

Helping Customers Innovate, Improve & Grow



TX-703 / TX-704

Features

- Excellent Temperature Stability
- Stratum 3 compliant
- Good Phase noise behaviour
- EFC option
- Small Size, low profile
- 100% RoHS Compliant
- Frequency range ¹ of 6.4 - 35 MHz
- Standard Frequencies ¹: 10, 12.8, 19.2, 19.44, 20, 20.48, 26MHz
- up to 52MHz on request for reduced stabilities

Applications

- Wireline Stratum 3 applications
- Femto cell
- Test & Measurement
- Wireless Communications

Previous Vectron Model Numbers - C2260, TX-700

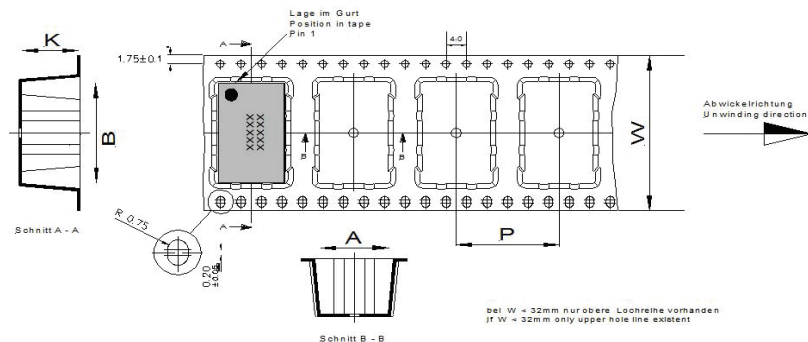
Performance Specifications

Frequency Stabilities ^{1,5}						
Parameter	Min	Typical	Max	Units	Condition	Options ⁵
vs. operating temperature range (referenced to +25°C)	-0.14		+0.14	ppm	0 to +50°C	
	-0.28		+0.28	ppm	-20 to +70°C	
	-0.28		+0.28	ppm	-40 to +85°C	
Initial tolerance	-1.0		+1.0	ppm	at time of shipment, nominal EFC V _s ±5% static Load ±5% static After 5 days of operation Note:*Stratum 3 per GR-1244-CORE: <±4.6ppm for all causes and 20 years aging, holdover: <±0.32ppm over 24 hours	
vs. supply voltage change	-0.2		+0.2	ppm		
vs. load change	-0.1		+0.1	ppm		
vs. daily drift	-0.04		+0.04	ppm		
vs. aging / 20 Years	-2.5		+2.5	ppm		
Overall tolerance	-4.6		+4.6	ppm		

Performance Specifications

Supply Voltage (Vs)					
Parameter	Min	Typical	Max	Units	Condition ²
Supply voltage (standard)	3.135	3.3	3.465	VDC	
Current consumption			6	mA	steady state @ +25°C
RF Output (Clipped Sinewave)					
Load R	9	10	11	kΩ	
C	9	10	11	pF	
Output Power	0.7			V _{pp}	@ 10kΩ 10pF
RF Output (HCMOS)					
Load	13.5	15	16.5	pF	
Signal Level (Vol)			0.3	VDC	with Vs=3.3V and 15pF Load
Signal Level (Voh)	3.0			VDC	with Vs=3.3V and 15pF Load
Rise and Fall time			5	ns	
Duty Cycle	40	50	60	%	@ (Voh-Vol)/2
Frequency Tuning (EFC)					
Tuning Range	Fixed TCXO; No adjust				Opti- on ⁵
Tuning Range	±5.0	±14.0	±20.0	ppm	
Linearity	10%				
Tuning Slope	Positive				
Control Voltage Range	0.3	1.65	3.0	VDC	with Vs=3.3V
Freq. control input impedance	10			kΩ	
Additional Parameters					
Phase Noise ³		-95 -120 -143 -155 -157		dBc/Hz dBc/Hz dBc/Hz dBc/Hz dBc/Hz	10 Hz 100 Hz 1k Hz 10 kHz 100 kHz @ 10MHz
Weight			1.0 g		
Mechanical Shock (TX-704 only)	1500g 0.5ms 6 shocks in each axis				MIL-STD-202 Meth 213 Cond. F
Mechanical Shock (TX-703 only)	200g 1.5ms 6 shocks in each axis				JESD22-B104-B
Random Vibration (TX-704 only)	53.79grms 15min per axis				MIL-STD-202G, Meth 214A, Cond II-K
Processing & Packing	Handling & Processing Note				
Absolute Maximum Ratings					
Supply voltage (Vs)			6.0	V	
Control Voltage	0		Vs	V	
Operable Temperature Range	-40		+85	°C	
Storage Temperature Range	-55		+125	°C	

Standard Shipping Method



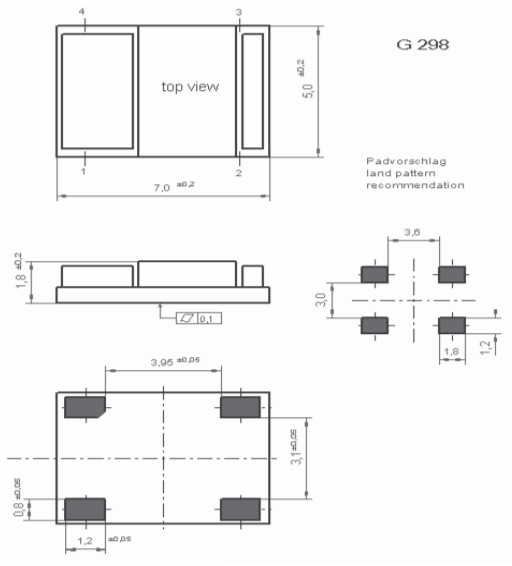
Maßangaben in mm :
A, B und K Maße vom Bauelement abhängig.
Fertigungstoleranzen entsprechen der DIN IEC 286-3

Dimension in mm :
A, B and K are dependent upon component dimensions,
production tolerance complying DIN IEC 286-3

Enclosure Type	Tape Width W (mm)	Quantity per meter	Quantity per reel	Dimension P
G290/G298	12	150.	750.	8

Standard Shipping Method

Package Codes: 703	
Type	Height "H"
G298	1.8mm



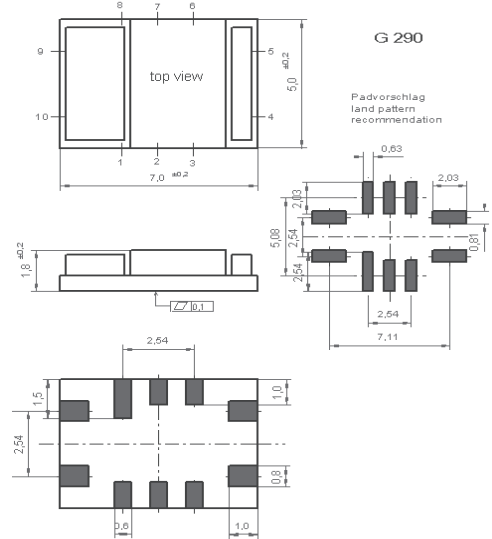
Pin Connections: TX-703	
1	Voltage Control (Vc) / Enable / N.C
2	Ground (GND)
3	RF Output
4	Supply Voltage Input (Vs)

1	Voltage Control (Vc) / Enable / N.C
2	Ground (GND)
3	RF Output
4	Supply Voltage Input (Vs)

Enable true table (optional): TX-703	
Pin 1	Pin 3
High	Data
Open	Data
Low	High Tristate

Pin 1	Pin 3
High	Data
Open	Data
Low	High Tristate

Package Codes: 704	
Type	Height "H"
G290	1.8mm



Pin Connections: TX-704	
1	I.C. (Internal connected: do not connect)
2	N.C. (Not connected)
3	I.C. (Internal connected: do not connect)
4	Ground (GND)
5	RF Output
6	N.C. (Not connected)
7	N.C. (Not connected)
8	Enable / N.C.
9	Supply Voltage Input (Vs)
10	Voltage Control (Vc) / N.C.

1	I.C. (Internal connected: do not connect)
2	N.C. (Not connected)
3	I.C. (Internal connected: do not connect)
4	Ground (GND)
5	RF Output
6	N.C. (Not connected)
7	N.C. (Not connected)
8	Enable / N.C.
9	Supply Voltage Input (Vs)
10	Voltage Control (Vc) / N.C.

Enable true table (optional): TX-704	
Pin 8	Pin 5
High	Data
Open	Data
Low	High Tristate

Pin 8	Pin 5
High	Data
Open	Data
Low	High Tristate

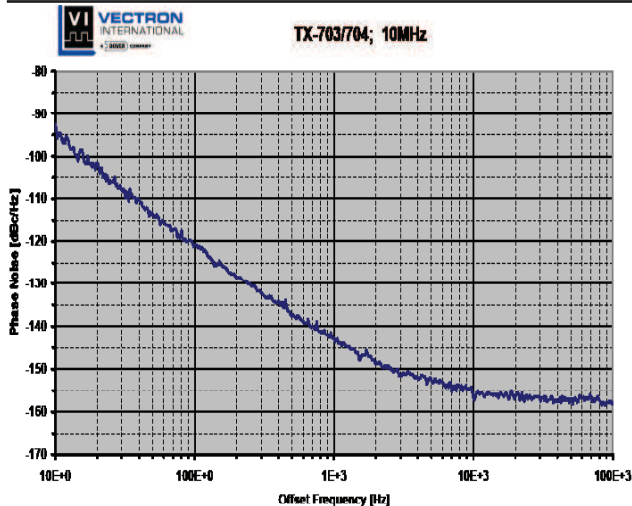
Marking
TX-70X
Frequency
● AYYWW

TX-70X
Frequency
● AYYWW

Typical Measurement Data

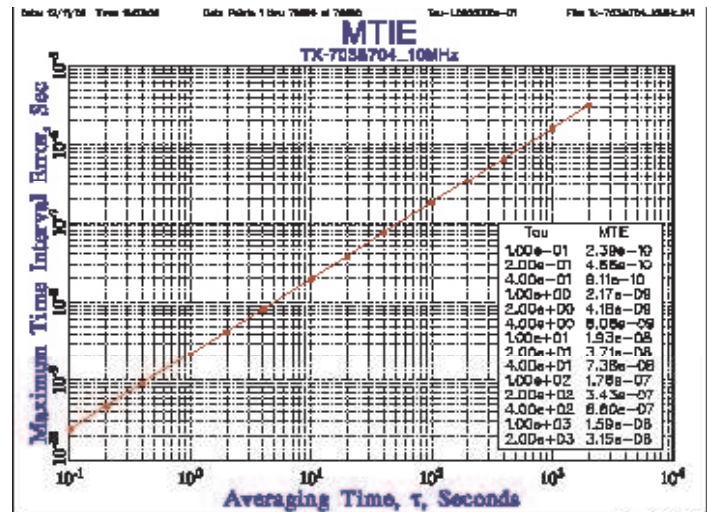
Phase Noise ³

TX703 @ 10 MHz

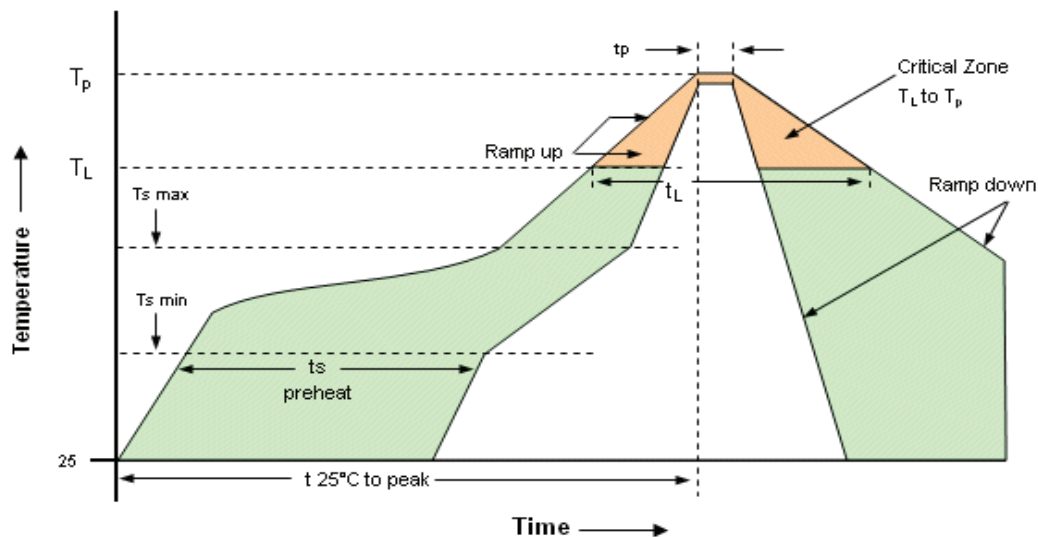


MTIE according 1244-CORE:

TX-703 @ 10 MHz



Recommended Reflow Profile



Profile Feature	Pb-Free Assembly/ Sn-Pb Assembly	Profile Feature	Pb-Free Assembly/ Sn-Pb Assembly
Average ramp-up rate (T_L to T_p)	3°C/second max.	Time 25°C to Peak Temperature	8 minutes max.
Preheat -Temperature Min T_{smin} -Temperature Min T_{smax} -Time (min to max) t_s	150°C 200°C 60-180 seconds	Time maintained above -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds
T_{smax} to T_L -Ramp-up Rate	3°C/second max		
Time maintained above -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds	Time within 5°C of actual Peak Temperature (t_p)	20-40 seconds
Peak Temperature (T_p)	max 260°C	Ramp-down Rate	6°C/ second max

Note: All temperatures refer to topside of the package, measured on the package body surface.

Ordering Information ^{1,5}

TX-70X 0 - E A J - 287 0 - 10M0000000

Model Code

703: Enclosure G298
704: Enclosure G290

Height

0: 1.8mm

Supply Voltage

E: 3.3V

RF Output Code

A: HCMOS
F: Clipped Sinewave

Temperature Range & Stability Code

E-287: -40°C to +85°C, ±0.28ppm

J-287: -20°C to +70°C, ±0.28ppm

P-147: 0°C to +50°C, ±0.14ppm

Frequency

Frequency Control

0: No Tuning

1: EFC: ±5.0 to 20ppm

2: Enable

3: Enable & EFC: ±5.0 to ±20ppm (only available for TX-704, 10-pin version)

Notes:

1. Contact factory for improved stabilities or additional product options. Not all options and codes are available at all frequencies.
2. Unless other stated all values are valid after warm-up time and refer to typical conditions for supply voltage, frequency control voltage, load, temperature (25°C).
3. Phase noise degrades with increasing output frequency.
4. Subject to technical modification.
5. Contact factory for availability.

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