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LIST OF ABBREVIATIONS

IrDA	-	The Infrared Data Association
IR	-	Infrared
LAN	-	Local Area Networks
FSO	-	Free Space Optics
RF	-	Radio Frequency
LOS	-	Line of sight
OWC	-	Optical Wireless Communications
BER	-	Bit Error Rate
APC	-	Adaptive Power Control
TEC	-	Temperature Controller
TIA	-	Transimpedance Amplifier
BTA	-	Boorstrap Transimpedance Amplifier
MEMS	-	Micro-Electro-Mechanical Systems
Op-amp	-	Operational Amplifier
MWO	-	Microwave Office
Varicap	-	Variable capacitor
MOS	-	Metal oxide semiconductor
APD	-	Avalanche photodiode
FOV	-	Field of View
BJT	-	Bipolar junction transistor
FET	-	Field-effect transistor
VHF	-	Very high frequency
UHF	-	Ultra high frequency
FM	-	Frequency modulation
VCO	-	Voltage controlled oscillator

PLL	-	Phase locked loop
CMOS	-	Complementary metal oxide semiconductor
MOSFET	-	Metal-oxide-semiconductor field-effect-transistor
IC	-	Integrated circuit
DC	-	Direct current
BW	-	Bandwidth
MSM	-	Metal-Semiconductor-Metal
AC	-	Alternating current
NG	-	Noise Gain
MUMPs	-	Multi-User MEMS Process

LIST OF SYMBOLS

R	-	Resistance
T	-	Temperature
B	-	Bandwidth
$\overline{e_T}$	-	Thermal noise voltage
k	-	Boltzmann's constant
$\overline{i_d}^2$	-	Dark current noise
q	-	Electronic charge
I_d	-	Dark current
$\overline{i_q}$	-	Quantum noise
I_p	-	Generated photocurrent
hf	-	Energy of photon
Eg	-	Bandgap energy
λ	-	Operating wavelength
R_l	-	Load resistor
V_{bias}	-	Bias voltage
V_{out}	-	Output voltage
$A_{transimp}$	-	Transimpedance gain
i_s	-	Current source
R_f	-	Feedback resistor
A_{OL}	-	Open loop voltage gain
Z_{fb}	-	Feedback impedance
f_{3dB}	-	3dB bandwidth
C_f	-	Feedback capacitance

C_{in}	-	Input capacitance
C_μ	-	Base-collector capacitance
e_0/A_{OL}	-	Gain error signal of op-amp
C_{min}	-	Minimum capacitance
C_{max}	-	Maximum capacitance
C_v	-	Variable capacitance
ε_d	-	Dielectric constant of air
A	-	Area of the plates
d	-	Spacing between two plates
x	-	Vertical displacement at a certain bias condition
V_{pi}	-	Pull in voltage
τ_t	-	Transit time
l_d	-	Depletion region length
v_s	-	Average carrier saturation velocity
ω_t	-	Frequency response due to transit time
C	-	Parallel plate capacitor
ε	-	Permittivity of the dielectric
C_j	-	Junction capacitance
ε_0	-	Permittivity in vacuum
ε_r	-	Permittivity of the semiconductor
A_d	-	Area of the depletion region
l_d	-	Depletion region length
ω_{RC}	-	Frequency response due to RC time constant
R_s	-	Junction series resistance
ω_p	-	Pole frequency
A_0	-	DC gain
C_d	-	Photodiode capacitance
ω_0	-	Unity gain frequency
C_a	-	Amplifier input capacitance
I_{pd}	-	Output current of photodiode

R_{bulk}	-	Bulk resistance
I_s	-	Reverse saturation current
e_j	-	Junction voltage
I_l	-	Leakage current
P	-	Incident optical power
η	-	Detection efficiency
h	-	Plank's constant
v	-	Optical frequency
R	-	Responsivity
C_{jo}	-	Zero bias junction capacitance
V_j	-	Built-in voltage
m	-	Grading coefficient
V_B	-	Breakdown voltage
V_{in}	-	Differential input voltage
V^+	-	Positive terminal voltage
V^-	-	Negative terminal voltage
R_{in}	-	Input resistance
R_{out}	-	Output resistance
G	-	Gain of op-amp
f_z	-	Zero frequency
C_p	-	Parasitic capacitance
V_1	-	First bias voltage
V_2	-	Second bias voltage

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