

**OPIC™ Photointerrupter**

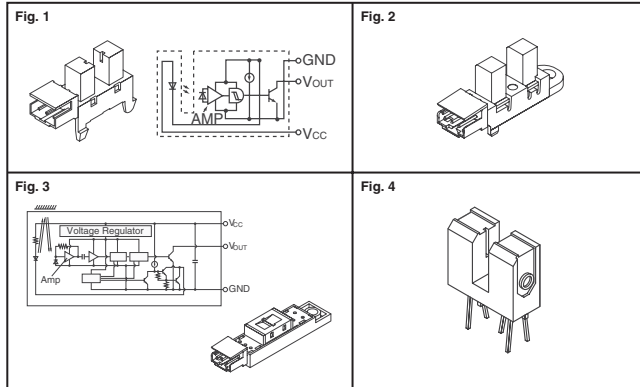


Fig.	Detector		Sensing Distance (mm)	Terminal Type	Digi-Key Part No.	Tube Price Each			Sharp Part No.
	VCC (V) Max.	Icc (mA) Max.				1	10	100	
1	5.5	16.5	5.0	Connector	425-1771-5-ND	1.59	1.33	1.06	GP1A073LCS
2	5.5	20.0	50.0	Connector	425-2565-ND	1.34	1.08	.89	GP1A75E3J00F
3	5.25	30.0	2.0 - 22.0	Connector	425-2529-ND	3.40	2.80	2.27	GP2A240LCS0F
4	17.0	50.0	5.0	PCB	425-1952-5-ND	1.13	.90	.75	GP1A58HRJ00F

§ Inverted

**Reflective Photointerrupter**

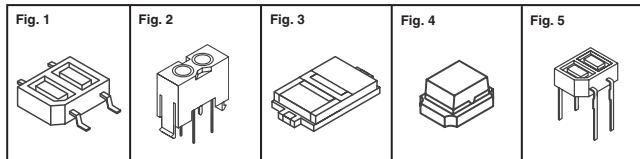


Fig.	Detector		Rise/Fall (µs) Typ.	Sensing Distance (mm)	Terminal Type	Digi-Key Part No.	Tube Price Each			Sharp Part No.
	Vceo (V) Max.	IC (mA) Max.					1	10	100	
1	35	20	20/20	0.6 - 0.8	SMD	425-1094-1-ND†	.81	.68	.54	GP2S27T
	35	20	100	0.7	SMD	425-2569-1-ND‡	.87	.73	.59	GP2S27T2J00F
	35	20	100	0.7	SMD	425-2569-2-ND‡	377.52/1,000			GP2S27T2J00F
2	35	20	100	0.7	SMD	425-2570-1-ND‡	.85	.71	.57	GP2S27T3J00F
	35	20	100	0.7	SMD	425-2570-2-ND‡	368.08/1,000			GP2S27T3J00F
	35	20	20/30	6	PCB	425-1095-5-ND	.93	.75	.62	GP2S28
3	35	20	20/20	1	SMD	425-1097-1-ND‡	.37	.31	.25	GP2S60
	35	20	20/20	0.7	SMD	425-1097-2-ND‡	345.58/2,000			GP2S60
	35	20	20/20	0.7	SMD	425-2670-1-ND‡	.39	.33	.27	GP2S60B
4	35	20	20/20	1.2 - 5.5	SMD	425-2670-2-ND‡	365.90/2,000			GP2S60B
	35	20	20/20	1.2 - 5.5	SMD	425-1913-1-ND‡	.85	.71	.57	GP2S700HCP
	35	20	20/20	1.2 - 5.5	SMD	425-1913-2-ND‡	368.08/1,000			GP2S700HCP
5	35	20	100	0.7	PCB	425-2567-5-ND	.65	.55	.44	GP2S24BJ00F
	35	20	100	0.7	PCB	425-2568-5-ND	.65	.55	.44	GP2S24CJ00F
	35	20	20/20	0.7	PCB	425-2681-5-ND	.61	.51	.41	GP2S24BCJ00F
						425-2050-5-ND	.61	.51	.41	GP2S24J000F

◆ RoHS Compliant † Cut Tape ‡ Tape and Reel

**Photointerrupter**

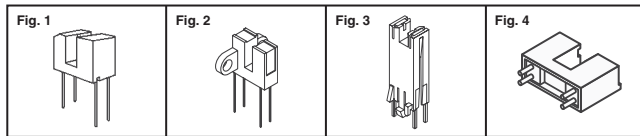


Fig.	Detector		Rise/Fall (µs) Typ.	Sensing Distance (mm)	Terminal Type	Digi-Key Part No.	Tube Price Each			Sharp Part No.
	Vceo (V) Max.	IC (mA) Max.					1	10	100	
1	35	20	35/35	1.6	PCB	425-1978-5-ND	.89	.75	.60	GP1S95J000F
	35	20	35/35	1.6	PCB	425-1962-5-ND	.89	.75	.60	GP1S95
	35	20	50/50	3.0	PCB	425-1040-5-ND	.41	.28	.21	GP1S094HCZ
	35	20	50/50	3.0	PCB	425-1964-5-ND	.41	.28	.21	GP1S094HCZ0F
	35	20	150/150	1.1	PCB	425-2509-5-ND**	.41	.28	.21	GP1S196HCZ0F
2	35	20	150/150	1.1	SMT	425-2510-5-ND**	.49	.34	.25	GP1S196HCZSF
	35	20	3/4	3.0	PCB	425-1970-5-ND	.76	.64	.51	GP1S51VJ00F
	35	20	3/4	3.0	PCB	425-1055-5-ND	.59	.49	.40	GP1S563
4	10	20	2/2	5.0	PCB	425-2680-5-ND	.73	.50	.37	GP1S525VJ00F

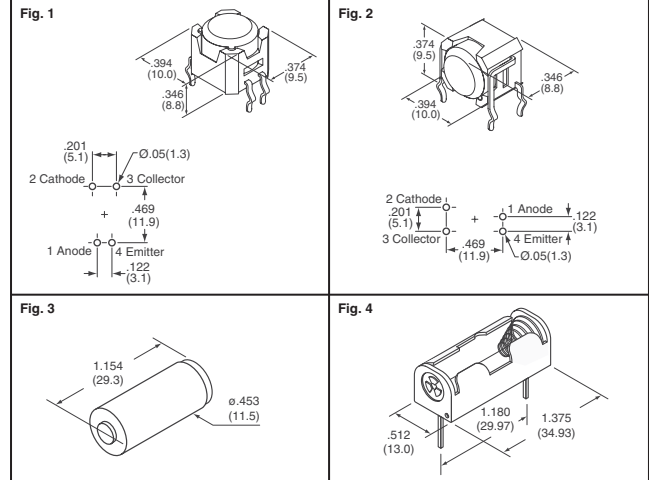
◆ RoHS Compliant \* Low profile



**Contactless Tilt Switch**



Dim. in Inches (mm)



**DSB SERIES:** Photointerrupter, rather than contacts, ensures high reliability. Sealed construction for protection from environmental elements, including hydrogen sulfide, sulfur dioxide, and nitrogen hydroxide. Terminals are made of ammonia resistant materials. The switch is triggered when tilted beyond 30° in any direction.

**Specifications:** • Mechanical and Electrical Life: 150,000 Operations Minimum • Forward Current: 20mA • Forward Voltage: 1.3V • Operating Temperature: -25°C - 80°C  
Note: Prevent exposure to magnetic fields. Do not install switch near vibration source.

**DSA SERIES:** • Environmentally friendly, contains no mercury • High contact reliability due to sealed body • The switch is triggered when tilted beyond ±10° of the horizontal  
**Specifications:** • Resistive Load: 0.1A@12VDC • Mechanical Life: 100,000 operations minimum • Operating Temperature: -10°C - 70°C

Fig.	Description	Digi-Key Part No.	Price Each			NKK Part No.
			1	25	100	
1	Tilt Switch, Straight	360-2187-ND	4.78	3.31	2.93	DSBA1P
2	Tilt Switch, Right Angle	360-2188-ND	4.78	3.31	2.93	DSBA1H
3	Tilt Switch, SPST, On/Off	360-2291-ND	5.75	4.08	3.60	DSA01
4	PCB Adaptor for DSA01	360-2292-ND	2.44	1.51	1.33	AT094

**TOSHIBA**

Leading Innovation >>>

**Illumination Sensors**



SMD Photo-ICs for illumination sensor which consist of one chip integrated photo-diode and amplifier circuit  
**Features:** • Small SMD package • Suitable for lead-free soldering and reflow soldering • Low supply voltage: VCC = 2.7V to 5.5V

Dim in mm

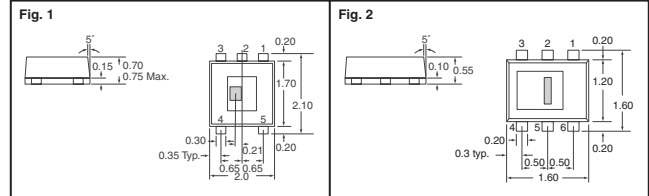


Fig.	Sensitivity	Digi-Key Part No.	Cut Tape Pricing			Tape and Reel Pricing* 3,000	Toshiba Part No.
			1	10	100		
1	52µA	TPS851CT-ND	.78	6.53	52.27	339.77/M	TPS851
2	40µA	TPS852CT-ND	.78	6.53	52.27	339.77/M	TPS852

\* For Tape and Reel part number, change CT-ND to TR-ND.

**JST Mating Connector, Contact and Crimp Tool**

Description	Digi-Key Part No.	Pricing			Tape & Reel Pricing*	JST Part No.
		10	100	500		
3-Pos., 2.5mm, Disconnectable Crimp Style NH Connector	455-1120-ND	.50	4.20	16.79	—	H3P-SHF-AA
Tin-Plated Phosphor Bronze Crimp Contact, 22-28AWG	455-1121-1-ND	—	2.15	8.60	64.53/5,000	SHF-001T-0.8BS
Crimp Tool with Die for 22-28AWG Contacts	455-1122-ND	—	319.55/1	—	—	WC-122

◆ RoHS Compliant \* For Tape and Reel part number, change 1-ND to 2-ND.

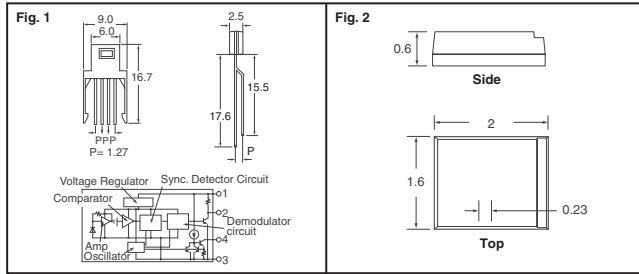
Digi-Reel® Most SMT cutdown parts are available on a Digi-Reel®. For Digi-Reel part number, change 1-ND to 6-ND or CT-ND to DKR-ND. See Digi-Key® Services on page 2 for additional information.

**Free shipping on orders over £50! All prices are in British pound sterling and include duties.**

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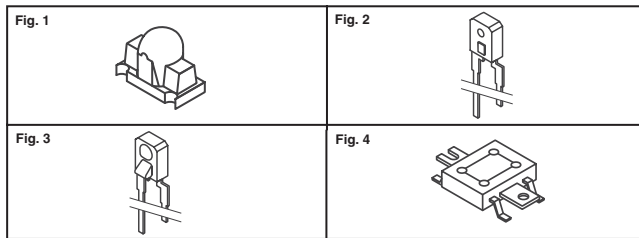
## OPIC™ Light Detectors



Vcc (V)	Output Current (mA)	Rise/Fall Typ. (µs)	Beam Angle (2x Theta)	Peak Wavelength (nm) Typ.	Digi-Key Part No.	Price Each 1 10 100	Sharp Part No.
<b>Fig. 1</b>							
0.5 - 16	50	400/400	110	940	425-2069-5-ND§	1.97 1.63 1.32	IS471FE
<b>Fig. 2</b>							
-0.3 - 7.0	1	150/150 max.	110	555	425-2650-1-ND† 425-2650-2-ND‡	.76 .64 .51 711.48/2,000	GA1A1S201WP

† Cut Tape ‡ Tape and Reel § Visible light cut-off resin, black

## IR Emitters, Phototransistors and Photodiodes



### IR Emitters

Fig.	Forward Voltage Typ. (V)	Forward Current Max. (mA)	Optical Power Output (mW) Max.	Beam Angle (2x Theta)	Peak Wavelength (nm) Typ.	Digi-Key Part No.	Cut Tape Price Each 1 10 100	Sharp Part No.	
1	1.2	50	3.0	20	940	425-1022-1-ND	.26 .22 .18	GL100MN0MP	
						425-1022-2-ND‡	243.94/2,000		
						425-2706-1-ND	.35 .24 .18		GL100MN0MP1
						425-2706-2-ND‡	182.95/1,500		
						425-1023-1-ND	.39 .33 .27		GL100MN1MP
						425-1023-2-ND‡	365.90/2,000		
1	1.2	50	6.0	20	940	425-2666-1-ND	.59 .43 .27	GL100MN1MP1	
						425-2666-2-ND‡	274.43/1,500		

‡ Tape and Reel

### Phototransistors

Fig.	Vceo Max. (V)	IC (mA)	Peak Sensitivity Wavelength (nm) Typ.	Rise/Fall Typ. (µs)	Beam Angle (2x Theta)	Digi-Key Part No.	Price Each 1 10 100	Sharp Part No.
1	35	20	860	400/300	30	425-2665-1-ND♦†	.30 .26 .21	PT100MF1MP1
						425-2665-2-ND♦‡	213.44/1,500	
		20	900	5.0/6.0	15	425-2648-1-ND♦†	.26 .22 .18	PT100MCOMP1
						425-2648-2-ND♦‡	182.95/1,500	
		20	900	5.0/6.0	30	425-1005-1-ND♦†	.26 .22 .18	PT100MCOMP
						425-1005-2-ND♦‡	243.94/2,000	
		20	910	5.0/6.0	30	425-1006-1-ND♦†	.26 .22 .18	PT100MFOMP
						425-1006-2-ND♦‡	243.94/2,000	
		20	910	5.0/6.0	30	425-1007-1-ND♦†	.26 .22 .18	PT100MFOMP1
						425-1007-2-ND♦‡	182.95/1,500	
2	35	20	860	3.0/3.5	70	425-2378-5-ND♦	.41 .28 .21	PT480FE0000F
		20	800	3.0/3.5	20	425-2379-5-ND♦	.26 .22 .18	PT480E00000F
3	35	20	860	3.0/3.5	26	425-2380-5-ND♦	.38 .26 .19	PT480FE0000F
		50	800	80/70	26	425-1013-5-ND§	.38 .26 .19	PT481

♦ RoHS Compliant † Cut Tape ‡ Tape and Reel § Transparent blue resin  
 ‡ Visible Light cut-off resin, black ♦ Darlington

## Photodiodes

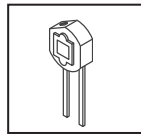
Fig.	Vr Max. (V)	Short Circuit Current Is (µA) Typ.	Dark Current Id Max. (nA)	Peak Sensitivity Wavelength (nm) Typ.	Rise/Fall Typ. (ns)	Beam Angle (2x Theta)	Digi-Key Part No.	Cut Tape Price Each 1 10 100	Sharp Part No.
1	20	0.9	10	820	10	40	425-1027-1-ND♦	.26 .22 .18	PD100MCOMP
							425-1027-2-ND♦‡	243.94/2,000	
							425-1028-1-ND♦§	.26 .22 .18	
1	20	0.6	10	850	10	40	425-1028-2-ND♦‡§	243.94/2,000	PD100MFOMP
							425-2672-1-ND♦	.26 .22 .18	
1	20	0.6	10	850	10	40	425-2672-2-ND♦‡	182.95/1,500	PD100MFOMP1
							425-1030-5-ND†	.81 .68 .54	
4	30	9.2	2.0	940	5	—	—	—	PD3122F

♦ RoHS Compliant ‡ Tape and Reel † Tube § Visible Light cut-off resin, black

## Blue Sensitive Photodiodes

**Features:**  
 • Spectral sensitivity characteristics akin to that of human eye • Compact flat package • Low dark current • Infrared light cut-off type

**Applications:**  
 • AE (automatic exposure) system and ES (electronic shutter) system for cameras • Stroboscopes • Precise optical instruments



Short Cir. Current Is Typ. (µA)	Dark Current Id Typ. (A)	Peak Sensitivity Wavelength Typ. (nm)	Reverse Voltage Vr (V) Max.	Active Area (mm sq.)	Digi-Key Part No.	Price Each 1 10 100	Sharp Part No.
0.16	3x10 <sup>-12</sup>	560	10	1.55	425-2429-5-ND	1.42 1.14 .94	BS120E0F

## JST Mating Connector, Contact and Crimp Tool

Description	Digi-Key Part No.	Pricing 10 100 500	Tape & Reel Pricing‡ 13,000	JST Part No.
6-Pos., 1.5mm, Disconnectable Crimp Style ZH Connector	455-1129-ND♦	.61 5.07 20.26	—	ZHR-6
Tin-Plated Phosphor Bronze Crimp Contact, 26-28AWG	455-1130-1-ND♦†	— 1.03 4.12	71.30/M	SZH-002T-P0.5
Crimp Tool with Die for 26-28AWG Contacts	455-1131-ND	319.55/1	—	WC-491

♦ RoHS Compliant † Cut Tape ‡ For Tape and Reel part number, change 1-ND to 2-ND.

## Distance Measuring Sensors

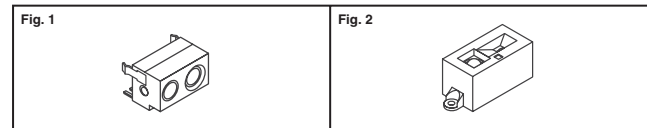


Fig.	Vcc Typ. (V)	Distance Measuring Range (cm) Typ.	Diff. of Output Voltage (V) Typ.	Output Current ICC (mA) Typ.	Output Type	Digi-Key Part No.	Price Each 1 25 50	Sharp Part No.
1	5	40	—	28	Digital	425-1810-ND	5.83 4.67 3.87	GP2Y0D340K
		5	—	10.5	Digital	425-2615-5-ND	2.36 1.89 1.66	GP2Y0D805Z0F
		10	—	10.5	Digital	425-2616-5-ND	2.36 1.89 1.66	GP2Y0D810Z0F
		7	10	—	35	Digital	425-2657-ND	5.83 4.67 4.08
2	5	4 - 30	1.6	30	Analog	425-2498-ND	38.12 30.50 26.69	GP2Y3A001K0F
		20 - 150	1.6	30	Analog	425-2499-ND	38.12 30.50 26.69	GP2Y3A002K0F
		40 - 300	1.2	30	Analog	425-2500-ND	38.12 30.50 26.69	GP2Y3A003K0F

See below for JST Mating Connector

## JST Mating Connector, Contact and Crimp Tool

Description	Digi-Key Part No.	Pricing 10 100 500	Tape and Reel Pricing‡ 8,000	JST Part No.
3-Pos., 2.0mm, Disconnectable Crimp Style PH Connector	455-1126-ND♦	.34 2.82 11.30	—	PHR-3
24-30AWG, Tin-Plated Phosphor Bronze Crimp Contact	455-1127-1-ND♦†	— 1.61 6.45	9.67/M	SPH-002T-P0.5S
Crimp Tool with Die for 24-30AWG Contacts	455-1128-ND	319.55/1	—	WC-240

♦ RoHS Compliant † Cut Tape ‡ For Tape and Reel part number, change 1-ND to 2-ND.

Digi-Reel® Most SMT cutdown parts are available on a Digi-Reel®. For Digi-Reel part number, change 1-ND to 6-ND or CT-ND to DKR-ND. See Digi-Key® Services on page 2 for additional information.

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