M61083FP

PREAMPLIFIER WITH PHOTODETECTOR FOR OPTICAL PICKUP

DESCRIPTION

The M61083FP is a semiconductor integrated circuit developed for CD-ROM (48 times speed) . The IC is housed in a 10-pin clear molded plastic package and contains 6 preamplifiers with divided photodetectors.

FEATURES

- Built-in 6 divided photodetectors and RF amplifiers
- Using small package (5.0 x 4.0 x 1.5mm)
- For three beam technique
- High Band preamplifier circuit (DC-65MHz)
- For infrared laser diode (ex. λ =780 nm)

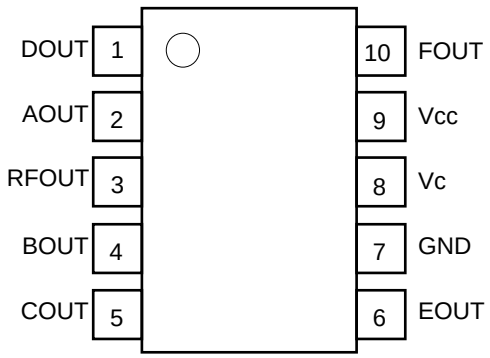
APPLIICATION

CD-ROM etc.

RECOMMENDED OPERATING CONDITIONS

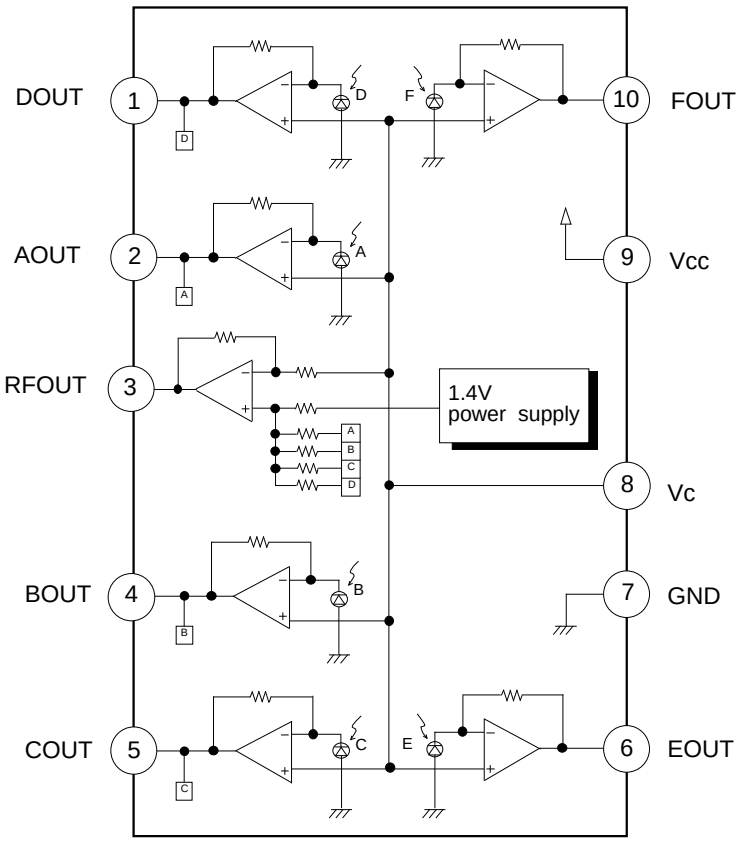
Supply voltage range • • • • • • • • • • 4.5V to 5.5V
Rated supply voltage • • • • • • • • • • 5.0V

PIN CONFIGURATION



Outline 10C2F

BLOCK DIAGRAM



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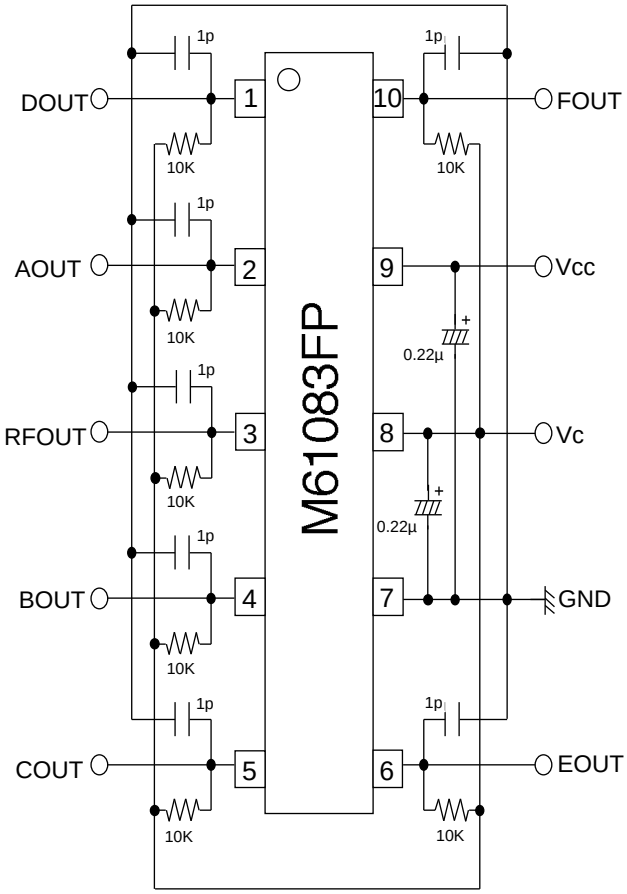
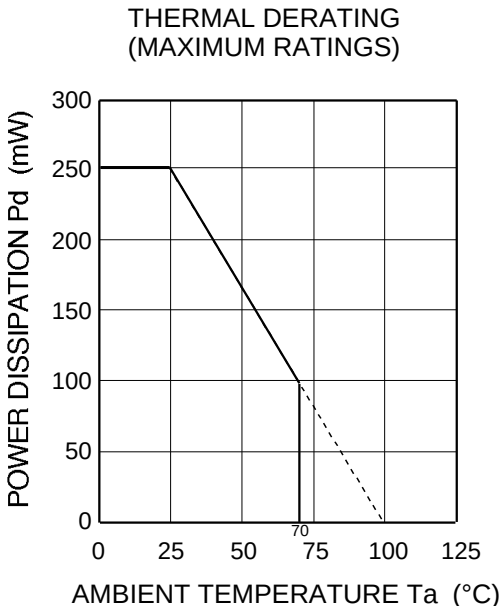
ABSOLUTE MAXIMUM RATINGS (Ta=25°C , unless otherwise noted)

Symbol	Parameter	Rating	Unit
Vcc	Supply voltage	6.0	V
Pd	Power dissipation (Ta ≤ 25°C)	250	mW
Topr	Operating temperature	-20 to +70	°C
Tstg	Storage temperature	-40 to +100	°C





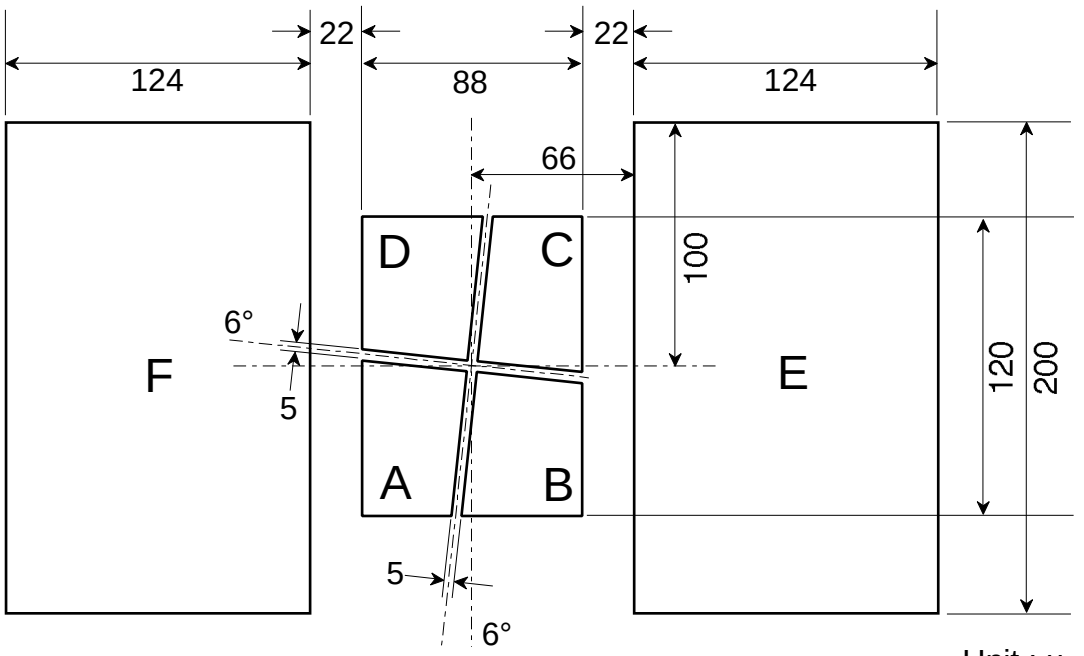
Units Resistance : Ω
Capacitance : F

*Please set the condenser connected to Vcc and Vc near the pin. (Within 10mm)

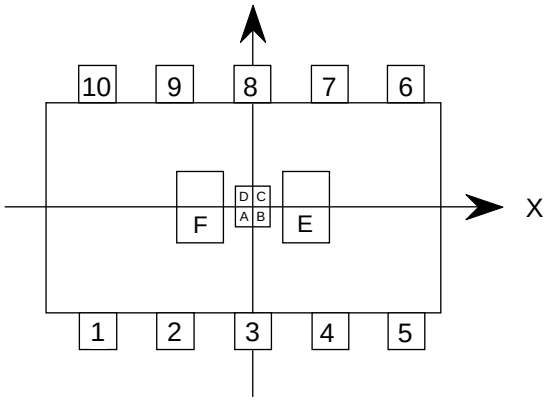
ELECTRICAL CHARACTERISTIC (Vcc=5.0V , Vc=2.5V , Ta=25°C , unless otherwise noted)

Parameter	Symbol	Test condition	Limits			Unit
			Min	Typ	Max	
Circuit current	Icc	In the dark	6.8	9.0	11.2	mA
Output voltage	Vo	Po=10μW λ=780nm Output A to D	176	232	292	mV
		Po=10μW λ=780nm Output E to F	303	412	534	mV
Output voltage ratio 1	V_{OE}/V_{OA}	The ratio of output E to F toward output A to D	1.51	1.77	2.08	times
Output voltage ratio 2	V_{OE}/V_{OA}	The ratio of output RF toward output A to D	1.55	1.70	1.85	times
Output offset voltage 1	V_{OFF}	In the dark output RF	1.25	1.40	1.55	V
Output offset voltage 2	V_{OFF}	In the dark output A to F	-15	0	+15	mV
Output offset total voltage	V_{OFF}	In the dark total output A to D	-55	0	+55	mV
Delta output offset voltage	ΔV_{OFF}	In the dark A-B	-20	0	+20	mV
		In the dark C-D	-20	0	+20	
		In the dark (A+C) - (B+D)	-20	0	+20	
		In the dark E-F	-15	0	+15	
Frequency characteristic	fc	Po=10μW λ=780nm 3dB down Output A to D	50	65	–	MHz
		Po=10μW λ=780nm 3dB down Output RF	50	65	–	
		Po=10μW λ=780nm 3dB down Output E to F	1.0	3.5	–	
Group delay characteristic	G_{DR}	Po=10μW λ=780nm Output A to D (f=1 to 30MHz)	–	2	4	nS
		Po=10μW λ=780nm Output RF (f=1 to 30MHz)	–	2	5	
Output noise voltage	V_{NO}	output A to D (at f=30MHz)	–	-83	-77	dBm
		output RF (at f=30MHz)	–	-74	-66	

PD SIZE (TYPICAL)



Unit : μm



Note) A public difference from the SPD center and the flame ..... ± 0.2mm

A public difference from the center of the flame of molded package ..... ± 0.2mm

A public difference from the center of SPD and the center of molded package ..... ± 0.4mm

The rotation deviation of SPD toward the flame ..... ± 3 degree

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