

QUARZ CRYSTAL SPECIFICATION

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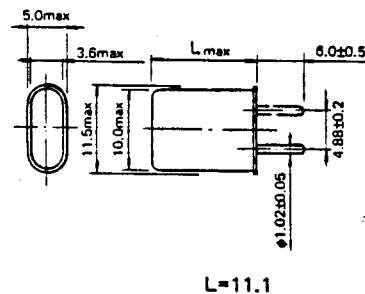
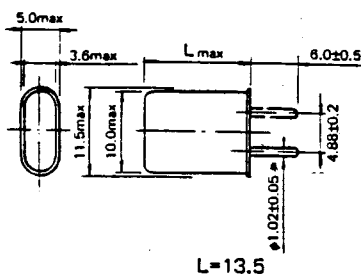
Specification	SAL 8 and SAL 8B
Type of holder	SAL 8: HC 42/u or HC 50/u SAL 8B: HC 42/u short type or HC 50/u short type
Frequency range	10 ... 35 MHz
Mode of vibration	Fundamental
Load capacitance	30 pF
Calibration tolerance	+/- 5 ppm
Reference temperature	+ 25°C
Temperature stability	+/- 10 ppm
Temperature range	-25 ... +70°C
Motional capacitance:	20fF +/- 20%
Pin to pin capacitance	< 7pF
Spurious suppression	6 dB min.
Aging in one year	< 3 ppm
Test set calibration	100µW/18ohm
Equivalent series resistant	<= 20ohm

SAL 8 :

HC 42/u or  
HC 50/u

SAL 8B :

HC 42/u short type  
HC 50/u short type

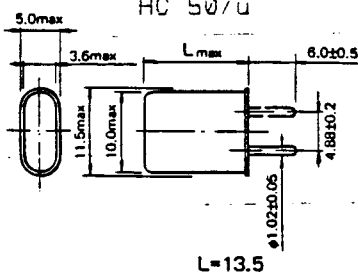


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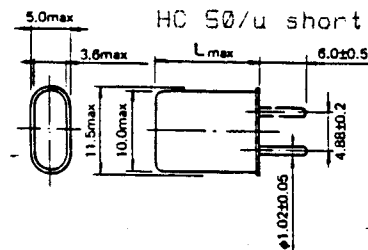
Specification	SAL 9, SAL 9A, SAL 9B and SAL 9AB
Type of holder	SAL 9 and SAL 9A: HC 42/u or HC 50/u  SAL 9B and SAL 9AB: HC 42/u short type or HC 50/u short type
Frequency range	30 ... 100 MHz
Mode of vibration	3.overtone
Load capacitance	-
Calibration tolerance	+ - 5 ppm
Reference temperature	+ 25°C
Temperature stability	+ - 10 ppm
Temperature range :	SAL 9 and SAL 9B: -25 ... +70°C  SAL 9A and SAL 9AB: -30 ... +85°C
Motional capacitance:	2fF + - 20%
Pin to pin capacitance	< 7pF
Spurious suppression	6 dB min.
Aging in one year	< 3 ppm
Test set calibration	100µW/18ohm
Equivalent series resistant	<= 20ohm

SAL 9 and SAL 9A :  
HC 42/u or  
HC 50/u



L=13.5

SAL 9B and SAL 9AB :  
HC 42/u short type  
HC 50/u short type



L=11.1

Laat. 05/86 JKa

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MUUN KOKOON

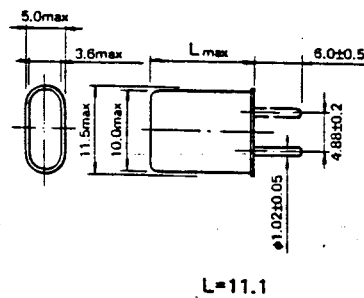
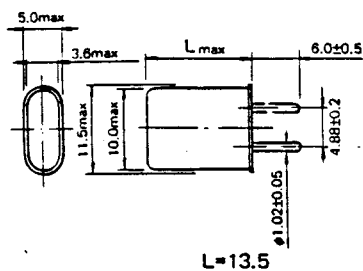
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Specification	SAL 10 and SAL 10B
Type of holder	SAL 10: HC 42/u or HC 50/u SAL 10B: HC 42/u short type or HC 50/u short type
Frequency range	60 ... 150 MHz
Mode of vibration	5.overtone
Load capacitance	-
Calibration tolerance	+ - 5 ppm
Reference temperature	+ 25°C
Temperature stability	+ - 10 ppm
Temperature range	-25 ... +70°C
Motional capacitance:	0.6fF + - 20%
Pin to pin capacitance	< 7pF
Spurious suppression	6 dB min.
Aging in one year	< 3 ppm
Test set calibration	100µW/33ohm
Equivalent series resistant	<= 40ohm

SAL 10 :  
HC 42/u or  
HC 50/u

SAL 10B :  
HC 42/u short type  
HC 50/u short type

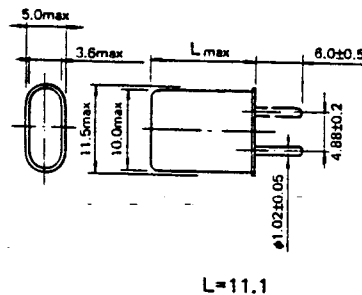
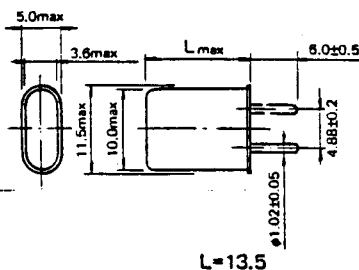


QUARZ CRYSTAL SPECIFICATION

Specification	SAL 11 and SAL 11B
Type of holder	SAL 11: HC 42/u or HC 50/u SAL 11B: HC 42/u short type or HC 50/u short type
Frequency range	10 ... 35 MHz
Mode of vibration	Fundamental
Load capacitance	-
Calibration tolerance	+/- 10 ppm
Reference temperature	+ 25°C
Temperature stability	+/- 10 ppm
Temperature range	-25 ... +70°C
Motional capacitance:	25fF +/- 20%
Pin to pin capacitance	< 7pF
Spurious suppression	6 dB min.
Aging in one year	< 3 ppm
Test set calibration	100µW/18ohm
Equivalent series resistant	<= 20ohm

SAL 11 :  
HC 42/u or  
HC 50/u

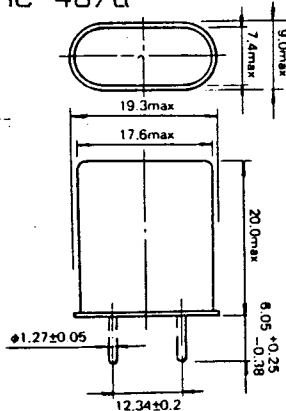
SAL 11B :  
HC 42/u short type  
HC 50/u short type



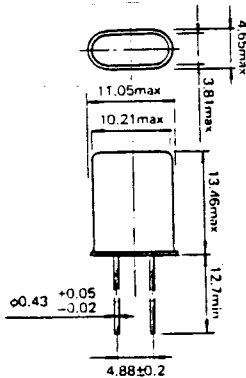
QUARZ CRYSTAL SPECIFICATION

Specification	SAL 12, SAL 12D and SAL 12D1
Type of holder	SAL 12: HC 36/u or HC 48/u SAL 12D: HC 49/u or HC 43/u SAL 12D1: HC 42/u short type or HC 50/u short type
Frequency range	2.5 ... 4 MHz
Mode of vibration	Fundamental
Load capacitance	30 pF
Calibration tolerance	+/- 10 ppm
Reference temperature	+ 25°C
Temperature stability	+/- 10 ppm
Temperature range	-25 ... +70°C
Motional capacitance:	
SAL 12 :	10fF +/- 20%
SAL 12D and	
SAL 12D1 :	2.5 - 3.499 MHz ; 5.5fF +/-20% 3.5 - 4.0 MHz ; 7.0fF +/-20%
Pin to pin capacitance	< 7pF
Spurious suppression	6 dB min.
Aging in one year	< 3 ppm
Test set calibration	100uW/33ohm
Equivalent series resistant	
SAL 12:	<= 40ohm
SAL 12D and	
SAL 12D1:	<= 100ohm

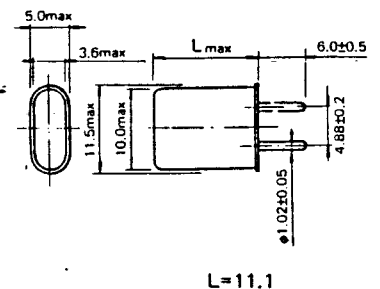
SAL 12 :  
HC 36/u or  
HC 48/u



SAL 12D :  
HC 49/u or  
HC 43/u



SAL 12D1 :  
HC 42/u short type  
HC 50/u short type

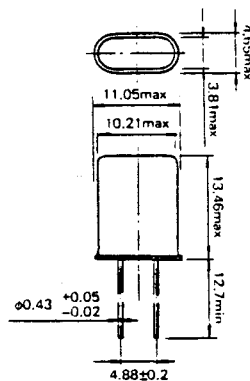
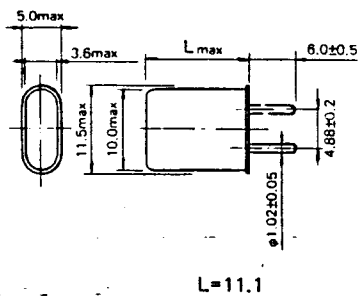


QUARZ CRYSTAL SPECIFICATION

Specification	SAL 12A and SAL 12B
Type of holder	SAL 12A: HC 42/u short type or HC 50/u short type SAL 12B: HC 49/u or HC 43/u
Frequency range	4.0 ... 10 MHz
Mode of vibration	Fundamental
Load capacitance	30 pF
Calibration tolerance	+/- 10 ppm
Reference temperature	+ 25°C
Temperature stability	+/- 10 ppm
Temperature range	-25 ... +70°C
Motional capacitance:	7.0fF +/-20%
Pin to pin capacitance	< 7pF
Spurious suppression	6 dB min.
Aging in one year	< 3 ppm
Test set calibration	100uW/33ohm
Equivalent series resistant	<= 40ohm

SAL 12A :  
HC 42/u short type  
HC 50/u short type

SAL 12B :  
HC 49/u or  
HC 43/u



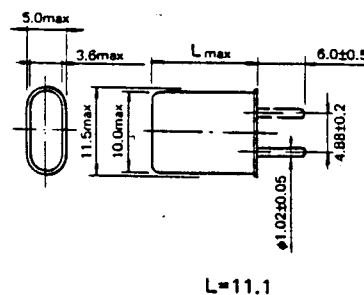
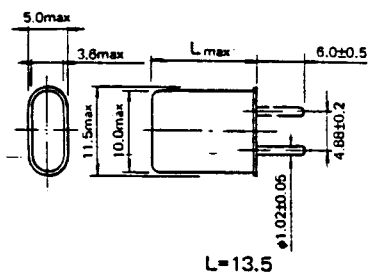
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Specification	SAL 13 and SAL 13B
Type of holder	SAL 13: HC 42/u or HC 50/u SAL 13B: HC 42/u short type or HC 50/u short type
Frequency range	30 ... 100 MHz
Mode of vibration	3.overtone
Load capacitance	-
Calibration tolerance	+/- 5 ppm
Reference temperature	+ 25°C
Temperature stability	+/- 5 ppm
Temperature range	-25 ... +70°C
Motional capacitance:	2fF +/- 20%
Pin to pin capacitance	< 7pF
Spurious suppression	6 dB min.
Aging in one year	< 3 ppm
Test set calibration	100µW/18ohm
Equivalent series resistant	<= 20ohm

SAL 13 :  
HC 42/u or  
HC 50/u

SAL 13B :  
HC 42/u short type  
HC 50/u short type



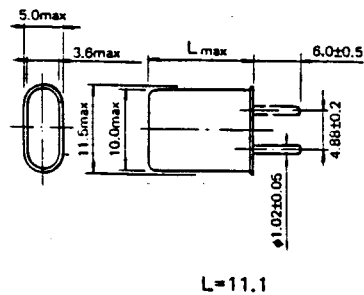
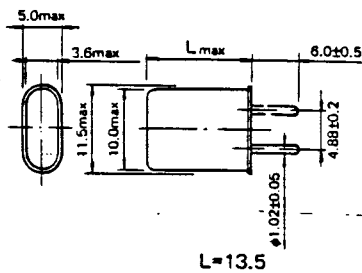
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Specification	SAL 14 and SAL 14B
Type of holder	SAL 14: HC 42/u or HC 50/u SAL 14B: HC 42/u short type or HC 50/u short type
Frequency range	60 ... 150 MHz
Mode of vibration	5.overtone
Load capacitance	-
Calibration tolerance	+ - 5 ppm
Reference temperature	+ 25°C
Temperature stability	+ - 5 ppm
Temperature range	-25 ... +70°C
Motional capacitance:	0.6fF + - 20%
Pin to pin capacitance	< 7pF
Spurious suppression	6 dB min.
Aging in one year	< 3 ppm
Test set calibration	100µW/33ohm
Equivalent series resistant	<= 40ohm

SAL 14 :  
HC 42/u or  
HC 50/u

SAL 14B :  
HC 42/u short type  
HC 50/u short type





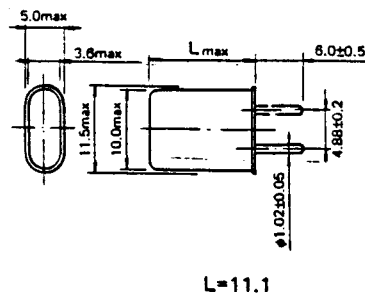
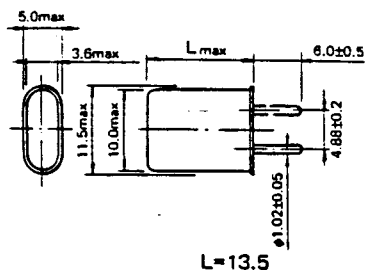
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Specification	SAL 15 and SAL 15B
Type of holder	SAL 15: HC 42/u or HC 50/u SAL 15B: HC 42/u short type or HC 50/u short type
Frequency range	30 ... 100 MHz
Mode of vibration	3.overtone
Load capacitance	-
Calibration tolerance	+/- 5 ppm
Reference temperature	+ 25°C
Temperature stability	+/- 5 ppm (+5/-15 ppm -25 ... -15°C)
Temperature range	-15 ... +70°C (+5/-15 ppm -25 ... -15°C)
Motional capacitance:	2.0fF +/- 20%
Pin to pin capacitance	< 7pF
Spurious suppression	6 dB min.
Aging in one year	< 3 ppm
Test set calibration	100µW/18ohm
Equivalent series resistant	<= 20ohm

SAL 15 :  
HC 42/u or  
HC 50/u

SAL 15B :  
HC 42/u short type  
HC 50/u short type

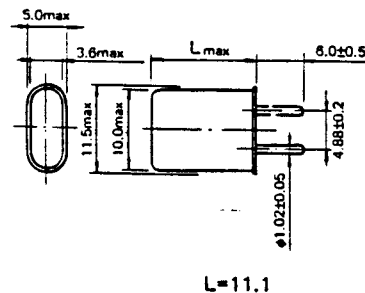
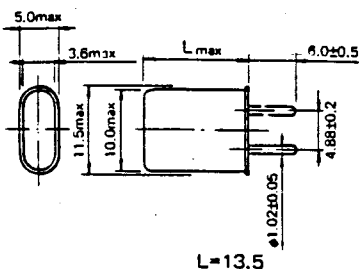


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Specification	SAL 16 and SAL 16B
Type of holder	SAL 16: HC 42/u or HC 50/u SAL 16B: HC 42/u short type or HC 50/u short type
Frequency range	60 ... 150 MHz
Mode of vibration	5.overtone
Load capacitance	-
Calibration tolerance	+/- 5 ppm
Reference temperature	+ 25°C
Temperature stability	+/- 5 ppm (+5/-15 ppm -25 ... -15°C)
Temperature range	-15 ... +70°C (+5/-15 ppm -25 ... -15°C)
Motional capacitance:	0.6pF +/- 20%
Pin to pin capacitance	< 7pF
Spurious suppression	6 dB min.
Aging in one year	< 3 ppm
Test set calibration	100µW/33ohm
Equivalent series resistant	<= 40ohm

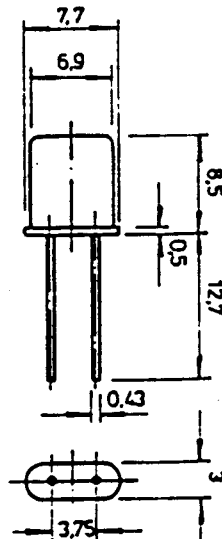
 SAL 16 :  
 HC 42/u or  
 HC 50/u

 SAL 16B :  
 HC 42/u short type  
 HC 50/u short type


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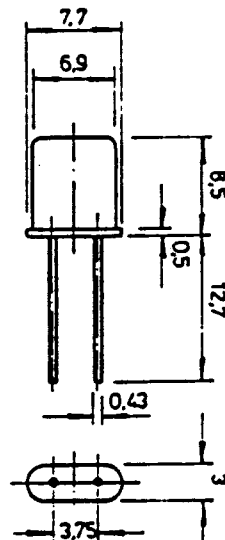
Specification	SAL 30
Type of holder	HC 45/u
Frequency range	10 ... 30 MHz
Mode of vibration	Fundamental
Load capacitance	30 pF
Calibration tolerance	+/- 10 ppm
Reference temperature	+ 25°C
Temperature stability	+/- 10 ppm
Temperature range	-20 ... +70°C
Motional capacitance:	10fF +/- 20%
Pin to pin capacitance	< 4pF
Spurious suppression	6 dB min.
Aging in one year	< 3 ppm
Test set calibration	100µW/22ohm
Equivalent series resistant	<= 30ohm

 SAL 30 :  
 HC 45/u


## QUARZ CRYSTAL SPECIFICATION

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Specification	SAL 31
Type of holder	HC 45/u
Frequency range	30 ... 90 MHz
Mode of vibration	3.overtone
Load capacitance	30 pF
Calibration tolerance	+ - 10 ppm
Reference temperature	+ 25 °C
Temperature stability	+ - 10 ppm
Temperature range	-20 ... +70 °C
Motional capacitance:	1.0fF + - 20%
Pin to pin capacitance	< 4 pF
Spurious suppression	6 dB min.
Aging in one year	< 3 ppm
Test set calibration	100µW/33ohm
Equivalent series resistant	<= 40ohm

 SAL 31 :  
 HC 45/u


QUARZ CRYSTAL SPECIFICATION

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Specification	SAL 32 and SAL 32B
Type of holder	SAL 32: HC 43/u or HC 49/u SAL 32B: HC 43/u short type or HC 49/u short type
Frequency range	60 ... 125 MHz
Mode of vibration	5.overtone
Load capacitance	-
Calibration tolerance	+/- 5 ppm
Reference temperature	+ 25°C
Temperature stability	+/- 10 ppm
Temperature range	-25 ... +70°C
Motional capacitance:	0.6fF +/- 20%
Pin to pin capacitance	< 7pF
Spurious suppression	6 dB min.
Aging in one year	< 3 ppm
Test set calibration	100µW/56ohm
Equivalent series resistant	<= 60ohm

SAL 32 :  
HC 43/u or  
HC 49/u

SAL 32B :  
HC 43/u short type  
HC 49/u short type

