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PRODUCTS NEWS

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High Density Power Amplifier ICs Deliver New Levels of High Voltage, High Output Current Performance for a Monolithic Form Factor

*New ICs are rated at 220V, 4A and 10A PEAK, offered in a QFP style package
With a compact 20mm x 20mm package footprint and heat slug topper*

TUCSON, Arizona, U.S.A. -- September 26, 2017 – The PA164 and PA165 from Apex Microtechnology establish new benchmarks for power amplifier performance in a single chip design. By combining advances in packaging technology, MOSFET technology and a proprietary silicon design, the PA164 and PA165 can deliver enhanced amplifier features that include continuous and PEAK output current and voltage supply operation not currently available in an IC form factor.

The PA164 provides 1 amp continuous and 4 amps PEAK of output current, while the PA165 can deliver 10 amps PEAK. Both devices can work on voltage supplies up to 220 volts. At these levels of performance, thermal management for a very compact package must be managed very carefully. The design of this IC utilizes separate supplies for the amplifier core and the output stage to help optimize the overall power dissipation capabilities. In addition, both devices are housed in an QFP style package with a heat slug on top to facilitate heat sink mounting over a single device or on an array pattern of these devices. As a result, the devices are capable of dissipating up to 28 watts.

“With the increased in miniaturization of circuitry designs, board space has become a highly valuable commodity. The exceptional performance potential for these ICs make them an attractive solution across a wide number of potential applications requiring high power across multiple channels when board real estate is very tight,” explains Apex Strategic Marketing Director Jens Eltze. “Both the PA164 and PA165 can offer designers the opportunity to reduce the size of their overall circuitry while saving valuable design time in achieving a final layout.”

Depending on the circuit design of the end system, external components can be used to set both the optimum gain and the bandwidth. Onboard system protection for these devices includes a user-defined, temperature compensated current limit and a temperature sensor output. The addition of an output disable function and an over-

current flag simplify the implementation of robust failure protection on the system level.

The wide range of target applications include adjustable voltage and current sources, test equipment, piezo electric positioning, electrostatic transducers and deflection, and focusing for deformable mirrors.

In terms of electrical performance comparisons to other high performance power amplifiers, the table below stacks up the PA164 and PA165 to Apex’s own next highest rated IC -- the PA441.

SPECIFICATION PARAMETER	PA164	PA165	PA441
Output current continuous	1A	4A	60mA
Output current PEAK	4A	10A	120mA
Supply voltage operation	220V	220V	350V
Internal power dissipation	28W	28W	12W
Onboard over current protection	Yes	Yes	Yes
Overcurrent flag and output disable	Yes	Yes	No
Built-in temperature sensor	Yes	Yes	No
Power Bandwidth	55kHz	55kHz	35kHz
RoHS compliant	Yes	Yes	Yes
Package style	QFP style, heat slug on top	QFP style, heat slug on top	Plastic, surface-mount PSOP with heat slug – or – plastic, thru-hole, hermetic PIP with alumina ceramic substrate
Package footprint measurement	20mm x 20mm	20mm x 20mm	16mm x 14.8mm – PSOP 25.4mm x 4.72mm – PIP

Pricing, Availability and Evaluation Tools

Sample units of the PA164 and PA165 are available now for qualified applications, with production volumes targeted for Q1 2018. Per unit pricing for 1K product quantities will be sub \$30.00 USD. An evaluation kit for rapid prototyping is scheduled to be available in early Q4 2017. Complete product information is online at www.apexanalog.com/products/PA164. For technical support, contact Apex applications engineering at 800-546-2739, or apex.support@apexanalog.com.

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Apex Microtechnology is an industry leader in high power analog components, designed to meet the performance and cost design targets of our customers’ precision control applications. Apex Microtechnology is headquartered in Tucson, AZ, USA. More information about Apex Microtechnology is available at www.apexanalog.com.

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