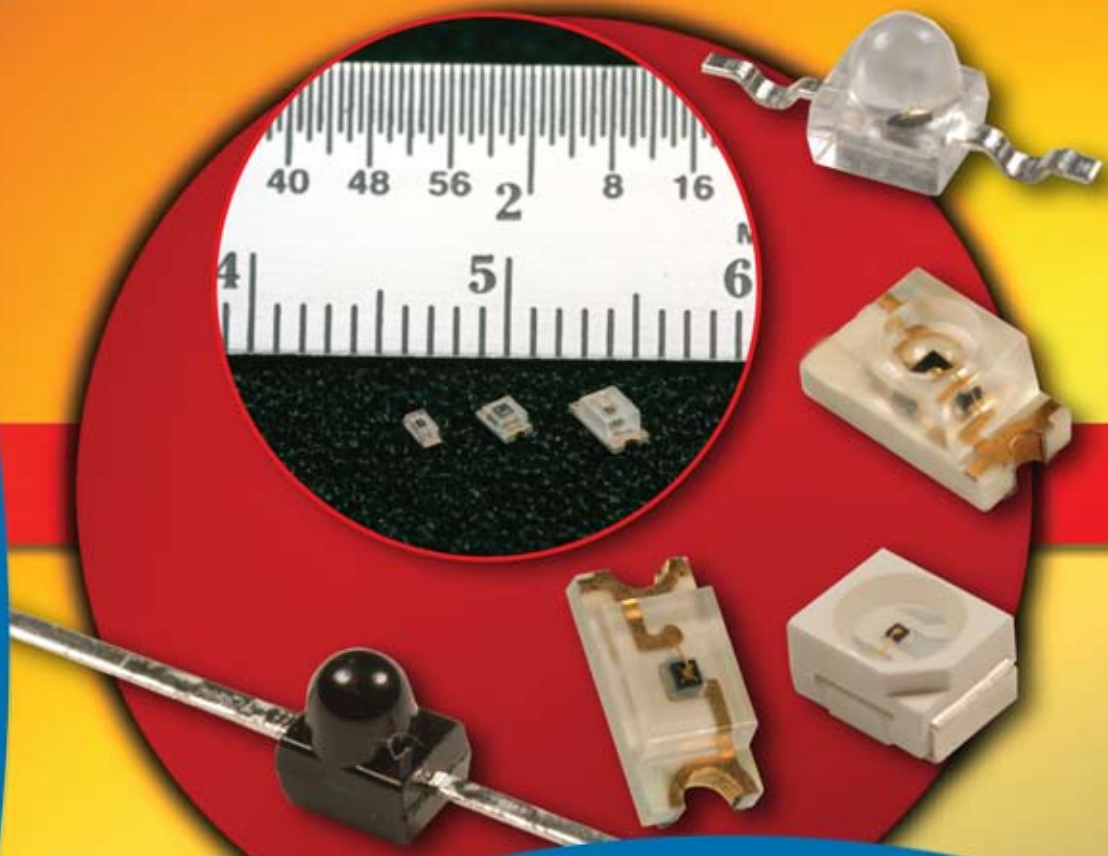
Capabilities Brochure



Infrared Surface Mount Components

TT electronics

OPTEK Technology

INFRARED LED

	Part Number	Package Style	LED Peak Wavelength	Output Power (mW/cm²) Min	V_F (V) Max	I_F (mA) Typ / Max	Total Beam Angle
	OP200	0805 Clear Flat Lens	890nm	0.5	1.6	20 / 50	150°
	OP250	1206 Clear Flat Lens	890nm	0.5	1.6	20 / 50	160°
	OP251	1206 Clear Inner Lens	890nm	0.3	1.6	20 / 50	90°
	OP270	1.9mm Axial Clear Dome Lens	890nm	1.5	1.6	20 / 50	25°
	OP271	1.9mm Gull Wing Clear Dome Lens	890nm	1.5	1.6	20 / 50	25°
	OP272	1.9mm Yoke Clear Dom eLens	890nm	1.5	1.6	20 / 50	25°
	OP273	1.9mm Rev. Gull Clear Dome Lens	890nm	1.5	1.6	20 / 50	25°
	OP280	PLCC-2 Clear Flat Lens	890nm	0.5	1.5	20 / 50	100°

PHOTOTRANSISTORS

	Part Number	Package Style	Sensor	Light Curtain $I_{C(ON)}$ (mA) Min	V_{CE} Typ / Max	Input Power E_E (mW/cm²)	Viewing Angle
	OP520	1206 Opaque Flat Lens	Phototransistor	0.25	5 / 30	5.0	160°
	OP521	1206 Clear Flat Lens	Phototransistor	0.25	5 / 30	5.0	160°
	OP522	1206 Clear Inner Lens	Phototransistor	0.50	5 / 30	5.0	105°
	OP570	1.9mm Axial Opaque Dome Lens	Phototransistor	2.5	5 / 30	5.0	25°
	OP571	1.9mm Gull Wing Opaque Dome Lens	Phototransistor	2.5	5 / 30	5.0	25°
	OP572	1.9mm Yoke Opaque Dome Lens	Phototransistor	2.5	5 / 30	5.0	25°
	OP573	1.9mm Rev. Gull Opaque Dome Lens	Phototransistor	2.5	5 / 30	5.0	25°
	OP580	PLCC-2 Clear Flat Lens	Phototransistor	1.5	5 / 30	5.0	100°

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COMPETITIVE CROSS REFERENCE

OPTEK	Everlight	Fairchild	Honeywell	LEDtronics	OSRAM	Sharp	Stanley	Vishay
OP200	IR17-21C	NA	NA	SML0805	NA	NA	NA	NA
OP250	IR15-21C	NA	NA	NA	NA	NA	DNP1101w	NA
OP251	IR11-21C	NA	NA	NA	NA	NA	DN1102w	NA
OP270	IR91-21C	QEB373	NA	NA	NA	GL460	NA	TSMF1040
OP271	IR91-21C/F7	QEB373GR	NA	NA	NA	NA	NA	TSMF1020
OP272	IR91-21C/F9	QEB373YR	NA	NA	NA	NA	NA	TSMF1030
OP273	IR91-21C/F10	QEB373ZR	NA	NA	NA	NA	NA	TSMF1000
OP280	IR6U-21C	QEB421	SME6700	SML10	SFH421	NA	NA	TSMF3700
OP520	PT15-21B	NA	NA	NA	NA	NA	NA	NA
OP521	PT15-21C	NA	NA	NA	NA	NA	PS1101W	NA
OP522	PT11-21C	NA	NA	NA	NA	NA	NA	NA
OP570	PT91-21B	QSB363	NA	NA	NA	PT460	NA	TEMT1040
OP571	PT91-21B/F7	QSB363GR	NA	NA	NA	NA	NA	TEMT1020
OP572	PT91-21B/F9	QSB363YR	NA	NA	NA	NA	NA	TEMT1030
OP573	PT91-21B/F10	QSB363ZR	NA	NA	NA	NA	NA	TEMT1000
OP580	PT67-21C	QSB320	SMD6400	NA	NA	NA	NA	TEMT3700

All of OPTEK's standard products undergo extensive environmental and electrical testing prior to manufacturing release. The OPTEK Quality Assurance System provides a means to monitor, control and correct product quality on a real-time basis. An ongoing commitment to quality and product improvement insures that reliability will continue to progress throughout the product's life cycle.

LIGHT EMITTING DIODE TEST

Test	Acronym	Samples/Package	Conditions	Duration
High Temperature Operating Life	HTOL	80	70°C; 25mA	1000 hours
Temerature, Humidity, & Bias	THB	20	85°C; 85% RH; $5V_R$	1000 hours
Thermal Shock (I)	TS(I)	30	-40/85°C; 30 min/cycle	1000 cycles
Thermal Shock (II)	TS(II)	20	-40/108°C; 30 min/cycle	1000 cycles
Temperature Cycle	TX	20	-40/85°C; 60 min/cycle	500 cycles
Temerapure & Humidity, unbiased	THU	20	85°C; 85% RH	1000 hours
High Temperature Storage	HTS	20	105°C	1000 hours
Low Temperature Storage	LTS	20	-40°C	1000 hours

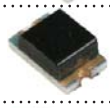
PHOTOTRANSISTOR TEST

Test	Acronym	Samples/Package	Conditions	Duration
High Temperature Reverse Bias, on	HTRB+	40	70°C; $5V_{CE}$; 5mA	1000 hours
High Temperature Reverse Bias, off	HTRB-	20	70°C; $20V_{CE}$; <100nA	1000 hours
Thermal Shock (I)	TS(I)	30	-40/85°C; 30 min/cycle	1000 cycles
Temerapure & Humidity, unbiased	THU	20	85°C; 85% RH	1000 hours
High Temperature Storage	HTS	20	105°C	1000 hours
Low Temperature Storage	LTS	20	-40°C	1000 hours

INFRARED LED EMITTER

	Part Number	Package Style	LED Peak Wavelength	Output Power (mW/cm²) Min	V_F (V) Max	I_F (mA) Typ / Max	Typical Viewing Angle 2θ1/2
	OP180	PLCC-2 Clear, Silicon	940nm	0.5 / NA	1.6	20 / 50	100°
	OP280K	PLCC-2 Clear, Silicon, High Power	875nm	0.85 / NA	1.8	20 / 50	100°
	OP280KT	PLCC-2 Clear, Silicon,High Power Rev. Pol	850nm	0.85 / NA	1.8	20 / 50	100°
	OP280PS	PLCC-2 Clear, Silicon, Point Source	850nm	0.15 / NA	1.8	20 / 50	25°
	OP280V	PLCC-2 Clear, Silicon, VCSEL	850nm	2.5 / NA	2.5	7 / 20	18°

PHOTOSENSORS

	Part Number	Package Style	Sensor	Light Curtain $I_{C(ON)}$ (mA) Min	Vbeco/Vbceo Max	Input Power E_E (mW/cm²)	Typical Viewing Angle 2θ1/2	$V_{CE(sat)}$ Typ / Max
	OP500	0805 pkg Water Clear Lens, Flat	Phototransistor	0.1	5 / 30	1.50	150°	0.15V / 0.3V
	OP500DA	0805 pkg Water Clear Lens, Flat	Photodarlington	10.0	5 / 35	0.15	150°	NA / 1.7V
	OP501	0805 pkg Black Lens, Flat	Phototransistor	0.1	5 / 30	1.50	150°	0.15V / 0.3V
	OP501DA	0805 pkg Black Lens, Flat	Photodarlington	10.0	5 / 35	0.15	150°	NA / 1.7V
	OP520DA	1206 pkg Black Lens, Flat	Photodarlington	10.0	5 / 35	0.15	160°	NA / 1.7V
	OP521DA	1206 pkg Water Clear Lens, Flat	Photodarlington	10.0	5 / 35	0.15	160°	NA / 1.7V
	OP525	1210 pkg Water Clear Lens, Dome	Phototransistor	1.0	5 / 30	1.50	25°	0.15V / 0.3V
	OP525DA	1210 pkg Water Clear Lens, Dome	Photodarlington	15.0	5 / 35	0.15	25°	NA / 1.7V
	OP580DA	PLCC-2 Clear, Epoxy	Photodarlington	10.0	5 / 35	0.15	100°	NA / 1.7V

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COMPETITIVE CROSS REFERENCE

OPTEK	Everlight	Fairchild	Honeywell	LEDtronics	OSRAM	Sharp	Stanley	Vishay
OP180	IR67-21C-TR8	NA	NA	SML10IR941T-TR	NA	NA	NA	VSML3710
OP280K	NA	NA	NA	NA	NA	NA	NA	VSMG3700
OP280KT	NA	NA	NA	NA	NA	NA	NA	NA
OP280V	NA	NA	NA	NA	NA	NA	NA	NA
OP280PS	NA	NA	NA	NA	NA	NA	NA	NA
OP500	PT15-21C-TR8	NA	NA	NA	SFH3710	PT202MR0MP1	PS1102HA	TEMT6200FX01
OP500DA	NA	NA	NA	NA	NA	NA	NA	NA
OP501	PT17-21B-L41-TR8	NA	NA	NA	NA	NA	NA	NA
OP501DA	NA	NA	NA	NA	NA	NA	NA	NA
OP520DA	NA	NA	NA	NA	NA	NA	NA	NA
OP521DA	NA	NA	NA	NA	NA	NA	NA	NA
OP525	PT42-21B-TR8	NA	--	NA	NA	PT100MF1MP1	NA	NA
OP525DA	NA	NA	NA	NA	NA	NA	NA	NA
OP580DA	NA	NA	NA	NA	NA	NA	NA	NA

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LIGHT EMITTING DIODE TEST

Test	Acronym	Samples/Package	Conditions	Duration
Operating Life	OL	22	25°C; 20mA, 80% min. P/Po	1008 hours
High Temperature Operating Life	HTOL	22	70°C; 20mA, 80% min. P/Po	1008 hours
Temperature Humidity & Bias	THB	22	85°C/85% RH, 10mA, 80% min. P/Po	1008 hours
Thermal Shock (I)	TS(1)	22	-40/85°C; 10 min. @ extremes	100 cycles
Vibration	VIB	22	20 Grms	24 hours

PHOTOTRANSISTOR TEST

Test	Acronym	Samples/Package	Conditions	Duration
Operating Life	OL+	22	25°C; $5V_{CE}$, 80% min. $I_{C(ON)}$	1008 hours
High Temperature Operating Life	HTOL-	22	70°C; $5V_{CE}$, 80% min $I_{C(ON)}$	1008 hours
Temperature Humidity & Bias	THB	22	85°C / 85% RH, $5V_{CE}$, 80% min. $I_{C(ON)}$	1008 hours
Thermal Shock (I)	TS(1)	22	-40/85°C; 10 min. @ extremes	100 cycles
Vibration	VIB	22	20 Grms	24 hours

HOW IS THE PRODUCT USED?

The primary customers for infrared components are manufacturers of electro-mechanical equipment. The equipment usually requires a sensor to detect the presence or position of material being processed or moved within the system.

WHO USUALLY BUYS THIS PRODUCT?

All markets and applications served by OPTEK's current through-hole product offering apply to the SMD products. This means that the SMD products are used for the same sensing applications as through-hole devices, but the mounting or space requirements are different. Miniature and portable equipment may benefit from the smaller form factors available due to the space limitations imposed by these designs.

Markets and applications include:

OFFICE EQUIPMENT

- Printers
- Copiers
- Mail sorters
- Vending machines
- POS terminals

INDUSTRIAL

- Conveyors
- Assembly lines
- Photo-electric controls
- Robotics
- Optical encoders

MEDICAL

- Pharmaceutical packaging
- Drug dispensing
- Fluid level sensing
- Pulse oxymetry
- Infusion pumps

APPLIANCES

- Turbidity sensors
- Frost control
- Auto-dispense
- Tank fill level
- Uneven load
- Fan speed control

GAMING

- Bill and coin acceptors
- Ticket dispensing
- Low paper indication
- Card readers
- Door ajar indication

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CC-0801-01