

MT62 (40KHz~33GHz)
Low Cost Microwave Wideband
Electro-absorption DFB Transmitter

Technical Specification

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1.0 PRODUCT DESCRIPTION

Guangtai MT62 series microwave DML optical transmitter, are able to transmit 33G 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 as well as 10Gb/s and 60Gb/s high speed communication system.

MT62 adopts high linearity microwave Electro-Absorption (EA) Modular with DFB Laser (EML) and low noise microwave wideband amplifiers. Full-transparency operation mode.

MT62 series operation wavelength optional:

B type: 1310nm.

C type: C-Band, 1528~1565nm.

L type: L-Band, 1570~1605nm.

T type: ITU-T standard wavelength is adjustable. T type is suitable for DWDM system.

MT62 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, suitable for direct use in networks.

2.0 PRODUCT FEATURE

- Wide bandwidth 40KHz~33GHz
- Maximum frequency optional: 6GHz, 10GHz, 13GHz, 15GHz, 18GHz, 20GHz, 33GHz
- Superior flatness of RF response
- High dynamic range
- Full-transparency operation mode, suitable for all kinds of signal code, communication standard and network protocol
- High extinction ratio, suitable for high speed communication.
- Several wavelength range is optional
- ITU-T standard wavelength is adjustable. T type is suitable for DWDM system.
- RF input range: -65~-30dBm
- RF output 1dB compression: >20dB
- SBS threshold is 6dBm, 13dBm is an option
- Low Cost than DML
- 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
- 10Gb/s, 40Gb/s communication systems

4.0 Technical index

Performance			Index			Supplement
			Min.	Typ.	Max.	
Optical feature	Operating wavelength	(nm)	1290	1310	1320	B type: 1310nm
			1528		1564	C type: C-Band
			1570		1605	L type: L-Band
			1528		1605	T type: ITU-T 100GHz
	Wavelength adjustable range	(nm)	-1.6		+1.6	T type (ITU-T)
	Wavelength adjustable mode		In steps $\pm 0.01\text{nm}$			T type (ITU-T)
	Wavelength stability	(Pm/°C)	-1		0	TC=20~70°C
	Output optical power	(dBm)	-2.0		+2.0	
	SBS suppression	(dBm)			+6.0	S06: 6dBm
					+13.0	S13: 6&13dBm adj.
	Optical link budget loss	(dB)		18		PIN (MR22)
				26		APD (MR12)
	Side mode suppression ratio	(dB)	35	45		
	Optical isolation	(dB)	30			
	Extinction ratio	(dB)	8.2			B type: 1310nm
			10.0			C type: C-Band
			15			MT62-33C
	Rise time (10~90%)	(ps)		25	35	
	Fall time (10~90%)	(ps)		35	45	
	Optical return loss	(dB)	40			
	Optical connector		SC/APC			Option FC/APC, LC/APC

RF feature	High frequency (cutoff -3dB)		(GHz)	6.0			MT62-06
				10.0			MT62-10
				13.0			MT62-13
				15.0			MT62-16
				18.0			MT62-18
				20.0			MT62-20
				33.0			MT62-33
	-3dB Low frequency		(KHz)		40		
	In-Band ripple		(dB)			±1.5	≤13GHz
						±2.5	15~18GHz
						±3.0	20GHz
						±3.5	>20GHz
	RF noise figure		(dB)		8	11	
	RF input range		(dB)	-60		-30	
	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				
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 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		

5.0 PRODUCTS SERIES

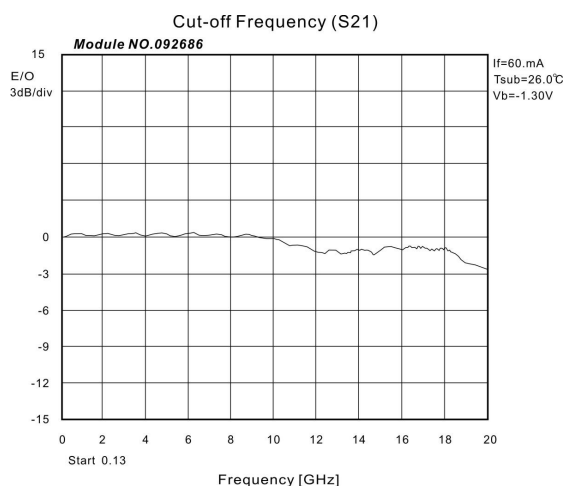
Model number	Bandwidth	Operation Wavelength	Optical Output power	Laser type	Output feature
MT62-06-B00-K/AC	40KHz~6.0GHz	1310nm (1290~1320nm)	-2~+2dBm ($V_m \neq 0V$)	EML (EA-DFB laser)	K-Connector AC coupling, with wideband AMP
MT62-10-B00-K/AC	40KHz~10.0GHz				
MT62-13-B00-K/AC	40KHz~13.0GHz				
MT62-15-B00-K/AC	40KHz~15.0GHz				
MT62-18-B00-K/AC	40KHz~18.0GHz				
MT62-06-C00-K/AC	40KHz~6.0GHz	C-Band (1528~1564nm)	-2~+2dBm ($V_m \neq 0V$)	EML (EA-DFB laser)	K-Connector AC coupling, with wideband AMP
MT62-10-C00-K/AC	40KHz~10.0GHz				
MT62-13-C00-K/AC	40KHz~13.0GHz				
MT62-15-C00-K/AC	40KHz~15.0GHz				
MT62-18-C00-K/AC	40KHz~18.0GHz				
MT62-20-C00-K/AC	40KHz~20.0GHz				
MT62-33-C00-K/AC	40KHz~33.0GHz				
MT62-06-L00-K/AC	40KHz~6.0GHz	L-Band (1570~1605nm)	-2~+2dBm ($V_m \neq 0V$)	EML (EA-DFB laser)	K-Connector AC coupling, with wideband AMP
MT62-10-L00-K/AC	40KHz~10.0GHz				
MT62-13-L00-K/AC	40KHz~13.0GHz				
MT62-15-L00-K/AC	40KHz~15.0GHz				
MT62-06-T00-K-AC	40KHz~6.0GHz	ITU-T (1528~1605nm) adjustable	-2~+2dBm ($V_m \neq 0V$)	EML (EA-DFB laser)	K-Connector AC coupling, with wideband AMP
MT62-10-T00-K/AC	40KHz~10.0GHz				
MT62-13-T00-K/AC	40KHz~13.0GHz				
MT62-15-T00-K/AC	40KHz~15.0GHz				

Remark:

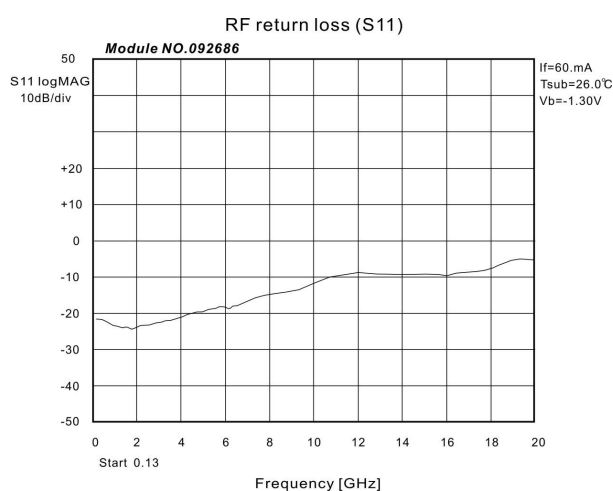
- Please refer to ordering information
- SBS threshold options: S06: 6dBm, S13: 6dBm and 13dBm adjustable

6.0 Typical performance

1、MT62-20 Cut-off Frequency (S21)



2、MT62-20 RF Return loss (S11)



7.0 ORDERING INFORMATION

7.1 1U, 3U, 2D ordering information

MT 6 2 - - C - K / A C - S - - F / S A -

Product series	Optical feature	RF feature	High frequency	Wavelength	Output power	RF connector	Output coupling	SBS	Exterior	Optical port location	Connector	Power supply
MT	Microwave optical transmitter	5 DML	06 6GHz	B 1310nm	00 -2~+2dBm	G GPO	AC AC coupling	S06 6dBm	2D Desk-top 2U	F Front panel	FA FC/APC	22 220VAC
		6 EML	10 10GHz	C C-Band		S SMA-F						
MR	Microwave optical receiver	7 EML+EDFA	13 13GHz	L L-Band		K K-connector		S13 6, 13dBm adj.	1U 1RU	B Back panel	SA SC/APC	11 110VAC
		8 EM-TX	15 15GHz	T ITU-T					3U 3RU		LA LC/APC	48 -48VDC
			18 18GHz						MX Modular			
		2 With RF Limiting Amp	20 20GHz									
			33 33GHz									

7.2 Module type ordering information

MT 6 2 - - C - K / A C - S - / - / - /

Product series	Optical feature	RF feature	High frequency	Wavelength	Output power	RF connector	Output coupling	SBS	Module class	RS232	Connector	Connector type	Leads to fiber diameter	Leads to fiber length
MT	Microwave optical transmitter	5 DML	06 6GHz	B 1310nm	00 -2~+2dBm	G GPO	DC DC coupling	S06 6dBm	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 with BIAS-T	S13 6, 13dBm adj.	M2 No.2	0 Without	SA SC/APC	T Tie-in	2 Φ2mm	10 1.0m
MR	Microwave optical receiver	7 EML+EDFA	13 13GHz	L L-Band		K K-connector			M3 No.3		LA LC/APC		3 Φ3mm	15 1.5m
		8 EM-TX	15 15GHz	T ITU-T										
			18 18GHz											
		2 With RF Limiting Amp	20 20GHz											
			33 33GHz											