

MT50 (40KHz~20GHz)
Microwave Wideband Direct Modulated DFB
Transmitters
(without RF Amp)

Technical Specification

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1.0 PRODUCT DESCRIPTION

Guangtai MT50 series microwave wideband direct modulated DFB transmitter, are able to transmit 20G microwave RF signal with long distance, wide bandwidth, and flat responsibility. They provide an outstanding linearity fiber optical communication for analogue and digital wideband microwave application. Due to avoidance of using expensive coaxial cable or wave guide, there will be no limitation in transmission distance, which improves the signal quality and reliability of the microwave communication. They can be widely applied in microwave communication system such as remote wireless; timing and reference signal distribution, telemetry, measurement and delay line etc.

MT50 adopts high linearity Directly-modulated DFB Laser (DML). Full-transparency operation mode. Without RF Amplifier, Low cost, flexible application in networks

MT50 series operation wavelength optional:

B type: 1310nm.

C type: 1550nm. 1550nm can be followed-up by EDFA.

MT50: Four exterior structures available:

MX: module type, RS232 is an option, suitable for OEM, Exterior structure and size of the module as well as the PIN description can be specified by customers

2D: desk top, with RS232 and LCD display, suitable for laboratory use

1U, 3U: 19" casing, with RS232、SNMP and LCD display, suitable for direct use in networks.

2.0 PRODUCT FEATURE

- Wide bandwidth 40KHz~20GHz
- Maximum frequency optional : 6GHz, 10GHz, 13GHz, 15GHz, 18GHz, 20GHz
- Superior flatness of the RF response
- High dynamic range
- Full-transparency operation mode, suitable for all kinds of signal code, communication standard and network protocol
- Operation wavelength optional: 1310nm and 1550nm
- <12dBm RF Input
- Without RF Amplifier, offers much flexibility.
- >17dBm SBS threshold
- Powerful RS232 communication interface, perfect SNMP function, LCD status display.
- Electromagnetic, RF, thunderbolt assistance
- Four exterior structures available
- Excellent P/P ratio

3.0 MAIN APPLICATION

- Antenna Remoting
- Long distance analog fiber-optic communications
- Cellular and PCS networks
- Military triband communications
- Tracking, telemetry and control (TT&C)
- High speed lightwave characterization
- Delay lines
- Phased arrays
- Microwave electronics

4.0 Technical index

Performance			Index			Supplement
			Min.	Typ.	Max.	
Optical feature	Operating wavelength range	(nm)	1290	1310	1320	B type: 1310nm
			1530		1565	C type: C-Band
	Optical output power	(dBm)	6.0			
	Side mode suppression ratio	(dB)	35	45		
	Optical isolation	(dB)	30			
	Extinction ratio	(dB)	8.2			
	Rise time (10%~90%)	(ps)		25	35	
	Fall time (10%~90%)	(ps)		35	45	
	SBS suppression	(dBm)			17.0	
	Optical link budget loss	(dB)		24		PIN (MR22)
				32		APD (MR12)
	Optical return loss	(dB)	40			
	Optical connector		SC/APC			Option FC/APC, LC/APC
RF feature	High frequency (cutoff -3dB)	(GHz)	6.0			MT50-06
			10.0			MT50-10
			13.0			MT50-13
			15.0			MT50-15
			18.0			MT50-18
			20.0			MT50-20
	-3dB Low frequency	(KHz)		40		
	In-band ripple	(dB)			±1.0	≤13GHz
					±1.5	15~18GHz
					±2.0	20GHz
	RF return loss	(dB)	10			≤10GHz
			8			13~15GHz
			6			18~20GHz
	RF input level	(dBmv)			12	50Ω
	RF input impedance	(Ω)		50		
	Built-in RF coupling			DC		
	RF connector		GPO or K-connector ¹⁾			
General feature	Communication interface		RS232			
	SNMP interface		RJ45			Network management
	Power supply	220VAC	90	220	265	1RU, 3RU, 2D
		-48VDC	-30	-48	-72	1RU, 3RU
		+12VDC	+11	+12	+12.5	MX
	Power consume	(W)			8	A single plug-in or module
	Operating temp.	(°C)	-10		+65	
	Storage temp.	(°C)	-40		+85	

	Relative humidity		(%)	5		95	
Size	1U	(")	19×11.0×1.75			19" stander	
	3U		19×14.5×5.25				
	2D		12.4×13.0×3.5			Desk-top	
	M1	(mm)	145×75×28			With RS232	
	M2		70×45×16			Without RS232	

Remark: 1) K-connector is a trademark of Anritsu Corporation, compatible with SMA.

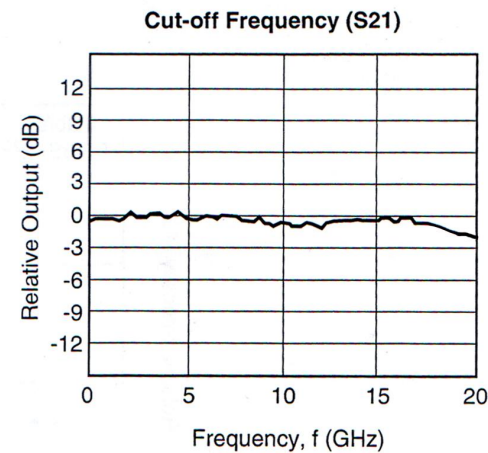
5.0 PRODUCTS SERIES

Model number	Highest frequency	Operation wavelength	Optical output power	Laser type	Output feature	Structure	Optical connector
MT50-06-B06-G/DC	6.0GHz	1310nm (1290~1320nm)	≥6dBm	DML (DM-DFB laser)	GPO connector DC coupling, without RF Amp	1U, 3U, 2D, MX, 3P optional	SC/APC, optional FC/APC, LC/APC
MT50-10-B06-G/DC	10.0GHz						
MT50-13-B06-G/DC	13.0GHz						
MT50-15-B06-G/DC	15.0GHz						
MT50-18-B06-G/DC	18.0GHz						
MT50-20-B06-G/DC	20.0GHz						
MT50-06-C06-K/DC	6.0GHz	1550nm (1530~1565nm)	≥6dBm	DML (DM-DFB laser)	K-Connector DC coupling, without RF Amp	1U, 3U, 2D, MX, 3P optional	SC/APC, optional FC/APC, LC/APC
MT50-10-C06-K/DC	10.0GHz						
MT50-13-C06-K/DC	13.0GHz						
MT50-15-C06-K/DC	15.0GHz						
MT50-18-C06-K/DC	18.0GHz						
MT50-20-C06-K/DC	20.0GHz						

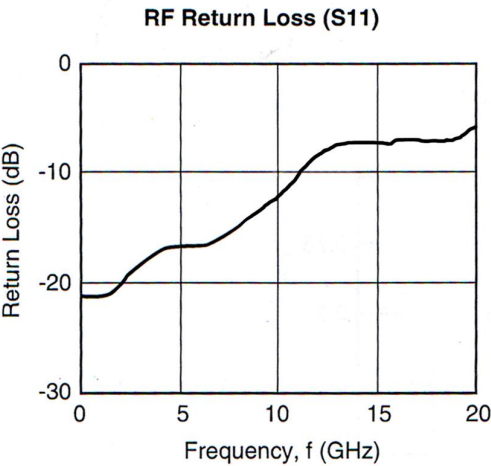
Remark: please refer to ordering information

6.0 Typical performance

1、MT50-20-Cut-off Frequency (S21)



2、MT50-20 RF Return loss (S11)



7.0 ORDERING INFORMATION

7.1 1U, 3U, 2D ordering information

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Product series	Optical feature	RF feature	High frequency	Wavelength	Output power	RF connector	Output coupling	Exterior	Optical port location	Connector	Power supply												
MT	Microwave optical transmitter	5	DML	0	Without RF Amp	06	6GHz	B	1310nm	06	≥6dBm	G	GPO	DC	DC coupling	2D	Desk-top 2U	F	Front panel	FA	FC/APC	22	220VAC
	6	EML	10		10GHz	C	C-Band	S	SMA-F	AC	AC coupling	1U	1RU	B	Back panel	SA	SC/APC	11	110VAC				
MR	Microwave optical receiver	7	EML+EDFA	1	With RF Pre Amp	13	13GHz	K	K-connector														
		8	EM-TX			15	15GHz																
		2	With RF Limiting Amp	18	18GHz																		
				20	20GHz																		

7.2 Module type ordering information

MT 5 0 - ☐ ☐ - ☐ ☐ 0 6 - K / ☐ ☐ - ☐ ☐ / ☐ ☐ - ☐ ☐ / ☐ ☐ - ☐ ☐ / ☐ ☐ - ☐ ☐ 2 / ☐ ☐ 5																																					
Product series		Optical feature		RF feature		High frequency		Wavelength		Output power		RF connector		Output coupling		Module class		RS232		Connector		Connector type		Leads to fiber diameter		Leads to fiber length											
MT	Microwave optical transmitter	5	DML	0	Without RF Amp	06	6GHz	B	1310nm	06	≥6dBm	G	GPO	DC	DC coupling	M1	No.1	Y	With	FA	FC/APC	E	Enamel	1	Φ1mm	05	0.5m										
		6	EML			10GHz	C	C-Band				S	SMA-F	AC	AC coupling	M2	No.2	0	Without	SA	SC/APC	T	Tie-in	2	Φ2mm	10	1.0m										
MR	Microwave optical receiver	7	EML+EDFA	1	With RF Pre Amp	13	13GHz					K	K-connector			M3	No.3			LA	LC/APC			3	Φ3mm	15	1.5m										
		8	EM-TX		15	15GHz																															
					2	With RF Limiting Amp	18					18GHz																									
							20					20GHz																									