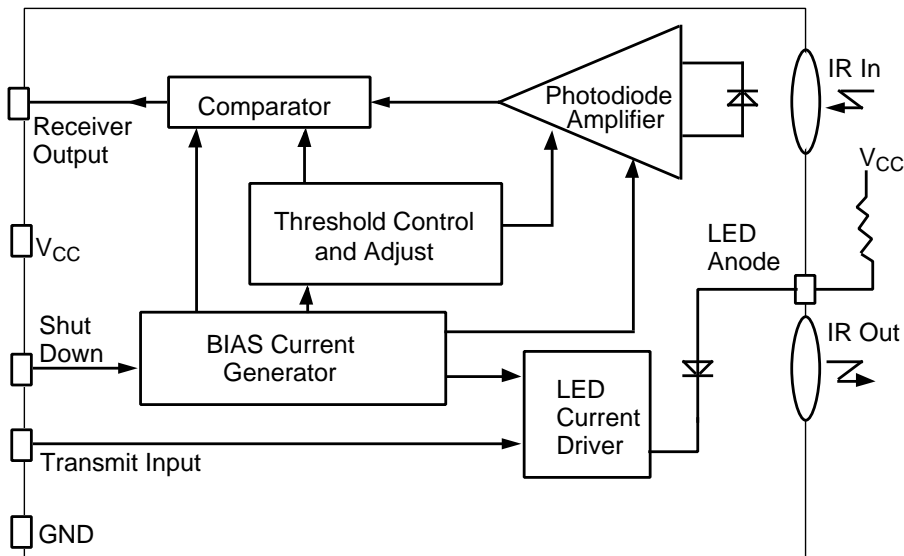




Figure 1. Block diagram



**Absolute Maximum Ratings (at 25°C)**

Parameter	Test Condition	Symbol	Value	Unit
Supply voltage range		$V_{CC}$	-0.5 to +6	V
Input currents	All pins		10	mA
Output sinking current			25	mA
Storage temperature		$T_S$	-25 to +85	°C
Lead solder temperature	230°C		<10	sec.
Ambient temperature	Operating	$T_A$	0 to 70	°C
Junction temperature	Maximum	$T_J$	125	°C
Power dissipation		$P_{tot}$	200	mW
Average IR LED current	DC	$I_{LED}$	100	mA
Repulsed IR LED current	<90 $\mu$ s, $t_{on}$ , <25%	$I_{LED (RP)}$	500	mA
IR LED anode voltage		$V_{LEDA}$	-0.5 to $V_{CC}+0.5$ V	V
IR LED cathode voltage		$V_{LEDK}$	-0.5 to $V_{CC}+0.5$ V	V
Transmit data input voltage		$V_{TXD}$	-0.5 to $V_{CC}+0.5$ V	V
Receive data output voltage		$V_{RXD}$	-0.5 to $V_{CC}+0.5$ V	V

**IR Convection Reflow Soldering**

As with all optoelectronic devices, the IRM 6000 is sensitive to temperature rates of change and peak temperatures during the solder process. It is not designed for any application in which the component would be directly immersed in molten solder. Optimum performance will be achieved with convection IR reflow soldering.

A preheat of up to 120°C for 2.5 minutes is recommended with a ramp up to soldering heat of a maximum of 4°C/second.

The maximum peak temperature is 240°C and should not exceed 10 seconds at that temperature.

Cool down rate should not exceed 3°C/second.

## Basic Module Parameters

Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Supported data rates		$D_{TR}$	9.6		115.2	Kbit/s
Supply voltage range		$V_{CC}$	3.0		5.5	V
Supply current receive	SD=low or NC receive mode	$I_{SR}$		1.0	1.5	mA
Supply current	SD high, standby mode	$I_{SSB}$			10	$\mu$ A

## Receive Parameters

Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Output voltage low		$V_{OL}$		0.5	0.8	V
Output voltage high		$V_{OH}$	$V_{CC}-.5$			V
Output current					4	mA
Logic high input irradiance	Bit error rate= $10^{-8}$	$E_{IHmin}$	4			$\mu$ W/cm <sup>2</sup>
Logic high input irradiance	In band irradiance maximum	$E_{IHmax}$			500	mW/cm <sup>2</sup>
Maximum DC irradiance	Ambient interference DC	$E_{ADC}$	490			$\mu$ W/cm <sup>2</sup>
Minimum detection threshold irradiance		$E_{Emin}$		3.0		$\mu$ W/cm <sup>2</sup>
Logic low input irradiance	Ambient interference pulsed	$E_{IL}$			0.4	$\mu$ W/cm <sup>2</sup>
Rise time, fall time	C=15 pF	$t_R$	20		200	ns
Output pulse width	115.2 Kb/sec.		1	1.6	6	$\mu$ s
Output delay leading edge	Output level= $0.5 \times V_{CC}$ , $E_{IH}=4 \mu$ W/cm <sup>2</sup>				2	$\mu$ s
Contributed systematic jitter		CSJ			0.2	$\mu$ s
Output delay trailing edge	Output level= $0.5 \times V_{CC}$			1	5	$\mu$ s
Latency		IL		100	600	$\mu$ s

## Transmit Parameters

Parameter	Test Condition	Symbol	Min.	Typ.	Max.	Unit
Driver current IR LED	Current limiting resistor in series with LED	$I_{LED}$	350		500	mA
Logic low input voltage		$V_{IL}$	0		0.3	V
Logic high input voltage		$V_{IH}$	2.5		$V_{CC}$	V
Output radiant intensity	5 V, $\alpha=15^\circ$ , current limiting resistor in series with LED	$R_i$	40	60	<500	mW/Sr
Half angle		$\alpha$		22		Deg.
Peak wavelength, emission		$\lambda_p$		880		nm
Spectral bandwidth	$I_F=100$ mA	$\Delta\lambda$		80		nm
Optical rise/fall time	10% to 90%, 90% to 10%	$t_R, t_F$		200	600	nsec
Optical overshoot					25	%
Contributed systematic jitter					0.2	$\mu$ s