



frequency control solutions

T52

TIGHT TEMPERATURE STABILITY
LOW G-SENSITIVITY OPTION
30,000g SHOCK OPTION

texo



Product Description

Greenray Industries' T52 Series TCXO offers +5V operation for applications that require this voltage, that is higher than that currently available on typical miniature TCXOs. The T52 has been developed as a reference oscillator for timing applications requiring low noise, low power draw, tight stability over temperature, and a compact footprint.

Features

- +5Vdc $\pm 5\%$ Operation
- Small and rugged 5.0 x 3.2 mm package
- Withstand vibration, and high shock
- Excellent long-term aging < 5 ppm over 10 years
- Low acceleration sensitivity as low as 0.5 ppb/g
- Low power consumption, as low as 2 mA

Applications

- Telecommunications
- High-shock electronics
- Mobile radio
- Mobile instrumentation
- Airborne communications
- Wireless communications
- Microwave receivers

REV: G



intertek

Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055
TEL: 717-766-0223 FAX: 717-790-9509 e-mail: sales@greenrayindustries.com
www.greenrayindustries.com

Greenray Proprietary Greenray Industries, Inc. disclaims all liability arising from this information and its use. No licenses are conveyed, implicitly or otherwise, to any Greenray intellectual property rights. ©2024 Greenray Industries, Inc. All rights reserved. Reproduction in whole or in part is prohibited.



frequency control solutions

T52 SERIES

10 MHz to 52 MHz



Electrical Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency	@ +25°C	10		52	MHz	(FREQ.)
Frequency Stability	-40°C to +85°C		± 0.5	± 1.0	ppm	T15
	-20°C to +70°C		± 0.3	± 0.5	ppm	N57
Aging	1 st year		± 1.0	± 3.0	ppm	
	10 years		± 5.0		Ppm	
Acceleration Sensitivity	Worst axis tested @ 90 Hz, 10 g			2.5	ppb/g	SG
				1.0	ppb/g	LG
			0.5	0.7	ppb/g	ULG
Frequency vs Reflow	After 24 hrs recovery			1.0	ppm	
Voltage Control (EFC)	0 to Supply, Positive Slope		± 8		ppm	
Phase Noise Performance						
Parameter	Frequency Offset (Hz)	Min	Typical	Max	Units	
Static @ 20 MHz Nom. Freq.	10		-80		dBc/Hz	
	100		-112		dBc/Hz	
	1 k		-133		dBc/Hz	
	10 k		-145		dBc/Hz	
	100 k		-149		dBc/Hz	
	Floor		-150		dBc/Hz	
DC Supply						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Supply Voltage		4.75	5.0	5.25	Vdc	5.0
Supply Current	CMOS			6	mA	
	Clipped Sine			3	mA	
RF Output						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
CMOS						C
Load			15		pF	
Level		0.8 Vdd "1" Level		0.2 Vdd "0" Level	V	
Symmetry		40	50	60	%	
Clipped Sine						CS
Output Voltage		+ 0.8			V p-p	
Load			10 pF // 10k Ω			



Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055
TEL: 717-766-0223 FAX: 717-790-9509 e-mail: sales@greenrayindustries.com
www.greenrayindustries.com

Greenray Proprietary Greenray Industries, Inc. disclaims all liability arising from this information and its use. No licenses are conveyed, implicitly or otherwise, to any Greenray intellectual property rights. ©2024 Greenray Industries, Inc. All rights reserved. Reproduction in whole or in part is prohibited.



frequency control solutions

T52 SERIES

10 MHz to 52 MHz



Environmental and Mechanical Specifications				
Test	Standard	Method	Condition	Description
Vibration	MIL-STD-202G	204	D	20g, 20Hz to 2kHz, Swept Sine
Shock	MIL-STD-202G	213	D	Shock available up to 30,000

Recommendations and General Information	
Parameter	Notes
Operating Temperature	-40°C to +85°C
Storage Temperature	-40°C to +105°C
Terminal Finish	Au (RoHS) (SnPb 63/37 (non-RoHS) Available upon request)
Package Weight	< 0.1 gram
Soldering Instruction	Reflow
Shipping	Tray Pack, Tape & Reel
Marking	NONE

Ordering Example										
T52	-	N	57	-	CS	-	SG	-	10.0 MHz	
Model		Temp. Range		Stability		Output		G-Sensitivity		Freq. (MHz)
		N: -20 to +70°C T: -40 to +85°C		57: ±0.5ppm 16: ±1ppm 26: ±2ppm		C: CMOS CS: Clipped Sine		SG: < 2.5 ppb/g LG: < 2.0 ppb/g ULG: < 0.7 ppb/g HG: Customer-specific		10 to 52

The Order ID (T52-N57-CS-SG-10.0MHz) is only used to issue the preliminary quote. The Part Number (T52-1) for the quoted Electrical Characteristics, Screenings, and other options, will be provided with the Greenray Sales Order.

Other specification options are available, please use the contact information below for more information.



Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055
TEL: 717-766-0223 FAX: 717-790-9509 e-mail: sales@greenrayindustries.com
www.greenrayindustries.com

Greenray Proprietary Greenray Industries, Inc. disclaims all liability arising from this information and its use. No licenses are conveyed, implicitly or otherwise, to any Greenray intellectual property rights. ©2024 Greenray Industries, Inc. All rights reserved. Reproduction in whole or in part is prohibited.



frequency control solutions

texo

T52 SERIES
10 MHz to 52 MHz

Package Information

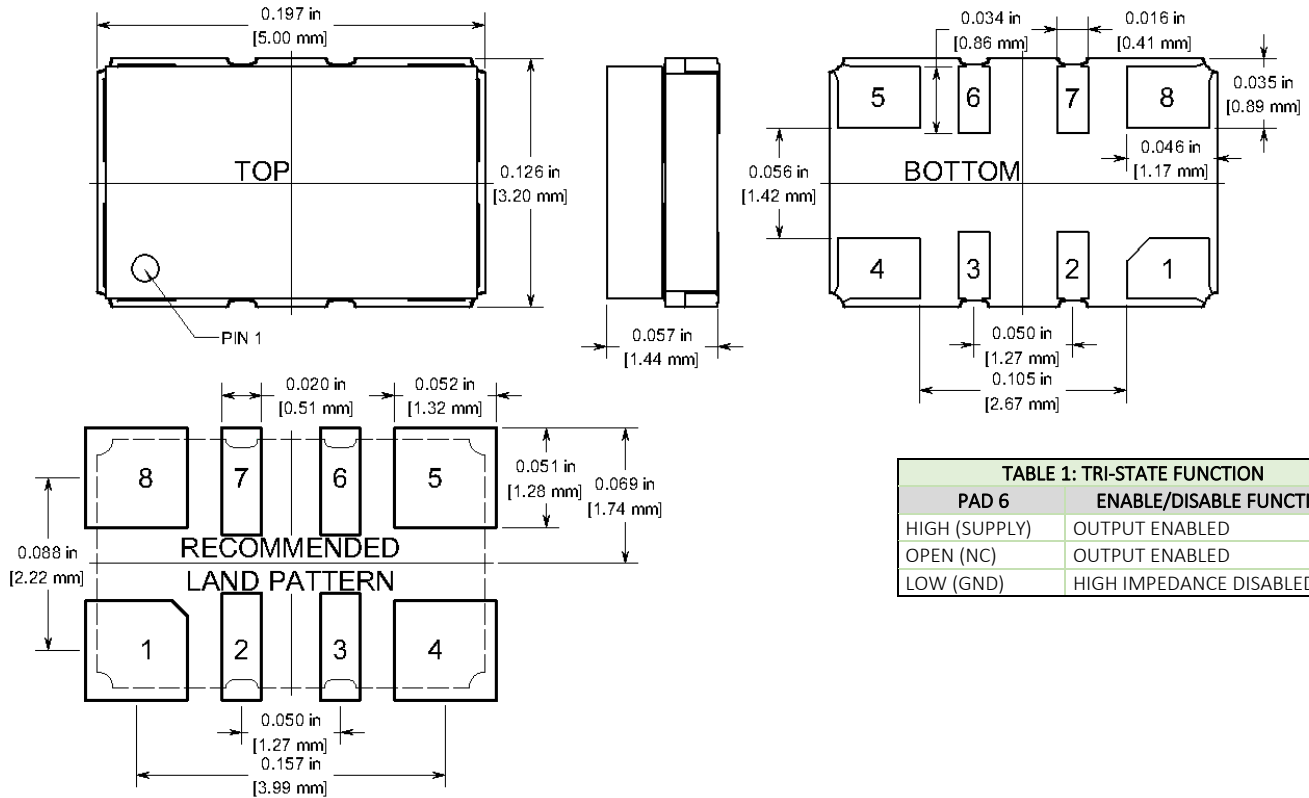


TABLE 1: TRI-STATE FUNCTION	
PAD 6	ENABLE/DISABLE FUNCTION
HIGH (SUPPLY)	OUTPUT ENABLED
OPEN (NC)	OUTPUT ENABLED
LOW (GND)	HIGH IMPEDANCE DISABLED

PAD CONNECTIONS	
1	CONTROL VOLTAGE
2	NO CONNECT (NC)
3	NO CONNECT (NC)
4	GND
5	OUTPUT
6	TRISTATE OR NC (SEE TABLE 1)
7	NO CONNECT (NC)
8	SUPPLY VOLTAGE

(NC Pads may have internal connections and should be isolated)



intertek

Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055
TEL: 717-766-0223 FAX: 717-790-9509 e-mail: sales@greenrayindustries.com
www.greenrayindustries.com

Greenray Proprietary Greenray Industries, Inc. disclaims all liability arising from this information and its use. No licenses are conveyed, implicitly or otherwise, to any Greenray intellectual property rights. ©2024 Greenray Industries, Inc. All rights reserved. Reproduction in whole or in part is prohibited.

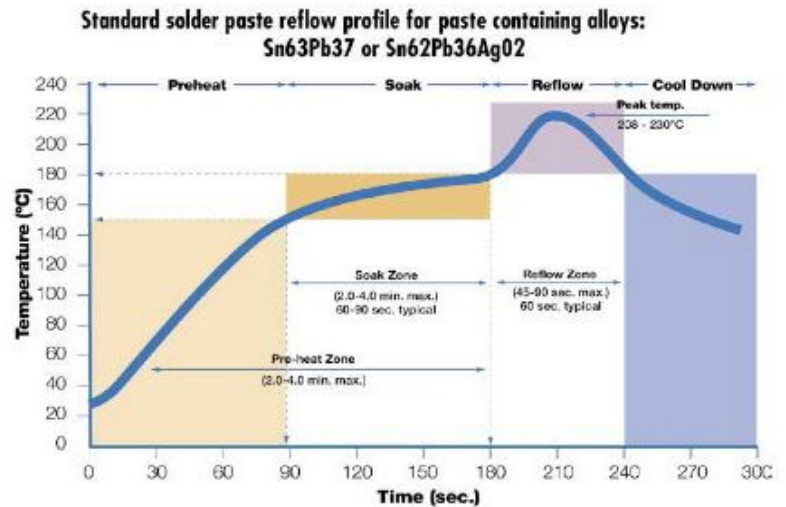
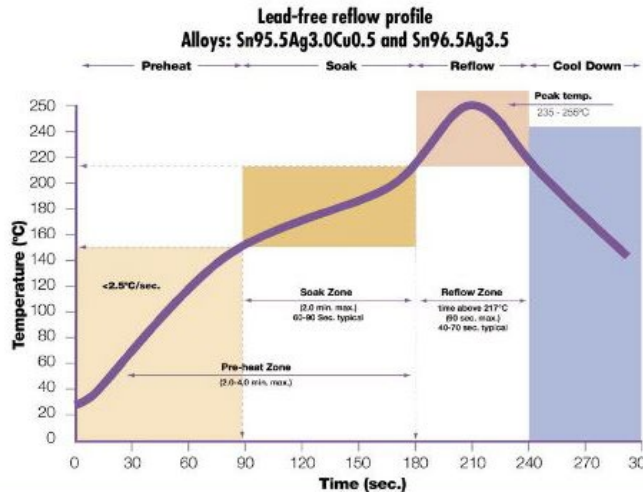


frequency control solutions

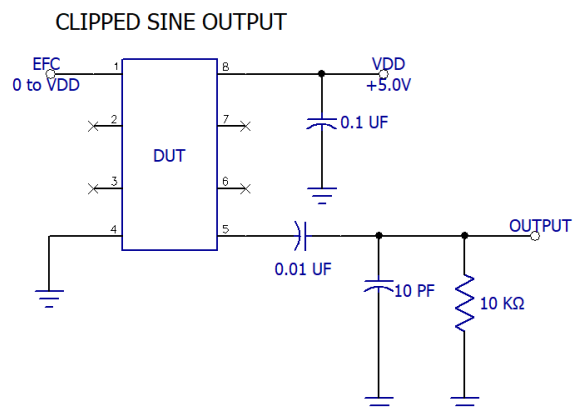
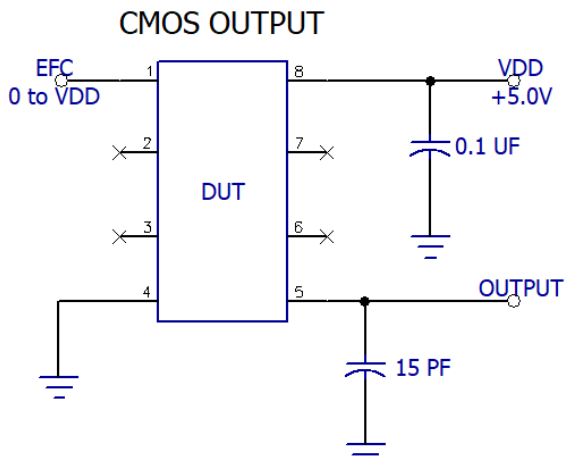
T52 SERIES
10 MHz to 52 MHz

texo

Recommended Solder Reflow Profiles



Recommended Configuration



intertek

Greenray Industries, Inc., 840 West Church Road, Mechanicsburg, PA 17055
TEL: 717-766-0223 FAX: 717-790-9509 e-mail: sales@greenrayindustries.com
www.greenrayindustries.com

Greenray Proprietary Greenray Industries, Inc. disclaims all liability arising from this information and its use. No licenses are conveyed, implicitly or otherwise, to any Greenray intellectual property rights. ©2024 Greenray Industries, Inc. All rights reserved. Reproduction in whole or in part is prohibited.