

LDT Series

Laser Driver & Temperature Controller

LASER DRIVER SPECIFICATIONS

DRIVER OUTPUT CURRENT	MIN	TYP	MAX	UNIT	NOTE
Max Output Current, LDTC0520	495	500	505	mA	
Max Output Current, LDTC1020	990	1000	1010	mA	
Noise and Ripple		13		μ A RMS	at $I_{LD} = 100$ mA
STABILITY AT 25°C AMBIENT					
Short Term, 1 hr		35	40	ppm	constant current
Long Term, 24 hr	50		75	ppm	constant current
Short Term, 1 hr		0.019		%	constant power
Long Term, 24 hr		0.011		%	constant power
Compliance Voltage	$V_{DD-FL} - (0.5 \times V_{SET})$			V	$V_{SET} = 0$ to 2 V
Leakage Current	0.3		1	mA	
Slow Start Ramp		15		mA/msec	to setpoint
EXTERNAL MODULATION					
Modulation Bandwidth (Sinewave)		500		kHz	constant current
Rise Time / Fall Time	300 / 300			nsec	full scale
Depth of Modulation		99		%	100 kHz sinewave
LASER DRIVER MAXIMUM RATINGS		VALUE	UNIT	NOTE	
Laser Driver Voltage (V_{DD-FL})		12	VDC		
Internal Power Dissipation, LDTC0520		2	W	at 25°C	
Internal Power Dissipation, LDTC1020		4	W	at 25°C	

TEMPERATURE CONTROLLER SPECIFICATIONS

DRIVER OUTPUT CURRENT	MIN	TYP	MAX	UNIT	NOTE
Max Output Current	± 1.8	± 2.0	± 2.2	A	
Setpoint vs. Actual Temp. Accuracy	0.1	2	4	mV	
Short Term Stability, 1 hr	0.001	0.002	0.010	°C	$T_{SET} = 25^\circ\text{C}$, 10 k Ω thermistor
Long Term Stability, 24 hr	0.003	0.008	0.010	°C	
Output Compliance Voltage	$(V_S - 0.5)$				100 mA output
Output Compliance Voltage	better than $(V_S - 1.6)$			V	2 A output
Sensor Compatibility	Thermistor, RTD, Linear Sensors				
Sensor Voltage Range	0.25 to $(V_{DD-WTC} - 2.0)$			V	
EXTERNAL SETPOINT INPUT					
External T_{SET} Input Range	GND to $(V_{DD-WTC} - 2.0)$			V	
Damage Threshold	EXT T SET < -0.5 EXT T SET > $(V_{DD} + 0.5)$			V	
Input Impedance		500		k Ω	
TEMP. CONTROLLER MAX RATINGS				VALUE	UNIT NOTE
Temperature Controller Voltage (V_{DD-WTC})				12	VDC
TEC Supply Voltage (V_{S-WTC})				30	VDC at 25°C
Internal Power Dissipation				9	W at 25°C

MODULE SPECIFICATIONS

ABSOLUTE MAXIMUM RATINGS	VALUE	UNIT	NOTE		
Case Operating Temperature	-40 to 85	°C			
Storage Temperature	-55 to 125	°C			
Weight	3	oz	88 g		
Size	2.9 x 2.35 x 1.08	in	73.7 x 59.7 x 27.3 mm		
POWER SUPPLY REQUIREMENTS	MIN	TYP	MAX	UNIT	NOTE
Laser Driver Voltage (V_{DD-FL})	3 to 12			VDC	V_{DD-FL} , V_{DD-WTC} , and V_S can be tied and operated from a single power supply if the laser diode and thermoelectric cooler specifications and pin configuration allow it. Review Safe Operating Area design criteria if any operating voltages will exceed 5 VDC.
V_{DD-FL} Quiescent Current, LDTC0520	2.2	2.7	4.6	mA	
V_{DD-FL} Quiescent Current, LDTC1020	4.4	5.4	9.2	mA	
Temp. Controller Supply Voltage (V_{DD-WTC})	4.5 to 12			VDC	
V_{DD-WTC} Quiescent Current		55	105	mA	
TEC Supply Voltage (V_{S-WTC})	4.5 to 30			VDC	
V_{S-WTC} Quiescent Current	20	50	100	mA	

Additional specifications are available in the product datasheet; download at www.teamWavelength.com/products/product.asp?part=153

ORDERING INFORMATION

PART NUMBER	DESCRIPTION
LDTC0520	500 mA Laser / ± 2.2 A TEC Controller
LDTC1020	1.0 A Laser / ± 2.2 A TEC Controller
USBKIT	USB Interface kit, with software

Free, effective, and responsive technical support is available to simplify integration of Wavelength products into your OEM design. Standard product can be modified to meet your unique application requirements.

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