

MT60 (40KHz~33GHz)
Low Cost Microwave Wideband
Electro-absorption DFB Transmitter
(without RF Amp)

Technical Specification

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1.0 PRODUCT DESCRIPTION

Guangtai MT60 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.

MT60 adopts high linearity microwave Electro-Absorption (EA) Modular with DFB Laser (EML). Full-transparency operation mode. Without RF Amplifier, Low cost, flexible application in networks

MT60 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.

MT60 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.
- <13dBm RF Input
- Without RF Amp, offers much flexibilities for network application.
- 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			MT60-33C
	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			MT60-06
			10.0			MT60-10
			13.0			MT60-13
			15.0			MT60-16
			18.0			MT60-18
			20.0			MT60-20
			33.0			MT60-33
	-3dB Low frequency	(KHz)		40		
	In-Band ripple	(dB)			± 1.0	$\leq 13\text{GHz}$
					± 1.5	15~18GHz
					± 2.0	20GHz
					± 2.5	33GHz
	RF return loss	(dB)	10			<10GHz
			8			13~18GHz
			6			18~33GHz
	RF input power	(dBm)			13	50 Ω
	RF input impedance	(Ω)		50		
	Input modular BIAS voltage	(V)	-1.5		-0.2	

General feature	Built-in RF coupling				DC		
	RF output connector			K-Connector or GPO			
	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	Wavelength	Output power	Laser type	Output feature
MT60-06-B00-G/DC	40KHz~6.0GHz	1310nm (1290~1320nm)	-2~+2dBm (V _m ≠0V)	EML (EA-DFB laser)	GPO connector DC coupling, Without RF Amp
MT60-10-B00-G/DC	40KHz~10.0GHz				
MT60-13-B00-G/DC	40KHz~13.0GHz				
MT60-15-B00-G/DC	40KHz~15.0GHz				
MT60-18-B00-G/DC	40KHz~18.0GHz				
MT60-06-B00-K/AC	40KHz~6.0GHz	1310nm (1290~1320nm)	-2~+2dBm (V _m ≠0V)	EML (EA-DFB laser)	K-Connector AC coupling with BIAS-T, Without RF Amp
MT60-10-B00-K/AC	40KHz~10.0GHz				
MT60-13-B00-K/AC	40KHz~13.0GHz				
MT60-15-B00-K/AC	40KHz~15.0GHz				
MT60-18-B00-K/AC	40KHz~18.0GHz				
MT60-06-C00-G/DC	40KHz~6.0GHz	C-Band (1528~1564nm)	-2~+2dBm (V _m ≠0V)	EML (EA-DFB laser)	GPO connector DC coupling, Without RF Amp
MT60-10-C00-G/DC	40KHz~10.0GHz				
MT60-13-C00-G/DC	40KHz~13.0GHz				
MT60-15-C00-G/DC	40KHz~15.0GHz				
MT60-18-C00-G/DC	40KHz~18.0GHz				
MT60-20-C00-G/DC	40KHz~20.0GHz				
MT60-33-C00-G/DC	40KHz~33.0GHz				
MT60-06-C00-K/AC	40KHz~6.0GHz	C-Band (1528~1564nm)	-2~+2dBm (V _m ≠0V)	EML (EA-DFB laser)	K-Connector AC coupling with BIAS-T, Without RF Amp
MT60-10-C00-K/AC	40KHz~10.0GHz				
MT60-13-C00-K/AC	40KHz~13.0GHz				
MT60-15-C00-K/AC	40KHz~15.0GHz				
MT60-18-C00-K/AC	40KHz~18.0GHz				
MT60-20-C00-K/AC	40KHz~20.0GHz				
MT60-33-C00-K/AC	40KHz~33.0GHz				
MT60-06-L00-G/DC	40KHz~6.0GHz	L-Band (1570~1605nm)	-2~+2dBm (V _m ≠0V)	EML (EA-DFB laser)	GPO connector DC coupling, Without RF Amp
MT60-10-L00-G/DC	40KHz~10.0GHz				
MT60-13-L00-G/DC	40KHz~13.0GHz				
MT60-15-L00-G/DC	40KHz~15.0GHz				
MT60-06-L00-K/AC	40KHz~6.0GHz	L-Band (1570~1605nm)	-2~+2dBm (V _m ≠0V)	EML (EA-DFB laser)	K-Connector AC coupling with BIAS-T, Without RF Amp
MT60-10-L00-K/AC	40KHz~10.0GHz				
MT60-13-L00-K/AC	40KHz~13.0GHz				
MT60-15-L00-K/AC	40KHz~15.0GHz				
MT60-06-T00-G/DC	40KHz~6.0GHz	ITU-T (1528~1605nm) adjustable	-2~+2dBm (V _m ≠0V)	EML (EA-DFB laser)	GPO connector DC coupling, Without RF Amp
MT60-10-T00-G/DC	40KHz~10.0GHz				
MT60-13-T00-G/DC	40KHz~13.0GHz				
MT60-15-T00-G/DC	40KHz~15.0GHz				
MT60-06-T00-K-AC	40KHz~6.0GHz	ITU-T (1528~1605nm)	-2~+2dBm (V _m ≠0V)	EML (EA-DFB laser)	K-Connector AC coupling with BIAS-T,
MT60-10-T00-K/AC	40KHz~10.0GHz				
MT60-13-T00-K/AC	40KHz~13.0GHz				

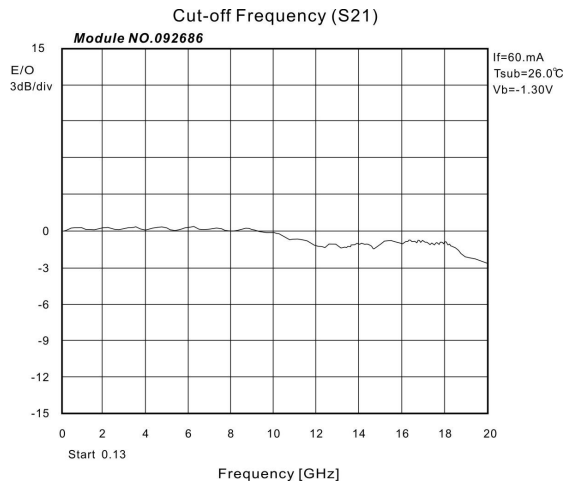
MT60-15-T00-K/AC	40KHz~15.0GHz	adjustable			Without RF Amp
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Remark:

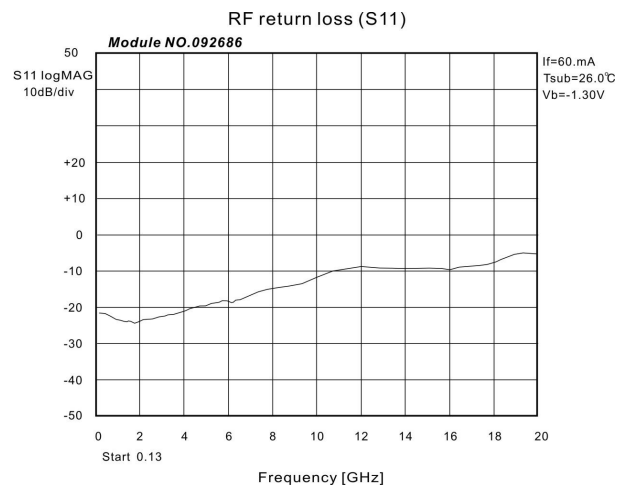
- 1、 Please refer to ordering information
- 2、 SBS threshold options: S06: 6dBm, S13: 6dBm and 13dBm adjustable

6.0 Typical performance

1、 MT60-20 Cut-off Frequency (S21)



2、 MT60-20 RF Return loss (S11)



7.0 ORDERING INFORMATION

7.1 1U, 3U, 2D ordering information

MT 6 0 - □□ - C 0 0 - K / A C - S 0 6 - □□ - F / S A - 2 2

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7.2 Module type ordering information

MT 6 0 - □□ - C 0 0 - K / A C - S 0 6 - □□ / □ - □□ / □ - 2 / 0 5

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