LVA 5000 4-quadrant amplifier

AUTOMOTIVE SUPPLY SIMULATION AT IT'S BEST

Example: LVA 5000 Front panel

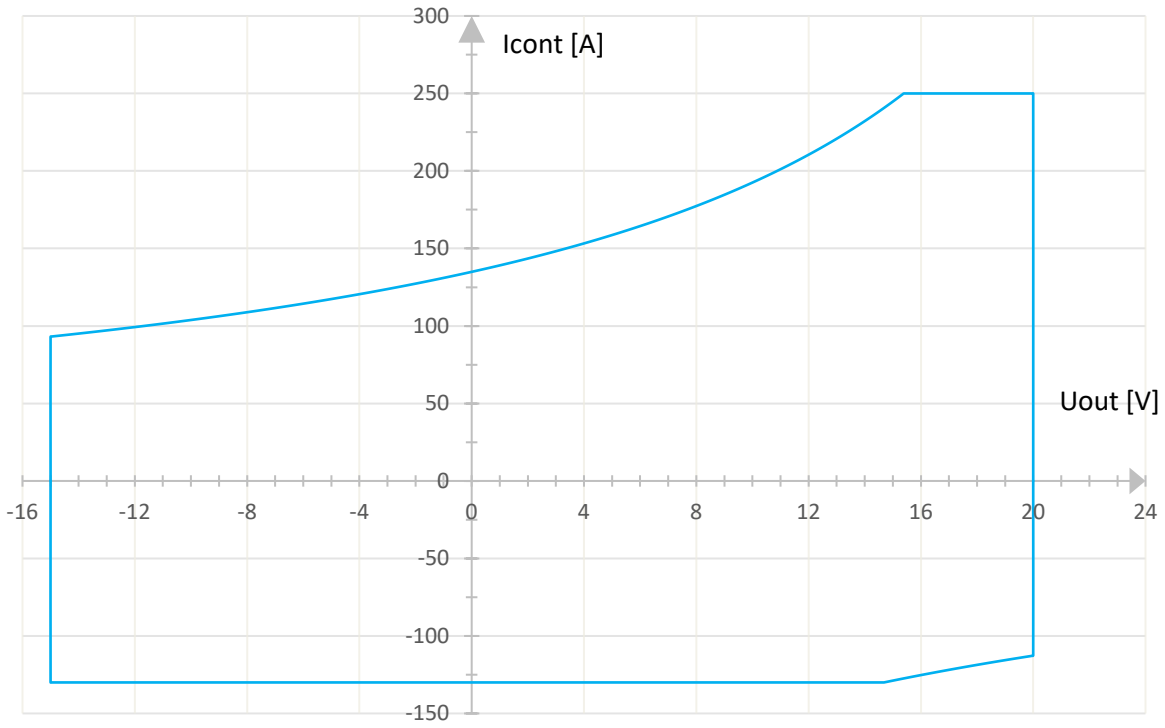
The relating standards:
ISO 7637-2/-3
ISO 16750-2
ISO 21848
LV 124
VDA 320 (LV 148)
SAE J 1113-11
BMW GS 95002
BMW GS 95003-2
BMW GS 95024-2-2
BMW GS 95026
DaimlerChrysler DO-10615
Fiat 9.90110
Ford FMC 1278
General Motors GMW 3097
JLR-EMC-CSv1.2
Mercedes-Benz MBN LV124-1
PSA B21 7110
Renault 36-00-808/--M
VW TL 81000
VW 80000
VW 82148

- ✓ Extremely low harmonic distortion - even under very non-linear load conditions
- ✓ Very fast slew rate > 20V/µs
- ✓ Operates from DC up to 100kHz large signal bandwidth (-3dB)
- ✓ Small signal bandwidth up to 300kHz
- ✓ High short-term overload characteristic (for 30s)
- ✓ Very high peak-load ability (up to 200ms)
- ✓ Programmable internal resistance 0 … 200mΩ
- ✓ Sink operation mode can be disabled
- ✓ Touch panel operation 7" 800x480
- ✓ Optional overvoltage protection device OPD

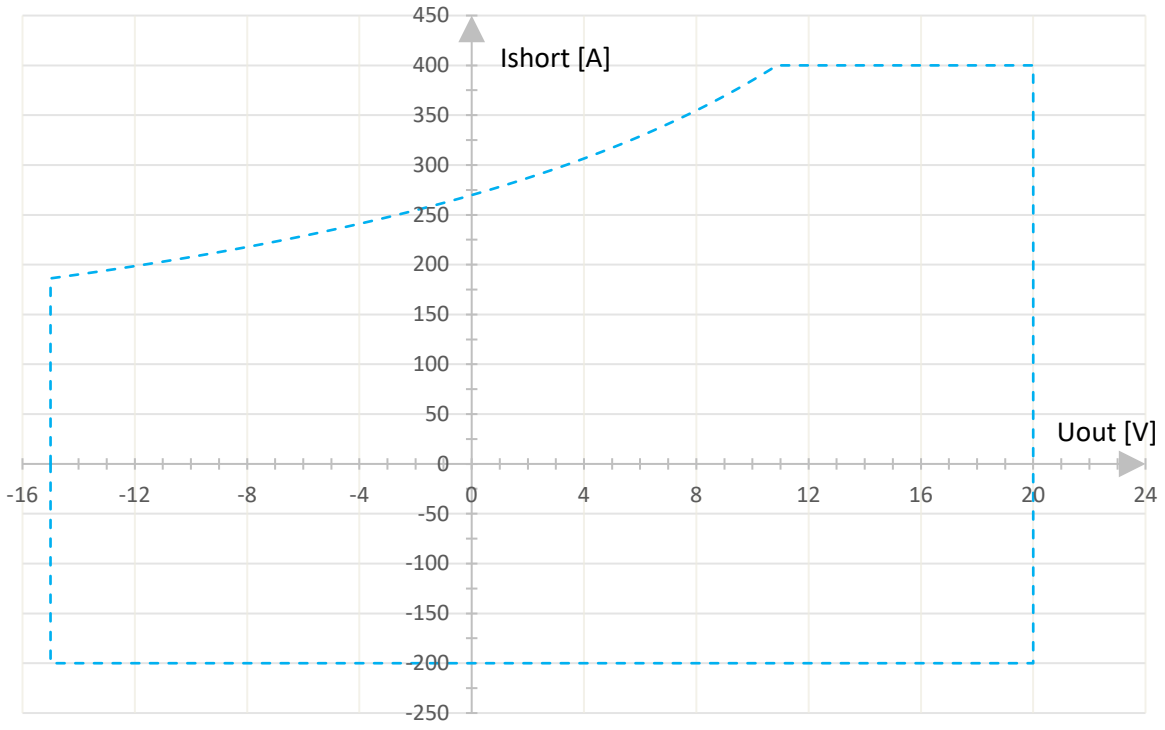
THE REFERENCE SOURCE FOR AUTOMOTIVE APPLICATIONS

AMPLIFIER CHARACTERISTIC – OUTPUT CURRENT CAPABILITY

20V Range continuous current I_{cont}: LVA5000

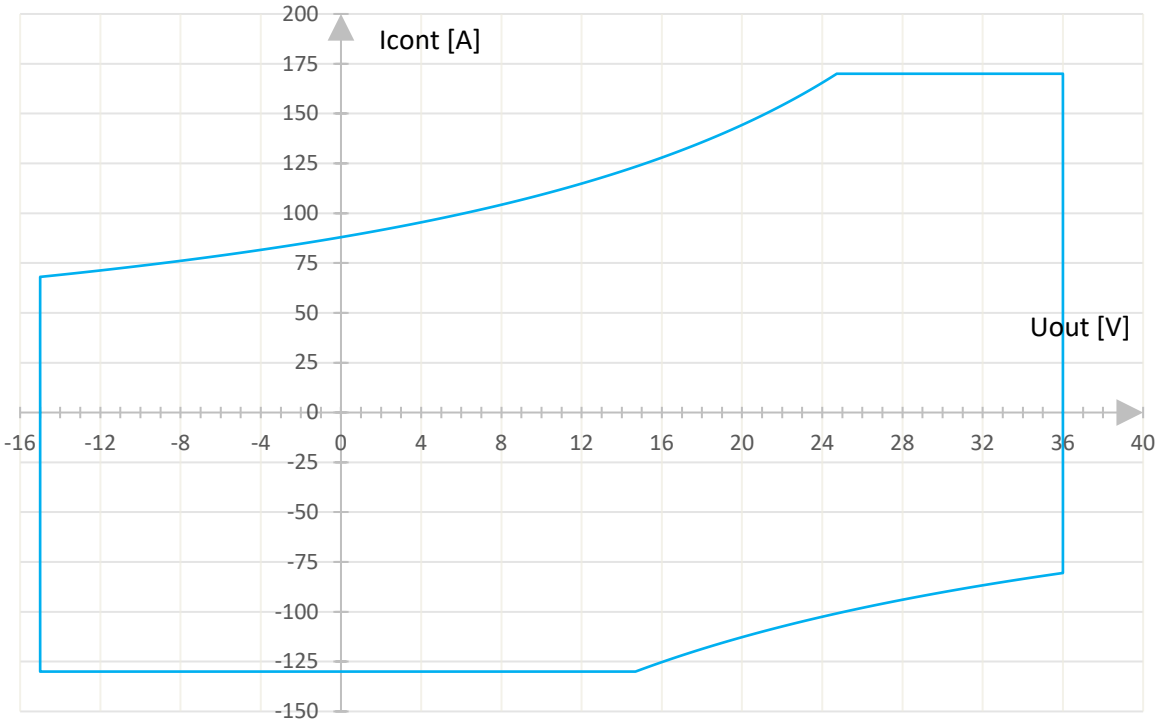


20V Range short-time current I_{short}: LVA5000

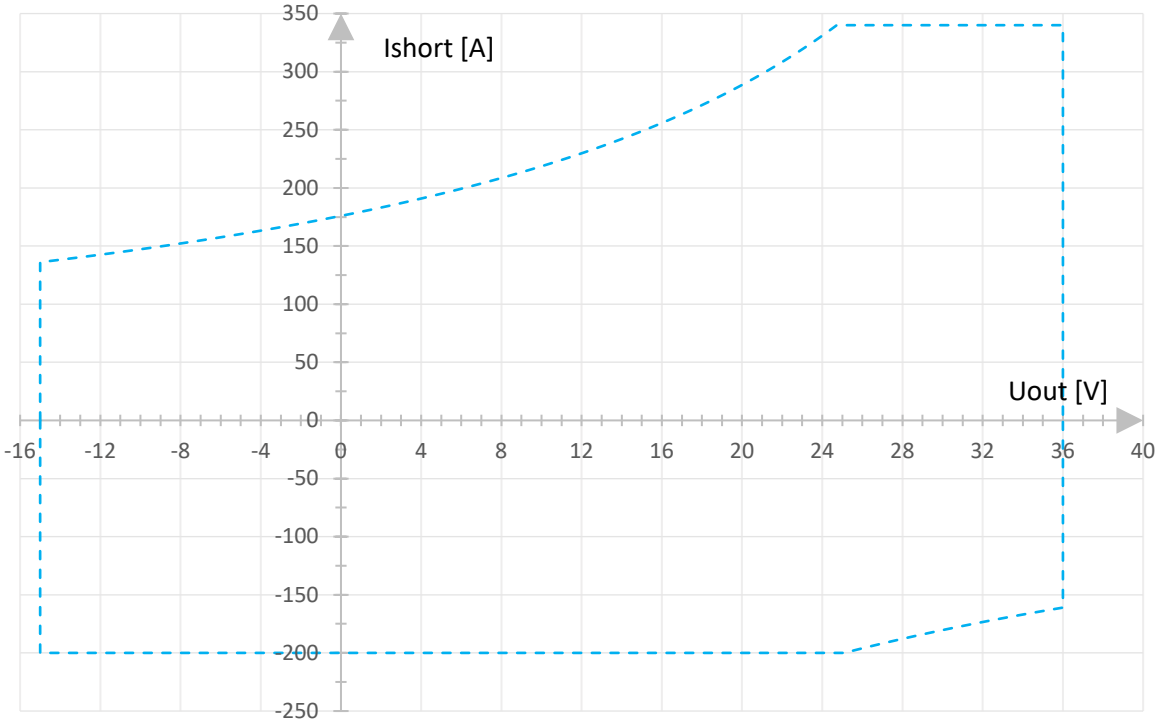


AMPLIFIER CHARACTERISTIC – OUTPUT CURRENT CAPABILITY

36V Range continuous current I_{cont}: LVA5000

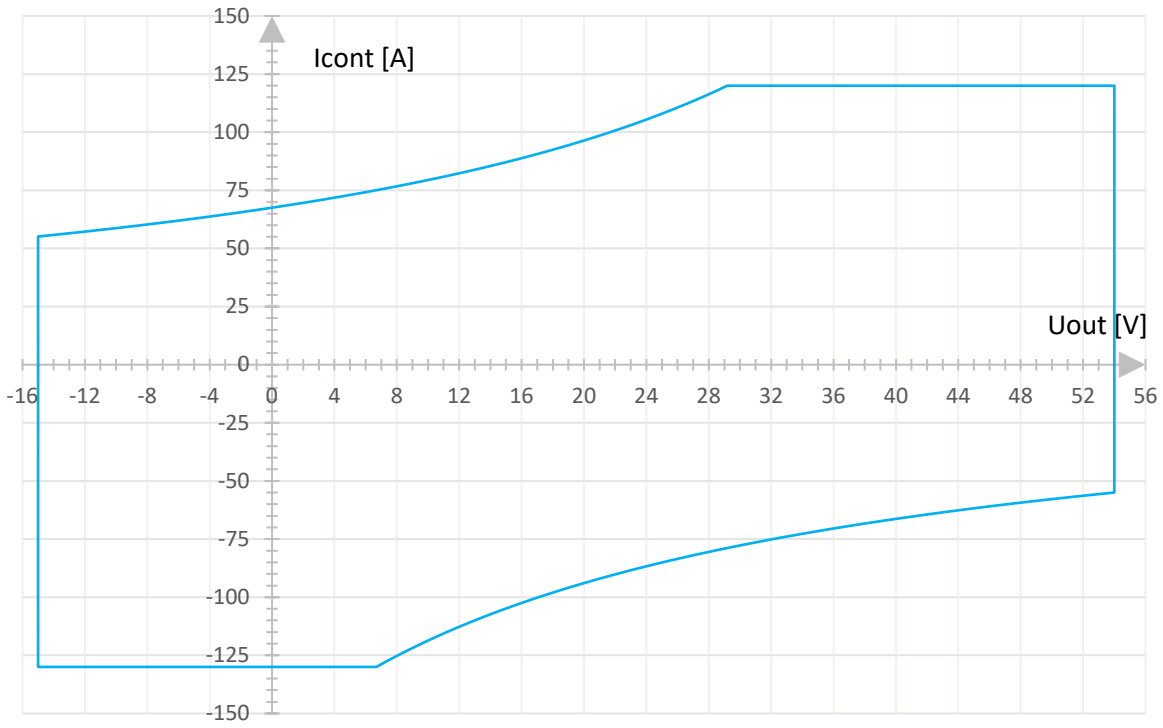


36V Range short-time current I_{short}: LVA5000

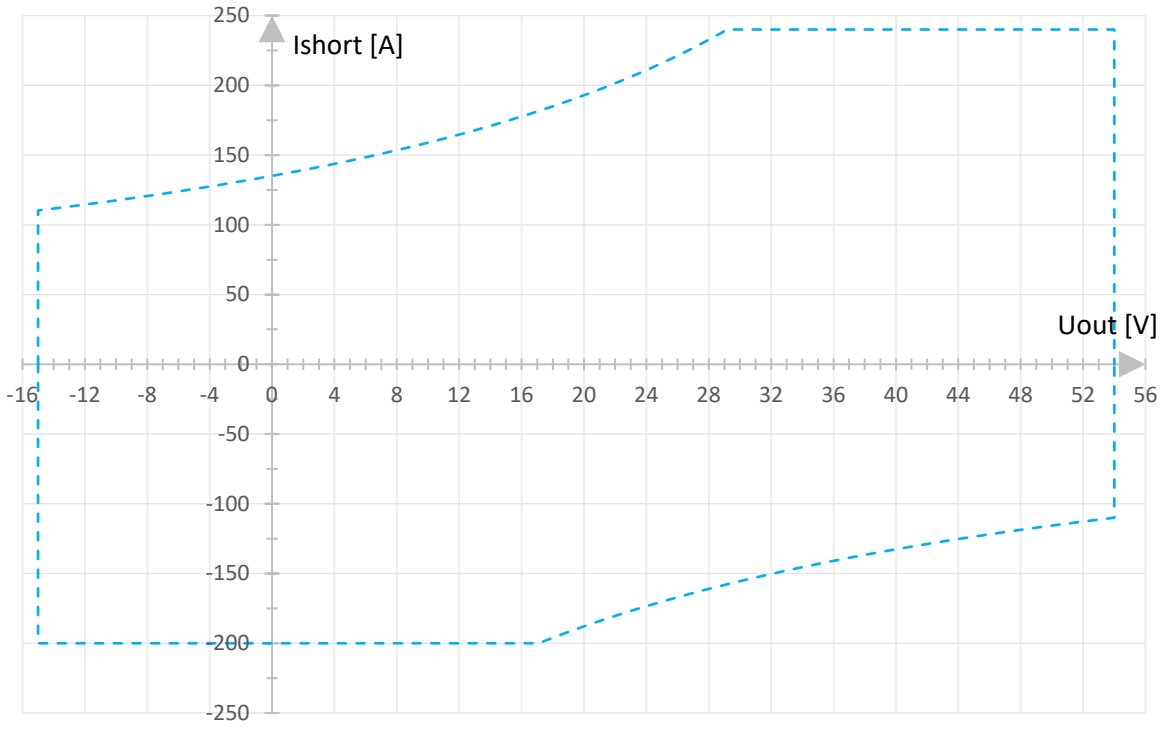


AMPLIFIER CHARACTERISTIC – OUTPUT CURRENT CAPABILITY

54V Range continuous current I_{cont}: LVA5000

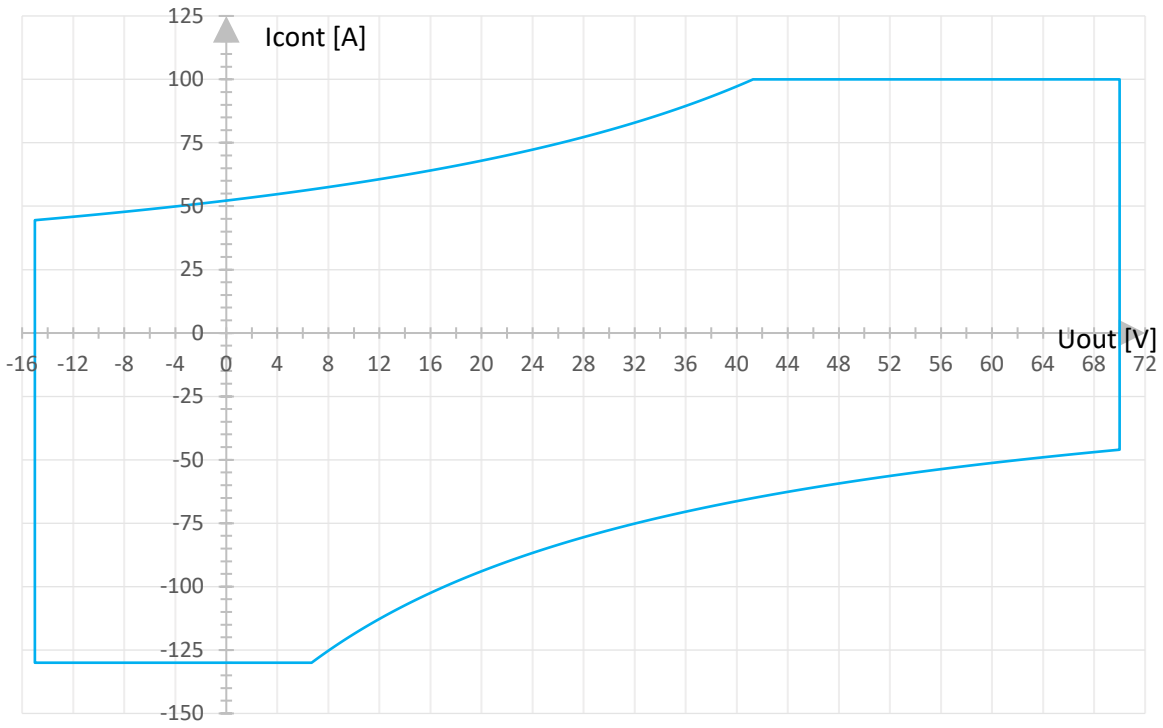


54V Range short-time current I_{short}: LVA5000

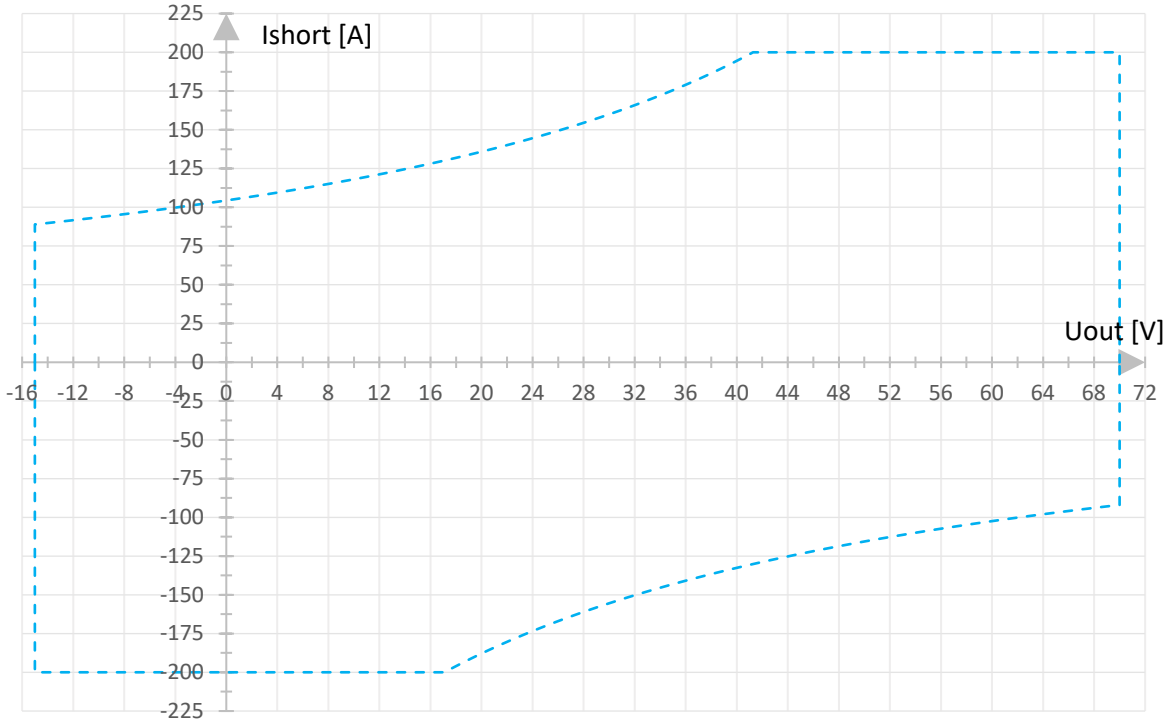


AMPLIFIER CHARACTERISTIC – OUTPUT CURRENT CAPABILITY

70V Range continuous current I_{cont}: LVA5000



70V Range short-time current I_{short}: LVA5000



TECHNICAL DATA

	Max. peak current capability (up to 200ms)	$600A_p$
Continuous and short-time output current capability		range depending see diagrams
Nominal voltage ranges		U_1: -15V_{DC} … 20V_{DC} U_2: -15V_{DC} … 36V_{DC} U_3: -15V_{DC} … 54V_{DC} U_4: -15V_{DC} … 70V_{DC}
Digital instrument	Voltage range	Autoranging (20/40/80V_{DC} Ranges)
	Current range	75A / 150A / 300A / 600A
	Accuracy Voltage	DC: 1000ppm of reading / 200ppm of range value
	Accuracy Current	DC: 2000ppm of reading / 400ppm of range value
Supply	Power Supply	230V/400V (±10%, 50/60Hz)
	Protection	32A
	Connector type	CEE
Housing		19”-rack, colour light grey (RAL 7035)
	Dimensions (mm)	24” rack: 1320x600x1050 37” rack: 1920x600x1050
	Weight	LVA integrated in 24” rack: approx. 400kg LVA integrated in 37” rack: approx. 440kg
General	Voltage adjustment	Touch panel / Remote / External input
Load regulation 0 … nominal load		max. 0.2%, typ. <0.1%
Internal resistance compensation		DC … 1kHz (-3dB)
Frequency range (no load)		DC … 100kHz large signal bandwidth (-3dB) DC … 300kHz small signal bandwidth (10% of range, -3dB)
Noise at output		<5mV_{rms} (<100kHz), <10mV_{rms} (100kHz - 20MHz)
Slew rate		SR: >20V/µs
Adjustable current limitation		Accuracy see current measurement unit response time < 20µs
Floating output		Max. voltage between earth and amplifier output ground: 300V_{rms}
Internal control oscillator	Type	4-channel synthesizer
	Wave form	DC, Sine, Rectangle, Triangle, DC Offset, Arbitrary
	Amplitude resolution	17Bit
	Frequency range	DC … 1MHz
	Frequency resolution	1µHz
	Frequency accuracy	25ppm
	Memory depth	1MSample
	Synth functions	ADD, AM, FM, PM
	Sequence memory	1024 steps
	External floating input	0 … V_{ExtMax} (V_{ExtMax} is adjustable between ±2V_p … ±25V_p)
	Digital I/O	8 digital inputs +5V_{DC} … +24V_{DC} 8 digital outputs +5V_{DC}, I_L=40mA (external V_{CC} input: +5V_{DC} … +24V_{DC}, I_L=500mA)

Monitoring unit[2)]	voltage	current
Max. output	±10V_p	
Scaling factor (adjustable)	0.2 … 1000	0.1 … 1000
Bandwidth	300kHz	200kHz
Accuracy	0.3%	
Noise of ADC measurement	<20mV_{rms} (DC … 300kHz)	<1.5mA_{rms} (DC … 300kHz)
Noise DAC output	<0.2mV_{rms} (DC … 300kHz)	
Delay time	<1µs	
Output impedance	220Ohm	
Isolation	earth / remaining electronics / each other	
Protection	short circuit	
Insulation resistance	>1MOhm	
Withstand voltage	>2000V_{DC}	
Ambient temperature	0°C up to 40°C	
Relative Humidity (non-condensing)	max. 80% for temperatures <31°C, decreasing linearly to 50% at 40°C	
System of protection	IP20	

LVA 5000 AMPLIFIER – OPTIONS

OPT.01	IEEE 488 Interface
OPT.02	RS 232 Interface (instead of IEEE 488 Interface)
OPT.05	Output voltage and current monitor (electrically isolated) Probe ratio free adjustable
NT.11.70S.5K	Symmetrical voltage range (for magnetic field tests) V:0 … ± 70V_{DC} / $I_{DC,cont}$:20 A_{DC} / $I_{DC,short}$:25 A_{DC}
OPT.24.04	Programmable internal resistance R:0mΩ … 200.0mΩ / Accuracy: ±1% of range
OPT.25.04	Constant current mode
OPD.04	Overvoltage Protection Device

The LVA is also available as LVA 100, LVA 1000, LVA 2500 and LVA 7500 version.

Automotive Test system with LVA 5000