



► kHz Range Crystal Unit (Tuning fork)

Model	External Dimensions (mm)	t Max.	Frequency	20 kHz	32 kHz	100 kHz	200 kHz	300 kHz
FC-12M		2.05×1.2×0.6		32 kHz	77.5 kHz			
FC-12D		2.05×1.25×0.35			● 32.768 kHz			
FC-13A		3.2×1.5×0.9			● 32.768 kHz			
FC-13F		3.2×1.5×0.6			● 32.768 kHz			
FC-135		3.2×1.5×0.9		32 kHz	77.5 kHz			
FC-255		4.9×1.8×0.9		32 kHz	100 kHz			
MC-146		7.0×1.5×1.4		32 kHz	100 kHz			
MC-156		7.1×3.3×1.5						
MC-306		8.0×3.8×2.54	20 kHz			165 kHz		
MC-405/406		10.41×4.06×3.6	20 kHz			165 kHz		
MC-405/406		8.0×3.8×2.54	20 kHz			165 kHz		
C-002RX		Φ2.0			● 32.768 kHz			
C-004R		Φ1.5						
C-005R		Φ1.2						
C-2-TYPE		Φ2.0	20 kHz			165 kHz		
C-4-TYPE		Φ1.5		32 kHz		120 kHz	● 192 kHz	

► MHz Range Crystal Unit (AT)

Model	External Dimensions (mm)	t Max.	Frequency	1 MHz	10 MHz	20 MHz	64 MHz
FA-118T		1.6×1.2×0.35			24 MHz	54 MHz	
FA-128		2.0×1.6×0.5			16 MHz	54 MHz	
FA-20H		2.5×2.0×0.55		12 MHz	48 MHz		
FA-238V		3.2×2.5×0.7		12 MHz	15.999 MHz		
FA-238		3.2×2.5×0.7			16 MHz	60 MHz	
TSX-3225		3.2×2.5×0.6			16 MHz	48 MHz	
MA-306		8.0×3.8×2.54			● 14.31818 MHz		
MA-406		11.7×4.8×3.7		4 MHz	17.734 MHz	41 MHz	64 MHz*
MA-505/506		13.46×5.08×4.6					
CA-301		Φ3.1					

* 8.0 MHz < nominal < 8.2 MHz : Unavailable
 Available frequencies from 4 MHz to less than 5.5 MHz
 (4 MHz, 4.032 MHz, 4.096 MHz, 4.160 MHz, 4.194304 MHz, 4.433619 MHz, 4.5 MHz, 4.59 MHz, 4.9152 MHz)

► Resonator (SAW)

Model	External Dimensions (mm)	Frequency	200 MHz	500 MHz	700 MHz	1 GHz
NS-21R		300 MHz	500 MHz			
NS-32R		312 MHz		870 MHz		
FS-335		300 MHz		870 MHz		
FS-555		230 MHz	500 MHz			
FS-585		300 MHz	500 MHz			



► SPXO

Model	External dimensions (mm)	Frequency					
		1 Hz	1 MHz	50 MHz	100 MHz	500 MHz	800 MHz
SG-3030JC SG-3040JC	 10.5×5.8×2.7 (t: Max.)	● 32.768 kHz					
SG-3030JF	 7.1×5.1×1.5 (t: Max.)						
SG-3030LC SG-3040LC	 3.6×2.8×1.2 (t: Max.)						
SG-150 S*E	 2.1×1.7×0.75	3 MHz		54 MHz			
SG-211 S*E	 2.5×2.0×0.7	2.375 MHz		60 MHz			
SG-210 S*B	 2.5×2.0×0.8	2 MHz		60 MHz			
SG-210 S*D	 2.5×2.0×0.8			50 MHz	80 MHz		
SG-310 series	 3.2×2.5×1.05	2 MHz			80 MHz		
SG-550 series	 5.0×3.2×1.2 (t: Max.)	2 MHz		48 MHz			
TCO-710x series	 5.0×3.2×1.0	1.5 MHz		75 MHz			
SG-770 series	 7.0×5.0×1.6			50 MHz	230 MHz		
SG-771 PCD	 7.0×5.0×1.6			50 MHz	175 MHz		
TCO-708x series	 7.0×5.0×1.6	1.5 MHz			160 MHz		
HG-2150CA	 7.0×5.0×1.4	1 MHz		60 MHz			
SG-645 series	 7.1×5.1×1.5 (t: Max.)	32.001 MHz			135 MHz		
SG-636 series	 10.5×5.8×2.7 (t: Max.)	2.21675 MHz			135 MHz		
SG-615 series	 SG-615P C 20.0000M E 9352A	1.025 MHz			135 MHz		
SG-531 series	 SG531PTJC 60.0000M E 9353B						
SG-51 series	 E SG51P 9353B 16.0000MHz C	1.025 MHz		66.667 MHz			

► Programmable

Model	Package type	Frequency					
		1 Hz	1 MHz	50 MHz	100 MHz	500 MHz	800 MHz
SG-8003 series (1.8 / 2.5 / 3.3 V)	BA, CE, LB, JF, CA	1.0 MHz			166 MHz		
SG-8002 series (3.3 / 5.0 V)	CE, LB, JF, CA, JC, JA, DC, DB	1.0 MHz			125 MHz		

SG-8000 series Programming Tool

Package Type	BA	CE	LB	JF	CA	JC	JA	DC	DB
External dimensions (mm)	2.1×1.7×0.75 (t: Typ.)	3.2×2.5×1.05 (t: Typ.)	5.0×3.2×1.2 (t: Max.)	7.1×5.1×1.5 (t: Max.)	7.0×5.0×1.4 (t: Typ.)	10.5×5.8×2.7 (t: Max.)	14.0×9.8×4.7 (t: Max.)	DIP half size	DIP full size
									



► Spread Spectrum

Model	External dimensions (mm)	Frequency					
		1 Hz	1 MHz	50 MHz	100 MHz	500 MHz	800 MHz
SG-9001 LB (3.3 V)	 5.0×3.2×1.2 (t: Max.)	10 MHz			13 MHz		
SG-9001 CA (3.3 V)	 7.0×5.0×1.4	10 MHz			166 MHz		
SG-9001 JC (3.3 V)	 10.5×5.8×2.7 (t: Max.)	10 MHz			166 MHz		

► Low-jitter SAW

Model		External dimensions (mm)	Frequency					
			1 Hz	1 MHz	50 MHz	100 MHz	500 MHz	800 MHz
XG-1000CA (1.8/2.5/3.3V)	CMOS	 7.0×5.0×1.2			50 MHz	170 MHz	z	
XG-1000 CB (1.8/2.5/3.3V)	CMOS	 5.0×3.2×1.1			50 MHz	170 MHz	z	
EG-2021CA (2.5V)	CMOS	 7.0×5.0×1.2			62.5 MHz	250 MHz	z	
EG-2001CA (3.3V)	CMOS	 7.0×5.0×1.2			106.25 MHz	170 MHz	z	
EG-2002CA (3.3 V)	LV-TTL	 7.0×5.0×1.2			62.5 MHz	170 MHz	z	
EG-2121CB (2.5V)	Differential LV-PECL	 5.0×3.2×1.4				100 MHz	700 MHz	z
	LVDS							
EG-2102CB (3.3 V)	Differential LV-PECL	 7.0×5.0×1.2				100 MHz	700 MHz	z
	LVDS							
XG-2121CA (2.5V)	Differential LV-PECL	 7.0×5.0×1.2				100 MHz	700 MHz	z
	LVDS							
XG-2102CA (3.3V)	Differential LV-PECL	 7.0×5.0×1.2						
	LVDS							
EG-2121CA (2.5V)	Differential LV-PECL	 7.0×5.0×1.2		53.12 MHz	50 MHz		500 MHz	z
	LVDS			53.12 MHz	50 MHz		700 MHz	
	HCSL					100 MHz	350 MHz	z
EG-2102CA (3.3V)	Differential LV-PECL	 7.0×5.0×1.2				100 MHz	700 MHz	z
	LVDS			53.12 MHz	50 MHz		700 MHz	z
	HCSL					100 MHz	350 MHz	z
EG-2101CA (3.3 V)	Differential LV-PECL	 7.0×5.0×1.2			62.5 MHz	99.999 MHz	z	
EG-4121CA (2.5V)	Differential LV-PECL	 7.0×5.0×1.2				100 MHz	700 MHz	
	LVDS					100 MHz	700 MHz	z
	HCSL					100 MHz	350 MHz	
EG-4101CA (3.3V)	Differential LV-PECL	 7.0×5.0×1.2				100 MHz	700 MHz	z
	LVDS					100 MHz	700 MHz	
	HCSL					100 MHz	350 MHz	z
EA-2102CB (3.3 V)	Differential LV-PECL	 5.0×3.2×1.35				100 MHz	z	

► VCXO / VCSO

Model	External dimensions (mm)	Frequency					
		1 Hz	1 MHz	50 MHz	100 MHz	500 MHz	800 MHz
VG-4231CE (1.8 / 2.8 / 3.3 V)		3.2×2.5×1.05	3 MHz	60 MHz			
VG-4231CB (3.3 V)		5.0×3.2×1.2	1 MHz	81 MHz			
VG-4231CA (3.3 / 5.0 V)		7.0×5.0×1.4	1 MHz	60 MHz			
VG-4232CA (3.3 V)		7.0×5.0×1.4	60.0001 MHz	80 MHz			
VG-4501/4502CA (3.3 V)		7.0×5.0×1.6		80 MHz	125 MHz		
VG-4512CA (3.3 V)		7.0×5.0×1.6		80 MHz	200 MHz		
EV-9100JG (3.3 V)		13.9×9.8×4.7				800 MHz	2500 MHz

► TCXO

Model	External dimensions (mm)	Frequency			
		1 Hz	1 MHz	50 MHz	100 MHz
TG-3530SA (1.5 to 5.5 V)		10.1×7.4×3.2	●32.768 kHz		
TG-5031CJ (1.8 V)		2.0×1.6×0.73	13 MHz	52 MHz	
TG-5035CJ (1.8 V)					
TG-5021CG (2.8 V)		2.5×2.0×0.8	13 MHz	52 MHz	
TG-5035CG (1.8 V)					
TG-5021CE (2.8 V)		3.2×2.5×0.9	10 MHz	40 MHz	
TG-5035CE (1.8 V)					

Category	Mode	Actual	size(mm)	Features
Serial 4-Wire	RX-4045SA		10.1x7.4x3.2 t(Typ)	High-Stability
	RX-4045NB		6.3x5.2x1.4 t(Max)	
	RX-4581NB		6.3x5.2x1.4 t(Max)	Built-in SRAM
	RX4565SA 		10.1x7.4x3.2 t(Typ)	For Automotivetemperature range(+125 °C)
	RX-4803SA		10.1x7.4x3.2 t(Typ)	Built-in DTCXO
	RX-4803LC		3.6x2.4x1.2 t(Max)	High Stability
	RX-5412SF		10.5x8.1x2.0 t(Max)	Built-in event recorderfunction
Serial 3-Wire	RTC-4701JE		7.3x6.2x1.5 t(Max)	Built-in Temperature Sensor
	RTC-4701NB		6.3x5.2x1.4 t(Max)	
	RTC-4574SA		10.1x7.4x3.2 t(Typ)	Simple Function
	RTC-4574JE		7.3x6.2x1.5 t(Max)	
	RTC-4574NB		6.3x5.2x1.4 t(Max)	
	RX-4574LC		3.6x2.8x1.2 t(Max)	
	RA-4574SA 		10.1x7.4x3.2 t(Typ)	For Automotive
	RTC-4543SA		10.1x7.4x3.2 t(Typ)	Simple Function
	RTC-4543SB		11.6x8.0x2.0 t(Max)	
	RX-4575LC		3.6x2.8x1.2 t(Max)	Built-in external event detection
	RX-4571LC		3.6x2.8x1.2 t(Max)	Low Backup Voltage
	RX-4571NB		6.3x5.2x1.4 t(Max)	
	RX-4571SA		10.1x7.4x3.2 t(Typ)	
I ² C Bus	RX-8025SA		10.1x7.4x3.2 t(Typ)	High-Stability
	RX-8025NB		6.3x5.2x1.4 t(Max)	
	RTC-8564JE		7.3x6.2x1.5 t(Max)	Low power consumption
	RTC-8564NB		6.3x5.2x1.4 t(Max)	
	RX-8564LC		3.6x2.8x1.2 t(Max)	
	RA-8565SA 		10.1x7.4x3.2 t(Typ)	For Automotivetemperature range(+125 °C)
	RX-8571SA		10.1x7.4x3.2 t(Typ)	Low powerconsumption
	RX-8571NB		6.3x5.2x1.4 t(Max)	128 bit user RAMLong-running timer (65000 hours)
	RX-8571LC		3.6x2.8x1.2 t(Max)	
	RX-8581SA		10.1x7.4x3.2 t(Typ)	Simple Function
	RX-8581JE		7.3x6.2x1.5 t(Max)	
	RX-8581NB 		6.3x5.2x1.4 t(Max)	For Automotive
	RA-8581SA		10.1x7.4x3.2 t(Typ)	Built-in EEPROM and unique ID-ROM
	RX-8731LC		3.6x2.8x1.2 t(Max)	Built-in DTCXO
	RX-8803SA		10.1x7.4x3.2 t(Typ)	
	RX-8803LC		3.6x2.4x1.2 t(Max)	
Parallel 4-bit	RTC-7301SF		10.5x8.1x2.0 t(Max)	Built-in Temperature
	RTC-7301DG		DIP 18 pin	Available Alarm and Timer
	RTC-72421		DIP 18 pin	4-bit simple Function
	RTC-72423		16.3x12.2x2.8 t(Max)	

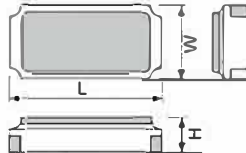


SMD Type Dimension

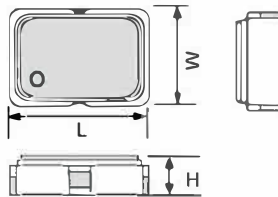
(Unit:mm)

SON

Glass Lid type

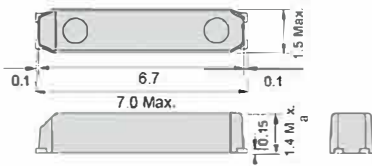


Metal Lid type

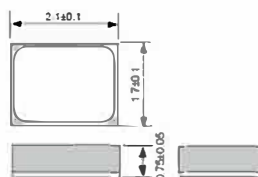


Category	Model	Dimension (mm)			Pin
		L	W	H	
Crystal Unit	FC-12D	2.05±0.1	1.25±0.1	0.35 Max.	4
	FC-12M	2.05±0.05	1.2±0.05	0.6 Max.	2
	FC-13A	3.2±0.1	1.5±0.1	0.9 Max.	2
	FC-13F	3.2±0.1	1.5±0.1	0.6 Max.	2
	FC-135	3.2±0.1	1.5±0.1	0.8±0.1	2
	FC-255	4.9±0.1	1.8±0.1	0.8±0.1	2
	FA-118T	1.6±0.1	1.2±0.1	0.35 Max.	4
	FA-128	2.0±0.1	1.6±0.1	0.5 Max.	4
	FA-20H	2.5±0.1	2.0±0.1	0.55 Max.	4
	TSX-3225	3.2±0.15	2.5±0.15	0.6 Max.	4
SAW Resonator	FA-238 / FA-238V	3.2±0.1	2.5±0.1	0.6±0.1	4
	NS-21R	2.5±0.1	2.0±0.1	0.86±0.9	4
	FS-335 / NS-32R	3.8±0.15	3.8±0.15	0.98±0.15	6
Crystal Oscillator	FS-555 / 585	4.8±0.2	5.2±0.2	1.5±0.2	8
	SG-211	2.5±0.15	2.0±0.15	0.7±0.1	4
	SG-210	2.5±0.15	2.0±0.15	0.8±0.1	4
	SG-310 / SG-8002CE / SG-8003CE	3.2±0.2	2.5±0.2	1.05±0.15	4
	TCO-710x series	5.0±0.2	3.2±0.2	1.0±0.2	4
	SG-770 / SG-771 series	7.0±0.2	5.0±0.2	1.6±0.2	6
	TCO-708x series	7.0±0.2	5.0±0.2	1.6±0.2	4
	SG-8002CA / SG-8003CA	7.0±0.2	5.0±0.2	1.5 Max.	4
	HG-2150CA	7.0±0.2	5.0±0.2	1.5 Max.	4
	SG-9001CA	7.0±0.2	5.0±0.2	1.4±0.1	6
	XG-1000CA	7.0±0.2	5.0±0.2	1.2±0.2	4
	XG-1000CB	5.0±0.2	3.2±0.2	1.1±0.15	4
	EA-2102CB	5.0±0.2	3.2±0.2	1.35±0.15	6
	EG-20** CA	7.0±0.2	5.0±0.2	1.2±0.2	4
	EG-2121CB / EG-2102CB	5.0±0.2	3.2±0.2	1.4±0.15	6
	XG-2121CA / XG-2102CA	7.0±0.2	5.0±0.2	1.2±0.2	6
	EG-21** CA / EG-41** CA	7.0±0.2	5.0±0.2	1.2±0.2	6
	VG-4231CE	3.2±0.2	2.5±0.2	1.05±0.15	4
VCXO	VG-4231CB	5.0±0.2	3.2±0.2	1.2±0.2	6
	VG-4231CA / VG-4232CA	7.0±0.2	5.0±0.2	1.4±0.1	6
TCXO	VG-4501CA / VG-4502CA / VG-4512CA	7.0±0.2	5.0±0.2	1.6±0.2	6
	TG-5031CJ / TG-5035CJ	2.0±0.15	1.6±0.15	0.73±0.07	4
	TG-5021CG / TG-5035CG	2.5±0.2	2.0±0.2	0.8±0.1	4
	TG-5021CE / TG-5035CE	3.2±0.2	2.5±0.2	0.9±0.1	4
SAW Filter	FF-32N	3.8±0.15	3.8±0.15	0.98±0.15	6
	FF-555	4.8±0.2	5.2±0.2	1.5±0.2	8
Gyro Sensor	XV-3500CB / XV-3700CB	5.0±0.2	3.2±0.2	1.3±0.2	8
	XV-8100CB / XV-8000CB	5.0±0.2	3.2±0.2	1.3±0.2	8

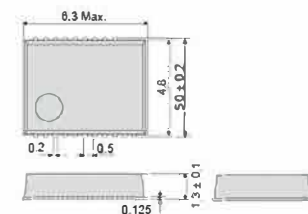
SON (Crystal Unit) MC-146



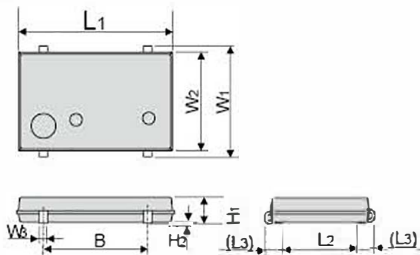
SON (Crystal Oscillator) SG-150, SG-8003BA



SON: RX-**** NB, RTC-**** NB

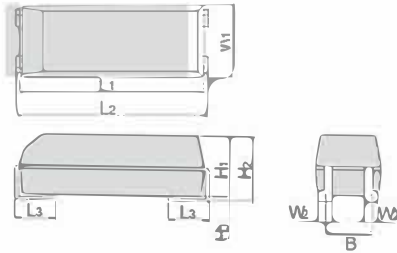


SOJ / VSOJ



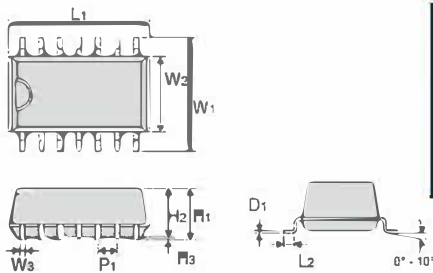
Category	Model	L1	L2	(L3)	W1	W2	W3	H1	H2	B	Pin
Crystal Unit	MC-156	7.1 Max.	1.6	(0.75)	3.3 Max.	2.5	0.4	1.5 Max.	—	5.08	4
	MC-306 / 30A	8.0 Max.	1.9	(0.9)	3.8 Max.	3.2	0.5	2.54 Max.	—	5.5	4
	MA-306	11.7 Max.	2.1	(1.2)	4.8 Max.	4.0	0.7	3.7 Max.	—	9.6	4
	MA-406	11.7 Max.	2.1	(1.2)	4.8 Max.	4.0	0.7	3.7 Max.	—	9.6	4
Crystal Oscillator	SG-** LB	5.0 ±0.2	2.5	(0.35)	3.2 ±0.2	2.8	1.0	1.2 Max.	0.0 Min.	2.54	4
	SG-645	7.1 ±0.2	3.8	(0.75)	5.1 ±0.2	4.6	0.4	1.5 Max.	0.0 Min.	5.08	4
	SG-** JF	10.5 Max.	3.6	(1.0)	5.8 Max.	5.0	0.51	2.7 Max.	0.05 Min.	5.08	4
	SG-636	10.5 Max.	3.6	(1.0)	5.8 Max.	5.0	0.51	2.7 Max.	0.05 Min.	5.08	4
	SG-** JC	14.0 Max.	7.62	—	9.8 Max.	8.65	0.51	4.7 Max.	0.25 Min.	5.08	4
	SG-615	14.0 Max.	7.62	—	9.8 Max.	8.65	0.51	4.7 Max.	0.25 Min.	5.08	4
Real time Clock Module	SG-** LC	3.6 ±0.2	2.0	(0.4)	2.8 ±0.2	2.4	0.22	1.2 Max.	0.0 Min.	0.5	12
	RX-** JE	7.0 ±0.3	4.5	(0.75)	6.0 ±0.2	5.4	0.22	1.5 Max.	0.0 Min.	0.65	20
	RTC-** JE	7.0 ±0.3	4.5	(0.75)	6.0 ±0.2	5.4	0.22	1.5 Max.	0.0 Min.	0.65	20

●SOJ (Crystal Unit)



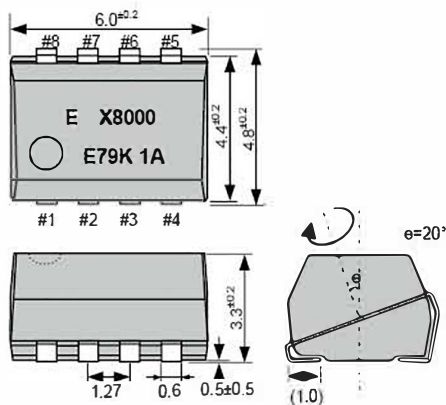
Category	Model	L ₁	L ₂	L ₃	W ₁	W ₂	B	H ₁	H ₂	H ₃
Crystal Unit	MC-405 / 406	9.6	10.41 Max.	2.54	4.06 Max.	0.51	2.29	3.15	3.6 Max.	0.2 Min.
	MA-505 / 506	12.7	13.46 Max.	2.54	5.08 Max.	1.09	3.3	4.19	4.6 Max.	0.2 Min.

●SOP / VSOP



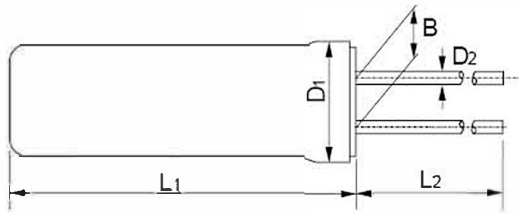
Category	Model	L ₁	L ₂	W ₁	W ₂	W ₃	H ₁	H ₂	H ₃	D ₁	P ₁	P _{in}
Real time Clock Module	RTC-****SA	10.1 ±0.2	0.6	7.4 ±0.2	5.0	0.35	3.2 ±0.1	3.1	0.05 Min.	0.15	1.27	14
	RX-****SA											
	RA-****SA											
	RTC-4543SB	11.4 ±0.2	0.6	7.8 ±0.2	5.4	0.4	2.0 Max.	1.8	0 Min.	0.15	1.27	18
	RTC-72423	16.3 Max.	1.0	12.2 Max.	7.9	0.35	2.8 Max.	—	0.1 Min.	0.2	1.27	24
	RX-5412SF	10.2 ±0.3	0.5	7.8 ±0.3	5.4	0.36	2.0 Max.	—	0 Min.	0.15	0.8	24
	RTC-7301SF											

●SOJ (Gyro sensor) XV-8000LK



(Unit:mm)

●Cylinder

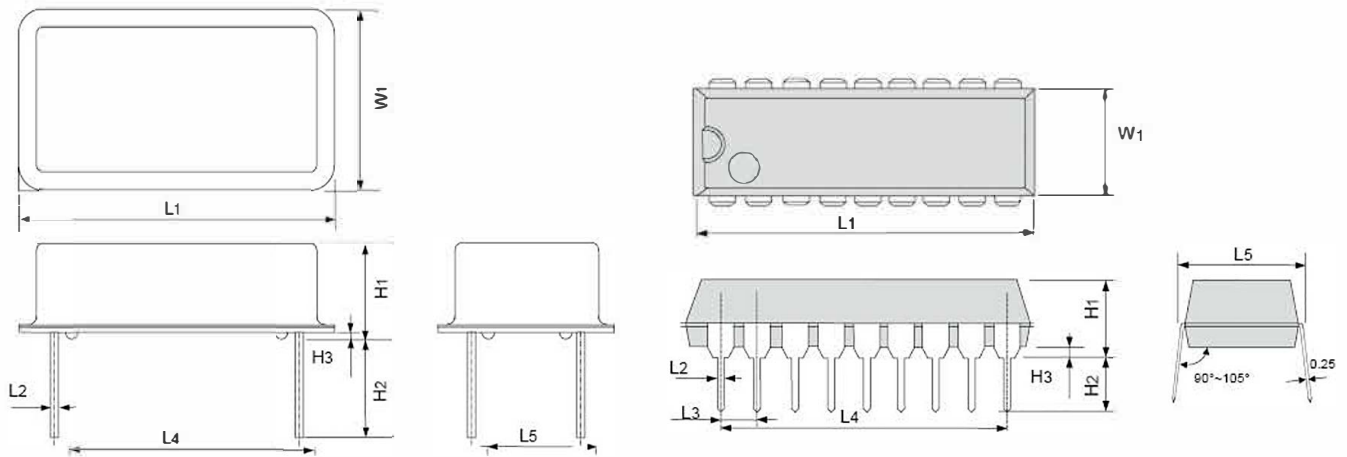


Category	Model	L ₁	L ₂	D ₁	D ₂	B	
Crystal Unit	C-002RX, C-2-TYPE	6.0 Max.	4.0 Min.	Φ2.0 Max.	Φ0.2	0.7	
	C-004R, C-4-TYPE	5.0 Max.	4.0 Min.	Φ1.5 Max.	Φ0.18	0.5	
	C-005R	4.6 Max.	4.0 Min.	Φ1.2 Max.	Φ0.15	0.3	
	CA-301	Over 5.5 MHz	8.9 Max.	9.5 Min.	Φ3.1 Max.	Φ0.3	1.1
		Under 5.5 MHz	9.3 Max.	9.5 Min.	Φ3.1 Max.	Φ0.3	1.1

160 kHz to 165 kHz, 307.2 kHz, D1= ø 2.2 Max. (C-2-TYPE)

160 kHz to 165 kHz, 307.2 kHz: $D_1 = \phi 2.2$ Max. (C-2-TYPE)

●DIP



Category	Model	L_1	L_2	L_3	L_4	L_5	H_1	H_2	H_3	W_1	Pin
Crystal Oscillator	SG-51 SG-8002DB	19.8 Max.	0.51	—	15.24	7.62	5.3 Max.	2.54 Min.	0.2 Min.	6.36	4 Pin
	SG-531 SG-8002DC	13.7 Max.	0.51	—	7.62	7.62	5.3 Max.	2.54 Min.	0.2 Min.	6.6	4 Pin
Real time clock Module	RTC-7301DG	23.1 Max.	0.46	2.54	20.32	7.62	4.2 Max.	2.54 Min.	0.2 Min.	6.3	18 Pin
	RTC-72421	23.1 Max.	0.65	2.54	20.32	7.62	4.2 Max.	3.3 Min.	0.2 Min.	6.3	18 Pin