

TX257A-D3-0.28-25.000-3.3-TR



Features:

- > 25MHz
- > Low Phase Noise
- > Small Package(SMD 5 x 7 mm 10 pads)

ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
Nominal Frequency	f_0		25.000			MHz
Supply Voltage	V_{CC}	$T_a=25^{\circ}\text{C}$	3.135	3.3	3.465	V
Supply Current	I	$T_a=25^{\circ}\text{C}$			6	mA
Initial Frequency Calibration	$\Delta f/f_0$	V_{CC} , at 25°C	-1.0		+1.0	ppm
Frequency Stability vs. Temperature	$\Delta f/f_0 (T_a)$	Referenced at 25°C	-0.28		+0.28	ppm
Frequency Stability vs. Supply Voltage	$\Delta f/f_0 (\Delta V_{CC})$	$V_{CC} \pm 5\%$	-0.2		+0.2	ppm
Frequency Stability vs. Load Change	$\Delta f/f_0 (\Delta I)$	$V_{CC} \pm 10\%$	-0.2		+0.2	ppm
Free run accuracy		Inclusive of calibration tolerance@ 25° , temperature stability, supply voltage variation 5%, load variation $\pm 5\text{pF}$, reflow soldering and 15 years of aging reference to nominal frequency	-4.6		+4.6	ppm
Holdover stability, 24 hours		At variable temperature At constant temperature	-0.32 -0.04		+0.32 +0.04	ppm ppm
Jitter RMS		$T_a=25^{\circ}\text{C}$, BW (12kHz ~ 5MHz)		290		fs
Root Allan Variance		$\tau=1\text{s}$		1E-10		
Aging, after 30 days of operation	$\Delta f/\Delta t_y$	1 year 10 years	-1.00 -3.0		+1.00 +3.0	ppm ppm
Operating Temperature	T_a		-40		+85	$^{\circ}\text{C}$
Storage Temperature	$T_{(stg)}$	Absolute max	-55		+125	$^{\circ}\text{C}$

TX257A-D3-0.28-25.000-3.3-TR**PHASE NOISE**

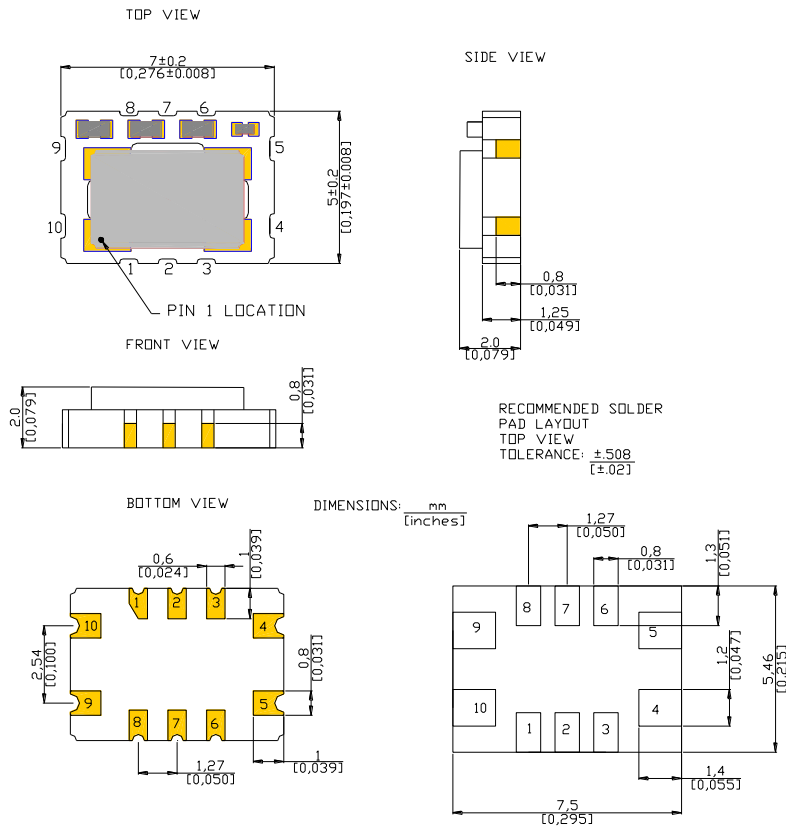
PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
			Min.	Typ.	Max.	
@10 Hz Offset	$\mathcal{L}(\Delta f)$	Ta=25°C		-85		dBc/Hz
@100 Hz Offset	$\mathcal{L}(\Delta f)$	Ta=25°C		-110		dBc/Hz
@1 kHz Offset	$\mathcal{L}(\Delta f)$	Ta=25°C		-140		dBc/Hz
@10 kHz Offset	$\mathcal{L}(\Delta f)$	Ta=25°C		-152		dBc/Hz
@ ≥10 kHz Offset	$\mathcal{L}(\Delta f)$	Ta=25°C		-155		dBc/Hz

OUTPUT CHARACTERISTICS

	PARAMETER	SYMBOL	CONDITION	VALUE			UNIT
				Min.	Typ.	Max.	
HCMOS	Output Levels	VOH/VOL	V _{CC} , load = 15pF		0.9V _{CC} /0.1V _{CC}		V
	Duty Cycle	DC	load = 15pF	48		52	%
	Rise/Fall Time	t _r /t _f	10% ~ 90% V _{out}			5	ns
	Load	CL			15		pF
	Enable / Disable	E/D	load = 15pF	0.8V _{CC}		0.2V _{CC}	V

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MECHANICAL DIMENSIONS AND PIN FUNCTIONING



OUTLINE TOLERANCE

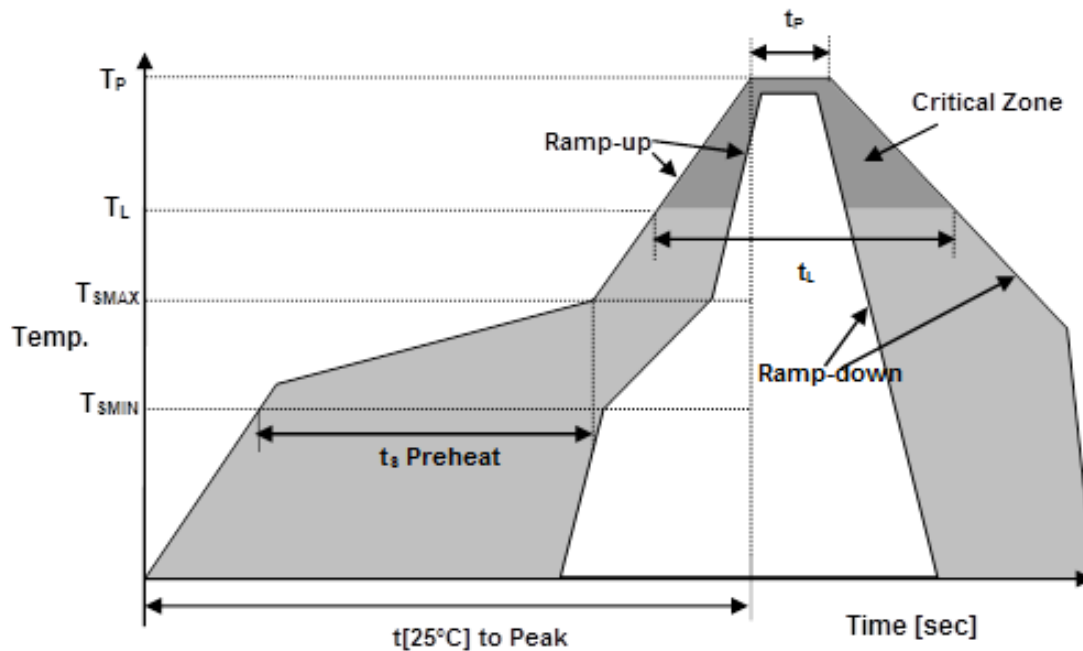
IF NOT SPECIFIED:

$\pm 0.015'' / 0.4\text{mm}$

PIN	SYMBOL	FUNCTION
1	NC	Do not connect
2	NC	Do not connect
3	NC	Do not connect
4	GND	Ground
5	OUTPUT	RF Output signal
6	NC	Do not connect
7	NC	Do not connect
8	E/D	Enable / Disable function
9	Vcc	Supply Voltage
10	NC	Do not connect

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REFLOW PROFILE



Reflow profile IPC/JEDEC J-STD-020 REV. C

Parameter	Symbol	Value
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.

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ENVIRONMENTAL SPECIFICATION

Mechanical Shock	JESD22-B104, 1500g, 0.5 ms, 5 pulses in each of 6 directions
Mechanical Vibration	JESD22-B103, 20 g, 60 – 2000 Hz, 4 hours in each of three axes (12 hours total)
Temperature cycle	JESD22-A104, 500 cycles, -55°C to +125°C
Solderability	JESD22-B102, M1, condition E (IPC/EIA-J-STD-002A), 260°C for 5s, precondition for 16 hours at +150°C
Moisture resistance	JESD22-A113, MSL=1
High Temperature operating life (HTOL)	JESD22-A108, 1008 hours at +125°C
Low Temperature storage	IEC 60068-2-1 test Ab, 1000 hours at -55°C
High Temperature storage	IEC 60068-2-2 test Bb, 1000 hours at +150°C

RALTRON	Signed	Date
Created	SP	June 7, 2018
Eng. approved	SP	June 7, 2018
REV A		