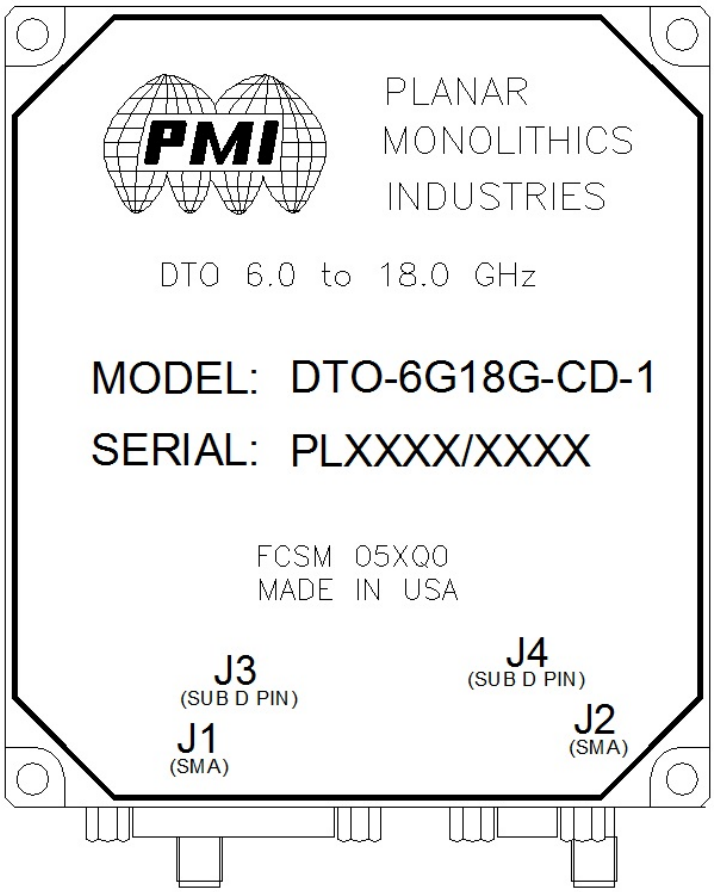
6 – 18 GHz DTO

DTO-6G18G-CD-1

Operating Instructions



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1) Frequency Control

The Frequency Control Code is constructed of 15 bits (A0 - A14).

The following equation and table describe the frequency code construction.

Output Frequency [MHz] = 6000.0 + 0.5 * Tuning Word [Decimal]

Note : Tuning words above 24000 (18 GHz) are invalid.

Example :

Freq. [MHz]	**A14... MSB**														**...A0 LSB**
6000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18000	1	0	1	1	1	0	1	1	1	0	0	0	0	0	0

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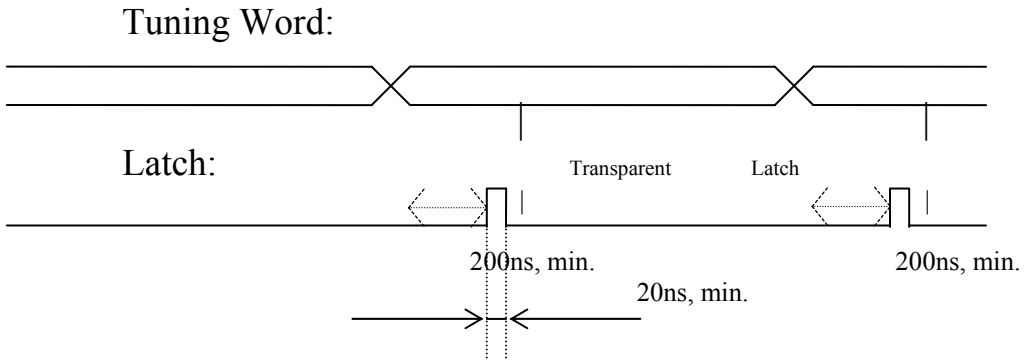
2) Latch

One bit (LE) controls the way data is transferred from the Tuning Word to the output frequency. Applying logic “1” to this input will cause the output frequency to follow the Tuning Word, while applying logic “0” will cause the output frequency to remain latched, irrespective of the Tuning Word. In order to change the output frequency, the latch should be set to logic “1” 200 ns after changing the tuning word for a duration of at least 20 ns. The latch should then be returned to logic “0” to remain latched at the new frequency.

Timing Diagram - Latch



3) RF Output

J1, SMA female connector is used for RF output.

4) Modulation Input

J2, SMA female connector is used for the FM modulation port.
Input impedance : 50Ω ± 10%. This input allows a signal from DC to 10 MHz

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5) J3 - Pin Assignment

Pin No.	Function	Description	Notes
1	A14	Tuning Word MSB	3
2	A12	Tuning Word	3
3	A10	Tuning Word	3
4	A8	Tuning Word	3
5	A6	Tuning Word	3
6	A4	Tuning Word	3
7	A2	Tuning Word	3
8	V0	VCO Control Bit	3
9	LE	Latch Enable	3
10	N.C.	No Connection	2
11	N.C.	No Connection	2
12	N.C.	No Connection	2
13	N.C.	No Connection	2
14	N.C.	No Connection	2
15	N.C.	No Connection	2
16	N.C.	No Connection	2
17	N.C.	No Connection	2
18	N.C.	No Connection	2
19	GND	Ground	1
20	A13	Tuning Word	3
21	A11	Tuning Word	3
22	A9	Tuning Word	3
23	A7	Tuning Word	3
24	A5	Tuning Word	3
25	A3	Tuning Word	3
26	A1	Tuning Word	3
27	A0	Tuning Word LSB	3
28	GND	Ground	1
29	N.C.	No Connection	2
30	N.C.	No Connection	2

J3 - Pin Assignment (Continued)

31	N.C.	No Connection	2
32	N.C.	No Connection	2
33	N.C.	No Connection	2
34	N.C.	No Connection	2
35	N.C.	No Connection	2
36	N.C.	No Connection	2
37	GND	Ground	1

Notes :

1. Pins 19, 28, and 37 should be grounded.
2. Pins 10 through 18 and 29 through 36 shouldn't be connected. (These pins are used in factory for programming purposes only).
3. Logic Levels:

Logic level	Input level
"0"	-0.3 to 0.8 V
"1"	2.0 to 5.0 V

6) J4 - Pin Assignment

Pin No.	Function	Description
1	+5V	Digital Supply
2	-15V	Analog Supply
3	+15V	Analog Supply
4	+28V (R)	Heater Return
5	+28V	Heater Supply
6	+5V (R), +15V (R), -15V (R)	Digital Return
7	+5V (R), +15V (R), -15V (R)	Analog Return
8	+28V (R)	Heater Return
9	+28V	Heater Supply