



ODC

Op-Amp Diode Contour Overdrive

[RACK EXTENSION]
MANUAL



FX device by Turn2on Software



ODC designed as full-spectrum MOSFET & Germanium Dynamic Overdrive. By combining an Op-Amp gain stage with three selectable clipping arrangements, this classic topology bridges the gap between touch-sensitive amp break-up and dense saturation.

Main (MOSFET mode): The punchy, high-headroom classic configuration built around dual MOSFET transistors.

Asymmetrical Germanium: Blends a Germanium diode into the clipping path for rich even-order harmonics and warmer, asymmetrical break-up.

Symmetrical Germanium: Uses a matched pair of Germanium diodes alongside MOSFETs for an earlier, soft-knee saturation with vintage compression and sustain.

Effect responds organically to input levels, picking dynamics, and instrument volume pots-shifting seamlessly from subtle edge-of-breakup grit to dense, saturated drive without compromising the core tonal character of the source signal.

Built with real-time internal oversampling and dual-stage pre-clipping pre-emphasis filters, **ODC** delivers authentic analog touch response without the aliasing artifacts traditionally associated with digital clipping.

Insert it in front of amp models for an authentic front-end boost, or apply it to synths, bass lines, and drum buses for deep analog warmth and mix glue.

Digital distortion inherently creates unwanted foldback aliasing (harsh, non-harmonic frequencies). ODC executes all non-linear clipping math at an elevated internal sample rate, keeping top-end fizz silky, smooth, and analog-like even at maximum Drive settings.

* TM: **ODC** is an original power-amp fx, developed by Turn2on. It is inspired by the circuit ideas, based on the original cranked amplifier.

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Top-3 features

- 3 clipping modes: MOSFET, GE Asymm, GE Symm
- Oversampling for smooth, alias-free drive
- Low Cut and High Cut ahead of the clipping stage



PARAM	DESCRIPTION
DRIVE	Determines input gain fed into the non-linear clipping stage. Automatically compensated to preserve relative gain structure across settings.
MODE	Toggles between three Level-Matched clipping topologies - Main (MOSFET): Built around a dual 2N7000 MOSFET clipping stage. Yields direct, punchy, symmetrical clipping—the standard high-headroom overdrive voice. - Germanium Asymmetrical: Integrates a Germanium diode into one leg of the MOSFET clipping path. The asymmetrical waveform clipping generates even-order harmonics for a warmer, thicker, and more dynamic drive. - Germanium Symmetrical: Pairs the MOSFET stage with a matched set of Germanium diodes for both positive and negative wave halves. Saturation begins earlier with a softer knee, yielding heavy compression and a smoother, vintage character.
VOLUME	Independent output trim, applied after Drive's internal compensation. It has no effect on distortion character, only loudness.
TONE	Post-clipping high-frequency control. Adjusts overall brightness without altering distortion character. (Behavior adapts based on the HP/LP state). HP (High Peak): Boosts upper-mids and highs; increases gain and output volume for a punchy, open tone. LP (Low Peak): Flattens the upper-mid response for a neutral, smooth, and full-bodied sound with low-mid emphasis.
LOW CUT	Controls the amount of low-end energy pushed into the distortion stage (eliminating low-frequency flub and mud). Attenuates low frequencies prior to clipping. High settings keep the distortion response tight and articulate.
HIGH CUT	Manages the high-frequency content entering the clipping circuit (smoothing out harsh transients). Attenuates top-end content prior to clipping. Lower frequencies reduce unwanted transient harshness at high drive levels.
OVER-SAMPLING	Reduces aliasing artifacts from the clipping stage. Recommended ON, especially at higher Drive settings where signal edges get sharp and fast. Turn off only if you need to save CPU and are working at lower Drive levels.
MONO FREQ	Sets the crossover point below which stereo signals sum to mono, ensuring stable, phase-coherent low end on stereo buses and synths.
BYPASS	Relays hard bypass, passing input directly to output without processing

QUICK START WORKFLOW

1 Rack Insertion

Signal path setup

Insert ODC as an inline insert effect. Place it before amp/cabinet modeling on guitar tracks, or as an insert/parallel bus effect for synths, drums, or bass.

2 Select Clipping Mode

Core voicing

Set Mode to Main as your baseline setting.

3 Dial in Gain Structure

Drive & Level matching

Set Drive to ~30%, play your instrument, and adjust upward until saturation feels right. Adjust Volume to match your bypassed level.

4 Shape Tone & Pre-Filters

Voicing adjustments

Toggle HP/LP to set the frequency bias. Fine-tune post-clipping response with the Tone knob, then flip to the back panel to tweak Low Cut (to eliminate low-end mud) or High Cut (to control top-end fizz).

5 Final Enable

Export readiness

Enable Oversampling for pristine bounce output.

PRO STUDIO APPLICATIONS

Transparent Clean Boost: Keep Drive low, boost Volume, select Main mode on HP. This pushes downstream hardware or amp simulators into natural tube breakdown without altering instrument timbre.

Dynamic Lead Tracking: Use GE Symm on lead guitar or synth solos. The soft-knee compression smooths out aggressive peaks and lengthens sustain naturally.

Tightening Rhythm Guitars: Select Main mode with HP enabled. Turn the rear-panel Low Cut up to ~120 Hz to clear space for the kick and bass while keeping palm mutes punchy.

De-fizzing Saturated Signals: When working at extreme Drive settings, tame upper-harmonic harshness on the back panel using High Cut before touching the front-panel Tone knob.

Drum & Bass Bus Glue: On stereo bass synth stems or drum buses, keep Low Cut low to retain fundamental sub-frequencies, and set Mono Frequency around 100 Hz to prevent low-end stereo phase issues.

REAR PANEL



CONNECTORS

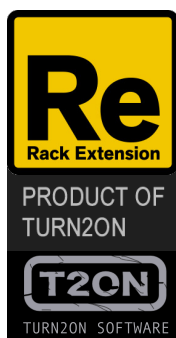
AUDIO I/O	Mono or Stereo connections for audio signals.
CV INPUTS	Use these CV inputs to control the main parameters by external CV source curves
SIGNAL ROUTING	TRUE MONO / STEREO EFFECT

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Thanks to all beta-testers



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This allows us to develop future interesting and creative effects / utilities / instruments in the Rack Extension format.

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