ETS

CLASS D AUDIO AMPLIFIER
POWER AMPLIFIER MODULE

SDV1035-100: 100W RMS, CLASS D, AUDIO POWER AMPLIFIER

FEATURES

- **HIGH POWER: up to 100W RMS[1]**
- **HIGH EFFICIENCY: typically 90%**
- **HIGH SWITCHING FREQUENCY: 330KHz.**
- **LOW DISTORTION**
- **INCLUDES POWER SUPPLY**
- **REMOTE VOLUME CONTROL**
- **FULL SHORT-CIRCUIT PROTECTION**
- **THERMAL PROTECTION**
- **START-UP, SHUTDOWN SYCHRONISATION**
- **ONBOARD TEMPERATURE MONITOR**
- **DRIVES 16Ω, 8Ω, 4Ω and 2ΩSPEAKERS**
- **COMPACT**
- **LOW COST**
- **LIGHTWEIGHT**
- **ALTERNATIVE CONFIGURATIONS AVAIALBLE[4]**
- **CUSTOM DESIGNS AVAILABLE**

NOTES

1) **Other power options include 600W and 300W. Alternately, custom power levels can be produced.**
2) **Plate mount options available subject to MOQ**
3) **Assumes minimisation of external noise coupling and measured in audio band only.**
4) **Contact Ecotec Systems Ltd. for more details of these options**

APPLICATIONS

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

DESCRIPTION

The SDV1035-100 is a complete class D amplifier module, which contains the SDV1025-300 class D amplifier module. The unit includes a mains power supply; an input pre-amplifier; a sophisticated output filter; full short-circuit protection and turn-on/off synchronisation to prevent inadvertent outputs at start-up/shutdown. This module is designed to give a simple, user friendly introduction to the Ecotec Systems class D amplifier range. Connection of a 10KΩ potentiometer to the remote volume connection (DC sensing) gives full input level control. Details of the various interface board functions are described below.

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

SPECIFICATIONS

Absolute maximum ratings

Operating free air temperature, T_A …..…… -10°C to 40°C
Storage temperature range, T_{stg} …….. -40°C to 70°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.

Recommended operating conditions

	MIN	TYP	MAX	UNIT
MAINS VOLTAGE, V_{RS}	206	230	254	Vac
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 V_{RS} = 55 V			UNIT
			MIN	TYP	MAX	
R_{IN}	AUDIO INPUT IMPEDANCE (Other input options available)			100		KΩ
I_{RS}	MAINS CURRENT	R_L = 8Ω		0.4		Arms
P_{Cont}	POWER OUT (CONTINUOUS)	R_L = 8Ω or 4Ω, f = 1KHz, 5 minute full power test		100		Wrms
P_{music}	POWER OUT (MUSIC SIGNALS)	R_L = 4Ω, monitor peak rms music levels over 5 minute test		200		Wrms
SNR	SIGNAL TO NOISE RATIO	R_L = 8Ω (in audio band)		-90		dB
f_{SW}	SWITCHING FREQUENCY			330		KHz
t_{PD}	PROPAGATION DELAY (POWER OUTPUT STAGE)	R_L = 8Ω		100		ns

OUTPUT POWER

When discussing the output power of a class D power amplifier an important distinction must be made between the power levels when the amplifier is run continuous with a sine wave input into the specified load or if the power amplifier is used with non-sinusoidal (music input). The SDV1035-100 is designed to provide 100Wrms into an 8Ω or 4Ω load with a sine wave input signal operating continuously. Each unit produced is given a 5 minute full power soak test as part of the test regime.

For non-sinusiodal signals the unit will produce up to 200W rms into 4Ω with music signals. This is best measured by connecting the unit to a load and playing music into the modules. Using a storage oscilloscope or equivalent instrument the rms power due to the peaks of the music signal can be determined.

THERMAL EFFICIENCY

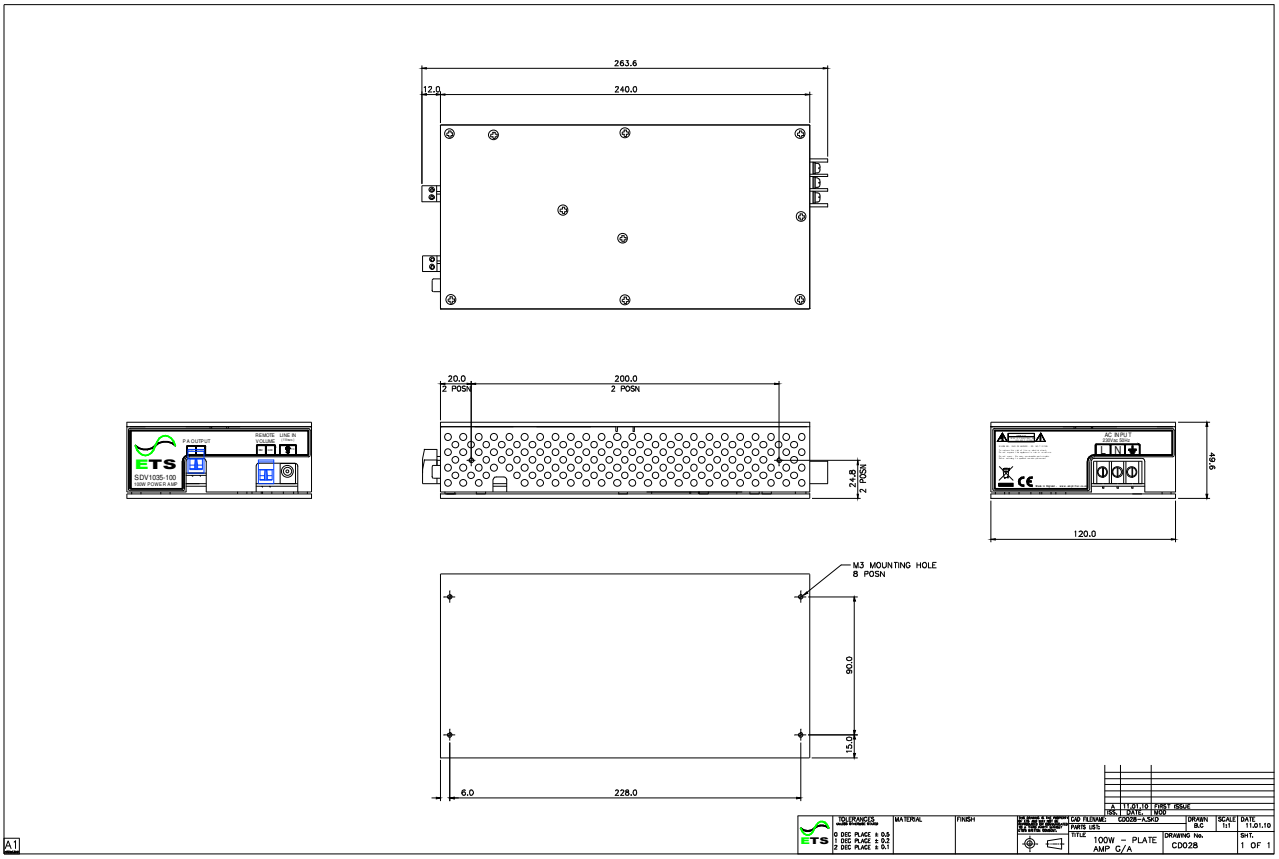
The SDV1035-100 power amplifier module is designed to be a compact power amplifier for audio applications. The amplifier module heatsink configuration will run continuously at full power with a sine wave input for over 5 minutes. If longer periods of operation with sinusoidal signals at full power are required then alternative heatsinking methods must be used. If you wish to explore these alternatives, please contact Ecotec Systems for a confidential discussion of your application.

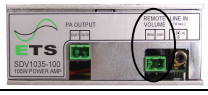
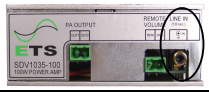
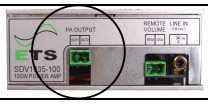
INPUT CHARACTERISTICS

The input impedance of the standard amplifier module is in excess of 100KΩ. The input pre-amplifier is configured to single ended input signals using the phono “Line In” connector. The basic unit ships without variable gain control. This feature can be added to the unit by connecting a 10KΩ variable resistor to the input stage. The remote volume control is achieved using a voltage controlled amplifier on the module. Because of this the actual audio signal is not routed through the variable resistor and the remote volume control can be over 100m from the unit.

MECHANICAL DETAILS

The power amplifier module has been designed such that the user can rapidly connect up the unit and begin testing. The connections are described below:



Pin	Identifier	Function	Remarks	
AC INPUT				
1	L	Live Mains	0.5A maximum	
2	N	Neutral Mains	5mA max. capacity	
3	E	Earth Connection	The unit must be earthed	
REMOTE VOLUME				
1	REM	Remote Volume	Use a 10KΩ between REM + GND	
2	GND	Remote GND	See above	
For full volume output short between two inputs. Mute is 10KΩ or greater between inputs.				
LINE IN				
1	Phono centre	Line In	1Vrms for maxium output with REM set to 10KΩ	
2	Phono Case	Line GND	GND	
PA OUTPUT				
1	OUT1	Power output 1	To load / Speaker	
2	OUT2	Power output 2	To load / Speaker	