

Electrical Characteristics

T_{amb} = 25 °C, unless otherwise specified

Sensor

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Light current	Kodak Grey Card 20 % diffuse reflection distance: 1 cm I _{FS} = 10 mA	I _{CA}		1.2		μA
Optical crosstalk sensing path	no reflective medium I _{FS} = 10 mA	I _{CA}		0.9		μA
Compensation current	I _{FC} = 2 mA	I _{CR}		5		μA

IR Emitter LEDs (Transmitter)

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Forward voltage	I _{FS} = 10 mA t _p = 20 ms	V _{FS}		1.3		V
Reverse voltage	I _{RS} = 10 μA	V _{RS}	5			V
Junction capacitance		C _{JS}		50		pF
Radiant intensity	I _{FS} = 10 mA t _p = 20 ms	I _e		2	22	mW/sr
Angle of half intensity		φ _S		± 20		deg
Peak wavelength	I _{FS} = 10 mA	λ _{ps}	875	885		nm
Spectral bandwidth	I _{FS} = 10 mA	Δλ _s		42		nm
Virtual source diameter	DIN EN ISO 1146/1:2005	Ø		1.4		mm

IR Emitter LEDC (Compensation)

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Forward voltage	I _{FC} = 10 mA t _{pC} = 20 ms	V _{FC}		1.3		V
Reverse voltage	I _{RC} = 10 μA	V _{RC}	5			V
Junction capacitance		C _{JC}		50		pF
Peak wavelength	I _{FC} = 10 mA	λ _{pC}		885		nm
Spectral bandwidth	I _{FC} = 10 mA	Δλ _C		42		nm

Detector

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Forward voltage	I _{FD} = 50 mA	V _{FD}		1.0	1.3	V
Breakdown voltage	I _{RD} = 100 μA E = 0	V _(BR)	5			V
Reverse dark current	V _{RD} = 10 V, E = 0	I _{r0}		1	10	nA
Reverse light current	E _e = 1 mW/cm ² λ = 870 nm V _{RD} = 5 V	I _{ra}		5.6		μA
Temp. coefficient of I _{ra}	V _{RD} = 5 V λ = 870 nm	TK _{Ira}		0.2		%/K
Angle of half sensitivity		φ _D		± 20		deg
Wavelength of peak sensitivity		λ _p		910		nm
Range of spectral bandwidth		λ _{0.5}		790...1020		nm

Typical Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified

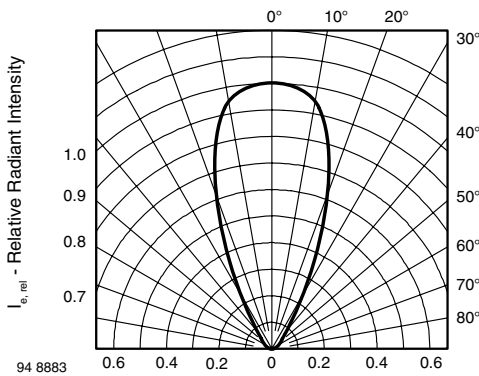


Figure 2. Relative Radiant Intensity vs. Angular Displacement

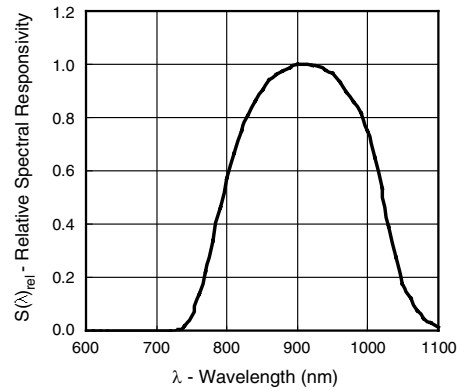


Figure 4. Relative Spectral Sensitivity vs. Wavelength

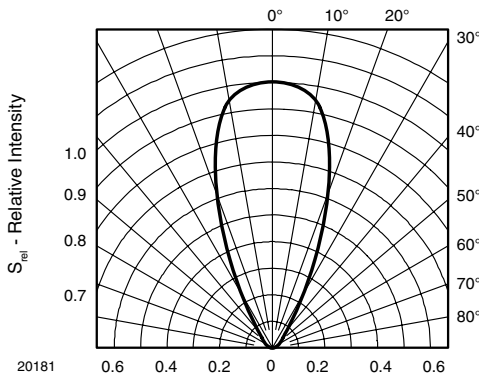


Figure 3. Relative Radiant Sensitivity vs. Angular Displacement

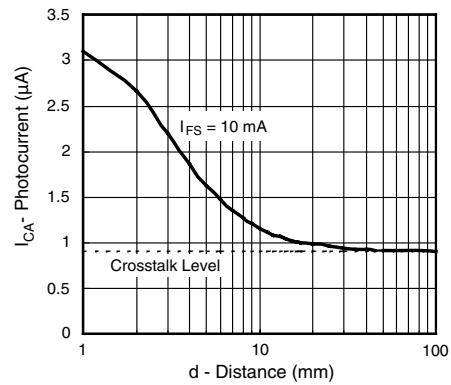


Figure 5. Photocurrent vs. Distance