

MT52 (40KHz~20GHz)
Microwave Wideband Direct Modulated DFB
Transmitters

Technical Specification

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1.0 PRODUCT DESCRIPTION

Guangtai MT52 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.

MT52 adopts high linearity Directly-modulated DFB Laser (DML) and low noise microwave wideband amplifiers. Full-transparency operation mode.

MT52 series operation wavelength optional:

B type: 1310nm.

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

MT52: 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 RS232and 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
- RF input range: -65~-25dBm
- RF output 1dB compression: >20dB
- >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	(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			MT52-06
			10.0			MT52-10
			13.0			MT52-13
			15.0			MT52-15
			18.0			MT52-18
			20.0			MT52-20
	-3dB Low frequency	(KHz)		40		
	In-band ripple	(dB)			± 1.5	$\leq 13\text{GHz}$
					± 2.5	15~18GHz
					± 3.0	20GHz
	RF noise figure	(dB)		8	11	
	RF input range	(dB)	-60		-25	
	Output 1dB compression (P1dB)	(dB)	17	18		6GHz
			20	22		>6GHz
	Output third order intercept (IP3)	(dB)	30	35		6GHz
			25	30		>6GHz
	RF input Voltage Standing Wave Ratio (VSWR)	(dB)		1.6:1	1.9:1	10GHz
				1.9:1	2.5:1	13~15GHz
				2.5:1	3.0:1	18~20GHz
	RF input impedance	(Ω)		50		

	Built-in RF coupling				AC		
	RF output connector			K-connector ¹⁾			
General feature	Communication interface			RS232			
	SNMP interface			RJ45			Network management
	Power supply	220VAC	(V)	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.		(℃)	-10		+65	
	Storage temp.		(℃)	-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.

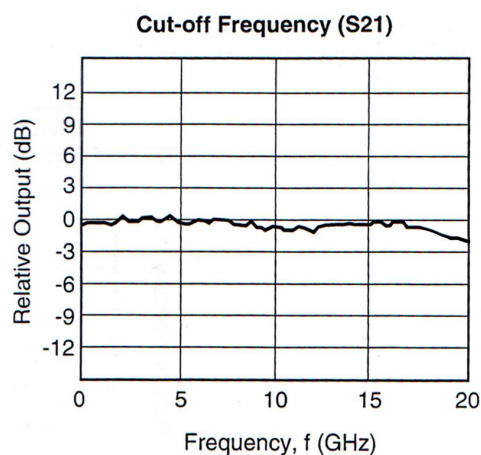
5.0 PRODUCTS SERIES

Model number	Highest frequency	Operation wavelength	Optical output power	Laser type	Output feature	Structure	Optical connector
MT52-06-B06-K/AC	6.0GHz	1310nm (1290~1320nm)	≥6dBm	DML (DM-DF B laser)	K-connect or AC coupling, with wideband Amp	1U, 3U, 2D, MX, 3P optional	SC/APC, optional FC/APC, LC/APC
MT52-10-B06-K/AC	10.0GHz						
MT52-13-B06-K/AC	13.0GHz						
MT52-15-B06-K/AC	15.0GHz						
MT52-18-B06-K/AC	18.0GHz						
MT52-20-B06-K/AC	20.0GHz						
MT52-06-C06-K/AC	6.0GHz	1550nm (1530~1565nm)	≥6dBm	DML (DM-DF B laser)	K-connect or AC coupling, with wideband Amp	1U, 3U, 2D, MX, 3P optional	SC/APC, optional FC/APC, LC/APC
MT52-10-C06-K/AC	10.0GHz						
MT52-13-C06-K/AC	13.0GHz						
MT52-15-C06-K/AC	15.0GHz						
MT52-18-C06-K/AC	18.0GHz						
MT52-20-C06-K/AC	20.0GHz						

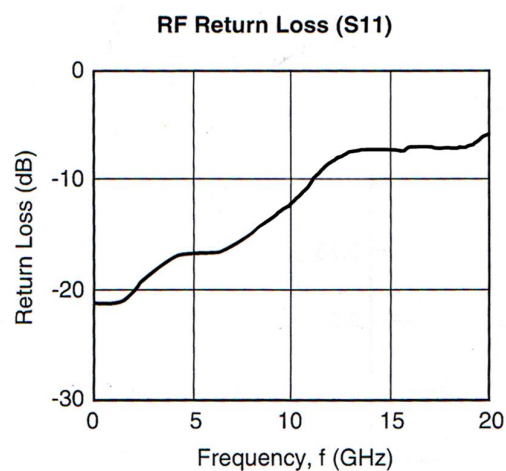
Remark: please refer to ordering informatio

6.0 Typical performance

1、MT52-20 Cut-off Frequency (S21)



2、MT52-20 RF Return loss (S11)



7.0 ORDERING INFORMATION

7.1 1U, 3U, 2D ordering information

MT 5 2 - □□ - C 0 6 - K / AC - □□ - F / SA - 2 2

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											3U	3RU			LA	LC/APC	48	-48VDC
		8	EM-TX			15	15GHz											MX	Modular						
					2	With RF Limiting Amp	18	18GHz																	
							20	20GHz																	

7.2 Module type ordering information

MT 5 2 - □□ - C 0 6 - K / AC - □□ / □ - □□ / □ - 2 / 0 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			10	10GHz	C	C-Band				S	SMA-F	AC	AC coupling	M2	No.2	0	Without	SA	SC/APC	T	Tie-in	2	Φ2mm	10
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																				