

TV/TX 35 SERIES TCXO: 3.2x5 mm Stratum 3 TCXO with frequency Range 10.0 MHz to 52.0 MHz

■ FEATURES

- ± 0.2 ppm Stability over Temperature
- ± 4.6 ppm Overall Stability over 20 years
- Ultra compact 3.2x5mm SMD Ceramic Package
- Low Current consumption

■ APPLICATIONS

- Mobile Phones
- Base Stations
- Mobile Radios
- GPS Devices
- Broadband Equipment
- Utility Metering



■ ELECTRICAL SPECIFICATION

PARAMETER	SYMBOL	CONDITIONS	VALUE	UNIT
Frequency Range	f_o		10 ~ 52	MHz
Supply Voltage	V_{CC}		3.3 or 5.0	V
Supply Current	I_s	Typical (depending on Vcc and output)	2 ~ 10	mA
Clipped Sine Wave – Output Voltage Swing (peak-to-peak)	V_{p-p}	Load = $10K\Omega // 10pF$	0.6 ~ 1.0	V
HCMOS – Output Levels	V_{OH} / V_{OL}	Min/Max, 15pF Load	0.9 Vcc / 0.1 Vcc	V
Duty Cycle	DC	HCMOS - Load = 15pF (2 TTL)	40/60 or 45/55	%
Rise Time / Fall Time	t_r / t_f	10% ~ 90%	5	ns
Start up time	t_s	Typical	3	ms
Enable / Disable	E/D	Min / Max	0.8 (Vcc) / 0.2 Vcc	Vdc
Control Voltage ¹	V_c	Optional	0.5 ~ 2.5	Vdc
Pull Range ¹	f_r	$V_c = 1.5 \pm 1.0$ V	$\pm 3 \sim \pm 15$	ppm
Linearity, max	L	Positive tuning slope	10	%
Initial Frequency Calibration	f_c	Measures at 25°C	± 1.5	ppm
Stability vs. Supply Voltage change	f_v	$V_{CC} \pm 5\%$	± 0.05	ppm
Stability vs. Load change	f_L	Load $\pm 10\%$	± 0.05	ppm
Stability over operating temperature ²	$\Delta f / f_o(T)$	Referenced at 25°C	± 0.2	ppm
Overall Frequency Stability, max	$\Delta f / f_c$	Including 20 years of aging	± 4.6	ppm
Stability vs. Aging, max	t_{age}	1 year @ 25°C	± 0.5	ppm
Phase Noise @ freq. offset, typical. 10 MHz	$E(\Delta f)$	$\Delta f = 100$ Hz	-110	dBc/Hz
	$E(\Delta f)$	$\Delta f = 1$ kHz	-135	dBc/Hz
	$E(\Delta f)$	$\Delta f = 10$ kHz	-145	dBc/Hz
Integrated Phase Jitter RMS, max	J	BW= 12kHz to 20MHz, $V_{CC} \pm 5\%$, 15pF load	1.0	ps
Operating temperature Range	T_a		-20 ~ +70 -40 ~ +85	°C
Storage Temperature Range	$T(stg)$	Absolute max	-55°C ~ +125°C	°C

NOTES

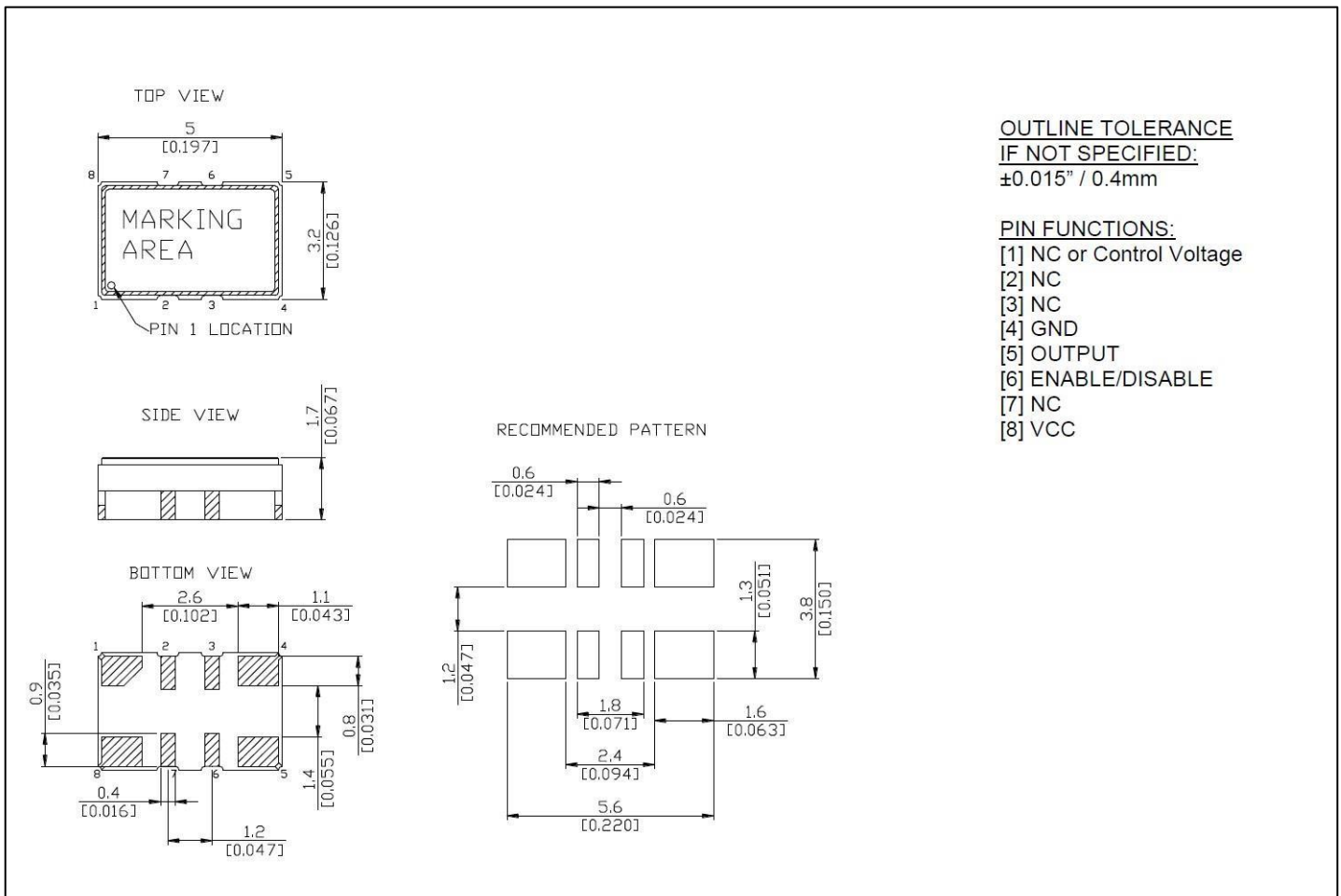
¹ Available with TV series only

² Not available at all frequencies, Contact Factory

³ Check part numbering table below. For others contact factory.

TV/TX 35 SERIES TCXO: 3.2x5 mm Stratum 3 TCXO with frequency Range 10.0 MHz to 52.0 MHz

MECHANICAL SPECIFICATION



PART NUMBERING SYSTEM

TYPE	OUTPUT TYPE	SERIES	REV	-	OPERATING TEMP RANGE (°C)	-	STABILITY (PPM)	-	FREQUENCY (MHz)	-	SUPPLY VOLTAGE (V)	-	TAPE & REEL
Surface Mount TCXO	0: Clipped Sine 2: HCMOS	35	A	-	LZ: 0~70 HZ: -20~+70 D3: -40~+85	-	0.28: ±0.28	-	10 ~ 52	-	5: Vcc=5.0 3: Vcc=3.3	-	TR
TX TV ⁴	2	35	A	-	HZ	-	0.28	-	12.8	-	3	-	TR

Notes

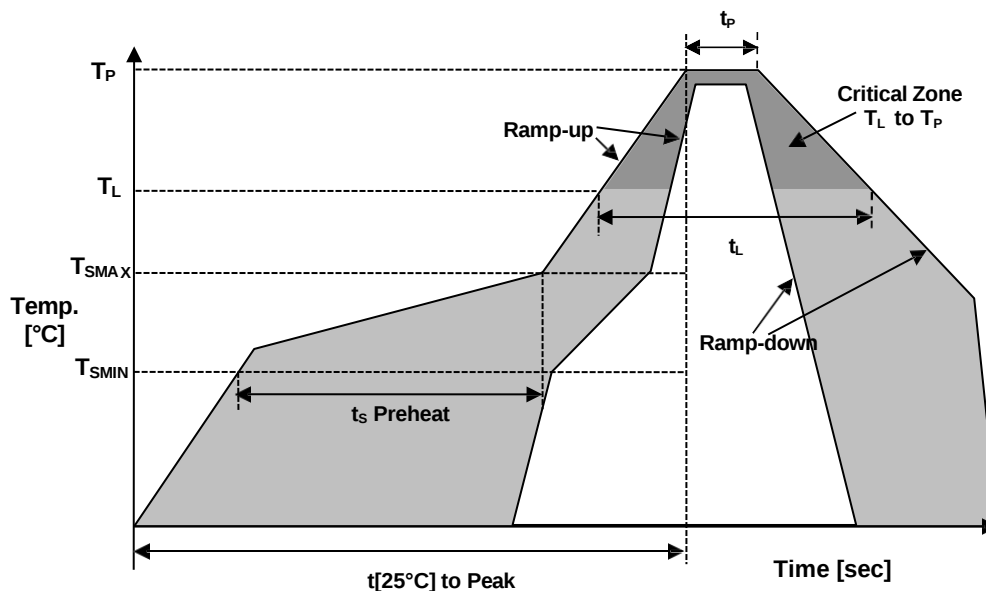
⁴ Available with Control Voltage option.

EXAMPLE: TV035A-D3-0.28-12.800-3-TR

Surface Mount TCXO, Control voltage option, 3.2x5 mm, Stratum 3, from -40°C to +85°C, 3.3 VDC supply voltage, Control Voltage range ±5 ppm to ±12 ppm, Clipped Sine wave output, Tape and reel packaging.

TV/TX 35 SERIES TCXO: 3.2x5 mm Stratum 3 TCXO with frequency Range 10.0 MHz to 52.0 MHz

REFLOW PROFILE



Reflow profile		
Temperature Min Preheat	T_{SMIN}	150°C
Temperature Max Preheat	T_{SMAX}	200°C
Time (T_{SMIN} to T_{SMAX})	t_s	60-180 sec.
Temperature	T_L	217°C
Peak Temperature	T_P	260°C
Ramp-up rate	R_{UP}	3°C/sec max.
Ramp-down rate	R_{DOWN}	6°C/sec max.
Time within 5°C of Peak Temperature	t_p	10 sec.
Time $t[25^\circ\text{C}]$ to Peak Temperature	$t[25^\circ\text{C}] \text{ to Peak}$	480 sec.
Time	t_l	60-150 sec.

ENVIRONMENTAL

PARAMETER	VALUE
MOISTURE SENSITIVITY LEVEL	1
REACH SVHC	COMPLIANT
RoHS	COMPLIANT
TERMINATION FINISH	Au



February 2021

Raltron Electronics/RAMI Technology USA, LLC, including its affiliates, employees, agents and other persons acting on its behalf (collectively Raltron/RAMI Tech), disclaim any and all liability for any errors or inaccuracies contained in this data sheet. While Raltron/RAMI Tech has made every reasonable effort to ensure the accuracy of all product information, specifications and data contained herein, Raltron/RAMI Tech does not guarantee that the information is accurate, reliable or current. The product information is provided for reference purposes only and is subject to change, correction or revision, at any time without notice. Raltron/RAMI Tech does not assume any liability arising out of an application or use of any product described herein and disclaims any warranties expressed or implied. The user of products in such applications shall assume all risks of such use and will agree to hold Raltron/RAMI Tech, harmless against all damages.