



frequency control solutions

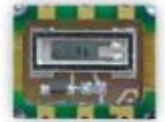
texo

T90

**TIGHT TEMPERATURE STABILITY
VERY RUGGED, SMT PACKAGE**

Product Description

Greenray Industries' T90 Series TCXOs offer tight stability in a rugged, miniature package.



Features

- 9.1 x 7.5mm package
- Tight Stability & Low g-Sensitivity
- High Shock & Vibration Options available
- Temperature Stability of ± 0.5 ppm over -40 to +85°C
- Vibration per MIL-STD-202F, Method 204, Condition A
- Shock per MIL-STD-202F, Method 213, Condition C

Applications

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

Rev. M



ISO 9001
Quality

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

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AS9100
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T90 SERIES
10 MHz to 50 MHz



Electrical Characteristics

Frequency Characteristics						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Nominal Frequency	+25°C	10		50	MHz	
Frequency Stability	-20°C to +70°C		± 0.5		ppm	N57
	-40°C to +85°C		± 1		ppm	T16
	-40°C to +85°C		± 0.5		ppm	T57
	-55°C to +95°C		± 2.0		ppm	V26
Aging	1 st year, for 10 MHz		± 0.5	± 1	ppm	
Acceleration Sensitivity	(Note 1)			2.5	ppb/g	
Frequency vs Reflow	After 24hrs recovery			1	ppm	
Electronic Frequency Control	EFC = 0 to V _{DD} Positive slope		± 5		ppm	
DC Supply						
Parameter	Conditions	Min	Typical	Max	Units	Ordering code
Supply Voltage (V _{DD})		3.0	3.3	3.6	VDC	T91
		4.75	5.0	5.25	VDC	T90
Input Current				20	mA	
RF Output: CMOS						
Parameter	Conditions	Min	Typical	Max	Units	Ordering Code
Load	CMOS		15		pF	
Level		+2.4 "1" level		+0.2 "0" level	V	T91
		+4.1 "1" level		+0.2 "0" level	V	T90
Symmetry		40	50	60	%	

(1) Acceleration Sensitivity is worst axis tested at 90 Hz, 10 g



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Recommendations and General Information

Conditions	
Parameter	Notes
Operating Temperature	-55°C to +95°C
Storage Temperature	-60°C to +105°C
Terminal Finish	Gold (E) is standard. SnPb 63/37 (non-RoHS) or AgCu (RoHS) available
Package Finish	Metal lid
Package Weight	< 3 grams
Soldering Instruction	Hand solder or Solder reflow
Shipping	Tray pack
Marking	Line 1: Model Line 2: Serial Number Line 3: Date Code (YYWW) Line 4: Greenray logo

Environmental Screenings

Environmentals			
Screening	Conditions	Method, Condition	Notes
Vibration	MIL-STD-202G	204, A	0.3 PSD, 20.71 g RMS
Shock	MIL-STD-202G	213, C	100 g, 5ms, Sawtooth

Ordering Example

T90			V26			20.0MHz			E		
Model			Stability			Frequency in MHz			Termination finish		
<u>Model: Input V Output</u>			<u>Refer to Electrical Specs Table*</u>			From 10 to 50 MHz			<u>Code: Pads finish</u>		
T90	+5.0V	CMOS	N57	(-20°C to +70°C)					E:	Gold plated	(RoHS), standard
T91	+3.3V	CMOS	T16	(-40°C to +85°C)					PB:	SnPb 63/37	(non-RoHS)
			T57	(-40°C to +85°C)					LF:	SnAg 96.5/3.5	(Lead-free)
			V26	(-55°C to +95°C)							

*other frequency stabilities available, please contact factory



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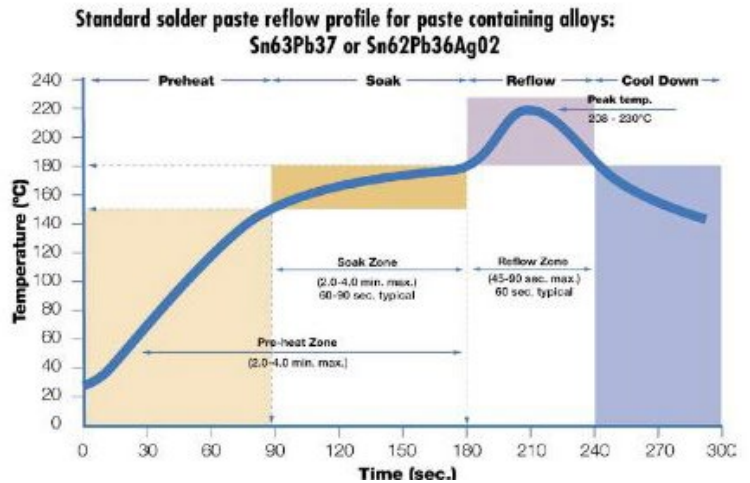
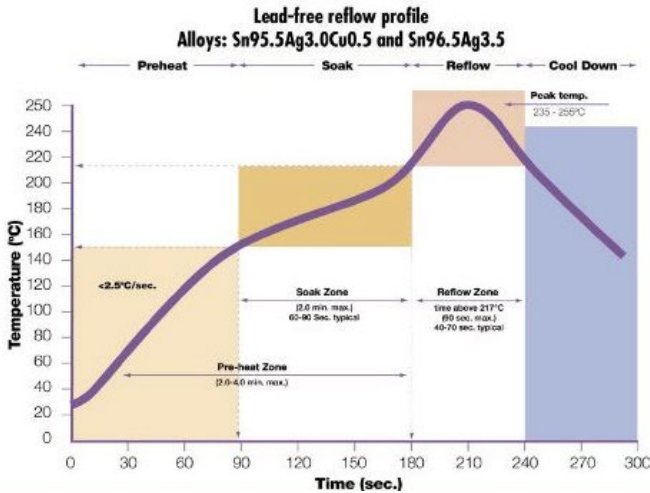


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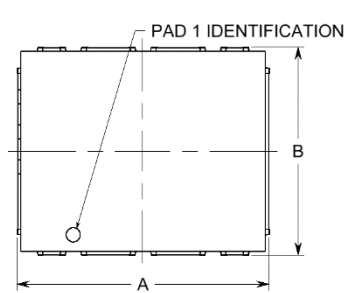
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10 MHz to 50 MHz



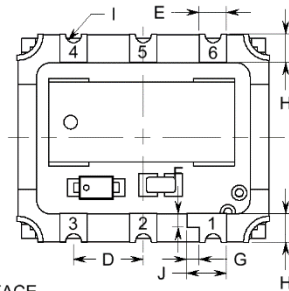
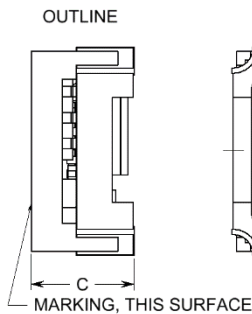
Recommended Solder Reflow Profiles



Package information

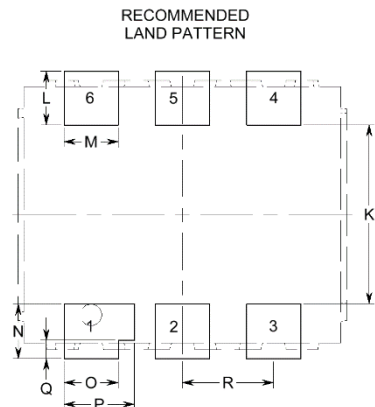


- PAD CONNECTIONS**
1. EFC
 2. VREF
 3. 0V & CASE GND
 4. OUTPUT
 5. NC
 6. SUPPLY



PART DIMENSIONS

DIM	TYP.		MAX.	
	inches	mm	inches	mm
A	0.360	9.14	0.375	9.53
B	0.295	7.49	0.310	7.87
C	NA	NA	0.153	3.90
D	0.100	2.54	0.115	2.92
E	0.040	1.02	NA	NA
F	0.020	0.51	NA	NA
G	0.018	0.46	NA	NA
H	0.040	1.02	NA	NA
I	R0.014	R0.36	NA	NA
J	0.057	1.45	NA	NA



LAND PATTERN DIMENSIONS

DIM	TYP.		MAX.	
	inches	mm	inches	mm
R	0.100	2.54	NA	NA
K	0.196	4.98	NA	NA
L	0.060	1.52	NA	NA
M	0.060	1.52	NA	NA
N	0.060	1.52	NA	NA
O	0.060	1.52	NA	NA
P	0.077	1.96	NA	NA
Q	0.020	0.51	NA	NA



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