

R&S® M3TR

R&S® VT3050C

50 W VHF/UHF

Compact Power Amplifier

Specifications



75 Years of
Driving
Innovation



ROHDE & SCHWARZ

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Specifications

Specifications apply under the following conditions: specified environmental conditions met, calibration cycle adhered to, and all internal automatic adjustments performed. "Typical values" are designated with the abbreviation "typ.". These values are verified during the final test but are not assured by Rohde & Schwarz. "Nominal values" are design parameters that are not assured by Rohde & Schwarz. These values are verified during product development but are not specifically tested during production.

General data

Frequency range		
RX	30 MHz to 511.975 MHz in 25 kHz channel grid	30 MHz to 511.999999 MHz
TX	30 MHz to 511.975 MHz in 25 kHz channel grid	30 MHz to 511.999999 MHz
Frequency range bypass		100 kHz to 511.999999 MHz
Modulation		A1A (CW)
		J3E (USB, LSB)
		J2D (USB)
		A3E, A3E-WB (AM)
		H3E (AM)
		F3E, F3E-WB (FM)
		F1B/F1D (FSK)
Supported waveforms		R&S [®] SECOM-V
		R&S [®] SECOM-P
		VHF/UHF modem 72 kbit/s
		HAVE QUICK I/II
		R&S [®] SECOS 5/16 TDMA
Temperature range		permissible temperature range
		operating temperature range
		storage temperature range
Power supply		
Permissible voltage range	emergency operation in 10 V to 18 V range (max. 25 W output power)	10 V to 33 V DC
Operating voltage range		18 V to 33 V DC
Power consumption		
50 Ω load, incl. radio	F3E, 50 W, 19 V	max. 30 A
	F3E, 50 W, 24 V	max. 22 A
MTBF	in line with MIL-HDBK-217F, ground mobile; +21 °C	36000 h
MTTR		30 min

RF data

RF output power	supply voltage 18 V to 33 V AM: PEP; FM: average > +55 °C	50 W ± 0.8 dB temporary power reduction to 5 W
Adjustable power levels	AM: PEP; FM: average	50 W ± 0.8 dB 10/20 W ± 1 dB 5 W ± 1.5 dB 1/2 W ± 3 dB
	VHF/UHF modem 72 kbit/s	5/10/20/50 W ± 1.8 dB; 1/2 W ± 4 dB
VSWR power reduction	VSWR < 2	nominal output power, no reduction
	VSWR < 2.5	> 40 W
	VSWR < 3	> 30 W
	VSWR < 4	> 10 W
	VSWR ≥ 4	> 5 W
Harmonics	30 MHz to 47.999999 MHz, at 50 W	< -60 dBc
	48 MHz to 511.999999 MHz, at 50 W	< -67 dBc
Spurious emissions	F3E, at $f < f_c \pm 5\%$	< -40 dBc
	F3E, at $f > f_c \pm 5\%$	< -70 dBc
Intermodulation distortion	30 MHz to 321.999999 MHz	> 36 dB referenced to 50 W PEP
	322 MHz to 511.999999 MHz	> 32 dB referenced to 50 W PEP

Protection

Overvoltage protection of DC/DC converter	switch-off	typ. 34 V
Power filter/power supply	in line with	MIL-STD-1275B
VSWR protection		infinite VSWR, open and short circuit
Thermal protection		by reduction of output power
Reverse polarity protection	supply voltage	in combination with an external fuse, not part of R&S®VT3050C
Receiver protection	at RF interface	75 V EMF
Lightning protection		by external protection unit (e.g. Suhner 3408)

Mechanical data

Dimensions	W × H × D	351 mm × 221 mm × 325 mm (13.8 in × 8.7 in × 12.8 in)
Weight	R&S®VT3050C	14.9 kg (33 lb)
	R&S®KS3001V	4.2 kg (9.3 lb)
Mounting position		horizontal
Color	olive drab	RAL 6014

Environmental conditions

Temperature range	in line with MIL-STD-810E	<p>method 501.3</p> <ul style="list-style-type: none"> • procedure II; operation +70 °C (category hot A1, 3 cycles of 24 h each, in total 72 h) • procedure I; storage +85 °C (category hot A1, induced conditions +85 °C, 7 cycles, in total 168 h) <p>method 502.3</p> <ul style="list-style-type: none"> • procedure II; operation –40 °C (climatic region cold, 3 cycles of 24 h each, in total 72 h) • procedure I; storage –40 °C (category climatic region cold, induced conditions –40 °C, 7 cycles, in total 168 h)
Temperature shock	in line with MIL-STD-810E	<p>method 503.3</p> <p>temperature range: –40 °C to +85 °C</p> <ul style="list-style-type: none"> • low temperature: 1 h • high temperature: 23 h • number of cycles: 3
Shock (in combination with R&S [®] KS3001V mounting frame, mounting position horizontal)	in line with MIL-STD-810E	method 516.4, procedure I: functional shock for ground equipment, SRS/40 g, 3 positive and 3 negative shocks/axis, 3 axis tested
Vibration (in combination with R&S [®] KS3001V mounting frame, mounting position horizontal)	in line with MIL-STD-810E	<p>method 514.4, wheeled vehicular, 5 Hz to 500 Hz,</p> <p>5 Hz to 8 Hz, 0.15 g²/Hz</p> <p>10 Hz to 18 Hz, 0.1 g²/Hz</p> <p>40 Hz to 80 Hz, 0.02 g²/Hz</p> <p>110 Hz to 200 Hz, 0.01 g²/Hz</p> <p>350 Hz to 500 Hz, 0.003 g²/Hz</p> <p>in between interpolation</p> <p>duration: 2 h per axis</p>
Waterproofness	in line with MIL-STD-810E	<p>method 512.3, procedure I, 1 m during 2 hours,</p> <p>(fulfilled in combination with connected radio or rubber cap at the radio connector)</p>
Sand and dust	in line with MIL-STD-810E	method 510.3, procedure I + II
Solar radiation	in line with MIL-STD-810E	method 505.3, procedure II
Icing and freezing rain	in line with MIL-STD-810E	method 521.1, procedure I, 6 mm and 13 mm icing
Salt fog	in line with MIL-STD-810E	method 509.3, procedure I
Low pressure (altitude)	in line with MIL-STD-810E	<p>method 500.3</p> <ul style="list-style-type: none"> • procedure I; storage • procedure II; operation • procedure III; rapid decompression
Humidity	in line with MIL-STD-810E	method 507.3, procedure III +33 °C/+63 °C, 5 cycles, 75 % relative humidity, 15 days
Fungus	in line with MIL-STD-810E	method 508.4
Bench handling	in line with MIL-STD-810E	method 516.4, procedure VI

Electromagnetic compatibility (EMC)

EMC		Method
Conducted emissions, power cords	in line with MIL-STD-461E	CE102, army platform
Conducted emissions, antenna cable	in line with MIL-STD-461E	CE106, army platform
Conducted susceptibility, power cords	in line with MIL-STD-461E	CS101, army platform
Conducted susceptibility, antenna port, intermodulation	in line with MIL-STD-461E	CS103, army platform
Conducted susceptibility, rejection of unwanted signals	in line with MIL-STD-461E	CS104, army platform
Conducted susceptibility, crossmodulation	in line with MIL-STD-461E	CS105, army platform
Conducted susceptibility, bulk cable injection	in line with MIL-STD-461E	CS114, army platform
Radiated emissions, electric field	in line with MIL-STD-461E	RE102, army platform
Radiated susceptibility	in line with MIL-STD-461E	RS103, army platform

Built-in interfaces

Audio interface	standard interface	600 Ω line input/output with PTT
Radio rear interface	standard interface	interface to R&S [®] MR3000H/U transceiver
Ethernet interface	standard interface	LAN interface to R&S [®] MR3000H/U transceiver
Power supply	standard interface	DC power supply input (18 V to 33 V DC)
R&S [®] VK3150 interface	standard interface	interface for R&S [®] VK3150 HF amplifier
RF interface VHF	standard interface	antenna IN/OUT to VHF antenna
RF interface UHF	standard interface	antenna IN/OUT to UHF or multiband antenna
Modem interface	option	in line with MIL-STD-188-220
Field telephone interface	option	with two-wire binding post and signaling

Ordering information

Designation	Type	Order No.
50 W VHF/UHF Compact Power Amplifier for R&S®MR300xH/U transceivers; 30 MHz to 512 MHz; with co-site filter	R&S®VT3050C	6140.9250.02
50 W VHF/UHF Compact Power Amplifier for R&S®MR300xH/U transceivers; 30 MHz to 512 MHz; without co-site filter	R&S®VT3050C	6140.9250.03
50 W VHF/UHF Compact Power Amplifier for R&S®MR300xH/U transceivers; 30 MHz to 512 MHz; with field telephone and audio/data interface	R&S®VT3050C	6140.9250.07
50 W VHF/UHF Compact Power Amplifier for R&S®MR300xH/U transceivers 30 MHz to 512 MHz; with co-site filter, field telephone and audio/data interface	R&S®VT3050C	6140.9250.17
Mounting Frame with shock mounts	R&S®KS3001V	6140.9350.02
Power Supply Cable	R&S®GK3015	6145.7155.05

The R&S®MR3000 transceiver is not part of the R&S®VT3050C amplifier and therefore not included in the delivery.

Service you can rely on

- | Worldwide
- | Local and personalized
- | Customized and flexible
- | Uncompromising quality
- | Long-term dependability

About Rohde & Schwarz

Rohde & Schwarz is an independent group of companies specializing in electronics. It is a leading supplier of solutions in the fields of test and measurement, broadcasting, radiomonitoring and radiolocation, as well as secure communications. Established 75 years ago, Rohde & Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

Environmental commitment

- | Energy-efficient products
- | Continuous improvement in environmental sustainability
- | ISO 14001-certified environmental management system

Certified Quality System
ISO 9001

Certified Quality System
EN 9100

Certified Quality System
AQAP-2110

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*0.14 €/min within German wireline network; rates may vary in other networks (wireline and mobile) and countries.