

Features

Frequency range : 32.768 kHz
 SMD : Ceramic package
 External dimensions (mm)
 L : 2.0 x W : 1.2 x H : 0.6
 RoHS compliant & Pb free

Applications

Small mobile devices
 Communication devices
 Consumer products

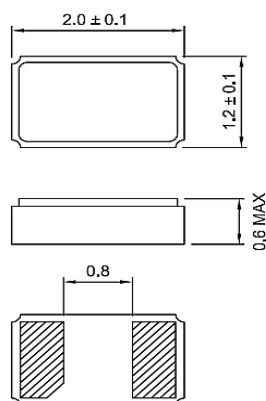
Electrical Characteristics

Item	Symbol	9HT11	Conditions
Nominal Frequency	f_0	32.768 kHz	
Frequency Tolerance	$\Delta f/f_0$	$\pm 10\text{ppm}, \pm 20\text{ppm}$	at 25°C, Note [1]
Load Capacitance	C_L	4pF, 6pF, 7pF, 9pF, 12.5pF	
Operating Temperature Range	T_{OTR}	-40°C ~ +85°C	
Storage Temperature Range	T_{STR}	-55°C ~ +125°C	
Turnover Temperature	T_M	25°C $\pm$ 5°C	
Temperature Coefficient	β	-0.04 ppm/°C ² Max.	
Motional Capacitance	C_1	6.5 fF Typ.	
Motional Resistance (ESR)	R_1	90 kΩ Max.	at 25°C
Drive Level	D_L	0.1μW Typ. / 0.5μW Max.	
Aging	$\Delta f/f_0$	± 3 ppm Max.	at 25°C $\pm$ 3°C, first year
Shunt Capacitance	C_0	1.3 pF Typ.	

Notes:

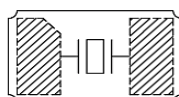
[1] Frequency Tolerance ($\Delta f/f_0$) +/-10ppm for Load Capacitance (C_L) 9pF, 12.5pF only.

Dimensions



(Unit: mm)

Top View Crystal Connection



Ordering Information

9HT11 - 32.768K D Z F - T

Frequency Tolerance (at 25°C)

D	± 20 ppm
E	± 10 ppm

Frequency Stability (over Temp.)

Z	Standard for kHz
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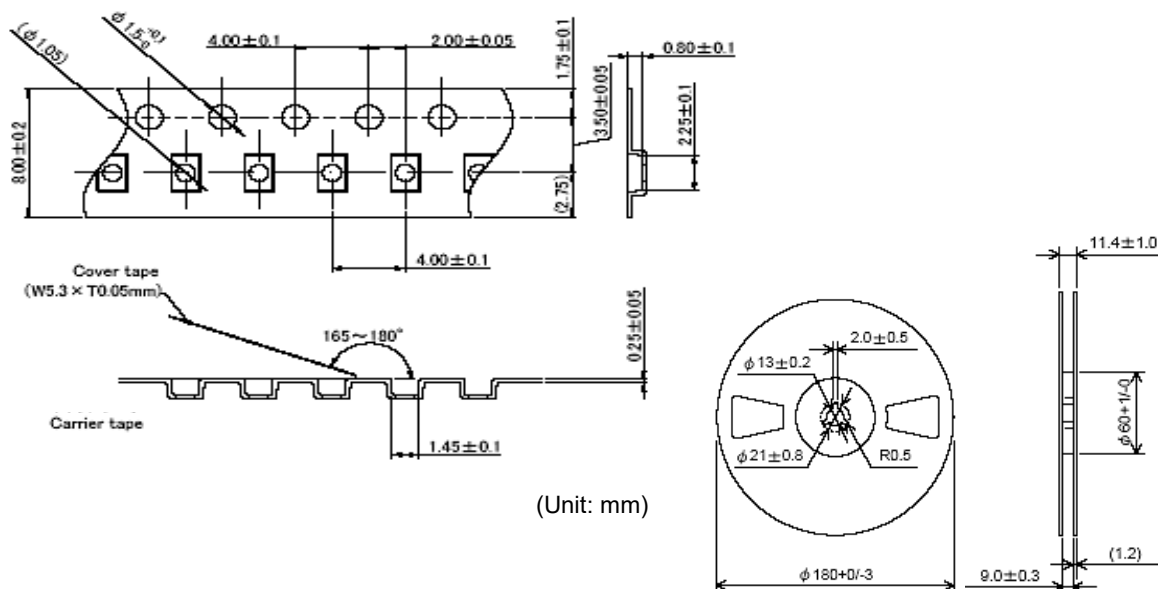
Packaging Method

T	Tape & Reel
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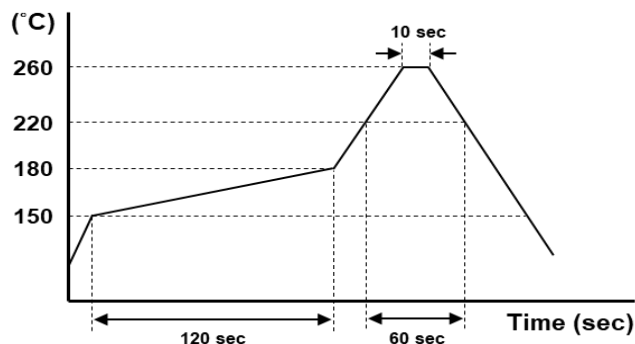
Load Capacitance

A	4 pF
B	6 pF
Y	7 pF
C	9 pF
F	12.5 pF

Packing



Reflow Profile



Total time : Max. 200 sec.
Solder melting point : 220°C