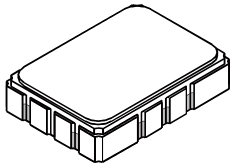
RFMi
A BRAND OF AKOUSTIS

RoHS compliant

SF2138B-1

144.132 MHz
SAW Filter


SMP-03

- *Designed for SDARS IF Receiver*
- *Low Insertion Loss*
- *5.0 x 7.0 mm Surface-mount Case*
- *Differential or Single-ended Input and Output*
- *Complies with Directive 2002/95/EC (RoHS)*
- *Moisture Sensitivity Level: 1*

Absolute Maximum Ratings

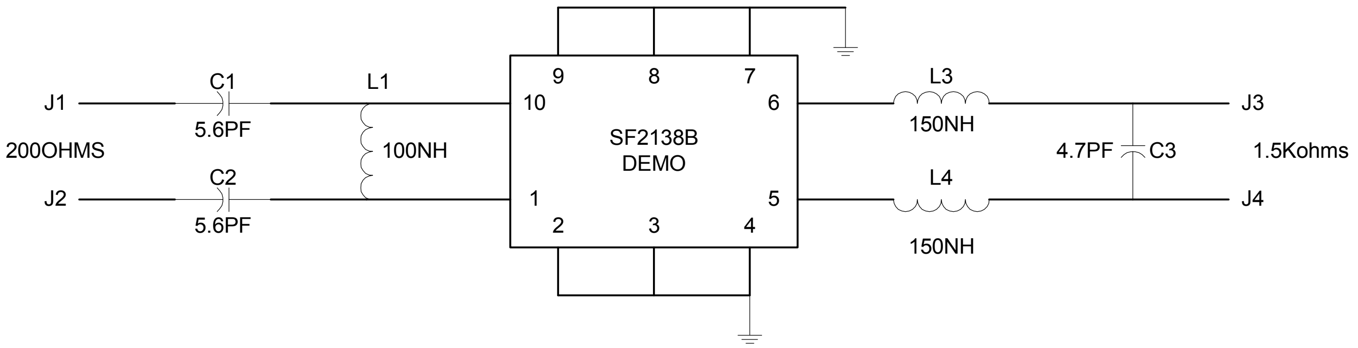
Rating	Value	Units
Maximum Incident Power in Passband	+10	dBm
Maximum DC Voltage Between any Two Terminals	30	VDC
Storage Temperature Range	-40 to +85	°C
Operable Temperature Range	-45 to +125	°C
Max Soldering Profile	265 °C for 10 s	

Characteristic	Sym	Notes	Min	Typ	Max	Units
Nominal Center Frequency	f_C		144.132			MHz
Passband Width @ +25 °C			137.882		150.382	dB
B 1dB	BW_1		12.5	13.3		MHz
B 15dB	BW_{15}			15.9	16.2	MHz
B 30dB	BW_{30}			16.9	18.2	MHz
Minimum Insertion Loss, including the Matching Network	IL_{MIN}			13.7	16.5	dB
Terminating source impedance			ZS = 200 ohms (differential)			
Terminating load impedance			ZL = 1.5K ohms (differential)			
Amplitude Ripple						
TDM1 (137.882 - 142.382 MHz)				1	1.7	$\text{dB}_{\text{P-P}}$
COFDM (141.882 - 146.182 MHz)				0.5	1.5	
TDM2 (145.882 - 150.382 MHz)				1	1.7	
Attenuation Relative to the Insertion Loss at Center Frequency:						dBc
122.882 ..... 127.882 MHz			45	50		
127.882 ..... 132.882 MHz			43	47		
154.137 ..... 159.137 MHz			38	42		
159.137 ..... 162.882 MHz			43	47		
162.882 ..... 177.882 MHz			48	53		
Group Delay Ripple:						$\text{ns}_{\text{P-P}}$
TDM1 (137.882 - 142.382 MHz)				30	150	
COFDM (141.882 - 146.182 MHz)				28	100	
TDM2 (145.882 - 150.382 MHz)				30	150	
Specification Temperature Range	T_A		-40		+105	°C
Case Style		SMP-03 7 x 5 mm Nominal Footprint				
Lid Symbolization, YY=year, WW=week, S=shift, ## = Sequence Code		RFM, SF2138B-1, YYWWS##				

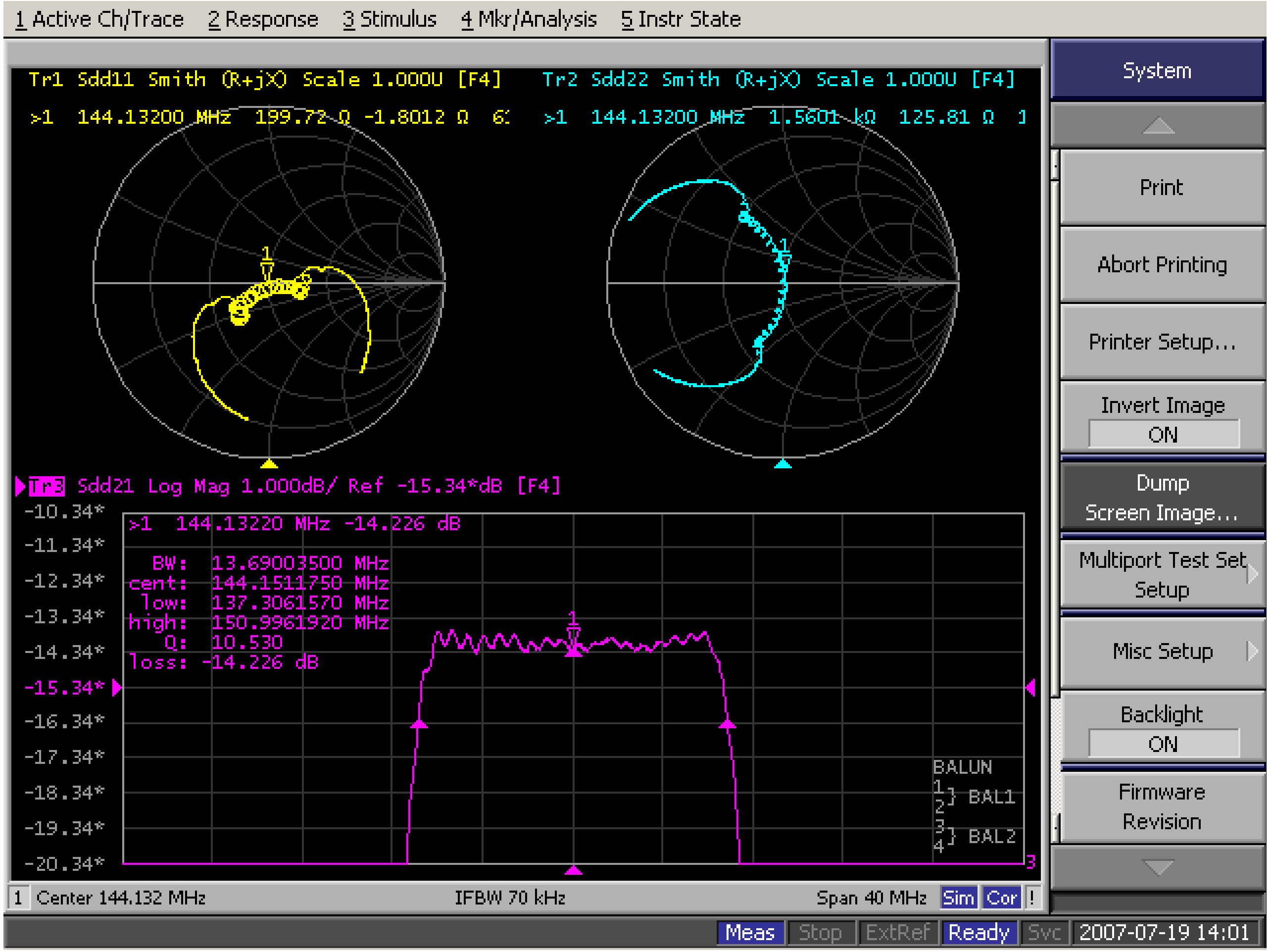
CAUTION: Electrostatic Sensitive Device. Observe precautions for handling.

NOTES:

1. The design, manufacturing process, and specifications of this device are subject to change.
2. US or International patents may apply.
3. RoHS compliant from the first date of manufacture.



400-1749-001		
501-0782-101	0805 COIL CRAFT, 100NH	L1
501-0782-151	0805 COIL CRAFT, 150NH	L2, L3
501-1275-056	0805, 5.6PF	C1, C2
501-1275-047	0805, 4.7PF	C3



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Tr1 Sdd11 Smith (R+jX) Scale 1.000U [F4]
>1  144.13200 MHz  199.72 Ω -1.8012 Ω  6:

Tr2 Sdd22 Smith (R+jX) Scale 1.000U [F4]
>1  144.13200 MHz  1.5601 kΩ  125.81 Ω  1

Tr3 Sdd21 Log Mag 1.000dB/ Ref -15.34*dB [F4]
>1  144.13220 MHz -14.226 dB

  BW:  13.69003500 MHz
cent:  144.1511750 MHz
 low:  137.3061570 MHz
high:  150.9961920 MHz
   Q:  10.530
loss: -14.226 dB

1 Center 144.132 MHz        IFBW 70 kHz        Span 40 MHz  Sim  Cor  !
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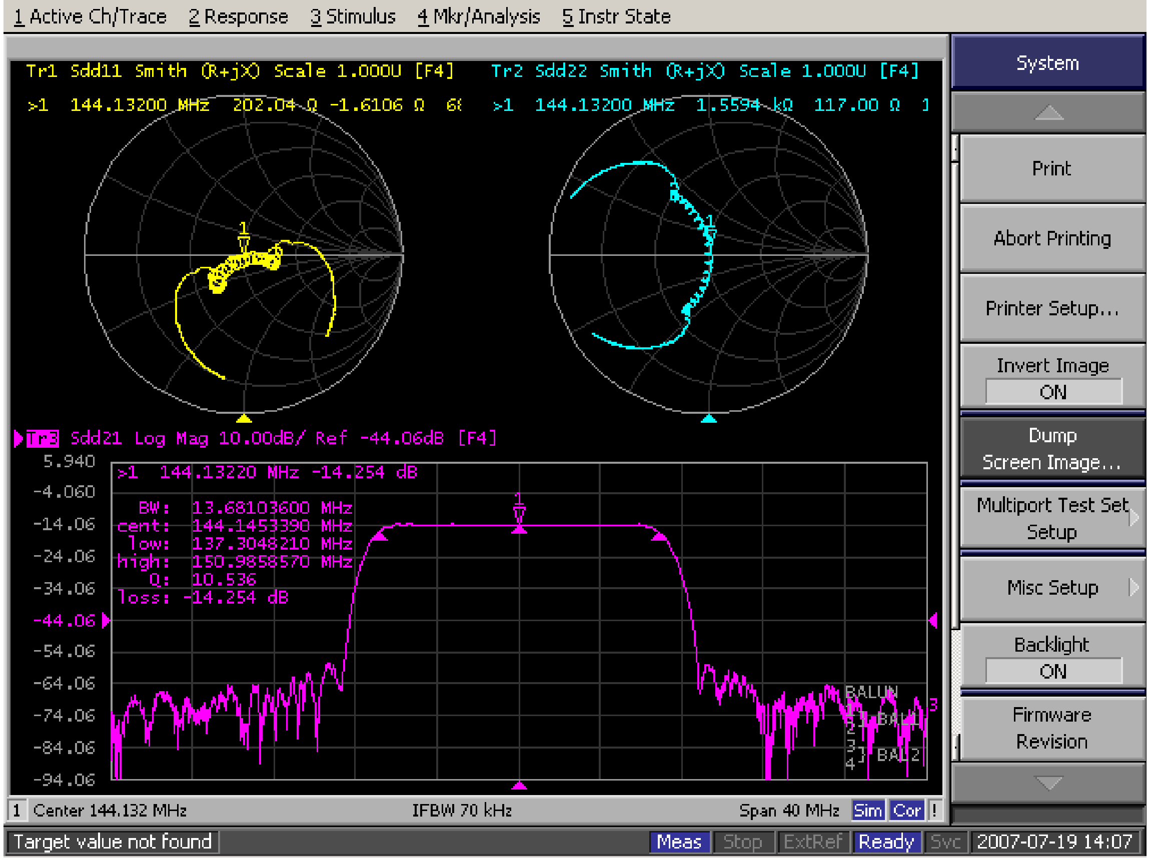

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Tr1 Sdd11 Smith (R+jX) Scale 1.000U [F4]    Tr2 Sdd22 Smith (R+jX) Scale 1.000U [F4]
>1  144.13200 MHz  202.04 Ω -1.6106 Ω  6(    >1  144.13200 MHz  1.5594 kΩ  117.00 Ω  1

Tr3 Sdd21 Log Mag 10.00dB/ Ref -44.06dB [F4]
>1  144.13220 MHz -14.254 dB
  BW:  13.68103600 MHz
cent:  144.1453390 MHz
 low:  137.3048210 MHz
high:  150.9858570 MHz
   Q:  10.536
loss: -14.254 dB

1  Center 144.132 MHz          IFBW 70 kHz          Span 40 MHz
Target value not found                                  2007-07-19 14:07
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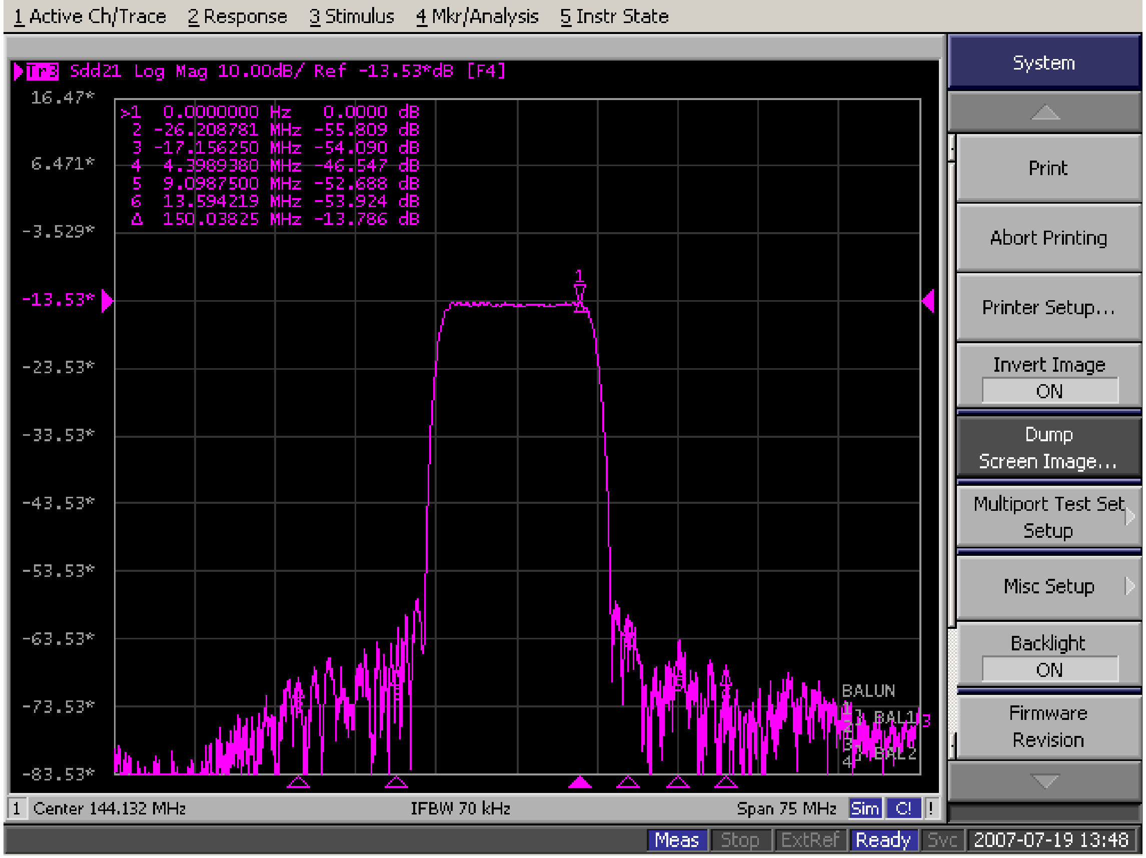

```
Tr3 Sdd21 Log Mag 10.00dB/ Ref -13.53*dB [F4]
>1   0.0000000 Hz     0.0000 dB
 2 -26.208781 MHz -55.809 dB
 3 -17.156250 MHz -54.090 dB
 4   4.3989380 MHz -46.547 dB
 5   9.0987500 MHz -52.688 dB
 6  13.594219 MHz -53.924 dB
 Δ  150.03825 MHz -13.786 dB

1  Center 144.132 MHz          IFBW 70 kHz          Span 75 MHz
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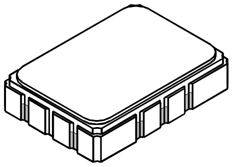
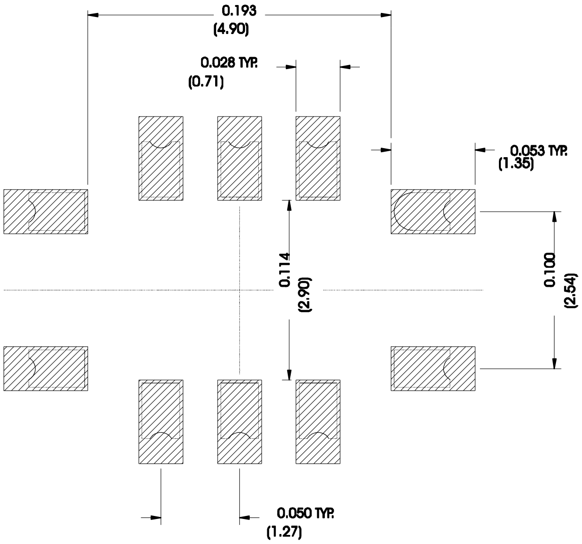
SMP-03 Case

10-Terminal Ceramic Surface-Mount Case

7 x 5 mm Nominal Footprint



Recommended PCB Footprint



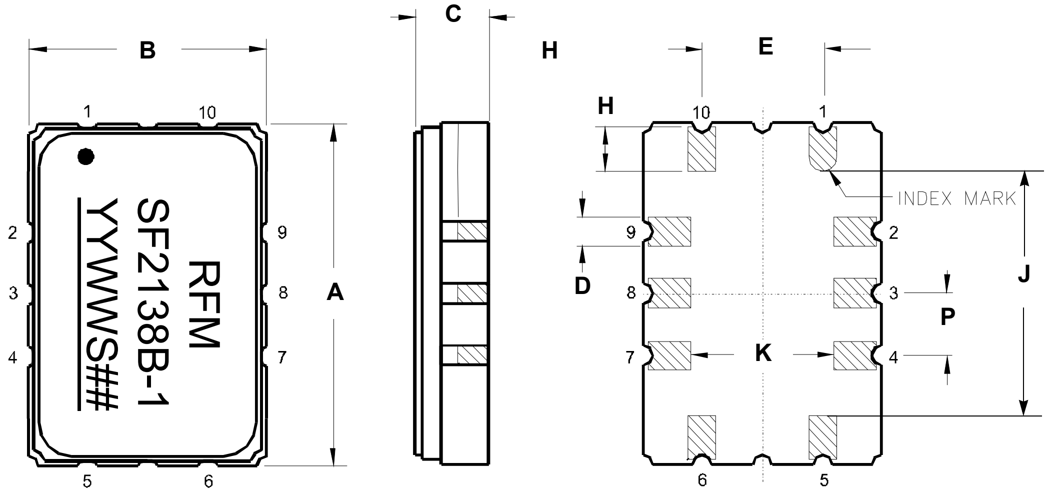
Case Dimensions

Dimension	mm			Inches		
	Min	Nom	Max	Min	Nom	Max
A	6.80	7.00	7.20	0.268	0.276	0.283
B	4.80	5.00	5.20	0.189	0.197	0.205
C		1.65	2.00		0.065	0.079
D	.47	0.60	.73	0.019	0.024	0.029
E	2.41	2.54	2.67	0.095	0.100	0.105
H	0.87	1.0	1.13	0.034	0.039	0.044
J	4.87	5.00	5.13	0.192	0.197	0.202
K	2.87	3.00	3.13	0.113	0.118	0.123
P	1.14	1.27	1.40	0.045	0.050	0.055

Electrical Connections

Connection		Terminals
Port 1	Input or Return	10
	Return or Input	1
Port 2	Output or Return	5
	Return or Output	6
	Ground	All others
Single-ended Operation		Return is ground
Differential Operation		Return is hot

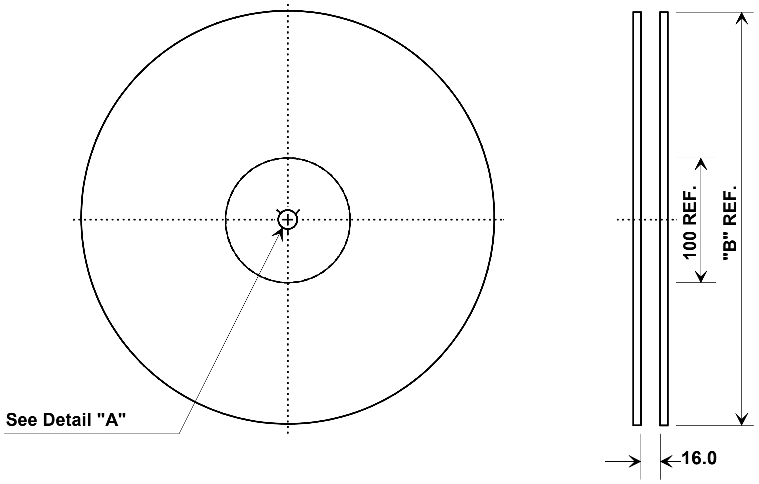
Materials	
Solder Pad Plating	0.3 to 1.0 µm Gold over 1.27 to 8.89 µm Nickel
Lid Plating	2.0 to 3.0 µm Nickel
Body	Al_2O_3 Ceramic



TOP VIEW

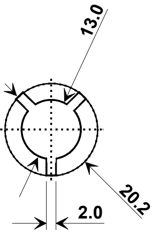
BOTTOM VIEW

Tape and Reel Specifications



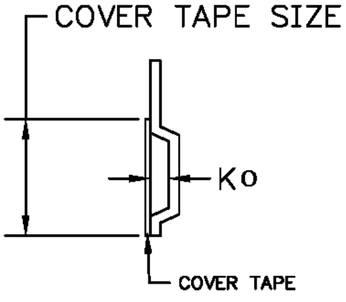
Tape and Reel Standard per ANSI/EIA-481

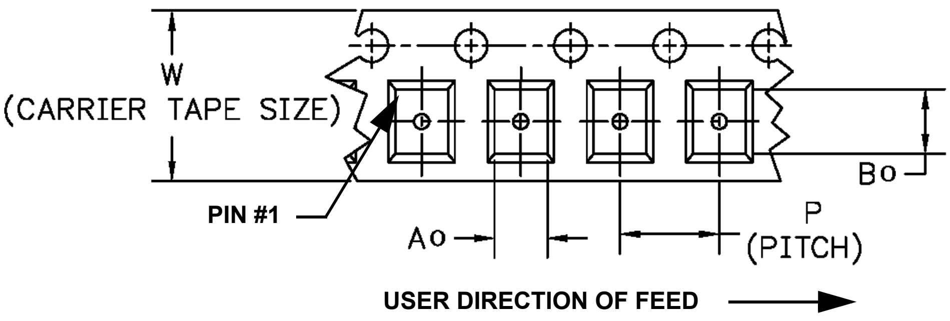
"B" Nominal Size		Quantity Per Reel
Inches	millimeters	
7	178	500
13	330	2000



COMPONENT ORIENTATION and DIMENSIONS

Carrier Tape Dimensions	
Ao	5.5 mm
Bo	7.5 mm
Ko	2.0 mm
Pitch	8.0 mm
W	16.0 mm





Recommended Reflow Profile

1. Preheating shall be fixed at 150~180ºC for 60~90 seconds.
2. Ascending time to preheating temperature 150ºC shall be 30 seconds min.
3. Heating shall be fixed at 220ºC for 50~80 seconds and at 260ºC +0/-5ºC peak (10 seconds).
4. Time: 5 times maximum.