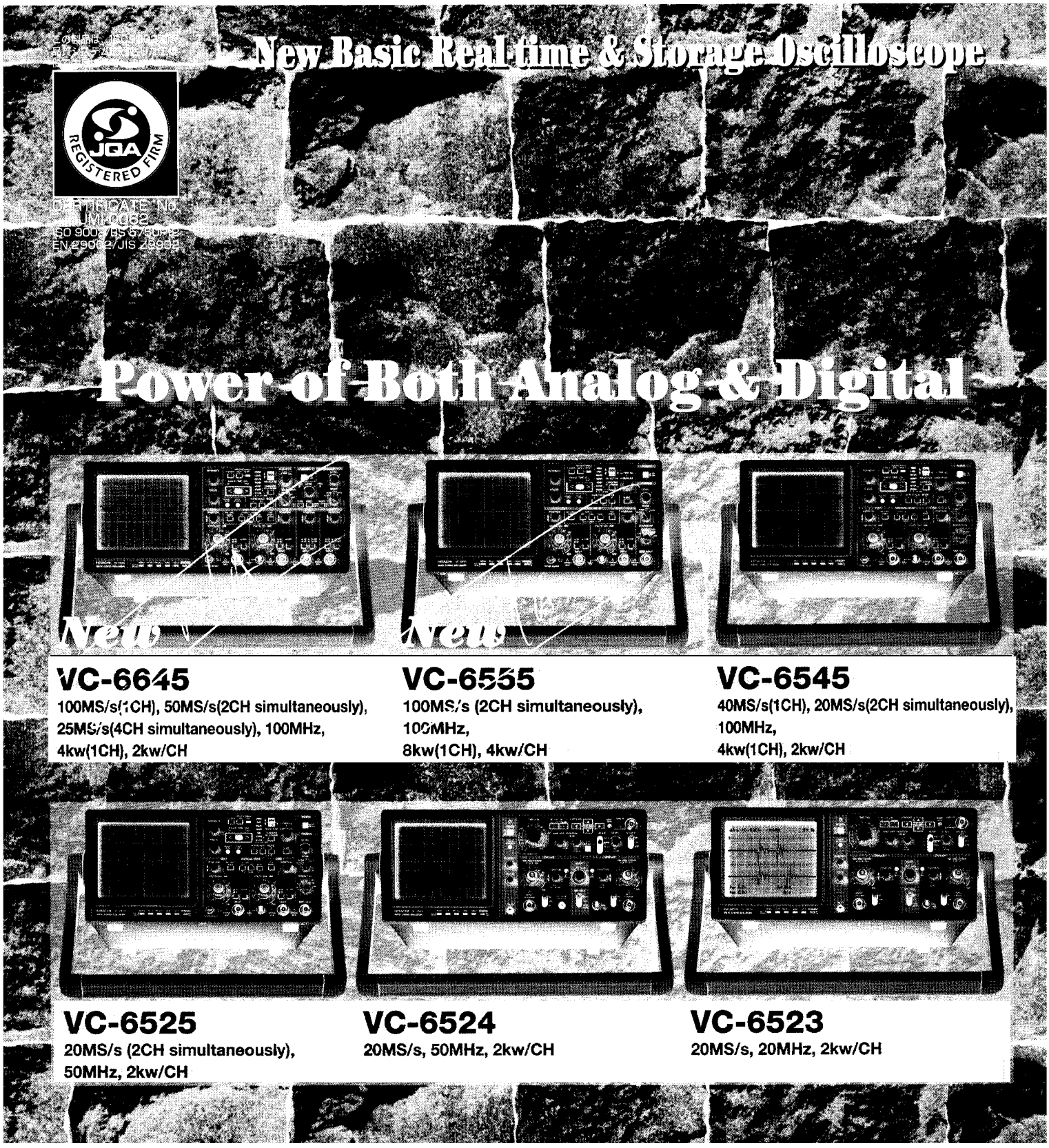
New Basic

RSO Real-time & Storage Oscilloscope



VC-6645
100MS/s(1CH), 50MS/s(2CH simultaneously),
25MS/s(4CH simultaneously), 100MHz,
4kw(1CH), 2kw/CH

VC-6555
100MS/s (2CH simultaneously),
100MHz,
8kw(1CH), 4kw/CH

VC-6545
40MS/s(1CH), 20MS/s(2CH simultaneously),
100MHz,
4kw(1CH), 2kw/CH

VC-6525
20MS/s (2CH simultaneously),
50MHz, 2kw/CH

VC-6524
20MS/s, 50MHz, 2kw/CH

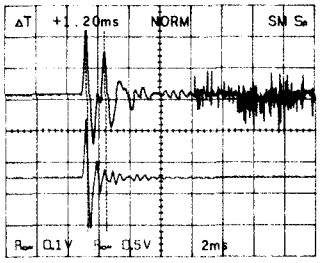
VC-6523
20MS/s, 20MHz, 2kw/CH

Easy to Use Compact Analog Real-time

Single Shot Capture

Elusive single-shot and intermittent phenomena are simple to capture using the digital storage function.

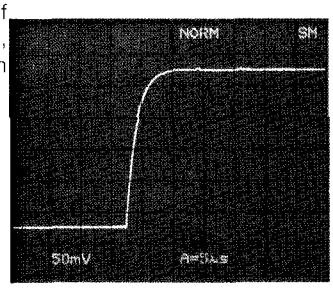
	Max. sampling rate
VC-6645	100MS/s (1CH), 25MS/s (4CH simultaneously)
VC-6555	100MS/s (2CH simultaneously)
VC-6545	40MS/s(1CH), 20MS/s(2CH simultaneously)
VC-6525	20MS/s(2CH simultaneously)
VC-6524	20MS/s
VC-6523	20MS/s



Storage of Repeating Waveform

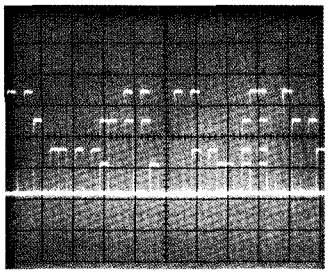
Storage of repetitive waveforms of same bandwidth as analog mode, enabling hardcopy and transfer of high speed repetitive waveform.

	Bandwidth
VC-6645	100MHz
VC-6555	100MHz
VC-6545	100MHz
VC-6525	50MHz
VC-6524	50MHz
VC-6523	20MHz

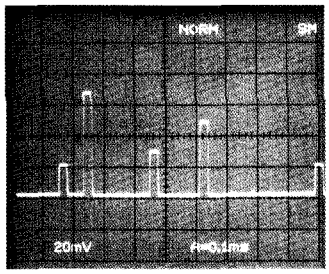


Static Observation of Non-repeating Phenomena

Even non-repeating events which cause a jumbled overlaid display using a conventional oscilloscope can be observed as clean a waveform.



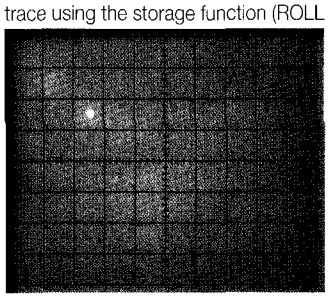
Analog real-time



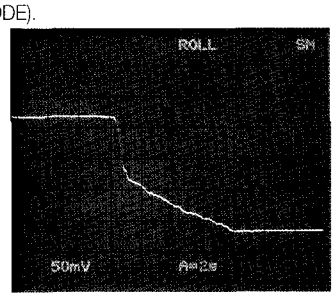
digital Storage

Observation of Low-speed phenomena

Low speed phenomena which appear as a moving dot can be observed as a trace using the storage function (ROLL MODE).



Analog real-time



digital Storage

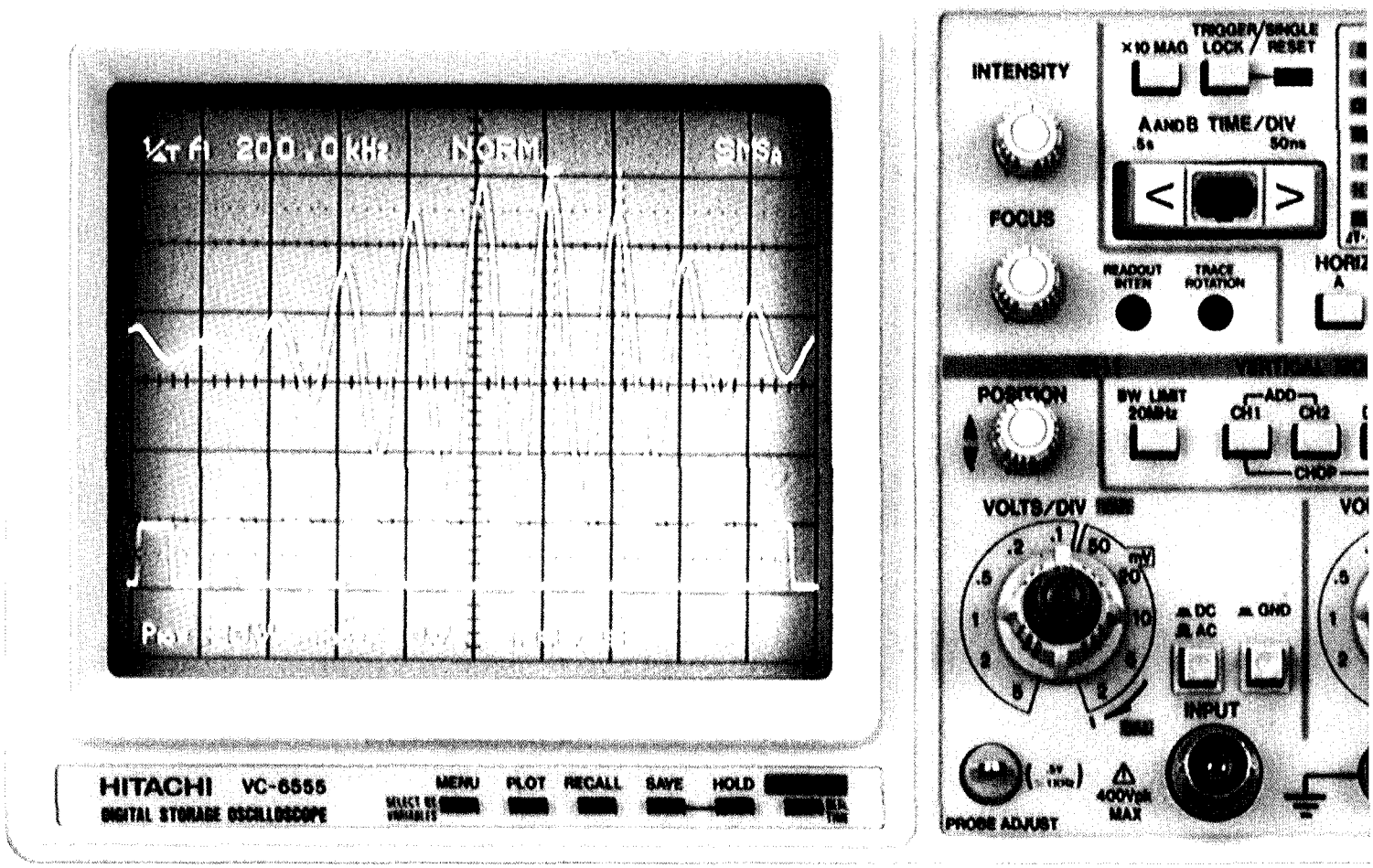


Photo in VC-6555

DSO Operation is Straightforward by Using Six Push Buttons Located Under the Bezel

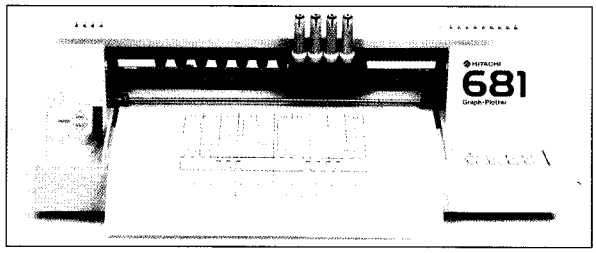
Easy Operation

Digital Oscilloscope

& Digital Storage Oscilloscopes

Hardcopy of Waveform Data

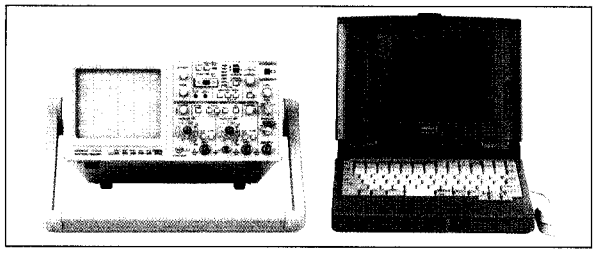
By connecting to an external plotter, it is easy to produce hardcopies of waveform data.

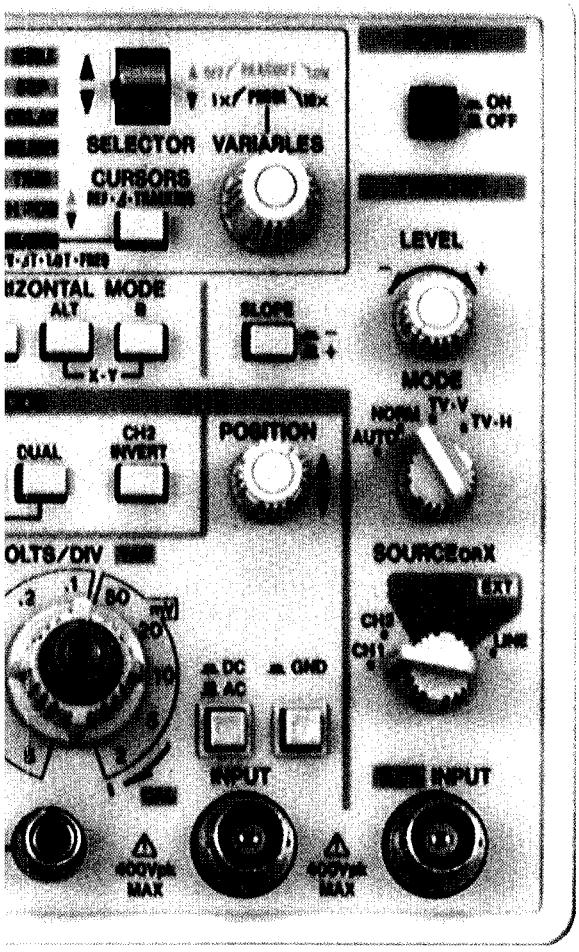


Hitachi Plotter 681-XA

Transfer of Waveform data

The RS-232C interface can be used to transfer stored waveform data to an external computer or other device for secondary storage and analysis.



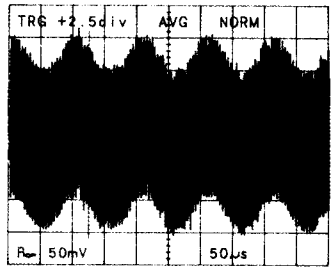


Actual Size

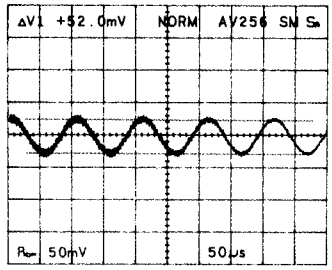
ope That Feels Like an Analog Scope

Averaging to Reduce Noise

Averaging can be used to reduce noise, thereby creating a display of just the signal of interest.



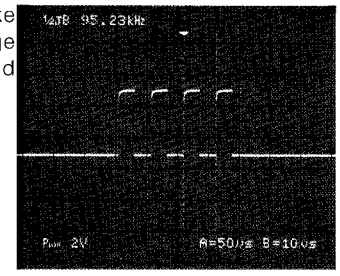
Before averaging



After averaging

Readout/Cursor Measurement

The readout function provides CRT display of measured values. In addition, two cursors can be used to make accurate measurements of voltage difference, time difference, and frequency.



Save Memory

Captured waveform can be stored and recalled for comparison.

Expanded Display

After a waveform is stored, it can be displayed in expanded form. In this display format, data between sampled points can be interpolated (either linear or sinusoidal interpolation can be selected).

Sweep Time Autoranging (VC-6645/6555/6545/6525)

The sweep time rate setting is automatically optimized in accordance with the input signal frequency.

Automatic Trigger Level (VC-6645/6555/6545/6525)

The trigger level variable range is automatically optimized in accordance with the input signal amplitude.

Trigger Lock (VC-6645/6555/6545/6525)

This unique feature is extremely effective in observation of complex pulse trains.

Frequency Counter (VC-6645/6555/6545/6525)

The frequency counter of the channel selected as the trigger signal is automatically counted.

Delayed Sweep (VC-6645/6555/6545/6525)

Delayed sweep function can be used to expand display in analog real-time mode and to post-trigger in digital storage mode.

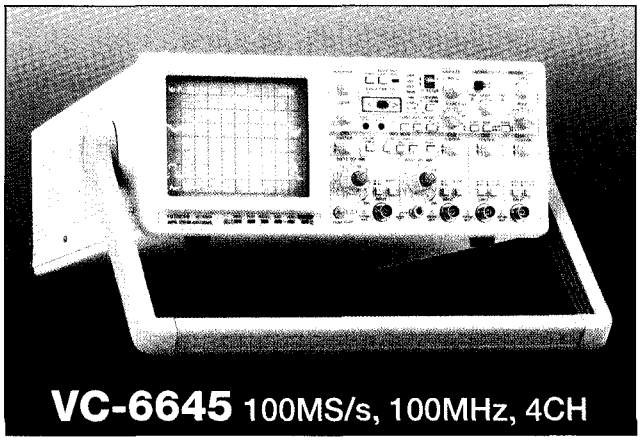
DC Offset (VC-6524)

The DC offset function can be used to cancel an portion of DC voltage at vertical expanded display. In addition, it can be used to cancel an portion of DC voltage at ultra-low speed signal even under AC coupling lower cutoff frequency.

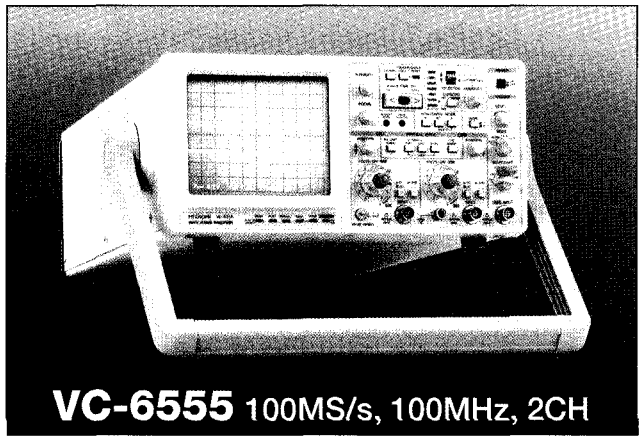
Selection Table

VC-6645	100MS/s (1CH), 50MS/s (2CH simultaneously) 25MS/s (4CH simultaneously)	4CH	DC to 100MHz	4kw(1CH) 2kw/CH	YES YES	YES YES
VC-6555	100MS/s (2CH simultaneously)	2CH	DC to 100MHz	8kw(1CH), 4kw/CH	YES	YES
VC-6545	40MS/s (1CH simultaneously) 20MS/s (2CH simultaneously)	2CH	DC to 100MHz	4kw(1CH), 2kw/CH	YES	YES
VC-6525	20MS/s (2CH simultaneously)	2CH	DC to 50MHz	2kw/CH	YES	YES
VC-6524	20MS/s	2CH	DC to 50MHz	2kw/CH	——	YES
VC-6523	20MS/s	2CH	DC to 20MHz	2kw/CH	——	YES

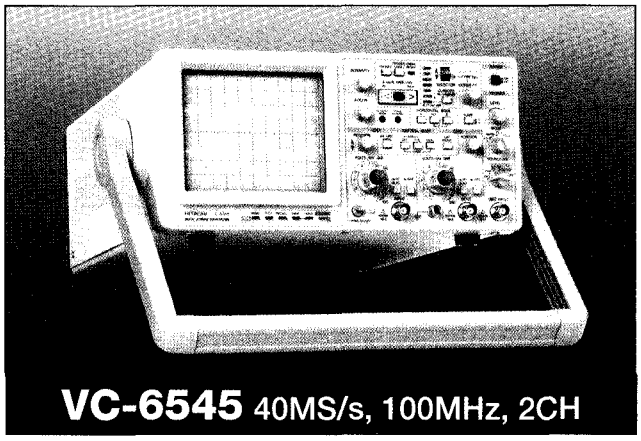
VC-6645	YES	YES	YES	YES	——	——	310 x 130 x 450 / 12.2 x 5.1 x 17.7	9 / 19.8
VC-6555	YES	YES	YES	YES	——	——	275 x 130 x 433 / 10.8 x 5.1 x 17.0	8 / 17.6
VC-6545	YES	YES	YES	YES	——	——	275 x 130 x 360 / 10.8 x 5.1 x 14.1	6.5 / 14.3
VC-6525	YES	YES	YES	YES	——	——	275 x 130 x 360 / 10.8 x 5.1 x 14.1	6.5 / 14.3
VC-6524	——	——	——	——	YES	YES	310 x 130 x 370 / 12.2 x 5.1 x 14.5	8 / 17.6
VC-6523	——	——	——	——	——	——	310 x 130 x 370 / 12.2 x 5.1 x 14.5	8 / 17.6



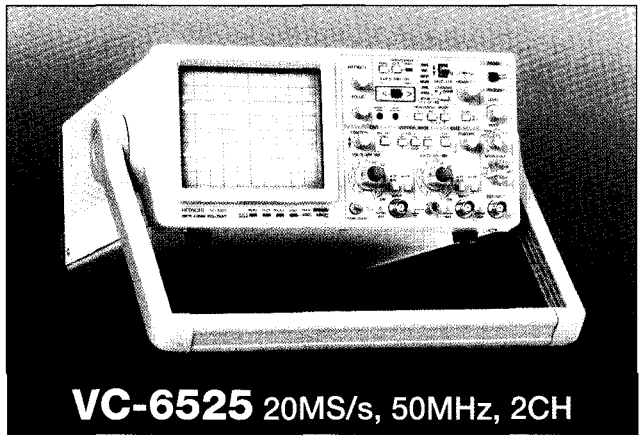
VC-6645 100MS/s, 100MHz, 4CH



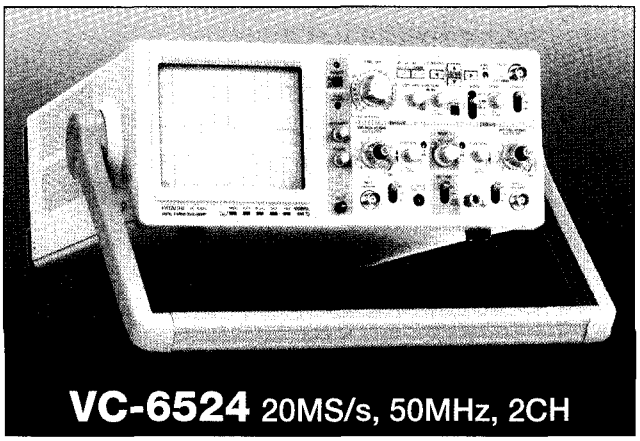
VC-6555 100MS/s, 100MHz, 2CH



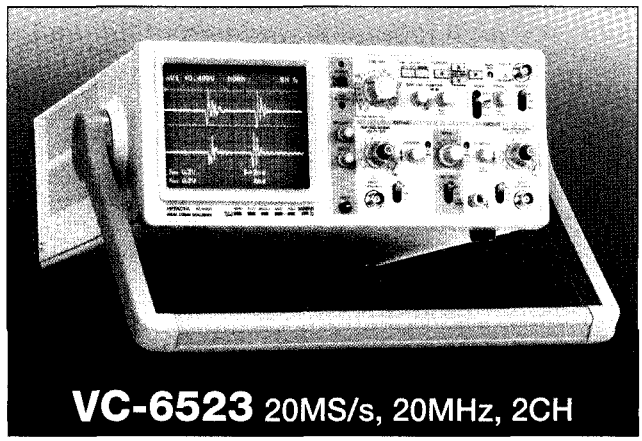
VC-6545 40MS/s, 100MHz, 2CH



VC-6525 20MS/s, 50MHz, 2CH



VC-6524 20MS/s, 50MHz, 2CH



VC-6523 20MS/s, 20MHz, 2CH

VC-6645/6555 Specifications

CRT

Type	6-inch, rectangular
Accelerating potential	Approx. 17kV
Z-axis input	DC coupling, positive-going input decreases

VERTICAL SYSTEM

Inputs	VC-6645: CH1, CH2, CH3, CH4 VC-6555: CH1, CH2
Sensitivity and accuracy	VC-6645 (CH1, CH2): 2mV to 5V/div ±3% (CH3, CH4): 0.1V/div and 0.5V/div ±3% VC-6555: 2mV to 5V/div ±3%
Bandwidth	DC to 100MHz (2mV/div: DC to 20MHz)
Rise time	Approx. 3.5ns (2mV/div: Approx. 17.5ns)
Input withstand voltage	400V (DC+ACpeak at 1kHz)
Input coupling	AC, GND, DC
Input impedance	1MΩ±1.5%, approx. 23pF
Display mode	VC-6645: CH1, CH2, DUAL, CHOP, ADD, QUAD VC-6555: CH1, CH2, DUAL, CHOP, ADD
Polarity inversion	CH2 only

X-Y OPERATION

X-axis input	VC-6645; X-axis: CH1, CH2, CH3, CH4 (CH1 or CH2 in storage mode) Y-axis: CH1, CH2, CH1 & CH2 (CH3 or CH4 in storage mode) VC-6555; X-axis: CH1, CH2, EXT, EXT÷10 (CH1 in storage mode) Y-axis: CH1, CH2, CH1 & CH2 (CH2 in storage mode)
X-axis bandwidth	DC to 500kHz
Phase error	Within 3° from DC to 50kHz

HORIZONTAL SYSTEM

Sweep time (non storage mode)	A (main) sweep: 50ns/div to 0.5s/div ±3% B (delayed) sweep: 50ns/div to 50ms/div ±3%
Max. sweep rate	5ns/div (×10 mag.) ±4%
Sweep mode	A, ALT (non-storage mode only), B
Delay time	1μs to 5s
Delay jitter	1/20000 or less

TRIGGER SYSTEM

Trigger mode	VC-6645; A trigger: AUTO, NORM, TV-V, TV-H, SINGLE B trigger: AUTO, NORM (Trigger source is depending on A) VC-6555: AUTO, NORM, TV-V, TV-H, SINGLE
Trigger source	VC-6645: CH1, CH2, CH3, CH4, ALT (CH1/CH2), LINE VC-6555: CH1, CH2, LINE, EXT (AC, DC, DC÷10)
Trigger slope	+, —
Trigger sensitivity	VC-6645:

	DC to 20MHz	20MHz to 100MHz
CH1, CH2	0.35div	1.5div
CH3, CH4	0.5div	1.5div

VC-6555:

	DC to 20MHz	20MHz to 100MHz
CH1, CH2	0.35div	1.5div
EXT	50mV	150mV

TV trigger sensitivity	INT: Sync pulse more than 1div EXT(VC-6555): Sync pulse more than 200mVp-p

CRT READOUT FUNCTION

Setting display	CH1/CH2/SAVE sensitivity, Sweep time, Delay time, sampling mode, aliasing condition, trigger point, smoothing, no. of averages, interpolation
Cursor measurements	Voltage difference (ΔV), time difference (ΔT), frequency (1/ΔT)
Frequency counter	Frequency range: 20Hz to 100MHz No. of digits: 4 digits Accuracy: 1 resolution ±100ppm (15 to 35°C)

STORAGE FUNCTION

Max. sampling rate	VC-6645: 100MS/s (1-CH operation) 50MS/s (2-CH simultaneously) 25MS/s (4-CH simultaneously) VC-6555: 100MS/s (2-CH simultaneously)
Max. storage bandwidth	VC-6645: DC to 5MHz (Single shot phenomena) DC to 100MHz (Repetitive phenomena) VC-6555: DC to 25MHz (Single shot phenomena) DC to 100MHz (Repetitive phenomena)
Memory Capacity	VC-6645: 4000 word (1CH operation and1μs/div to 50s/div) 2000 word (2CH or 4CH operation and 2μs/div to 50s/div) 1000 word (1CH operation and 50ns/div to 0.5μs/div, 2CH or 4CH operation and 50ns/div to 1μs/div) VC-6555: 8000 word (1CH and 1μs/div to 50s/div, except average mode) 4000 word (1CH and 1μs/div to 0.1s/div, in average mode) (2CH and 1μs/div to 50s/div, except average mode) 2000 word (2CH and 1μs/div to 0.1s/div, in average mode) 1000 word (50ns/div to 0.5μs/div)
Display memory	1000 word × 4
Save memory	VC-6645: 1000 word × 4 (with backed-up) VC-6555: 1000 word × 2 (with backed-up)
Vertical resolution	8 bits
Horizontal Display resolution	100 points/div
Storage mode	Normal, Average (4,16, 64, 256 times), Roll, Hold, Single
Sweep time	

Sampling mode	VC-6645	VC-6555
Equivalent sampling (A sweep only)	50ns/div to 0.5μs/div or 50ns/div to 1μs/div	50ns/div to 0.5μs/div
A sweep real-time sampling	1μs/div to 0.1s/div or 2μs/div to 0.1s/div	1μs/div to 0.1s/div
B sweep real-time sampling	1μs/div to 50ms/div or 2μs/div to 50ms/div	1μs/div to 50ms/div
Roll (A sweep only)	0.2s/div to 50s/div	0.2s/div to 50s/div

Smoothing	Selectable On/OFF
Interpolation	Linear or sine (only for magnified display)
Pre-trigger	VC-6645: Max. 0 to 20div (1CH operation and1μs/div to 0.1s/div) VC-6555: Max. 0 to 40div (1CH operation and1μs/div to 0.1s/div)
Post-trigger	VC-6645: Max. 0 to 10div (1CH operation and1μs/div to 0.1s/div) VC-6555: Max. 0 to 30div (1CH operation and1μs/div to 0.1s/div)
Expanded display	10 times (not possible with respect to saved waveform)
External I/O	RS-232C interface
Hardcopy	External plotter output (for HP-GL™ plotter) No. of pens: 6 pens. Plot size: 1, 2, 4 waveforms in A4 size

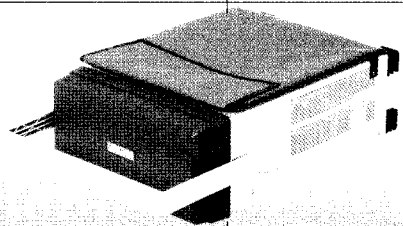
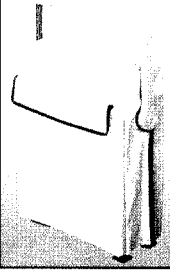
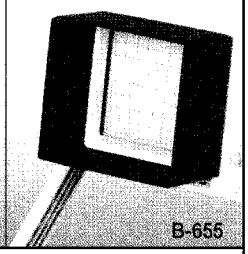
OTHERS

Signal output	Output of the signal selected as the trigger source channel Output voltage: Approx. 25mV/div Frequency response: DC to 10MHz Output impedance: Approx. 50Ω
Power supply	90 to 250V AC, 48 to 440Hz
Ambient temperature	Rated range of use: 10 to 35°C (50 to 95°F) Operating: 0 to 40°C (32 to 104°F) Non-operating: -20 to 70°C (-4 to 158°F)
Ambient humidity	Operation: 45 to 85% Non-operating: 35 to 85% (70 % or less at 50°C (122°F))
EMI protection	Satisfied VDE standard 0871 class B
Power consumption	VC-6645: approx. 80W VC-6555: approx. 70W
Dimensions	VC-6645: approx. 310(W) ×130(H) × 450(D)mm, 12.2 × 5.1 ×17.7 ins. VC-6555: approx. 275W) ×130(H) × 433(D)mm, 10.8 × 5.1 ×17.0 ins.
Weight	VC-6645: approx. 9kg, 19.8 lbs. VC-6555: approx. 8kg, 17.6 lbs.

STANDARD ACCESSORIES

Probe (1:1/10:1 switchable) × 2, AC power cord, Fuse, Operation manual

●Optional Accessories

Front Cover	Accessory Pouch	Dust Cover	Viewing Hood
			
No.6806: VC-6645/6524/6523 No.6809: VC-6555/6545/6525	No.6710: VC-6645/6524/6523 No.6708: VC-6555/6545/6525	No. 6522: VC-6645 No. 6524: VC-6555 No. 6519: VC-6545/6525 No. 6512: VC-6524/6523	B-655

RS-232C Cable for Hitachi Plotter No.4287

VC-6545/6525/6524/6523 Specifications

CRT

Type	6-inch, rectangular
Accelerating potential	VC-6545: Approx. 17kV VC-6525/6524: Approx. 12kV VC-6523: Approx. 2kV
Z-axis input	DC coupling, positive-going input decreases Bandwidth; VC-6545/6525: DC to 5MHz, VC-6524/6523: DC to 2MHz Input withstand voltage: 30V (DC+ACpeak) or 30Vp-pAC at 1kHz

VERTICAL SYSTEM

Inputs	CH1, CH2
Sensitivity and accuracy	VC-6545/6525: 2mV/div to 5V/div ±3% VC-6524/6523: 5mV/div to 5V/div ±3% (×5: 1mV/div)
Bandwidth	VC-6545: DC to 100MHz (2mV/div: DC to 20MHz) VC-6525: DC to 50MHz (2mV/div: DC to 10MHz) VC-6524: DC to 50MHz (×5: DC to 7MHz) VC-6523: DC to 20MHz (×5: DC to 7MHz)
Rise time	VC-6545: Approx. 3.5ns (2mV/div: Approx. 17.5ns) VC-6525: Approx. 7ns (2mV/div: Approx. 35ns) VC-6524: Approx. 7ns (×5: Approx. 50ns) VC-6523: Approx. 17.5ns (×5: Approx. 50ns)
Input withstand voltage	VC-6545/6525: 400V (DC+ACpeak at 1kHz) VC-6524/6523: 300V (DC+ACpeak at 1kHz)
Input coupling	AC, GND, DC
Input impedance	VC-6545/6525: 1MΩ±1.5%, approx. 23pF VC-6524/6523: Approx. 1MΩ, approx. 25pF
Display mode	VC-6545/6525: CH1, CH2, DUAL, CHOP, ADD VC-6524/6523: CH1, CH2, ALT, CHOP, ADD
Polarity inversion	CH2 only

X-Y OPERATION

X-axis input	VC-6545/6525; X-axis: CH1, CH2, EXT, EXT÷10 (CH1 in storage mode) Y-axis: CH1, CH2, CH1 & CH2 (CH2 in storage mode) VC-6524/6523; X--axis: CH1, Y-axis: CH2
X-axis bandwidth	DC to 500kHz
Phase error	Within 3° from DC to 50kHz

HORIZONTAL SYSTEM

Sweep time (non storage mode)	VC-6545/6525: A (main) sweep: 50ns/div to 0.5s/div ±3% B (delayed) sweep: 50ns/div to 50ms/div ±3% VC-6524/6523: 0.2µs/div to 0.2s/div
Max. sweep rate	VC-6545/6525: 5ns/div (×10 mag.) ±4% VC-6524: 20ns/div (×10 mag.) ±5% VC-6523: 100ns/div (×10 mag.) ±5% (20ns and 50ns/div are uncalibrated)
Sweep mode	VC-6545/6525: A, ALT (non-storage mode only), B VC-6524/6523: A only
Delay time	VC-6524/6525: 1µs to 5s
Delay jitter	VC-6524/6525: 1/20000 or less

TRIGGER SYSTEM

Trigger mode	VC-6545/6525: AUTO, NORM, TV-V, TV-H, SINGLE VC-6524/6523: AUTO, NORM, TV-V, TV-H
Trigger source	VC-6545/6525: CH1, CH2, LINE, EXT (AC, DC, DC÷10) VC-6524/6523: INT (CH1, CH2, V-MODE), LINE, EXT
Trigger slope	+, —
Trigger sensitivity	(see tables below)
TV trigger sensitivity	INT: Sync pulse more than 1div EXT: Sync pulse more than 200mVp-p

Trigger sensitivity:

VC-6545	DC to 20MHz	20MHz to 100MHz
VC-6525	DC to 10MHz	10MHz to 50MHz
CH1, CH2	0.35div	1.5div
EXT	50mV	150mV

VC-6524	20Hz to 5MHz	5MHz to 40MHz	40MHz to 50MHz
VC-6523	20Hz to 2MHz	2MHz to 20MHz	—
INT(CH1, CH2)	0.5div	1.5div	2.0div
INT(V-MODE)	2.0div	3.0div	3.5div
EXT	200mV	800mV	1V

CRT READOUT FUNCTION

Setting display	CH1/CH2/SAVE sensitivity, Sweep time, Delay time (except VC-6524/6523), sampling mode, aliasing condition, trigger point, smoothing, no. of averages, interpolation
Cursor measurements	Voltage difference (ΔV), time difference (ΔT), frequency (1/ΔT)
Frequency counter (except VC-6524/6523)	Frequency range; VC-6545: 20Hz to 100MHz, VC-6525: 20Hz to 50MHz No. of digits: 4 digits Accuracy: 1 resolution ±100ppm (15 to 35°C)

STORAGE FUNCTION

Max. sampling rate	VC-6545: 40MS/s (1-CH operation) 20MS/s (2-CH simultaneously) VC-6525: 20MS/s (2-CH simultaneously) VC-6524/6523: 20MS/s
Max. storage bandwidth	VC-6645: DC to 5MHz (Single shot phenomena) DC to 100MHz (Repetitive phenomena) VC-6525/6524: DC to 5MHz (Single shot phenomena) DC to 50MHz (Repetitive phenomena) VC-6523: DC to 5MHz (Single shot phenomena) DC to 20MHz (Repetitive phenomena)
Memory Capacity	VC-6545: 4000 word (1CH operation and 2.5µs/div to 50s/div) 2000 word (2CH operation and 2.5µs/div to 50s/div) 1000 word (50ns/div to 2µs/div) VC-6525: 2000 word (5µs/div to 50s/div) 1000 word (50ns/div to 2µs/div) VC-6524/6523: 2000 word (5µs/div to 20s/div 1000 word (0.2µs/div to 2µs/div)
Display memory	1000 word × 4
Save memory	VC-6545/6525: 1000 word × 2 (with backed-up) VC-6524/6523: 1000 word × 2
Vertical resolution	8 bits
Horizontal display resolution	100 points/div
Storage mode	Normal, Average (4,16, 64, 256 times), Roll, Hold, Single
Sweep time	(see table below)
Smoothing	Selectable On/OFF
Interpolation	Linear or sine (only for magnified display)
Pre-trigger	VC-6545: Max. 0 to 20div VC-6525/6524/6523: Max. 0 to 10div
Post-trigger	VC-6545: Max. 0 to 10div
Expanded display	10 times (not possible with respect to saved waveform)
External I/O	RS-232C interface
Hardcopy	External plotter output (for HP-GL™ plotter) No. of pens: 6 pens. Plot size: 1, 2, 4 waveforms in A4 size

Sweep time:

	Sampling mode	
VC-6545	Equivalent sampling (A sweep only)	50ns/div to 2µs/div
	A sweep real-time sampling	2.5µs/div to 0.1s/div
	B sweep real-time sampling	2.5µs/div to 50ms/div
	Roll (A sweep only)	0.2s/div to 50s/div
VC-6525	Equivalent sampling (A sweep only)	50ns/div to 2µs/div
	A sweep real-time sampling	5µs/div to 0.1s/div
	B sweep real-time sampling	5µs/div to 50ms/div
	Roll (A sweep only)	0.2s/div to 50s/div
VC-6524 VC-6523	Equivalent sampling	0.2µs/div to 2µs/div
	real-time sampling	5µs/div to 0.2s/div
	Roll	0.5s/div to 20s/div

OTHERS

Signal output	Output of the signal selected as the trigger source channel Output voltage: Approx. 25mV/div Frequency response: DC to 10MHz Output impedance: Approx. 50Ω
Power supply	VC-6545/6525: 90 to 250V AC, 48 to 440Hz VC-6524/6523: 100/120/220/240V AC ±10%, 50/60/400Hz
Ambient temperature	Rated range of use: 10 to 35°C (50 to 95°F) Operating: 0 to 40°C (32 to 104°F) Non-operating: -20 to 70°C (-4 to 158°F)
Ambient humidity	Operation: 45 to 85% Non-operating: 35 to 85% (70 % or less at 50°C (122°F))
EMI protection	Satisfied VDE standard 0871 class B
Power consumption	Approx. 50W
Dimensions	VC-6545/6525: Approx. 275(W) × 130(H) × 360(D)mm, 10.8 × 5.1 × 14.2 ins. VC-6524/6523: Approx. 310(W) × 130(H) × 370(D)mm, 12.2 × 5.1 × 14.6 ins.
Weight	VC-6545/6525: approx. 6.5kg, 14.3 lbs. VC-6524/6523; approx, 8kg, 17.6 lbs.

STANDARD ACCESSORIES

Probe (1:1/10:1 switchable) × 2, AC power cord, Fuse, Operation manual

Specifications and outer appearance are subject to change without prior notice

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