

TV/TX 053 SERIES TCXO: 5x3.2 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 5x3.2 mm 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}		2.7 to 5.0	V
Supply current	I_s	Typical (depending on V_{CC} and output)	2 ~ 10	mA
Clipped sine wave – Output Voltage Swing (peak-to-peak)	V_{p-p}	Load = 10K Ω // 10pF	0.6 ~ 1.0	V
HCMOS – Output Levels	V_{OH} / V_{OL}	Min/Max, 15pF Load	0.9 V_{CC} / 0.1 V_{CC}	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 (V_{CC}) / 0.2 V_{CC}	Vdc
Control Voltage ¹	V_c	Optional	0.5 ~ 2.5	Vdc
Pull Range ¹	f_T	$V_c = 1.5 \pm 1.0$ 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	f_{age}	1 year @ 25°C	± 0.5	ppm
Phase noise @ freq. offset, typical. 10 MHz	$\mathcal{E}(\Delta f)$	$\Delta f = 100$ Hz	-110	dBc/Hz
	$\mathcal{E}(\Delta f)$	$\Delta f = 1$ kHz	-135	dBc/Hz
	$\mathcal{E}(\Delta f)$	$\Delta f = 10$ 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 ³	T_a		-20 ~ +70	°C
			-40 ~ +85	
Storage temperature	T(stg)	Absolute max	-55°C ~ +125°C	°C

NOTES

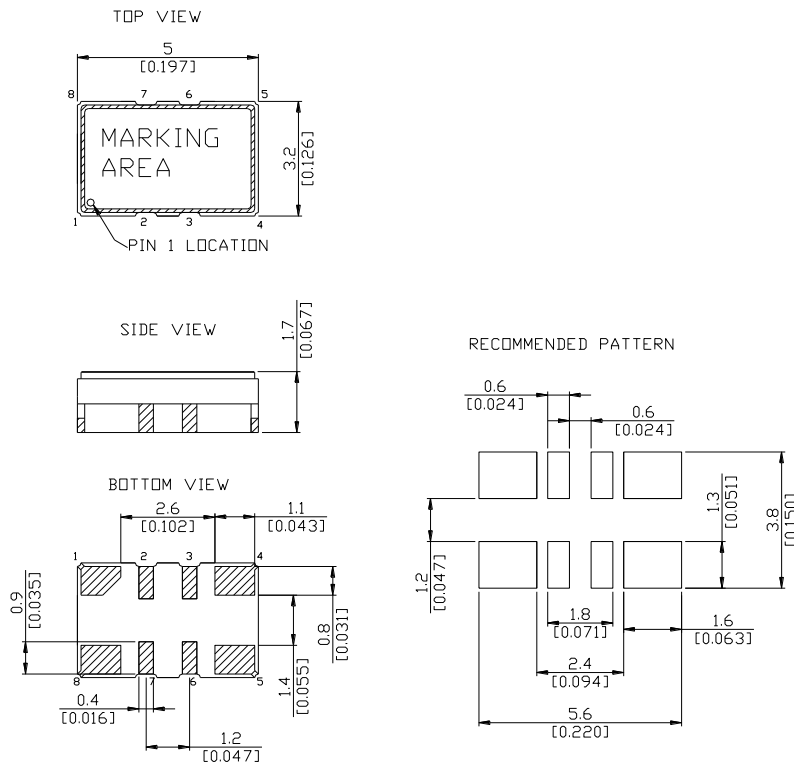
¹ Available with TV series only

² Not available at all frequencies, Contact Factory

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

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■ MECHANICAL SPECIFICATION



OUTLINE TOLERANCE
IF NOT SPECIFIED:
 $\pm 0.015'' / 0.4\text{mm}$

PIN FUNCTIONS:
 [1] NC or Control Voltage
 [2] NC
 [3] NC
 [4] GND
 [5] OUTPUT
 [6] ENABLE/DISABLE
 [7] NC
 [8] VCC

■ 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	53	A	-	LZ: 0~70 HZ: -20~+70 D3: -40~+85	-	0.28: ±0.028	-	10 ~ 52	-	5: Vcc=5.0 3: Vcc=3.3 2: Vcc=2.7	-	TR
TX TV ⁴	2	53	A	-	HZ	-	0.28	-	12.8	-	3	-	TR

Notes

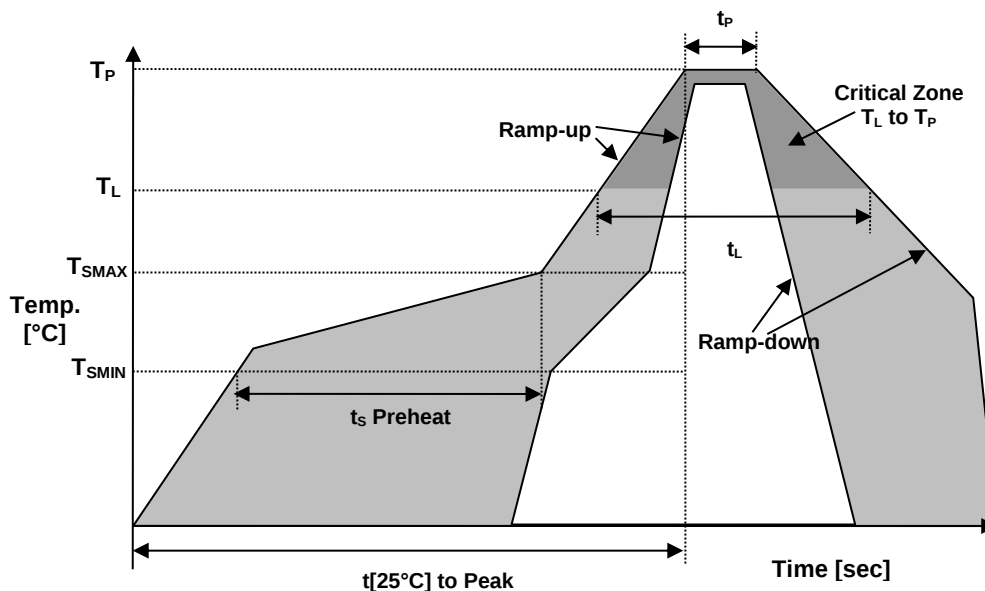
⁴ Available with Control Voltage option.

EXAMPLE: TV053A-D3-0,28-12,800-3-TR

Surface Mount TCXO, Control voltage option, 5x3.2 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.

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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	$t[25^\circ\text{C}]$ to Peak	480 sec.
Time	t_L	60-150 sec.

ENVIRONMENTAL

PARAMETER	VALUE
MOISTURE SENSITIVITY LEVEL	1
REACH SVHC	COMPLIANT
RoHS	6/6 LEAD FREE
TERMINATION FINISH	Au

