



CrystalFree™ Solid-State Oscillator

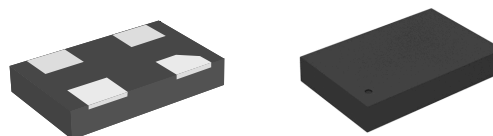
Ultra Low Power Oscillators

3CN

PRELIMINARY DATA SHEET

Features

- Frequency Range: 4 to 133 MHz
- Output Type: CMOS
- Frequency Tolerance: ± 100 ppm
- Supply Voltage: 1.8 to 3.3 V
- Power Consumption: 1.9 mA (1.8 V)
- Standby Current: < 1 μ A
- Standard Package: 5.0 x 3.2 x 0.85 mm
2.5 x 2.0 x 0.85 mm
- Operating Temperature: 0 to 70 °C, -20 to 70 °C



This product is rated "Green", please contact factory for environmental compliancy information

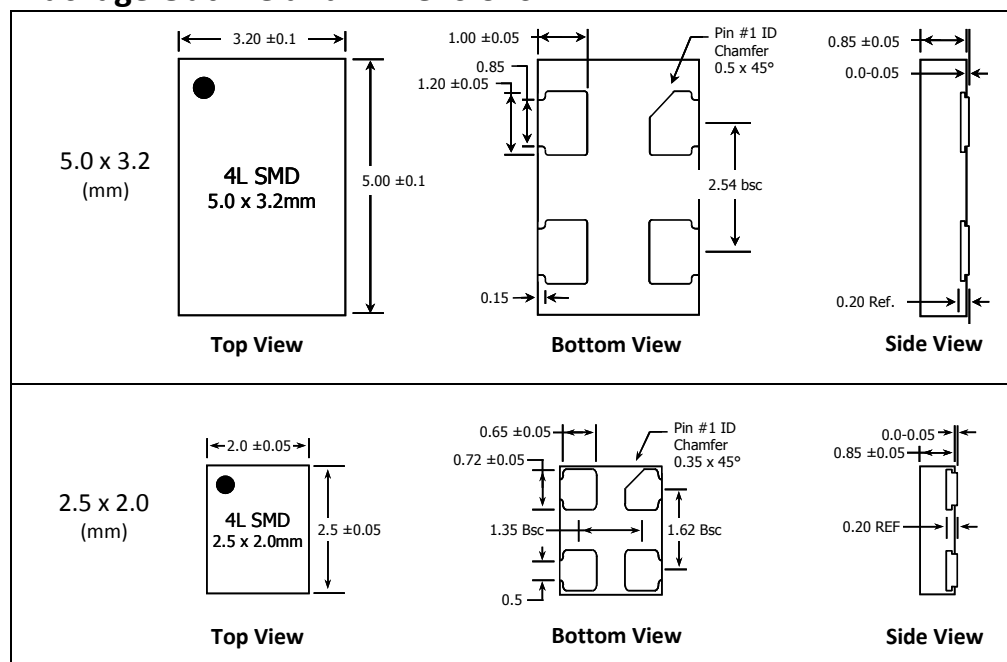
Specification

Parameter	Symbol	Specifications			Conditions								
Supply Voltage	VDD	1.8 V± 5%	2.5 V±10%	3.3 V±10%	Nominal ± tolerance								
Frequency Stability	F _{STB}	± 100 ppm			Total Frequency Stability*								
Supply Current	IDD	1.9 mA	2.0 mA	2.2 mA	Typical; No load condition; 75 MHz								
Quiescent Current	I _{STBY}	1 uA			Maximum; STBY# = GND								
Input LOW/HIGH level	V _{IL} /V _{IH}	0.3 VDD (max) /0.7 VDD (min)			At STBY# pin								
Output LOW/HIGH level	V _{OL}	0.1 VDD (max) / 0.9 VDD (min)			I _{OL} = - 1 mA / I _{OH} = 1 mA								
Rise/Fall Time	T _R /T _F	1.6 ns	1.2 ns	1.0 ns	Maximum; 20% to 80% x VDD; Output load (C _L) = 4 pF								
Symmetry	SYM	45% / 55%			Worst case; output frequencies ≤ 100 MHz								
		40% / 60%			Worst case; output frequencies > 100 MHz								
Start-up time	T _{ST}	400 us (max)			Output valid time after VDD meets the specified range & STBY# transition								
Period Jitter RMS	PJ _{RMS}	17 ps	6 ps	5 ps	Output load (C _L) = 4 pF; 75 MHz; measured over 10K cycles								
Cycle to Cycle Jitter(Pk-Pk)	CCJ _{PP}	120 ps	50 ps	40 ps	Output load (C _L) = 4 pF; 75 MHz; measured over 1K cycles								
Output Frequency	F _{OUT}												
		4	4.096	5	6	6.144	7.3728	8	10	12	12.5	12.288	14.31818
		15	16	18.432	19.44	20	22.5972	24	24.576	25	30	33	33.333
		36	37.5	40	48	49.152	50	60	62.5	66	66.66	72	74.25
		75	80	98.304	100	125	133						
Contact IDT for additional frequencies													

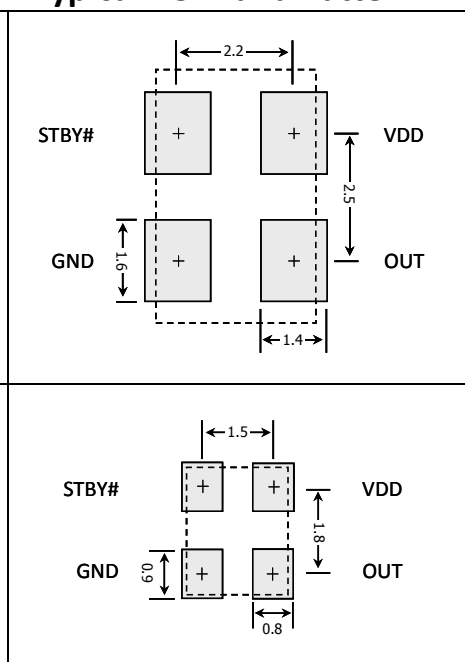
Note: Above specifications are typical at room temperature (25°C) unless otherwise specified.

* Inclusive of initial frequency accuracy, operating temperature range, supply variation, load variation, 3 times solder reflow, shock, vibration and 10 years aging at 25°C.

Package Outline and Dimensions



Typical PCB Land Pattern



Absolute Maximum Ratings

Stresses beyond those listed under *Absolute Maximum Ratings* may cause permanent damage to the device. These ratings are stress specifications only. Functional operation of product at these or under any condition beyond those listed in the operating specifications is not implied. Exposure to absolute maximum rated conditions may affect product reliability.

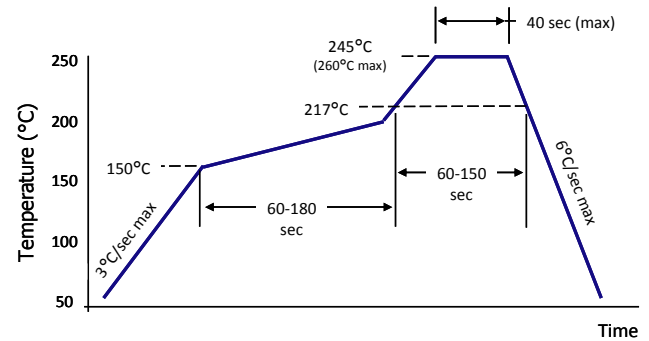
Item	Maximum Absolute Rating
VDD	4.6 V
STBY#	-0.5 V to VDD + 0.5 V
OUT	-0.5 V to VDD + 0.5 V
Storage Temperature	-65°C to 150°C

Pin Descriptions

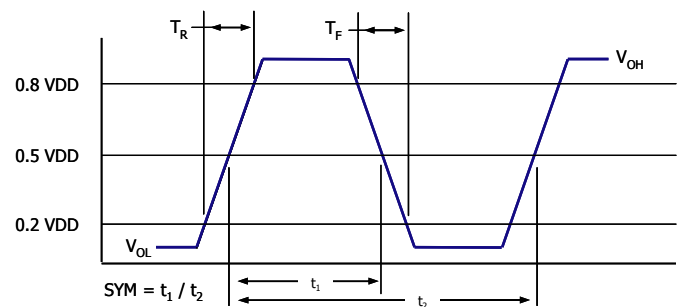
Pin #	Name	Description
1	STBY#	Standby Mode ¹ (0 = Output Disabled)
2	GND	Ground
3	OUT ²	CMOS Output
4	VDD	Power

1. Pulled high internally
2. Weak pull down to GND during STBY# enable and startup

Solder Reflow Profile



Output Waveform



Ordering Information

3 C N 1 1 G	4.09600 22.5792 133.000	NSG	E	8
Frequency 4 to 133MHz*	Package NSG: 5.0 x 3.2 x 0.85 CVG: 2.5 x 2.0 x 0.85	Temp C: 0 to 70° C E: -20 to 70° C	Shipping Blank: Tubes 8: Tape and Reel	

* See frequency table or contact IDT

Package Suffix	Minimum Order Quantity (MOQ)		Factory Order Increment (FOI)	
	T & R	Bulk	T & R	Bulk
NSG	2500	1260 (18 Tubes)	2500	1260 (18 Tubes)
CVG	3000	1250 (Canister)	3000	1250 (Canister)



6024 Silver Creek Valley Road
San Jose, California 95138

Sales

800-345-7015 (inside USA)
+1 408-284-8200 (outside USA)
Fax: 408-284-2775

Technical Support

crystalfreetsupport@idt.com
+1 408-360-5656

DISCLAIMER Integrated Device Technology, Inc. (IDT) and its subsidiaries reserve the right to modify the products and/or specifications described herein at any time and at IDT's sole discretion. All information in this document, including descriptions of product features and performance, is subject to change without notice. Performance specifications and the operating parameters of the described products are determined in the independent state and are not guaranteed to perform the same way when installed in customer products. The information contained herein is provided without representation or warranty of any kind, whether express or implied, including, but not limited to, the suitability of IDT's products for any particular purpose, an implied warranty of merchantability, or non-infringement of the intellectual property rights of others. This document is presented only as a guide and does not convey any license under intellectual property rights of IDT or any third parties.

IDT's products are not intended for use in life support systems or similar devices where the failure or malfunction of an IDT product can be reasonably expected to significantly affect the health or safety of users. Anyone using an IDT product in such a manner does so at their own risk, absent an express, written agreement by IDT.

Integrated Device Technology, IDT and the IDT logo are registered trademarks of IDT. Other trademarks and service marks used herein, including protected names, logos and designs, are the property of IDT or their respective third party owners.

Copyright 2010, 2011. All rights reserved.