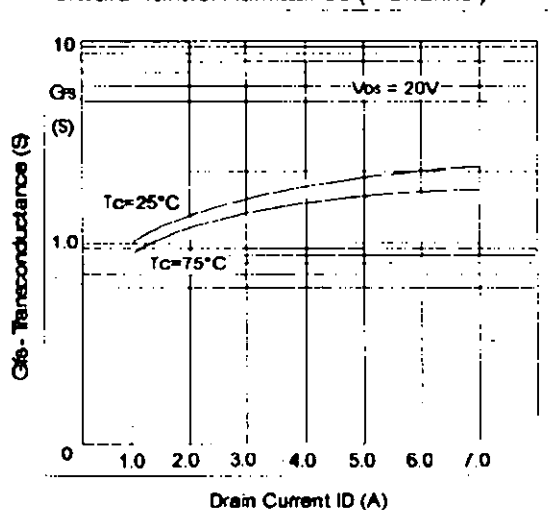
Typical Transfer Characteristics (P-Channel)



Forward Transfer Admittance (N-Channel)



Forward Transfer Admittance (P-Channel)



SCS

Sound Code Systems

SOUND CODE SYSTEMS

~~P.O. BOX 2198~~

GARDEN GROVE, CA 92642

Telephone: (714) ~~555-5643~~ -0903

FAX: (714) 554-5643

Jeff
BENCE

SCS

21040 Victory Blvd.

Suite #204

Woodhills, CA 91367

818/888-9070

Factory

10822 Forbes Ave.

Dear Reader,

Thank you for your interest in Sound Code Systems' Amplifiers. Here is the literature you requested. Hopefully these information sheets will answer some questions for you. At the same time, they may also raise a few questions. That's when you can give us a call or see your nearest SCS Dealer.

Regardless of your need, we hope that you will seek out an SCS Dealer to evaluate our product. You'll hear tighter low end response with better definition. Vocals will sound much clearer with better high frequency response. The detail and accuracy in your sound will come about naturally, often without the need for equalization. You will hear the improvement immediately. Again, thank you for your interest in Sound Code Systems.

The suggested list prices for SCS products are:

2150A	\$659.00
2200S	\$1149.00
2350A	\$829.00
- 2450A	\$999.00
2600A	\$1199.00

3 yr. warranty

Some dealers in your area are:

2600A \$910 new
CREATIVE AUDIO MARKETING
1391 Willow Point Court
Marietta, GA 30068
(404) 642-7827 *GARY*

BOARDMAN LIGHT & SOUND
Hwy 276 at Tugalo Route 4, #4
Travelers Rest, SC 29690
(803) 836-8000 *Russ on Pail*

AUDIO COMMUNICATION SYSTEMS
3935-A2 Sunset Blvd *2600A \$750 used*
West Columbia, SC 29169
(803) 794-1320 *FAX 303/739-2365*

SCS

Sound Code Systems

SOUND CODE SYSTEMS

P.O. BOX 2198

GARDEN GROVE, CA 92642

Telephone: (714) 554-0903

FAX: (714) 554-5643

**Subject: Circuit board repair / replacement
Revision (I) & earlier or Revision (J) & later**

As of October 1st, 1989, please be advised that SCS will no longer accept inoperative printed circuit boards for repair or update. Our policy is; a circuit board from a unit under warranty will be replaced at no charge and non-warranty boards will be replaced at a cost of \$35.00 each.

49.50 ea.

Please note: When ordering replacement driver boards, you will need to know the revision of the board you are replacing. The revision may be determined by the serial number of the amplifier being repaired. Any amplifier with a serial number of 862145 or lower will need a Revision I or earlier board [SCS part# PCB 5.25 (I)]. Amplifiers with a serial number of 862146 or higher will need a Revision J or later board [SCS part# PCB 5.25 (J)]. **DO NOT INTERCHANGE THESE BOARDS.**

Thank You,

SCS, Inc

MO. 2450A

Barbann

S/N 872402

MO. 2450A

~~SE 256~~
~~SE 256~~

{ 2SK 135 - 4ea./ch 40.78
2SJ 50 - 4ea./ch

white jumper

two small diodes

small brown capacitor

5 watt Red, Black, Black (20-w)

{ MO. 2600A

{ 2SK 136

{ 2SJ 56