

INTEGRATED AMPLIFIER

Integrated Class D amplifier. Rated at 250W/8ohm
Made by: Citech Co., Ltd, South Korea
Supplied by: Henley Audio Ltd, UK
Telephone: 01235 511166
Web: <https://hifirose.com>; www.henleyaudio.co.uk
Price: £2999

AUDIO
FILE

hi-fi news
OUTSTANDING
PRODUCT

HiFi Rose RA280

More sober than the 'steampunk' styled RA180, and more powerful too, the new RA280 takes HiFi Rose's GaN FET-based Class D architecture into the audiophile zone
Review: **Jamie Biesemans** Lab: **Paul Miller**

HiFi Rose delighted, and in some cases flabbergasted, hi-fi enthusiasts with its RA180 [HFN Jul '22], an amplifier that looked like it had just escaped from the pages of Gibson-Sterling's steampunk classic *The Difference Engine*. Boasting lots of knobs and dials on the outside, and novel GaN FETs in its Class D power amp on the inside, it was undeniably 'something else'. It was quite an unexpected product from the Seoul-based brand too, as up to that point HiFi Rose was principally known for streamers and DACs with very large touchscreens [HFN Jun '21 and Mar '22].

A cheaper version of the £5499 RA180? That would be the condensed description of the new RA280, retailing at £2999. Smaller and with less controls to fiddle with, would be the somewhat longer version. But is that all there is to it? The higher power rating suggests otherwise...

POLISHED PUNK

There's no denying the RA280 is distinctive. At any other moment it would be an outlier in terms of industrial design, were it not for the RA180. So the RA280 is less outspoken than its bigger brother, without totally denying the steampunk aesthetic that got all those tongues wagging.

It retains the latter's excellent build quality with the fine machining of its front fascia especially notable. The matt aluminium and steel housing, weighing in at 9.5kg and complete with regressed cooling elements and an embossed logo on top, makes for a striking whole. If you're looking for something with a bit more 'character' than understated competitors like the Hegel H190 [HFN Jan '18] or Moon's 240i, then look no further.

Of course, the RA280's front panel is necessarily a lot cleaner than the RA180's because it has a far tidier and focused

feature set. The illuminated (but small, and dimmable) VU meters beloved by many are carried over but the four-channel/bridged two-channel operation, the crossover feature and hugely flexible phono EQ options are all dropped, along with the various knobs and sliders that supported them. This ensures the RA280 is not only a more straightforward proposition but also a more 'real-life' two-channel amplifier. Vinyl lovers are still catered to, of course, but the phono stage is now MM-only.

GET ON UP

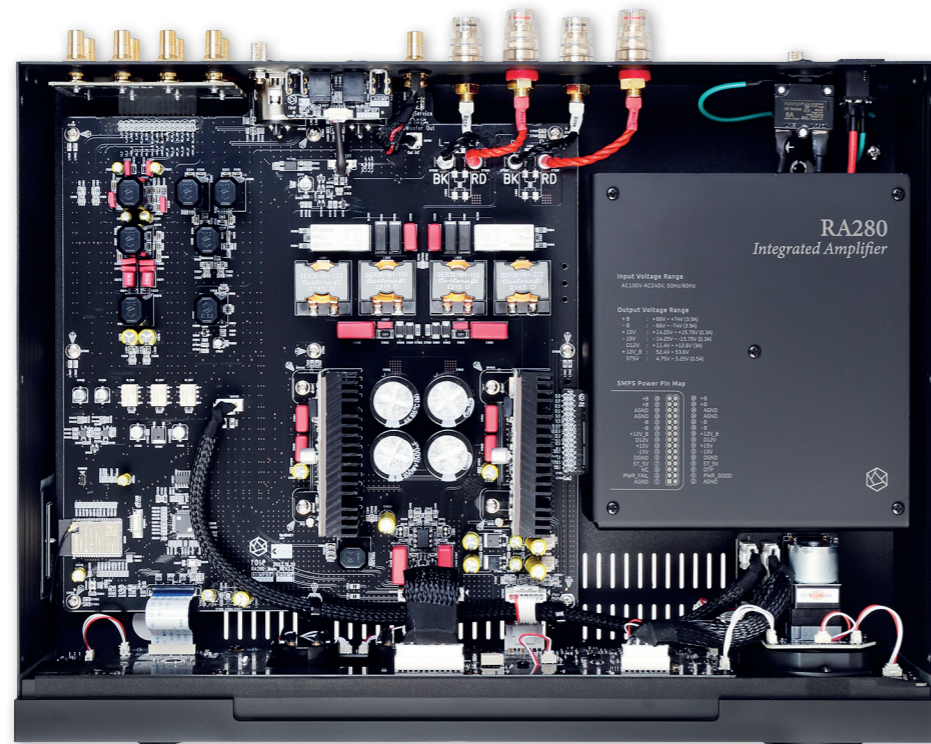
Some might bemoan the absence of the 'clockwork mechanism' volume control of the RA180, but the illuminated volume knob on the RA280 is still nicely done and looks the part. It's motorised, moving smoothly when controlled by the included aluminium remote handset [see p61]. However, when

you want to change to one of the five analogue inputs, including the MM phono and balanced XLR line stage, you'll have to get out of your chair and flick the hefty input selector on the left of the fascia.

Getting physical is also a must to use the RA280's tone controls. Their role in the signal path is optional as they can be bypassed, but when enabled allow for up to ± 15 dB of adjustment at both ~ 100 Hz and ~ 10 kHz, the selected value indicated by a small beam of light reflecting off the graduated bass and treble scales.

HiFi Rose is one of the brands that has enthusiastically embraced GaN FET devices in place of MOSFETs in the final switching output stage of its Class D amplifiers. The performance of these new transistors allows for a reduced 'dead time' in this application [see PM's boxout, p59], all of which feeds into HiFi Rose's creative

'Mogwai song titles are as long as their running times'



RIGHT: Multi-voltage switchmode PSU with PFC [right] supports line and MM phono stage [top left] plus separate L/R Class D modules [lower centre, on heatsinks]. Note large inductors in output filter network [top centre]



brandishing of the moniker 'Class AD'. The amplifier circuit remains Class D, of course, although its application of GaN (Gallium Nitride) semiconductors (first used in the novel blue LEDs of the 1990s) is gaining ground in audiophile circles [HFN Aug '21].

Having put that issue to rest, what's not up for discussion is the RA280's potency, certainly considering its price. As PM's Lab Report reveals [see p61], it has a lot of power on tap, delivered by two separate amplifier modules centrally situated on a clean PCB layout [see p58], next to a shielded, in-house-designed switch mode power supply with custom power factor correction to further boost efficiency.

AIRS AND GRACES

Heeding PM's remark that more than casual regard should be paid to the RA280's speaker pairing, I wanted to try out a few

more combinations than usual. Starting with my trusty Focal Sopra N°2s [HFN Sep '15], I hooked up an iFi Audio NEO Stream 'transport' [HFN Mar '23] and T+A DAC 200 [HFN May '22] to the RA280's balanced inputs. The far costlier Sopra loudspeakers not being an obvious match for an amp in this price range, I swapped them out for DALI Rubicon 2s and KEF R3s [the original versions, not the Metas – see HFN Dec '18] later on. While each speaker brought its own tuning to the table, HiFi Rose's amp always impressed with good separation and detailed, airy stereo imaging.

There's no power or agility lacking here, so the RA280 typically communicates dynamics and excitement without edging into extreme warmth or betraying an undue focus on high treble detail. However, what might be described as a pleasantly 'organic' sound can have its

ABOVE: A motorised volume knob is joined by defeatable bass/treble tone controls, illuminated level (VU) meters and a stylish input selection lever – a world away from the RA180!

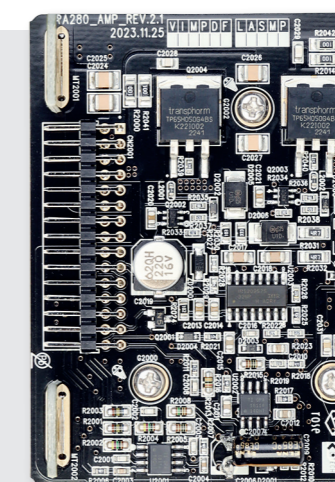
balance tipped by the speaker. Its coupling with the DALI Rubicon 2s appeared a little lighter-sounding than usual, for example.

If it wasn't for Damon Albarn standing in as producer, Bobby Womack's *The Bravest Man In The Universe* [XLCD561] wouldn't have sounded like the album it does. Or even existed, as the soul crooner seemed to be *fin de carrière* until he met with Albarn on the Gorillaz project. Fortunately, the record came to be, and contains some fabulous tracks, including 'Dayglo Reflection' featuring the backing vocals of Lana Del Rey. Here, the RA280 floated her typically languid voice above the electronic beat and grittier lines sung by Womack.

SUPERGAN SOLUTION

Despite employing a very similar Class D architecture with GaN FET output devices, the RA280 is not simply a stripped back, two-channel version of the four-channel 'steampunk' RA180. The main PWM switching module [pictured] has been refined – the RA180's 'CoolGaN' enhancement-mode power transistors from Infineon Technologies are replaced here by a pair of Transphorm (TP65H050G4B5) 'SuperGaN FET' devices [top of PCB]. The Infineon IRS20957S MOSFET driver chip is retained and it's in here that the 'dead time' – the period between one FET switching off and the other switching on – is managed 'for better audio performance... lower distortion and lower audio noise floor'.

HiFi Rose discusses 'dead time' on its website as part of what it calls 'Class AD'. In practice, the increased switching speed, lower 'on' resistance and improved thermal stability of these 'SuperGaN FETs' gives them a performance advantage over silicon FETs in this analogue PWM circuit. However, the architecture remains similar to other Class D amplifiers tested in HFN where the inductive output filter's sensitivity to the speaker load gives rise to variations in the final amplifier/system frequency response [see Lab Report, p61]. The longstanding Hypex NCore [HFN May '22], Purifi Eigentakt [HFN Oct '22] and more recent ICEpower Edge [HFN Jan '21] Class D solutions do not employ GaN FETs but *do* include elegant solutions to load sensitivity. PM



HEARTFELT HI-FI

Clarity was good, with Del Rey hitting her high notes in a convincing manner, while on the sparse production of 'Please Forgive My Heart' the amp shone a spotlight on Womack's weathered voice. This felt intimate, albeit part of a grander image where the ticks and blips of the electronic percussion were placed discretely around the edges of the soundstage. Delivering definition and spaciousness is something of a calling card for the RA280.

The 2021 release *As The Love Continues* [Rock Action Records ROCKACT140LP] from Mogwai heralded a course correction for the Glaswegian purveyors of noisy guitars, introducing more emotional warmth and electronics into the mix. Listening to the third LP bundled in the vinyl boxset, played on a Pro-Ject X1 [HFN Aug '19] to the MM phono input on the RA280, made that abundantly clear. 'To The Bin My Friend, Tonight We Vacate Earth' and 'Here We, Here We, Here We Go Forever' – not only do Mogwai have song titles as long as their running times, but they also possess an intimacy this amplifier deftly extracted from the recording. ↻

INTEGRATED AMPLIFIER



ABOVE: The one balanced XLR/three RCA line inputs are joined by an MM phono input (with separate earth), subwoofer output and a pair of 4mm speaker cable posts. The '+ve' and '-ve' outputs are floating so must never be connected to ground

The RA280 does not highlight every detail, that's for certain, but there is drive and oodles of excitement on offer to compensate. There's a slightly laidback 'feel' to the lowest frequencies, but nothing that really undermines the sense of rhythm or pace, so the familiar Mogwai massive guitar wall on 'Drive The Nail' still powered through my loudspeakers.

ROUGH AND TUMBLE

Anyone who has ever attended a live gig of the band will know the sensation of being overwhelmed by the sheer scale (and volume!) of their music, an experience the RA280 had a fair stab at emulating. This is a track in particular that benefits from a bit of roughness, and it's testament to the RA280 that it doesn't try and smooth things over too much. The amplifier packed a punch, especially with the large Focal Sopra N°2s floorstanders.

Back to DALI's Rubicon 2s and the Womack set sounded more reserved on these smaller, nominal 4ohm

speakers, with the amp's reduced bass emphasis being apparent. Yet there was still lots to love, such as the way it put all the intricacies of the violin playing of Janine Jansen, on the familiar 'La Primavera' of Vivaldi's *The Four Seasons* [Decca 475 6293; 96kHz/24-bit], on show.

LEFT: Sleek and very simple – the Rose remote offers power on/standby, mute and volume adjustment only



Playing around with the RA280's bass control also added a bit more body to the cello and double bass on 'Ill. Allegro', which made my listening session more engaging. However, if tempted, do use a very light touch when drafting in these tone controls, as a half circle of movement encompasses a hefty increase (or decrease) in bass and treble. After further careful tweaking I arrived at a result more to my liking, with the RA280 still bringing out the full delicacy of this more refined rendition of Vivaldi's classic and portraying it across a deliciously broad stereo image.

A TOUCH OF CLASS D

The marriage of KEF R3s and RA280 was arguably more harmonious, providing a rousing rendition of *Light, Dark, Light Again* [Gracie Music; 96kHz/24-bit] from Australian singer-songwriter Angie McMahon. Starting with the soft piano during the intro of 'Fireball Whiskey', and effortlessly building to a more expansive sonic panorama featuring a dreamy electric guitar and backing vocals, Hi-Fi Rose's amplifier showed itself to be a stirring performer that never loses its fine touch.

HI-FI NEWS VERDICT

The RA280 is an affordable and more straightforward alternative to the eccentric RA180. It boasts greater power without sacrificing refinement which, like its exceptional build quality, sets a high bar at this price point. Balanced, detailed, and with pin-sharp imaging – but with careful speaker pairing a priority – the RA280 is a great choice for music enthusiasts seeking a closer connection to their collection.

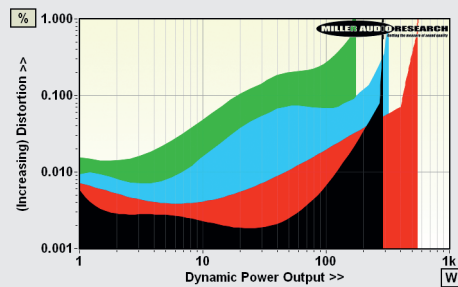
Sound Quality: 86%
 100

LAB REPORT

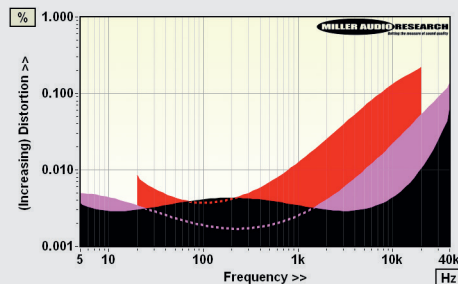
HIFI ROSE RA280

As discussed [see boxout, p59], the RA280 has moved on from the four-channel RA180 [HFN Jul '22] not least by offering a far higher +37.6dB gain (vs. +26.1dB) while also benefitting from a 'cleaner' noise floor, somewhat freer – though not entirely free – from (presumably) downstream switching artefacts. The RA180's poor 67.5dB A-wtd S/N ratio is lifted to 75.1dB here which is an improvement but still 10dB behind the 'average' class AB amp. Again, because the inductive filter network [see pic, p58] lies outside of the PWM feedback loop, there's some modification in HF response with speaker loading. Unloaded, the RA280 has a +18dB peak at 48kHz (coinciding with its peak 20ohm output impedance) while, into 8ohm, the response is flat to within ±0.1dB from 20Hz-20kHz before rolling away to -6.5dB/100kHz. The response also varies with gain (vol. position), particularly at ~2 o'clock where it falls to -0.6dB/20kHz and -11.5dB/100kHz.

High power without heat – and even higher power than achieved by the RA180 – remains the key strength of this GaN FET-based amplifier. Rated at 2x250W it achieves closer to 325W/8ohm and a full 590W/4ohm with some 'safety' built in when addressing very low impedance loads. A true PWM amplifier has no headroom so the RA280 offers 295W, 555W, 340W and 180W into 8, 4, 2 and 1ohm loads, respectively, under dynamic conditions [see Graph 1] where distortion clearly increases into <4ohm loads. Into 8ohm distortion falls to a 0.0015% minimum at ~10W/1kHz but is fairly uniform with power through bass and midrange. At HF the output inductors contribute to an expected rise in *continuous* THD of 0.055%/20kHz/10W and 0.22%/20kHz/100W [see Graph 2, below]. PM



ABOVE: Dynamic power output versus distortion into 8ohm (black trace), 4ohm (red), 2ohm (blue) and 1ohm (green) speaker loads. Max. current is 13.4A



ABOVE: Distortion versus frequency versus power output (1W/8ohm, black; 10W, pink; 100W, red)

HI-FI NEWS SPECIFICATIONS

Power output (<1% THD, 8/4ohm)	325W / 590W
Dynamic power (<1% THD, 8/4/2/1ohm)	295W / 555W / 340W / 180W
Output imp. (20Hz-20kHz/48kHz)	0.028-2.38ohm / 19.5ohm
Frequency resp. (20Hz-20kHz/100kHz)	-0.09dB to -0.09dB / -6.4dB
Input sensitivity (for 0dBW/250W)	38mV / 605mV
A-wtd S/N ratio (re. 0dBW/250W)	75.1dB / 99.1dB
Distortion (20Hz-20kHz, 10W/8ohm)	0.0015-0.055%
Power consumption (Idle/Rated o/p)	31W / 570W (1W standby)
Dimensions (WHD) / Weight	430x103x355mm / 9.5kg