

FTR5118-A		S110 CRYSTAL UNIT DATA SHEET			rakon	
Crystal Resonator		NUMBER 5118	REVISION A	INDICE 0	DATE 03-Dec-15	

W revision for preliminary data sheet. From A revision: approved data sheet in production.

1- Main Parameters

N°	Characteristics	Symbol	Value			Unit	Note
1.1	Nominal Frequency	F0	32			MHz	
1.2.1	Cut		AT				
1.2.2	Overtone		Fundamental				
1.2.3	Material		STD				
1.3	Load Capacitance	CL	9.5	10.0	10.5	pF	CL = 10pF ±0.5pF
1.4	Drive Level	P		50	100	µW	
1.5	Test conditions		IEC 444				
1.6	Package reference		SM07				Standard product

2- Tolerance and temperature

N°	Characteristics	Symbol	Min.	Nom.	Max.	Unit	Note
2.1	Temperature reference	T25		25		°C	
2.3	Freq. Adj. Tolerance	Fadj			10	±ppm	
2.4	Operating Temp. Range	OTR	-40		85	°C	
2.5	Storage Temp. Range	STR	-55		125	°C	
2.6	Freq. Variation with Temp. over	dF/dT			15	±ppm	

3- Electrical parameters

N°	Characteristics	Symbol	Min.	Nom.	Max.	Unit	Note
3.1	Motional Resistance	R1			40	Ohms	
3.2	Static Capacitance	C0		1.0	3.0	pF	

4- Ageing

4.1	Ageing	±2 ppm max over 1 year / ±5 ppm max over 10 years				
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6- Spurious

6.1	Ratio of unwanted response resistance to resonance resistance (PI network IEC 444)	Rs/R1	2 from F0 to F0+500kHz			
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7- Package / Pin Out

N°	Characteristics		Note / Unit
7.1	Package Ref.	SM07	See Last Page
7.2	Package Type	QESM07	3.2x2.5 mm
7.3	Maximum package height	0.75	mm.
7.4	Label	105804 (Rakon France code) YWW (date code)-X (Manuf. code)	
7.7	Sealing Methode	RW	

8- Complementary specifications

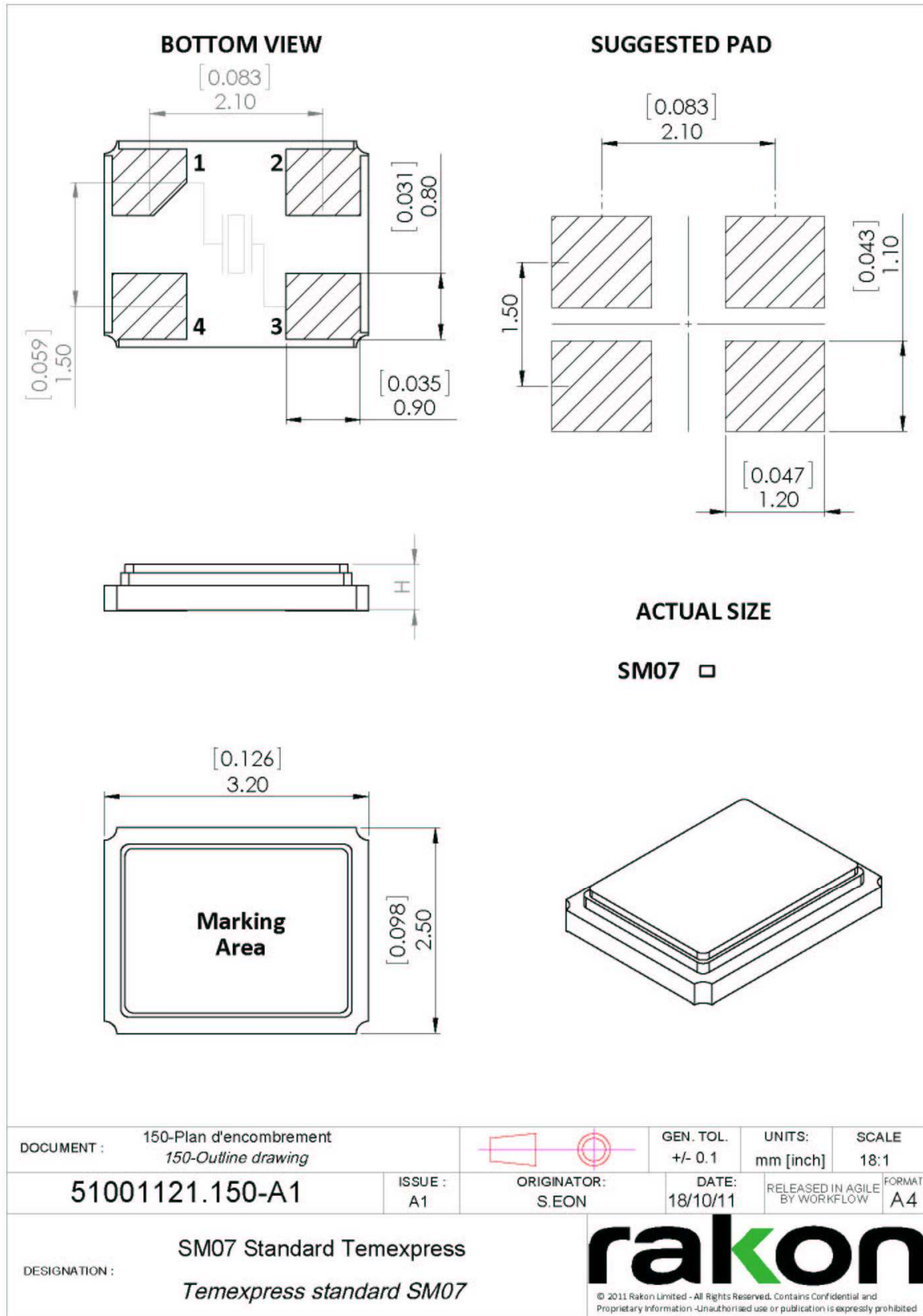
8.1	Target : G-Sensitivity typical value from 30Hz to 1500Hz = 2.0 ppb/G max
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9- Specification History

Version	Change	Date
W0	Initial data sheet	April,07 th 2014
W1	Aging over 10 years : ±5ppm max	May,26 th 2014
A0	Approved data sheet for mass production	Dec,03 rd 2015

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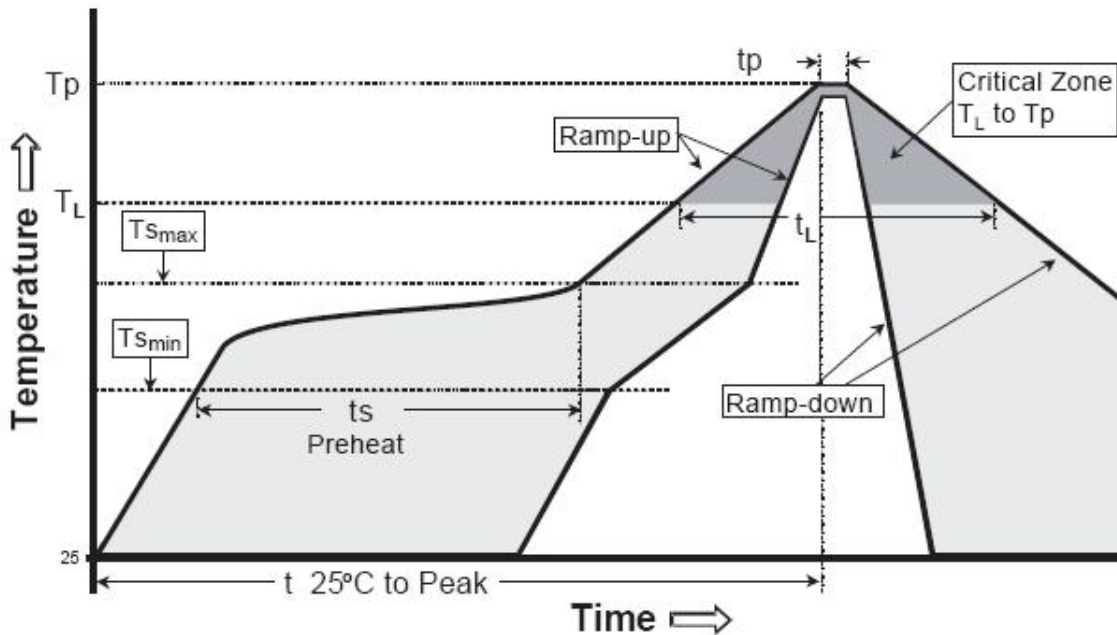


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I REFLOW PROFILES

Profiles Feature	Pb-Free Assembly
Average Ramp-up Rate (Ts max to Tp)	3°C/second max.
Preheat	
■ Temperature Min (Ts min)	125°C
■ Temperature Max (Ts max)	200°C
■ Time (ts min to ts max)	60~180 seconds
Time maintained above	
■ Temperature (TL)	217°C
■ Time (tL)	60~150 seconds
Peak/Classification Temperature (Tp)	260°C
Time within 5°C of actual Peak Temperature (tp)	20~40 seconds
Ramp-down rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.
Suggest reflow times	3 Times max



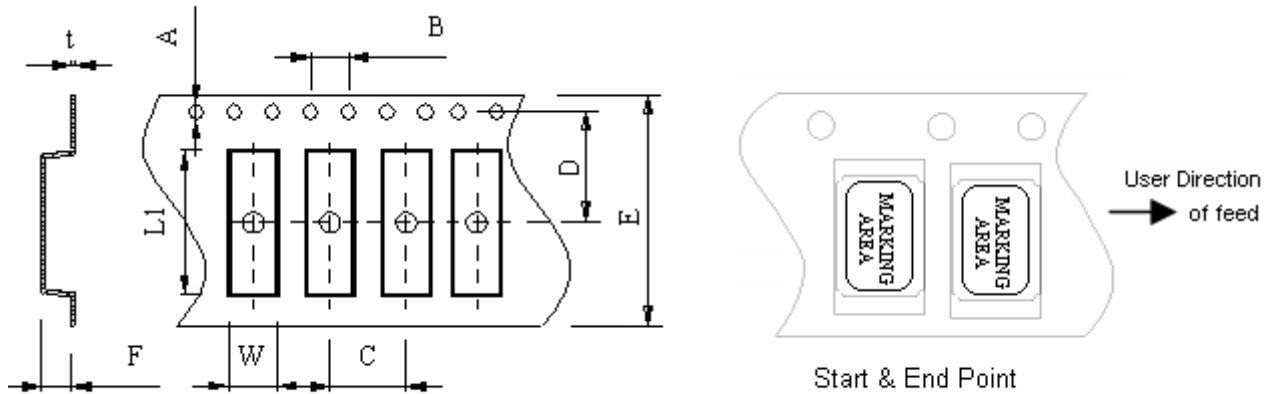
Remark: To reference JEDEC J-STD-020C

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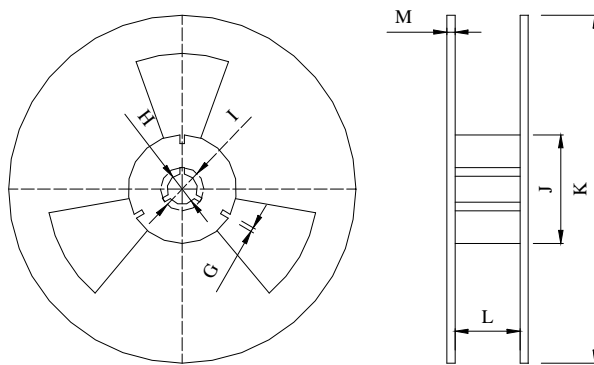
I PACKAGE

Tape Dimensions(unit : mm)



A	B	C	D	E	F	L1	W	t
1.50	4.0	4.0	3.5	8.0	1.0	3.4	2.7	0.3

Reel Dimensions(unit: mm)



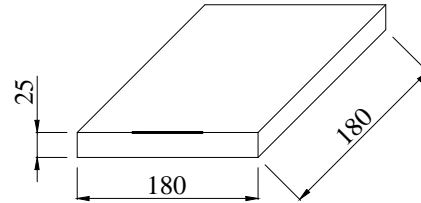
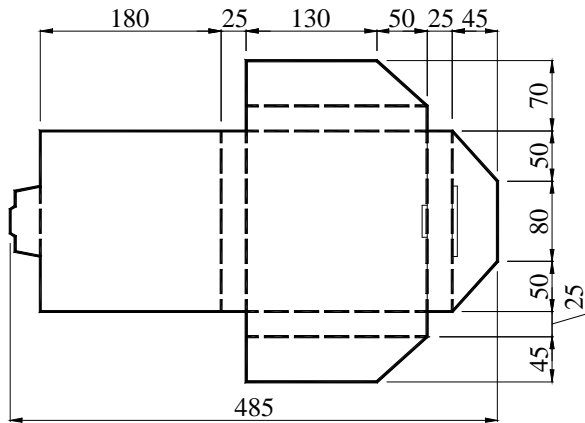
G	H	I	J	K	L	M
2.5	13.5	21.6	60.0	178	9.5	1.6

*3000pcs/Reel

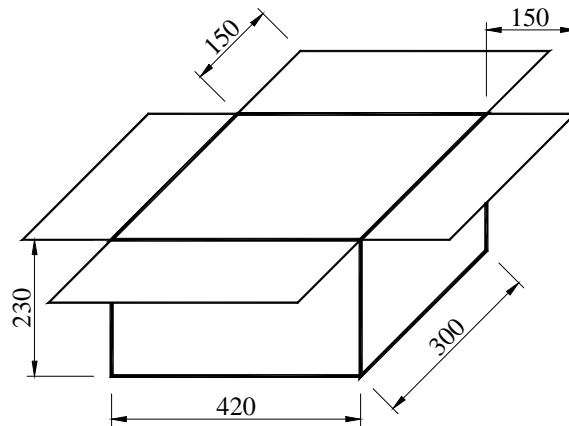
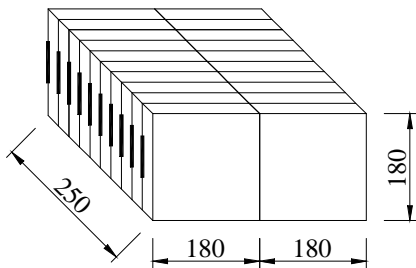
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Carton Dimension (unit : mm)



1 reel = 1 Inner box



20 Inner boxes = 1 Carton

60kpcs = 1 Carton

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I RELIABILITY SPECIFICATIONS

No.	Test Item	Test Conditions	Reference
1	High Temperature Storage	Temperature: 125°C ± 5°C Time: 1000 ± 12 Hours	MIL-STD-883E-1016
2	Temperature Cycle	Temperature 1: -55°C ± 5°C Temperature 2: 125°C ± 5°C Temperature change between T1 and T2 at soonest Run 1000 cycles, maintain T1 and T2 5minutes each in one cycle	JESD22 Method JA-104
3	Solder Heat Resistance	Pre-heat: 125°C 60~120 Seconds Solder Temperature: 260°C ± 5°C Time: 30 Seconds	MIL-STD-202F 210 E
4	Drop Test	3 Times Free Fall from 75cm height table to 3cm thickness hard wood board	MIL-STD-202F-203B
5	High Temperature, High Humidity Storage	Temperature: 85°C ± 5°C Relative Humidity: 80%--85% Time: 250Hours ± 24 Hours	MIL-STD-202F-103B
6	Steam Aging	Temperature: 97°C ± 5°C Time: 24 Hours 260°C solder pot to check solderability	MIL-STD-883 C-1008.2B
7	Solderability	Dip in flux 5~10 seconds Temperature: 245°C ± 5°C Time: 10 Seconds	MIL-STD-202F-208H
8	Aging	Temperature: 85°C ± 5°C Time: 250 ± 12Hours	MIL-STD-202 F-108A
9	Thermal Shock	Temperature 1: -55°C ± 5°C Temperature 2: 125°C ± 5°C Temperature change between T1 and T2: 5 seconds 100 cycles, maintain T1 and T2 for 30 minutes each in one cycle	MIL-STD-883E-1011.9B
10	Vibration	Frequency Range: 10Hz~2000Hz Amplitude: 1.5mm or 20G 4Hours in each direction, total 12Hours	MIL-STD-202F-204D