



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 <sup>1</sup> of 6.4 - 35 MHz
- Standard Frequencies <sup>1</sup>: 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**

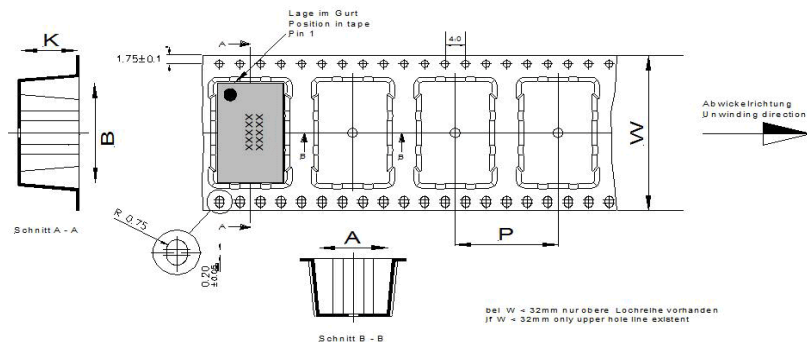
**Performance Specifications**

Frequency Stabilities <sup>1,5</sup>						
Parameter	Min	Typical	Max	Units	Condition	Options <sup>5</sup>
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	
vs. supply voltage change	-0.2		+0.2	ppm	V <sub>s</sub> ±5% static	
vs. load change	-0.1		+0.1	ppm	Load ±5% static	
vs. daily drift	-0.04		+0.04	ppm	After 5 days of operation	
vs. aging / 20 Years	-2.5		+2.5	ppm	Note:*Stratum 3 per GR-1244-CORE:	
Overall tolerance	-4.6		+4.6	ppm	<±4.6ppm for all causes and 20 years aging, holdover: <±0.32ppm over 24 hours	

# Performance Specifications

Supply Voltage (Vs)						
Parameter	Min	Typical	Max	Units	Condition <sup>2</sup>	
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 <sub>pp</sub>	@ 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 <sup>5</sup>	
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 <sup>3</sup>		-95		dBc/Hz	10 Hz	@ 10MHz
		-120		dBc/Hz	100 Hz	
		-143		dBc/Hz	1k Hz	
		-155		dBc/Hz	10 kHz	
		-157		dBc/Hz	100 kHz	
Weight	1.0 g					
Mechanical Shock (TX-704 only)	1500g 0.5ms 6 shocks in each axis				MIL-STD-202 Meth 213 Cond. F	
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 M abe vom Bauelem ent abhängig,  
 Fertigungstoleranzen entsprechen derDIN IEC 286-3

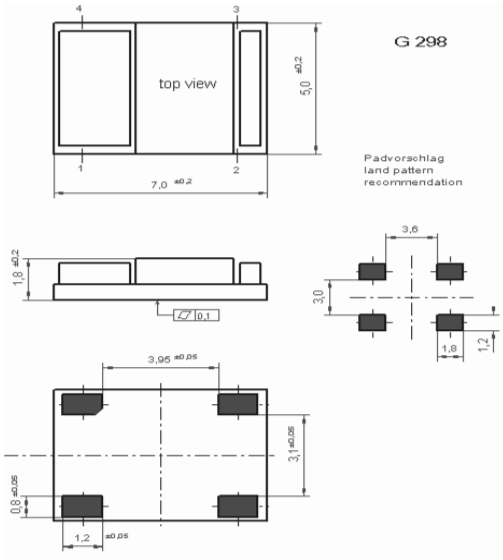
Dimension in mm :  
 A, B and K are dependent upon component dimensions,  
 production tolerance complying DIN IEC 286-3

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

# Standard Shipping Method

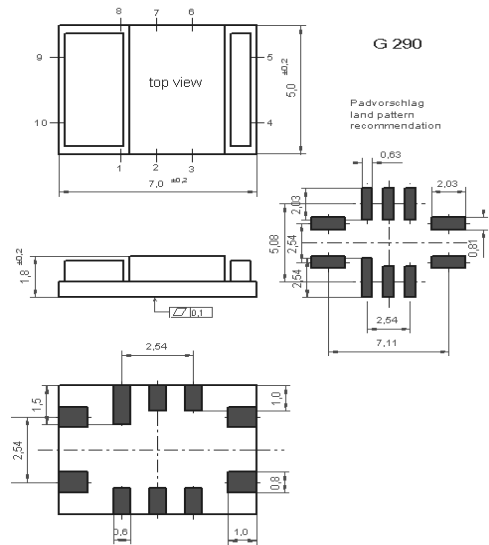
## Package Codes: 703

Type	Height "H"
G298	1.8mm



## Package Codes: 704

Type	Height "H"
G290	1.8mm



### Pin Connections: TX-703

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

### 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.

### Enable true table (optional): TX-703

Pin 1	Pin 3
High	Data
Open	Data
Low	High Tristate

### Enable true table (optional): TX-704

Pin 8	Pin 5
High	Data
Open	Data
Low	High Tristate

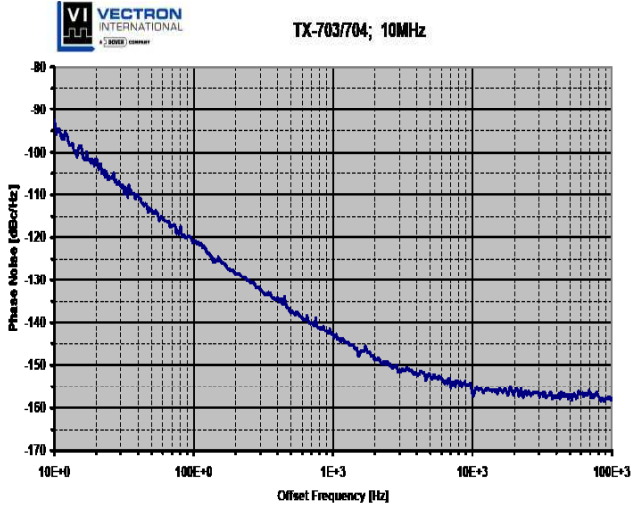
### Marking

TX-70X
Frequency
● AYYWW

# Typical Measurement Data

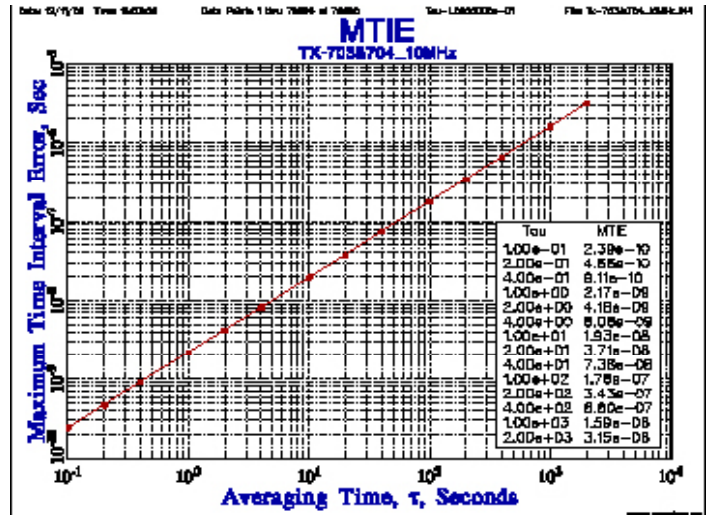
## Phase Noise <sup>3</sup>

TX703 @ 10 MHz

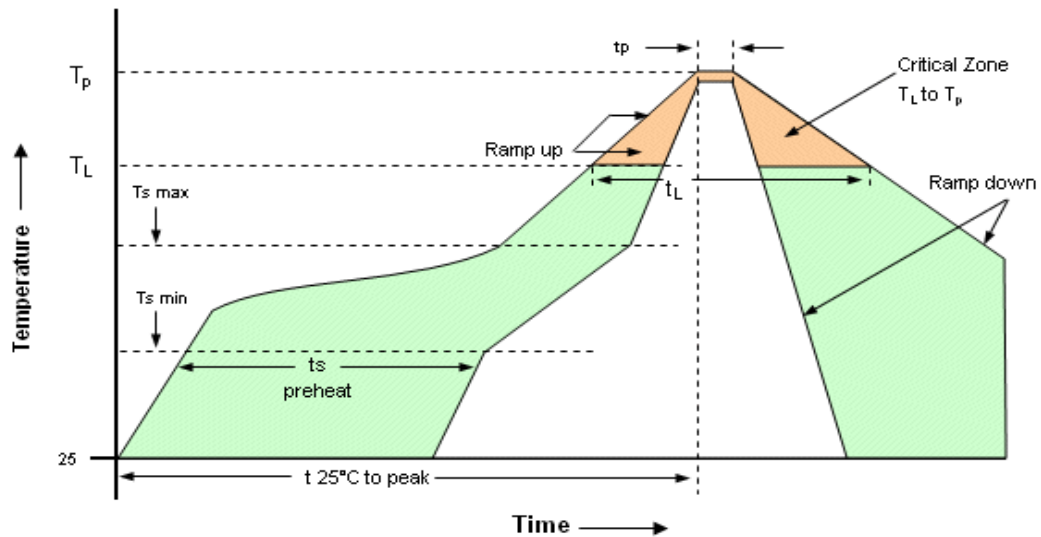


## MTIE according-1244-CORE:

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 <sup>1,5</sup>

**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.

## For Additional Information, Please Contact

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