OA 456

High Voltage Amplifier Preliminary

Preliminary Datasheet

Features:

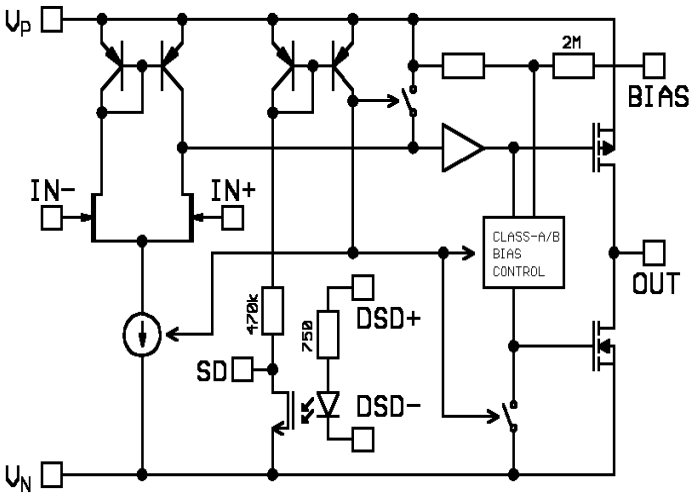
- **High Voltage Amplifier: 300V**
- **JFET Input**
- **Wide-Swing-Output**
- **Stable with Capacitive Load**
- **High Speed: 160V/µs**
- **Low Distortion**
- **Low Quiescent Current**
- **Shutdown w. High Impedance Output and Reduced Current Consumption**
- **2nd Isolated Shutdown Control**
- **Overtemperature Protection**
- **Hermetically Sealed and Isolated Metal Packages**

Applications:

Piezo Driver, Sonar Driver, Measurement & Test Equipment, Power Supplies etc.

Production to MIL-Standards available on request. For similar products see: QA455 (Bipolar-

Functional Diagram:



Customer specific details/parameters:

- Different hermetically sealed metal packages available
- Quiescent current
- Internal compensation
- Temperature alarm/shutdown configuration
- Available with input protection diodes

Absolute Maximum Ratings (Shortform):

T_A=25°C unless otherwise noted, T_C=case temperature

Max. Operating Voltage V_P-V_N	300V
Max. Input Common Mode Voltage	$V_N \le V_{in-}, V_{in+} \le V_P$
Max. Input Differential Voltage	8V
Max. DC Ouput Current (in SOA Limits, 25°C) *WARNING: Amplifier has no built-in current limit!*	2.5A
Max. Cont. Power Dissipation T_C=25°C, DC Mode	50W
Max. Power Dissipation Sinewave CW-Mode , T_C=25°C, 10kHz<f<100kHz	80W
Max. Pulsed Power Dissipation in Sinewave Burst Mode T_C=25°C, 10kHz<f<250kHz, T_{Burst}<10ms, T_{Burst}/T_{Cycle}≤1/10	120W
Operating Temperature Range	-40°C…125°C

High Voltage Amplifier Preliminary

Technical Data (Shortform):

T_C=25°C, Operating Voltage V_B=±120V if not stated otherwise. min/max with respect to absolute values. Negative signed current means current flowing from the hybrid.

Parameter	Test Conditions	min.	typ.	max.
Power Supply				
Operating Voltage	V_P - V_N	40V	-	300V
Quiescent Current		25mA[1)]	40mA	120mA
Quiescent Current	Shutdown, no overtemp.		7mA	8mA
Quiescent Current	Overtemperature Shutdown		6.5mA	
Inputs				
Offset	Vout=0V		2mV	5mV
Comm.mode Range		V_N + 11V		V_P - 11V
Input Current IN-,IN+	Vin=0V, Vout=0V			1nA
Input Current SD - Pin	V_{SD}=V_N V_B=300V			-650µA
Input Current DSD+ to DSD- Pins	V_{DSD}=5.0V		4.8mA	6.5mA
Isolation Voltage DSD-Pins				400V
BIAS Pin	V_{BIAS}=V_N			-300µA
Ouput				
Output Current				2A
Output Pulse Current	1ms single pulse			3A
Output Impedance in Shutdown Mode	Vout=0V		TBD	
AC Operation				
Min. Gain [1)]			5	
GBWP	G=20		15MHz	
Slew Rate	G=20		160V/µs	
Permissible Load Capacitance	G=20			no limit
Shutdown				
Switch Off Temp.	(factory set)			105°C
T_{ON}				10ms
T_{OFF}				10ms

[1)] depends on configuration/compensation

Shutdown Control:

Shutdown may be activated either by pulling the SD-pin to the negative supply rail (or to AGND for symmetrical supply voltages) or by applying 5V to the isolated DSD+ and DSD- pins (internal optocoupler controls shutdown, see schematic).

Capacitive Load:

The amplifier tolerates high capacitive loads. For G=20 (nominal gain), the load capacitance may even be arbitrarily high. See complete datasheet for performance of your specific compensation level.