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ZERO 1

2-channel AB class amplifier

[Rev 2.0 – 2011.11]

CEA-2006-A SPECIFICATIONS

POWER RATING: **450 Watt per channel @ 4 Ohm < 1% THD+N**
SN RATIO: **>73 dBA (reference: 1 Watt into 4 Ohm)**

MOS *SPECIFICATIONS (Tcase = 25 °C / 4 Ohm stereo / 0.2V input level @ 14.4 Volt if not otherwise specified)*

TARGET POWERs:	**450** Watt per channel @ 4 Ohm	**650** Watt per channel @ 4 Ohm (**HyperDrive** mode)
	1700 Watt BTL mode @ 4 Ohm	**2400** Watt BTL mode @ 4 Ohm (**HyperDrive** mode)
	3000 Watt BTL mode @ 2 Ohm (*)	**[T.B.D.]** Watt BTL mode @ 2 Ohm (**HyperDrive** mode)
EFFECTIVE POWERs:	**464** Watt (464 Watt @12V6) x 2	97.7 A (η = 65.9 %) @ 4 Ohm / ST mode / 1% THD / 1KHz
	872 Watt (872 Watt @12V6) x 2	201.8 A (η = 60.1 %) @ 2 Ohm / ST mode / 1% THD / 1KHz
	1744 Watt (1744 Watt @12V6) x 1	201.8 A (η = 60.1 %) @ 4 Ohm / BTL mode / 1% THD / 1KHz
THD @ 4 Ohm / ST mode:		**< 0.060 %** (1KHz / 90% Power rating ref)
THD @ 2 Ohm / ST mode:		**< 0.065 %** (1KHz / 90% Power rating ref)
DIM @ 4 Ohm / ST mode:		**< ----- %** (Power rating ref)
DIM @ 2 Ohm / ST mode:		**< ----- %** (Power rating ref)
DC-DC converter typology:		**Regulated**
Conversion frequency:		**40 KHz** (± 6 %)
Absolute maximum operation supply voltage range:		**10 V ÷ 16 V**
Recommended operation supply voltage range:		**11 V ÷ 14.4 V**
Power-on/Power-off Voltage Threshold:		**9 V / 7.5 V**
Mute delay time:		**3 secs**
***Secondary voltages** (Amp. / Drive / Pre.):*		**±61.5 V / ±11 V / ±15.7 V**
***Max output offset voltage** (each channel):*		**±15 mV**
Standby current:		**1.8 mA (typical)**
***Quiescent consumption** @ 12V6:*		**1.15 A** (no idle current regutation)
***Idle current regulation** (no signal):*		**0.15 A** (each channel)
***Quiescent consumption** @ 12V6:*		**1.45 A** (with idle current setted)
Thermal protection consumption:		**2.0 A**
Battery ground vs secondary ground decoupling:		**1 KOhm**
Body ground vs battery ground decoupling:		**65 Ohm**
***Bandwidth** (-3dB ÷ 1 Watt):*		**< 5 Hz ÷ 100 KHz**
***Input sensitivity** (Power rating ref):*		**0.43 V ÷ 9.5 V** (1.2V ÷ 27V in High Level mode)
***Input impedance** @ 1 KHz (STEREO input):*		**11 Kohm** (47 Ohm in High Level mode)
***Input capacitance** @ 1 KHz (STEREO input):*		**220 pF**
Input ground decoupling:		**47R**
***S/N ratio** (AP filter 10 Hz - 500 KHz) – Power rating ref:*		**60 dB**
***S/N ratio** (AP filter 10 Hz - 22 KHz) – Power rating ref:*		**101 dB ("A" weighted)**
***Eq. Input noise** (AP filter 10 Hz - 500 KHz):*		**428 uV**
***Eq. Input noise** (AP filter 10 Hz - 22 KHz):*		**3.81 uV ("A" weighted)**
***Channel separation**@ 100Hz / 1KHz / 10KHz – 10 Watt ref:*		**64 dB / 64 dB / 62 dB**
Xover functions:		**HIGH Pass & LOW Pass** (BAND Pass allowed) (20 ÷ 175Hz) & (50 ÷ 300Hz)
Filter slope - Filter "Q":		**12 dB/oct - 0.7** (Stereo & Mono)
Thermal cutoff Threshold:		**88 °C** (±5°C)
ProSPEED® Fan Controller Threshold:		**55 °C** (±5°C)
***Damping factor** @ 100 Hz - 10 Watt ref* (Right / Left)*:*		**6351 / 6354**
***Damping factor** @ 1 KHz - 10 Watt ref* (Right / Left)*:*		**6368 / 6365**
***Damping factor** @ 10 KHz - 10 Watt ref* (Right / Left)*:*		**424 / 424**
***Output impedance** @ 1 KHz - 10 Watt ref* (Right / Left)*:*		**0.6 mOhm / 0.6 mOhm**
Load drive limitations (*):		**1 Ohm / 2 Ohm** (Stereo / Bridged)
Special features:		**HyperDrive** - Switch to increase output power up to 50% more - **WARNING!** **OverCold** - Switch to disable the ***ProSPEED®*** feature. Fans start always at max speed.
Suggested fuse:		**250 A** (External)

(*) VERY IMPORTANT NOTE - READ CAREFULLY

4 Ohm ST or 8 Ohm BTL – *CONTINUOUS SINEWAVE SIGNAL* – pure resistive load or speaker load
2 Ohm ST or 4 Ohm BTL – *MUSICAL SIGNAL* – pure resistive load or speaker load
1 Ohm ST or 2 Ohm BTL – *MUSICAL SIGNAL* – speaker load only

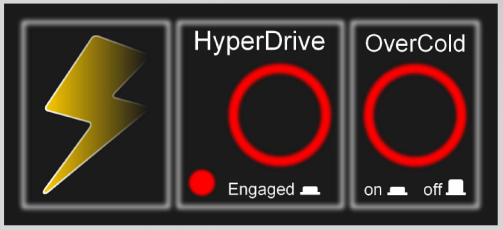
HyperDrive & **OverCold** features

Low **Mid** **High**

HyperDrive working temperature

4 Ohm ST / 8 Ohm BTL **2 Ohm ST / 4 Ohm BTL** **1 Ohm ST / 2 Ohm BTL**

OverCold recommended



HyperDrive & **OverCold** buttons are placed on the right side panel of the amplifier.
Improper use must be avoided.

WARNING
for competition purpose only

La funzione **MOS HyperDrive** è da intendersi esclusivamente come una modalità ad alta potenza dinamica. Con l'utilizzo della funzione **MOS HyperDrive** è possibile raggiungere potenze molto elevate e chiare che consentono di ottenere una dinamica mai provata prima con ogni sistema acustico. Il vero limite nell'uso del **MOS HyperDrive** è l'intervento della protezione termica. Più bassa è l'impedenza del sistema altoparlanti, più velocemente interverrà la protezione termica. MOS suggerisce di limitare la funzione **MOS HyperDrive** per subwoofer grandi e pesanti (particolarmente per le configurazioni a 2 Ohm BTL) solo per le competizioni nei campi gara, perché l'intervento termico verrà raggiunto così velocemente da rendere l'amplificatore inutilizzabile e lo stress termico al quale sono esposti i componenti interni potrebbe essere potenzialmente dannoso per l'affidabilità a lungo termine dell'amplificatore. La suddetta modalità deve essere intesa esclusivamente come un over-boost temporaneo.

VANTAGGI:
- Potenze molto alte (aumento superiore al 50%)
- Qualità acustica e dinamica incomparabile, impossibile da ottenere con qualsiasi altro amplificatore ad alta potenza in classe AB presente sul mercato.

SVANTAGGI:
- Alte temperature nel funzionamento, specialmente per le configurazioni a 2 Ohm e 4 Ohm BTL.

Come in ogni competizione, per ottenere i migliori risultati è necessario correre qualche rischio. Per questa ragione MOS ha sviluppato la funzione **MOS HyperDrive** espressamente per uso gara, perciò per brevissimi tempi di utilizzo.
Tuttavia, nell'utilizzo normale in configurazioni a 4 Ohm stereo la funzione **MOS HyperDrive** è consigliata perché arricchisce il suono di una qualità acustica e dinamica incomparabile.

La funzione **MOS OverCold** attiva le ventole di raffreddamento alla massima velocità.

L'USO IMPROPRIO PUÒ PROVOCARE SERI DANNI ALL'IMPIANTO AUDIO COME A CAVI, ALTOPARLANTI E DISPOSITIVI ELETTRONICI.

MOS HyperDrive feature is intended exclusively as a very high dynamic power mode. By using **MOS HyperDrive** it is possible to achieve very high and clear powers that allow to reach a dynamic on every acoustic system, never experienced before.
The real limit to the use of **MOS HyperDrive** is the thermal protection. The lower the impedance of the speaker system is, the faster the cut-off caused by the thermal protection will be. MOS suggests to limit the **MOS HyperDrive** feature on big and heavy subwoofer (especially on 2 Ohm BTL mode) only to competition contests, because the thermal cut-off will be reached so fast as to make the amplifier not able to play and the thermal stress to which the internal components are exposed could be potentially dangerous for the long term reliability of the amplifier. It must be intended exclusively as a temporary over-boost.

ADVANTAGES:
- Very high power (increase up to 50%)
- Unrivalled dynamic and acoustic quality, impossible to reach with any other standard high power AB class amplifier on the market.

DISADVANTAGES:
- Higher working temperature, especially for 2 Ohm and 4 Ohm BTL mode.

Like in every competition, to reach the best results it is necessary to run some risks. For this reason MOS developed the **MOS HyperDrive** feature especially for competition use: therefore, for very-short-time usage.
However, for normal use with 4 Ohm stereo mode configuration the **MOS HyperDrive** feature is recommended because it enriches the sound with an unrivalled dynamic and acoustic quality.

The **MOS OverCold** feature activates the cooling fans at maximum speed.

IMPROPER USE CAN CAUSE SERIOUS DAMAGES TO THE AUDIO SYSTEM SUCH AS TO CABLES, SPEAKERS AND ELECTRONIC DEVICES.

MOS HyperDrive ist entwickelt worden, um ein sehr hohes dynamisches Klangerlebnis zu erzielen. Durch das Aktivieren von **MOS HyperDrive** lassen sich sehr hohe, dynamische, nie da gewesene Leistungen erzielen. Die maximale Leistung wird nur durch die Wärmeentwicklung begrenzt. Je niedriger der Widerstand des Lautsprechers ist, desto höher ist die Hitzeentwicklung, welche dann zum Abschalten durch den Wärmeschutz führt. **MOS** schlägt vor, den **MOS HyperDrive** bei großen und niederohmigen Subwoofern (besonders im 2 Ohm Brückenbetrieb) nur auf Competition-Wettbewerben anzuwenden, da es bei dauerhaftem Musikbetrieb dazu führt, dass der Verstärker sehr heiß und dadurch abgeschaltet wird. Der **MOS HyperDrive** dient als kurzfristiger OVER-BOOST.

VORTEILE:
- Extrem hohe Leistung (Zunahme um bis zu 50%)
- Konkurrenzlose Dynamik mit sehr anspruchsvoller Audio Qualität. Dieses Leistungspotential wird von keinem anderen Klass A/B Verstärker erreicht!

NACHTEILE:
- Höhere Betriebstemperatur, besonders im Stereo 2 Ohm Betrieb und 4 Ohm Brückenbetrieb.

Wie bei jedem Wettbewerb, ist es notwendig an die Grenzen zu gehen, um die besten Ergebnisse zu erzielen. Aus diesem Grund entwickelte **MOS** besonders für den Wettbewerbsgebrauch den **MOS HyperDrive**. Deshalb eignet sich dieser speziell bei niederohmigen Lasten für den Kurzzeitbetrieb.

Es wird jedoch empfohlen den MOS HD im 4 Ohm Stereobetrieb zu verwenden, da hierbei das einzigartige konkurrenzlose Leistungspotential erreicht wird.

Der **MOS OverCold** aktiviert die Ventilatoren mit Höchstgeschwindigkeit.

MISSBRÄUCHLICHE VERWENDUNG KANN SCHWERE SCHÄDEN AM AUDIO SYSTEM DEN KABELN UND ELEKTRONISCHEN GERÄTEN VERURSACHEN.