RTX3825S

The RTX3825S is a radiation-tolerant TCXO in a 38 x 25 mm hermetically sealed package. This TCXO is specifically designed to meet high-frequency performance requirements. It is ideal for applications where high power, low harmonics, excellent phase noise, and accurate frequency stability over a wide temperature range are crucial. The RTX3825S is a low-profile TCXO that suits limited-height working environments.

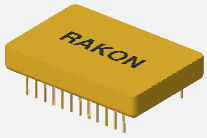
Features

- TID limit of 100 krad, SEL free up to LET 62 MeV.cm²/mg
- Low profile hermetically sealed package
- Frequency: 5.5 to 375 MHz
- Output option: HCMOS and Sinewave
- Low current: 25 mA
- Supply voltage 5.0 or 15.0 V
- Excellent frequency stability: ±1 ppm over -20 to 60°.
- Manufactured in accordance with:
- MIL-PRF-55310 Class 2, level S

Applications

- Space Synthesizers and Transponders
- GPS receivers
- Down and up converters and on-board calculators.
- Frequency generator unit (FGU)
- Wireless communication
- Satellite communication

38 x 25 mm



Environmental Conditions

Parameter	Test Conditions/Description	Min.	Typ.	Max.	Unit
Operating temperature (To)	Option A Option B Option C	-15 -20 -30		65 60 60	°C
Switch-on temperature (Tso)		-40		65	°C
Storage temperature (Ts)		-55		85	°C

Frequency Characteristics

Parameter	Test Conditions/Description	Min.	Typ.	Max.	Unit
Initial frequency accuracy	@ 25°C			±0.3	ppm
Frequency stability over temperature (FvT)	Option A: -15 to 65°C Option B: -20 to 60°C Option B: -30 to 60°C			±1 ±1 ±2	ppm
Supply voltage stability				±0.2	ppm
Ageing	Per year			±1	ppm

Electrical Interface

Parameter	Test Conditions/Description	Min.	Typ.	Max.	Unit
Power supply (Vcc)	±5% tolerance		5.0, 15.0		V
Input current[1]	No load		25		mA

Frequency Adjustment Options

Parameter	Test Conditions/Description	Min.	Typ.	Max.	Unit
Frequency adjustment range		±3			ppm
Provision of frequency adjustment	By external resistor	0	5	10	kΩ

[1] Over temperature range.

Phase Noise

Parameter		5.5 to 155 MHz (Typ.)	156 to 250 MHz (Typ.)	251 to 375 MHz (Typ.)	Unit
Offset	10 Hz	-75	-67	-64	dBc/Hz
	100 Hz	-110	-102	-99	
	1 kHz	-130	-122	-119	
	10 kHz	-145	-137	-134	

Output Characteristics[2]

Parameter		Test Conditions/Description	Min.	Typ.	Max.	Unit
HCMOS[3]	Nominal frequency (Fn)	HCMOS output	10		50	MHz
	Output voltage (V_{OL})[1]	15 pF load			10% V_{CC}	V
	Output voltage (V_{OH})[1]	15 pF load	90% V_{CC}			V
	Duty cycle[1]	@50% V_{CC}	40		60	%
	Rise time/fall time[1]	10% to 90% Vcc			5	ns
Sinewave	Nominal frequency	Sinewave output	5.5		375	MHz
	Output level[1]	50 Ω nominal load	7			dBm
	Harmonics & subharmonics[1]			-45	-30	dBc
	Spurious[1]			-70		dBc

Environmental Specifications

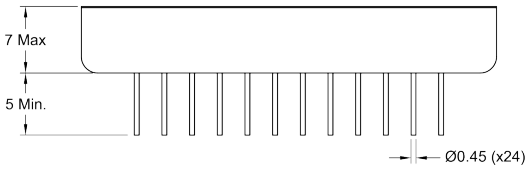
Screening Operation	Requirements and Condition		
Non-destructive bond pull	MIL-STD-883, method 2023		
Internal visual	MIL-STD-883, method 2017 and method 2032		
Stabilisation bake (prior to seal)	MIL-STD-883, method 1008, condition C (+150°C), 48 hours minimum		
Thermal shock	MIL-STD-883, method 1011, condition A		
Temperature cycling	MIL-STD-883, method 1010, condition C		
Constant acceleration	MIL-STD-883, method 2001, condition A, Y1 only (5000 g's)		
Seal (fine and gross leak)	MIL-STD-883, method 1014:	*Fine leak* Test condition A1, A2, or B	*Fine leak* Test condition B2 or B3
Particle impact noise detection (PIND)	MIL-STD-883, method 2020, condition A		
Electrical test	Nominal and extreme supply voltages, specified load, 23°C and temperature extremes, record all test parameters by serial number		
Burn-in (load)	115°C, nominal supply voltage and burn-in load, 440 hours minimum		
Radiographic	MIL-STD-883, method 2012		
External visual	MIL-STD-883, method 2009		

[2] LVDS option is available on request.

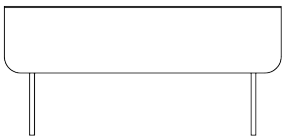
[3] The HCMOS output is available for 5.0 V supply

Model Outline and Pin Connections

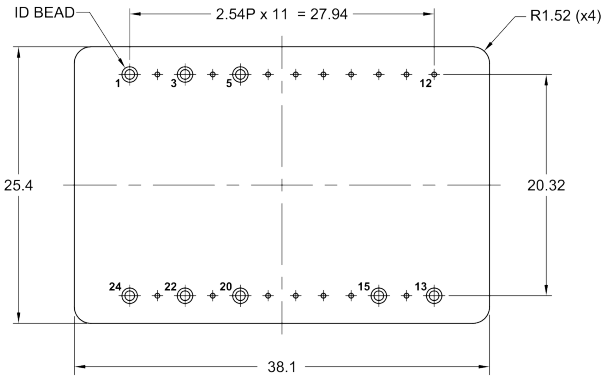
Parameter	Requirements / Condition
Package size	L x W: 38 x 25 mm, nom. H: 7 mm max.
Net weight	30 g typ.



FRONT VIEW



SIDE VIEW



BOTTOM VIEW

Pin	Connections
1	Frequency adjustment option (10 kΩ POT to be connected from pin 1 to GND
3, 5, 15, 20, 22	No Connection
13	Fout (Frequency output)
24	Vcc (Supply voltage)
All other pins	GND

NOTE:

- Dimensions are in millimetres.
- Tolerance is ±0.25 mm if it has not been indicated.