

**42115**

**OPERATIONAL AMPLIFIER  
DSCC DWG #5962-9082801  
Replacement for OPA511 and PA 10**

**Mii**

**HYBRID MICROELECTRONICS  
PRODUCTS DIVISION**

**Features:**

- Wide Supply Voltage Range ( $\pm 10$  to  $\pm 50$  Volts)
- High Output Current (5A Peak)
- Small Size (TO-3, 8 Pins)
- Low Cost

**Applications:**

- Programmable Power Supplies
- Motor, Valve & Actuator Controls
- Audio Amplifiers
- Magnetic Deflection Circuits

**DESCRIPTION**

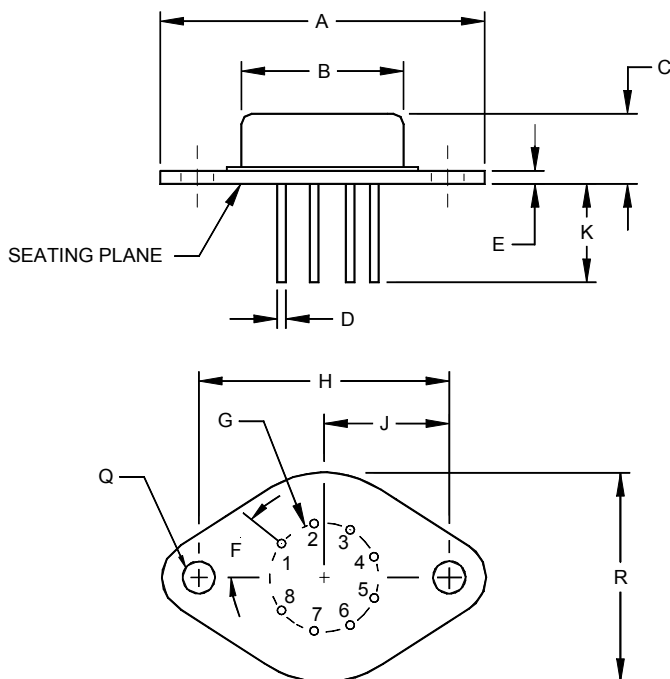
The 42115 ( DSCC Drawing #5962-9082801) is a high power, high voltage, high current, power operational amplifier which also is an alternate to the popular OPA511 and PA10. The high current output stage delivers 5A and has externally adjustable current limiting capability. This Hybrid IC is housed in an 8 pin, hermetic TO-3 and is designed for driving inductive, capacitive and resistive loads.

**ABSOLUTE MAXIMUM RATINGS**

Power Supply Voltage ( $V_{CC}$ ) .....	$\pm 50$ VDC
Differential Input Voltage .....	$\pm V_{CC} - 3$ V
Common Mode Input Voltage .....	$\pm V_{CC}$
Operating Temperature Range (case) .....	$-55^{\circ}\text{C}$ to $+125^{\circ}\text{C}$
Storage Temperature Range .....	$-65^{\circ}\text{C}$ to $+150^{\circ}\text{C}$
Output Current .....	5A Peak
Power Dissipation at $T_C = 25^{\circ}\text{C}$ .....	67W
Lead Temperature (Soldering < 10 sec).....	$+300^{\circ}\text{C}$

**Micropac Industries** cannot assume any responsibility for any circuits shown or represent that they are free from patent infringement.  
**Micropac** reserves the right to make changes at any time in order to improve design and to supply the best product possible.

## Mechanical Configuration



Note: Leads in true position with 0.010" (0.25mm) R at MMC at seating plane  
Pin Numbers shown for reference only. Numbers may not be marked on package.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.510	1.550	38.35	39.37
B	0.760	0.780	19.30	19.81
C		0.290		7.37
D	0.97	1.07	0.038	0.042
E	0.080	0.100	2.03	2.54
F	40° BASIC		40° BASIC	
G	.500 BASIC		12.7 BASIC	
H	1.186 BASIC		30.12 BASIC	
J	.593 BASIC		15.06 BASIC	
K	0.460	0.500	11.68	12.70
Q	0.151	0.161	3.84	4.09
R	0.990	1.010	25.15	25.65

ELECTRICAL CONNECTIONS	
Pin 1	Output
Pin 2	CL <sup>+</sup>
Pin 3	+V <sub>C</sub>
Pin 4	+IN
Pin 5	-IN
Pin 6	-V <sub>S</sub>
Pin 7	F.O.
Pin 8	CL-

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**ELECTRICAL CHARACTERISTICS** $T_C = 25^\circ\text{C}$ ,  $V_{CC} = \pm 36\text{VDC}$ 

unless otherwise specified

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Offset Voltage	$V_{IO}$	$T_C = 25^\circ\text{C}$ $T_C = -55^\circ\text{C}$ to $+125^\circ\text{C}$		$\pm 2$ $\pm 10$	$\pm 6$ $\pm 65$	mV $\mu\text{V}/^\circ\text{C}$
Input Offset Voltage vs Supply	$V_{IO}(V_{CC})$			$\pm 30$	$\pm 200$	$\mu\text{V}/\text{V}$
Input Offset Voltage vs Power	$V_{IO}(P)$			$\pm 20$		$\mu\text{V}/\text{W}$
Input Bias Current	$I_{B+}$ , $I_{B-}$	$T_C = 25^\circ\text{C}$ $T_C = -55^\circ\text{C}$ to $+125^\circ\text{C}$		50	30 400	nA $\text{pA}/^\circ\text{C}$
Input Bias Current vs Supply	$I_B(V_{CC})$			10		$\text{pA}/\text{V}$
Input Offset Current	$I_{IO}$	$T_C = 25^\circ\text{C}$ $T_C = -55^\circ\text{C}$ to $+125^\circ\text{C}$		12 50	30	nA $\text{pA}/^\circ\text{C}$
Input Impedance	$R_{IN}$			200		$\text{M}\Omega$
Gain Bandwidth Product @ 1 MHz	$G_B$	$T_C = 25^\circ\text{C}$ $R_L = 15\Omega$		6		$\text{MHz}^*$
Power Bandwidth	$P_B$	$T_C = 25^\circ\text{C}$ $R_L = 8\Omega$	15	23		KHz
Phase Margin	$I_m$	$-55^\circ\text{C}$ to $+125^\circ\text{C}$ $R_L = 15\Omega$		20		Degree *
Common Mode Rejection Ratio	CMRR	$V_{ICM} = \pm 9\text{V}$ $V_{CC} = \pm 15\text{V}$ , $R_L = 500$ $-55^\circ\text{C}$ to $+125^\circ\text{C}$	96			DB
Output Voltage/ Voltage Swing	$V_O$	$I_O = 10\text{A}$ , $V_{CC} = \pm 16\text{V}$ $R_L = 1\Omega$	$\pm 10$			V
Output Voltage Swing	$V_O$ $V_O$	$T_C = 25^\circ\text{C}$ , $I_O = 5\text{A}$ $I_O = 80\text{mA}$ $-55^\circ$ to $+125^\circ\text{C}$	$\pm V_{CC} - 8$ $\pm V_{CC} - 5$	4.0		V V
Open Loop Gain	$A_V$	$R_L = 1\text{Kf} = 10\text{Hz}$		110		dB
Slew Rate @ 20% of $V_O$	SR	$R_L = 100\Omega$ , $R_{CL} = 0$ $V_{IN} = 40\text{V}_{P-P}$ square wave $f = 1\text{kHz}$ , $V_O = 40\text{V}_{P-P}$	2.5	5.0		$\text{V}/\mu\text{S}$
Power Supply	$V_{CC}$	$-55^\circ\text{C}$ to $+125^\circ\text{C}$	$\pm 10$	$\pm 40$	$\pm 50$	V
Quiescent Current	$I_S$	$V_{IN} = 0$ , $G = 100$	8	15	30	mA

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