

TV/TX 057 SERIES TCXO: 5x7 mm Stratum 3 TCXO with frequency Range 10.0 MHz to 52.0 MHz

■ FEATURES

- ± 0.25 ppm Holdover Stability
- ± 4.6 ppm accuracy over all conditions including 20 years aging
- Miniature 5x7 mm SMD Package
- Low Current consumption

■ APPLICATIONS

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



■ 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 V_{CC} and output)	4 ~ 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 ~ V_{CC}	Vdc
Pull Range ¹	f_T		$\pm 5 \sim \pm 12$	ppm
Linearity, max	L	Positive tuning slope	10	%
Initial Frequency Calibration	f_C	Measures at 25°C	± 1.0	ppm
Stability vs. Supply Voltage change	f_V	$V_{CC} \pm 5\%$	± 0.20	ppm
Stability vs. Load change	f_L	Load $\pm 10\%$	± 0.20	ppm
Stability over operating temperature ²	$\Delta f/f_o(T)$	Referenced at 25°C	± 0.28	ppm
Overall frequency stability, max	$\Delta f/f_C$	Including 20 years of aging	± 4.60	ppm
Phase noise @ freq. offset, typical.	$\mathcal{E}(\Delta f)$	$\Delta f=100\text{Hz}$	-110	dBc/Hz
	$\mathcal{E}(\Delta f)$	$\Delta f=1\text{kHz}$	-135	dBc/Hz
	$\mathcal{E}(\Delta f)$	$\Delta f=10\text{kHz}$	-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 -40 ~ +85	°C
Storage temperature	T(stg)	Absolute max	-55°C ~ +125°C	°C

NOTES

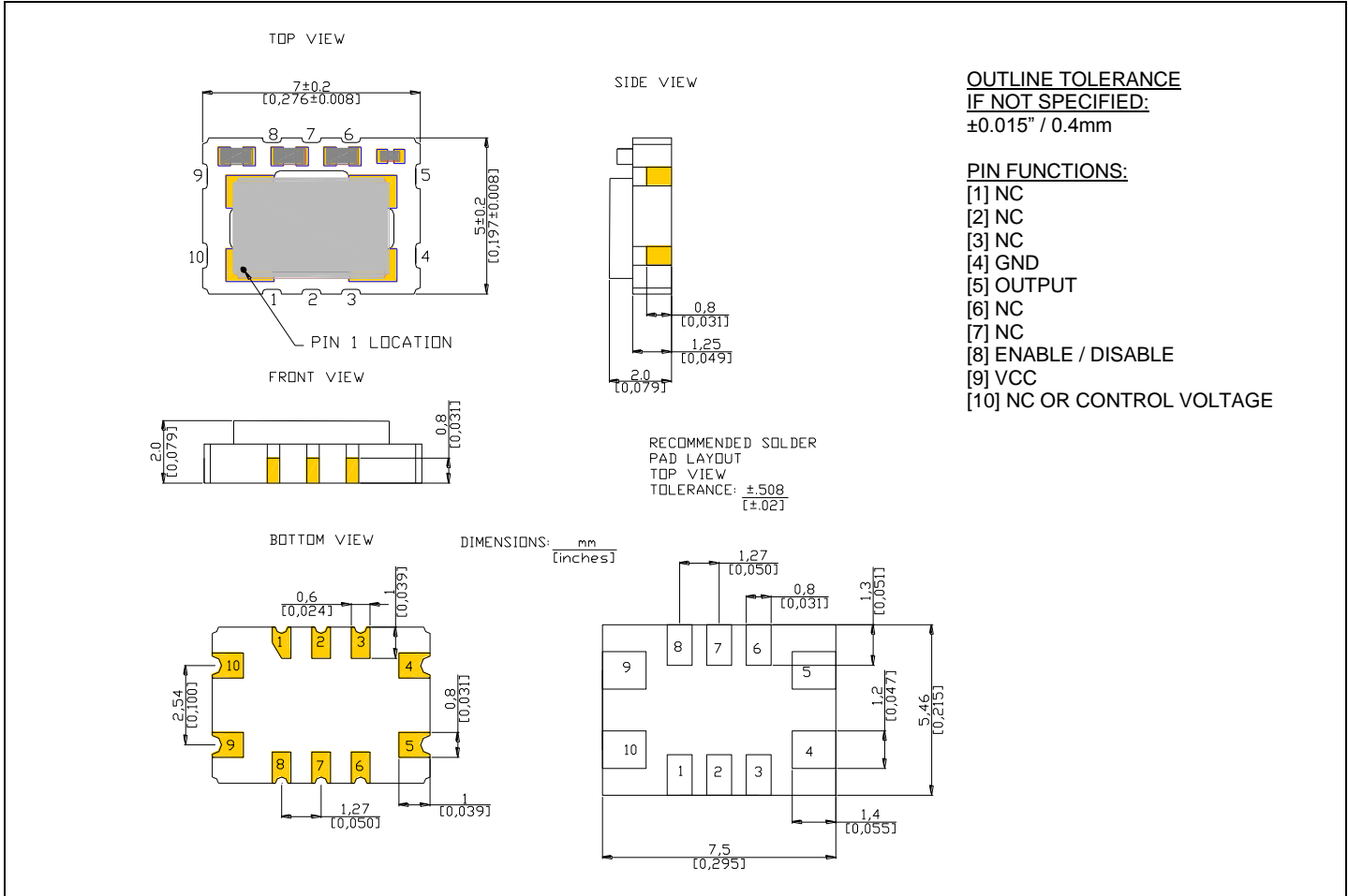
¹ Available with TV series only

² Not available at all frequencies, Contact Factory

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

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MECHANICAL SPECIFICATION (10 pin ceramic package)



PART NUMBERING SYSTEM

TYPE	OUTPUT TYPE	SERIES	REV	OPERATING TEMP RANGE (°C)	STABILITY (PPM)	FREQUENCY (MHz)	SUPPLY VOLTAGE (V)	TAPE & REEL	Ceramic Package
Surface Mount TCXO	0: Clipped Sine 2: HCMOS	57	A	LZ: 0~+70 HZ: -20~+70 D3: -40~+85	0.28: ±0.028	10 ~ 52	5: Vcc=5.0 3: Vcc=3.3	TR	Blank-10 pin 2 - 8 pin
TX TV ⁴	2	57	A	HZ	0.28	12.8	3	TR	

Notes

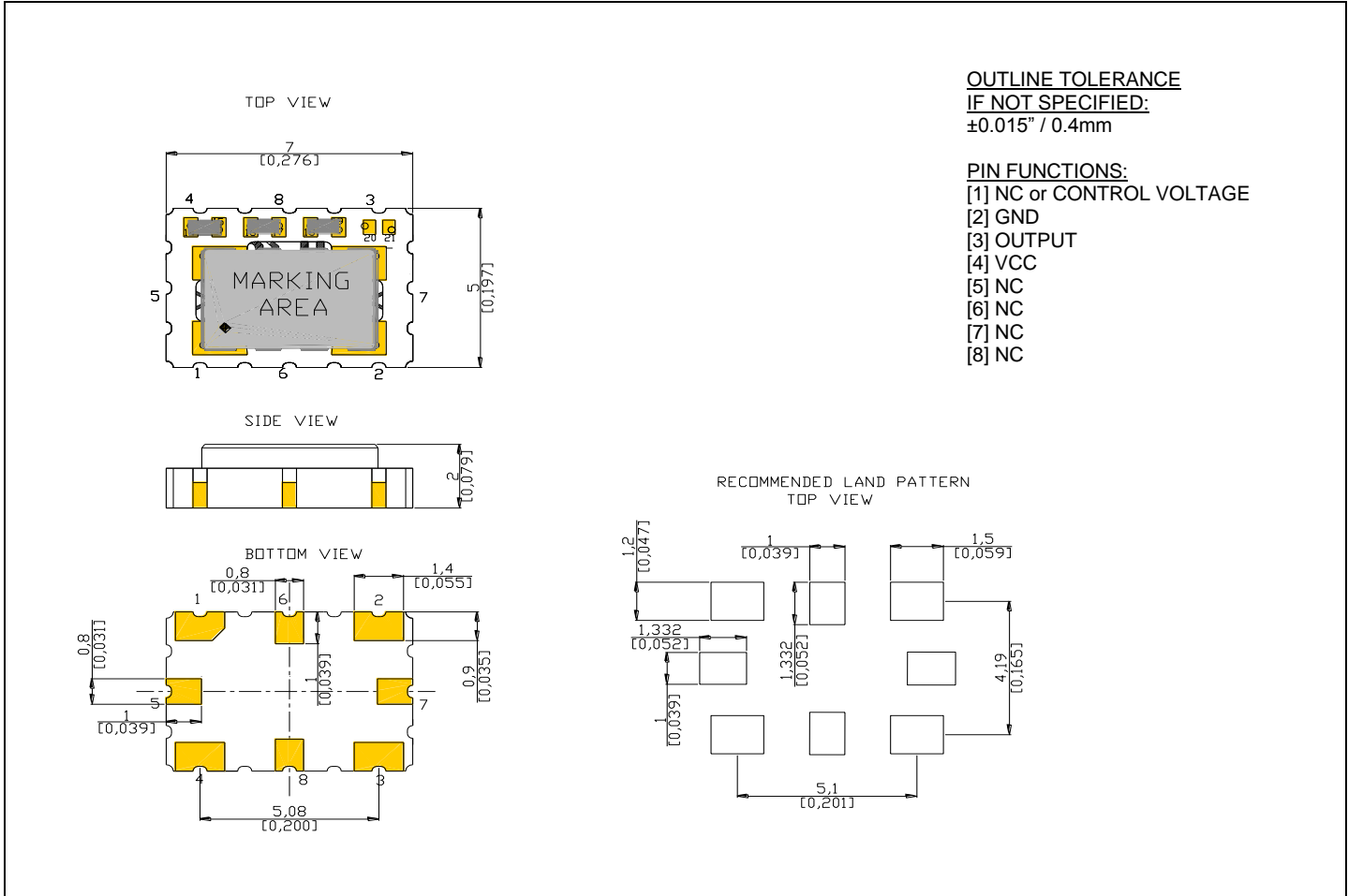
⁴ Available with Control Voltage option.

EXAMPLE: TV057A-D3-0.28-12.800-3-TR

Surface Mount TCXO, Control voltage option, 5x7 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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MECHANICAL SPECIFICATION (8 pin ceramic package)



PART NUMBERING SYSTEM

TYPE	OUTPUT TYPE	SERIES	REV	OPERATING TEMP RANGE (°C)	STABILITY (PPM)	FREQUENCY (MHz)	SUPPLY VOLTAGE (V)	TAPE & REEL	Ceramic Package
Surface Mount TCXO	0: Clipped Sine 2: HCMOS	57	A	LZ: 0~+70 HZ: -20~+70 D3: -40~+85	0.28: ±0.028	10 ~ 52	5: Vcc=5.0 3: Vcc=3.3	TR	Blank-10 pin 2 - 8 pin
TX TV⁴	2	57	A	HZ	0.28	12.8	3	TR	2

Notes

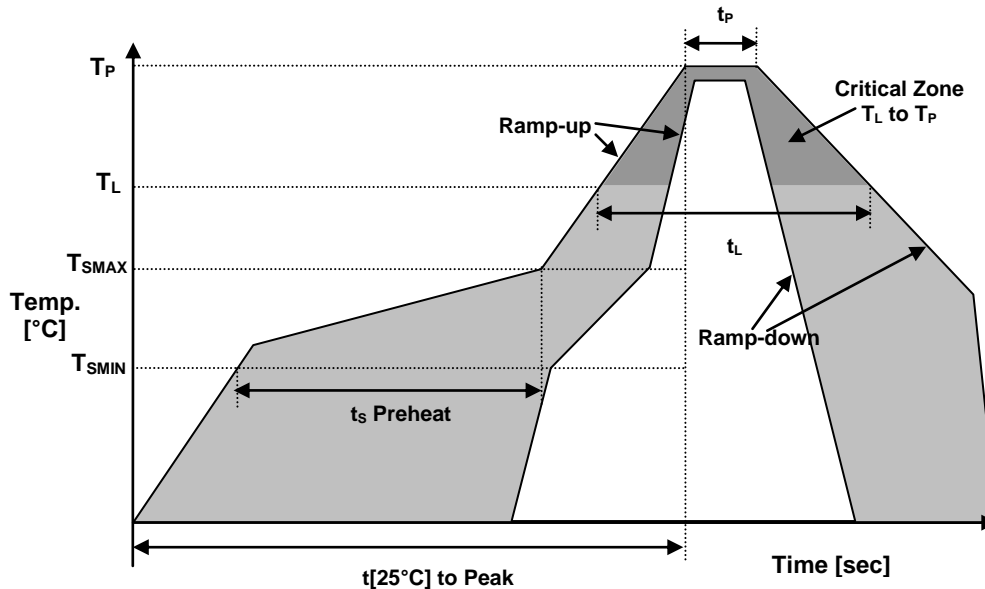
⁴ Available with Control Voltage option.

EXAMPLE: TX057A-LZ-0.28-40.000-5-TR-2

Surface Mount TCXO, 5x7 mm with 8 pin ceramic base option, Stratum 3, from 0°C to +70°C, 5.0 VDC supply voltage, 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 $t_{[25^\circ\text{C}] \text{ to Peak Temperature}}$	$t_{[25^\circ\text{C}] \text{ to Peak}}$	480 sec.
Time	t_L	60-150 sec.

ENVIRONMENTAL

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

