

## SDV1025-600: 600W RMS, CLASS D, AUDIO AMPLIFIER MODULE

### FEATURES

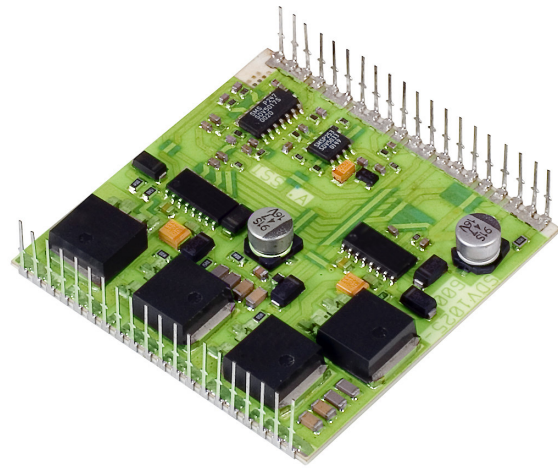
- **HIGH POWER: 600W RMS<sup>1</sup>**
- **HIGH EFFICIENCY >90%**
- **HIGH SWITCHING FREQUENCY: 330KHz.**
- **LOW DISTORTION: c. 0.5% THD OPEN LOOP**
- **SIMPLE POWER SUPPLY REQUIREMENT<sup>2</sup>**
- **THERMALLY EFFICIENT PACKAGE:**
- **LOW NOISE: NOISE FLOOR typ. 90dB DOWN<sup>3</sup>**
- **ONBOARD TEMPERATURE MONITOR**
- **DRIVES 16Ω, 8Ω AND 4Ω SPEAKERS**
- **OTHER POWER OPTIONS AVAILABLE<sup>1</sup>**
- **LOW COST**
- **LIGHTWEIGHT**
- **CUSTOM AMPLIFIER DESIGNS AVAILABLE**

#### NOTES

- 1) Other power options include 250W and 150W. Alternately, custom power levels can be produced.
- 2) Companion switch-mode PSU unit available
- 3) Assumes minimisation of external noise coupling and measured in audio band only.
- 4) Contact EcoTec Systems Ltd. for more details of these options
- 5) 8Ω and 2Ω speaker variant available

### APPLICATIONS

- **AUDIO POWER AMPLIFIER**
- **ACTIVE SPEAKER SYSTEMS**
- **ACTIVE SONAR SYSTEMS**
- **NOISE CANCELLATION SYSTEMS**
- **MOTOR / MAGNET DRIVE MODULES**
- **POWER CONVERSION**
- **UPS - SINE WAVE INVERTER**



### DESCRIPTION

The SDV1025-600 is a complete audio power amplifier module. The module contains power transistors, drive electronics, and control circuitry. Only a power supply, decoupling capacitors and output filter must be added to produce a stand-alone audio amplifier. Modules can be combined together and operated from a suitable power supply to produce a stereo amplifier. The module is optimised to drive a 4Ω load (16Ω, 8Ω and 2Ω optimised versions are available).

The unit is available in the module format or mounted onto an interface PCB which includes the circuitry to derive the control voltages, the output filter, turn-on/turn-off controls and short-circuit protection.

Please contact EcoTec Systems Ltd. for a confidential discussion of your requirements and further application information.

# SPECIFICATIONS

## Absolute maximum ratings



|  |                     |
|--|---------------------|
| Rail voltage, $V_{RS}$ .....                 | 140 V               |
| Maximum output power .....                   | 900W <sub>rms</sub> |
| Control voltage $+V_L$ .....                 | +5.5 V              |
| Control voltage $-V_L$ .....                 | -5.5 V              |
| Operating free air temperature, $T_A$ .....  | -10°C to 40°C       |
| Storage temperature range, $T_{stg}$ .....   | -40°C to 70°C       |
| PCB solder pad temperature for 30 secs ..... | 260°C               |

Stresses beyond those listed under absolute maximum ratings may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated “recommended operating conditions” is not implied. Maximum power requires suitable cooling of the amplifier module.

## Recommended operating conditions

|                                       | MIN   | TYP  | MAX   | UNIT             |
|---------------------------------------|-------|------|-------|------------------|
| RAIL VOLTAGE, $V_{RS}$                | 0     | 75   | 125   | V                |
| OUTPUT POWER                          |       | 600  | 750   | W                |
| POWER SUPPLY VOLTAGE, $+V_L$          | 4.75  | 5    | 5.25  | V                |
| POWER SUPPLY VOLTAGE, $-V_L$          | -4.75 | -5   | -5.25 | V                |
| POWER SUPPLY VOLTAGE, $V_{drv}$       | 10    | 12   | 18    | V                |
| AUDIO INPUT, $S_2$                    | 0     |      | +3    | V <sub>p-p</sub> |
| MODULATION FACTOR                     | 0     | 0.95 | 1     |                  |
| OPERATING FREE AIR TEMPERATURE, $T_A$ | 10    |      | 40    | °C               |

## Electrical characteristics at a free air temperature of 25°C

| PARAMETER   | NOTES/TEST CONDITIONS                  | VALUE           |     |     | UNIT       |
|---|--|-----------------|-----|-----|------------|
|   |  | $V_{RS} = 65 V$ |     |     |            |
|   |  | MIN             | TYP | MAX |            |
| $R_{IN}$ AUDIO INPUT IMPEDANCE<br>(Other input options available) |  |                 | 10K |     | K $\Omega$ |
| $I_{L+}$ POWER SUPPLY CURRENT $+V_L$                              | $R_L = 4\Omega$                        |                 | 10  | 15  | mA         |
| $I_{L-}$ POWER SUPPLY CURRENT $-V_L$                              | $R_L = 4\Omega$                        |                 | 5   | 10  | mA         |
| $I_{drv}$ POWER SUPPLY CURRENT $V_{drv}$                          |  |                 | 80  | 100 | mA         |
| $I_{RS}$ POWER RAIL CURRENT                                       | $R_L = 4\Omega$                        |                 | 14  |     | Arms       |
| $P_{RR}$ ALLOWABLE POWER RAIL RIPPLE                              | SEPARATE POWER SUPPLY MODULE AVAILABLE |                 | 2   |     | %          |
| $r_O$ OUTPUT RESISTANCE   | $R_L = 4\Omega$                        |                 |     | 100 | m $\Omega$ |
| SNR SIGNAL TO NOISE RATIO   | $R_L = 4\Omega$ (in audio band)        |                 | -90 |     | dB         |
| $f_{sw}$ SWITCHING FREQUENCY                                      |  |                 | 330 |     | KHz        |

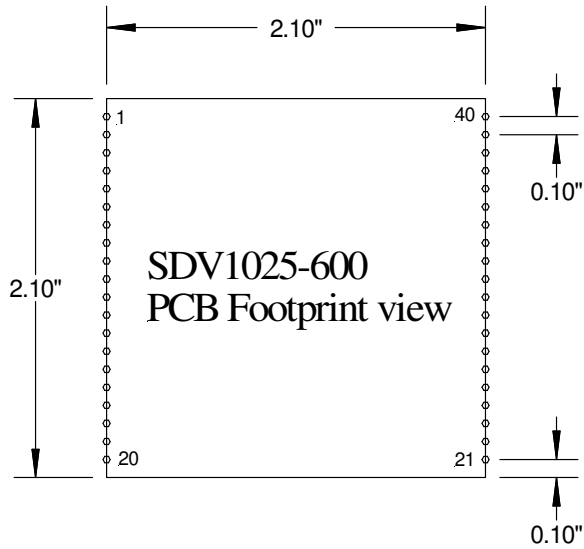
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# MECHANICAL DETAILS

(All dimensions in Inches)



## PCB Footprint



## Pin Assignments

| Pin Number | Designator |  | Pin Number | Designator |
|------------|------------|--|------------|------------|
| 1          | GND        |  | 40         | GND        |
| 2          | GND        |  | 39         | GND        |
| 3          | GND        |  | 38         | GND        |
| 4          | Audio      |  | 37         | OUT2       |
| 5          | GND        |  | 36         | OUT2       |
| 6          | GND        |  | 35         | OUT2       |
| 7          | VDD+       |  | 34         | GND        |
| 8          | VDD+       |  | 33         | VRS        |
| 9          | VDD+       |  | 32         | VRS        |
| 10         | GND        |  | 31         | VRS        |
| 11         | Temp       |  | 30         | GND        |
| 12         | Temp       |  | 29         | GND        |
| 13         | VDD-       |  | 28         | GND        |
| 14         | VDD-       |  | 27         | OUT1       |
| 15         | VDD-       |  | 26         | OUT1       |
| 16         | GND        |  | 25         | OUT1       |
| 17         | SD         |  | 24         | GND        |
| 18         | VDRV       |  | 23         | VRS        |
| 19         | VDRV       |  | 22         | VRS        |
| 20         | VDRV       |  | 21         | VRS        |

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