



# Infrared Emitters and Photo Detectors

**Length: 2.3 mm**  
**Width: 2.3 mm**  
**Height: 2.55 mm**



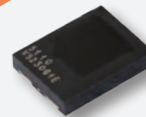
25° / 35° GULLWING  
AND REVERSE GULLWING

**Length: 2.0 mm**  
**Width: 1.25 mm**  
**Height: 0.85 mm**



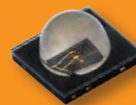
0805

**Length: 5.0 mm**  
**Width: 4.0 mm**  
**Height: 0.9 mm**



QFN

**Length: 3.85 mm**  
**Width: 3.85 mm**  
**Height: 2.24 mm**



POWER QFN

**Length: 3.5 mm**  
**Width: 2.8 mm**  
**Height: 1.75 mm**



PLCC-2

**Length: 2.3 mm**  
**Width: 2.3 mm**  
**Height: 2.8 mm**



12° / 15° GULLWING  
AND REVERSE  
GULLWING

**Length: 3.0 mm**  
**Width: 2.0 mm**  
**Height: 1.0 mm**



1.0 mm  
SIDE VIEW

**Length: 2.3 mm**  
**Width: 2.55 mm**  
**Height: 2.3 mm**



SIDE VIEW  
DOME LENS



# INFRARED EMITTERS AND PHOTO DETECTORS

Focus Products

Infrared Emitters						
Part Number	Package Form	Package Dimensions L x W x H (mm)	Peak Emission Wavelength (nm)	Radiant Intensity (mW/sr)	Angle of Half Intensity (± °)	Rise Time (ns)
<b>0805</b>						
VSMY1850ITX01	 0805	2 x 1.25 x 0.85	850	10	60	10
VSMY4850			850	8		7
VSMY1940ITX01			940	10		10
VSMB1940ITX01			940	6		15
<b>Gullwing and Reverse Gullwing</b>						
VSMY2853GX01 -RGX01	 Gullwing, reverse gullwing	2.3 x 2.3 x 2.55	850	50	28	10
VSMF2893GX01, -RGX01			890	20	25	30
VSMB2943GX01, -RGX01			940	20	25	15
VSMY2943GX01, -RGX01			940	50	28	10
VSMY2850GX01 -RGX01	 Gullwing, reverse gullwing	2.3 x 2.3 x 2.8	850	125	10	10
VSMY2940GX01, -RGX01			940	145	10	10
VSMF2890RGX01, -RGX01			890	40	12	30
VSMB294008G, -RG			940	70	7	15
VSMB2020X01, -2000X01			940	40	12	15
<b>Side View Dome Lens</b>						
VSMY2853SLX01	 Side view lens	2.3 x 2.55 x 2.3	850	50	28	10
VSMF2893SLX01			890	20	25	30
VSMY2943SLX01			940	50	28	10
VSMB2943SLX01			940	20	25	15
<b>PLCC-2</b>						
VSMY7852X01	 Little Star®	6.0 x 7.0 x 1.5	850	55	60	8
VSMY7850X01			850	200		15
VSMG2720	 PLCC-2	3.5 x 2.8 x 1.75	830	14	60	15
VSMY3850			850	17		10
VSMF4720			870	16		15
VSMF3710			890	10		30
VSMB3940X01			940	13		15
VSMY3940X01			940	15		10
<b>Side View</b>						
VSMY14940	 Side view lens	3.0 x 2.51 x 1.2	940	90	9	5
VSMB14940		3.2 x 2.51 x 1.2	940	35		15
VSMB14942			940	26		16
VSMG10850	 Side view, 1.0 mm	3 x 2 x 1	850	1	75	15
VSMB10940X01			940			15
VSMB11940X01	 Side view, 0.6 mm	3 x 2 x 0.6	940	1	75	15
<b>Power QFN</b>						
VSMY98145DS	 Power QFN	3.85 x 3.85 x 2.24	810	500	45	30
VSMY98525DS		3.85 x 3.85 x 3.00		1000	25	14
VSMY98545		3.85 x 3.85 x 2.24	850	380	45	15
VSMY9854535				370		15
VSMY98545ADS				630		30
VSMY99445DS		3.85 x 3.85 x 1.51	940	500	75	15
VSMY9857535				180		15
VSMY98575ADS				320		14

Note: VSMYx = SurfLight™ surface emitters; X01 parts are AEC-Q101-qualified



# INFRARED EMITTERS AND PHOTO DETECTORS

## Focus Products

Photo Detectors								
Part Number	Output Type	Package Form	Package Dimensions L x W x H (mm)	Peak Wavelength $\lambda_p$ (nm)	Spectral Bandwidth (nm)	Output Current ( $\mu$ A)	Angle of Half Sensitivity $\phi$ ( $\pm$ °)	
TEMT7000X01	Phototransistor	0805	2 x 1.25 x 0.85	850	470 to 1090	450	60	
TEMT7100ITX01				870	750 to 1010	450		
TEMD7000ITX01	PIN photodiode		2 x 1.25 x 0.85	900	350 to 1120	3	70	
TEMD7100ITX01				950	750 to 1050	3		
VEMD1060X01				820	350 to 1070	1.8		
VEMD1160X01				840	700 to 1070	1.8		
VEMT2023X01, -2003X01				Phototransistor	Gullwing, reverse gullwing	2.3 x 2.3 x 2.55		860
VEMT2523X01, -2503X01	PIN photodiode			850	470 to 1090	2.7 mA		
VEMD2023X01, -2003X01	Phototransistor	Gullwing, reverse gullwing	2.3 x 2.3 x 2.8	940	750 to 1050	10	15	
VEMD2523X01, -2503X01				900	350 to 1120	10		
VEMT2020X01, -2000X01	Phototransistor	Gullwing, reverse gullwing	2.3 x 2.3 x 2.8	860	790 to 970	6 mA	15	
VEMT2520X01, -2500X01				850	470 to 1090	6 mA		
VEMD2020X01, -2000X01	PIN photodiode		2.3 x 2.3 x 2.8	940	750 to 1050	12	15	
VEMD2520X01, -2500X01				900	350 to 1120	12		
VEMT2023SLX01	Phototransistor	Side view lens	2.3 x 2.55 x 2.3	860	790 to 970	2.7 mA	35	
VEMT2523SLX01	PIN photodiode			850	470 to 1090	2.7 mA		
VEMD2023SLX01	PIN photodiode		2.3 x 2.55 x 2.3	940	750 to 1050	10	35	
VEMD2523SLX01				900	350 to 1120	10		
VBP104FAS, -FASR	PIN photodiode	Gullwing, reverse gullwing	6.4 x 3.9 x 1.2	950	780 to 1050	35	65	
VBP104S, -SR				940	430 to 1100	35		
VBPW34FAS, -FASR				950	780 to 1050	55		
VBPW34S, -SR				940	430 to 1100	55		
VEMT3700	Phototransistor	PLCC-2	3.5 x 2.8 x 1.75	850	450 to 1080	0.5 mA	60	
VEMT3700F				940	870 to 1050	0.5 mA		
VEMT4700		PLCC-3		850	450 to 1080	0.5 mA		
VEMT4700F				940	870 to 1050	0.5 mA		
VEMD10940FX01	PIN photodiode	Side view	3 x 2 x 1	950	780 to 1050	3	75	
VEMD11940FX01	PIN photodiode	Side view	3 x 2 x 0.6	950	780 to 1050	1.13	75	
TEMD5010X01	PIN photodiode	Top view	5 x 4.24 x 1.12	940	430 to 1100	55	65	
TEMD5110X01				940	790 to 1050	55		
TEMD5020X01				900	430 to 1100	35		
TEMD5120X01				940	790 to 1050	35		
VEMD5010X01	PIN photodiode	FAM	5 x 4 x 0.9	940	430 to 1100	48	65	
VEMD5110X01				940	790 to 1050	48		
VEMD5060X01		1206		4 x 2 x 1.05	820	350 to 1070	26	60
VEMD5160X01					840	700 to 1070	26	
VEMD5080X01					950	350 to 1100	45	
VEMD6010X01					900	430 to 1100	9.5	
VEMD6110X01					950	750 to 1050	9.5	
VEMD6060X01					820	380 to 1070	5	
VEMD6160X01		840	700 to 1070	5				
VEMD8080			Top view	4.8 x 2.5 x 0.48	950	350 to 1100	28	65
Parts With Infrared Light Blocking Filter								
TEMD6200FX01		PIN photodiode	0805	2 x 1.25 x 0.85	540	430 to 610	0.04	60
TEMT6200FX01	Phototransistor		2 x 1.25 x 0.85	550	450 to 610	23		
TEMD5510FX01	PIN photodiode	PCB	5 x 4.24 x 1.12	540	430 to 610	1	65	
VEMD5510C		FAM	5 x 4 x 0.9	550	440 to 700	0.6	65	
VEMD5510CF			5 x 4 x 0.9	540	440 to 620	0.25		

# Optoelectronics

## Bright Ideas, Stellar Products

### Advantages of Vishay Infrared Emitters and Photo Detectors

- Six wavelength options:  
810 nm, 830 nm, 850 nm, 870 nm, 890 nm, 940 nm
- Matching emitter / detector pairs
- Comprehensive package alternatives
- Vishay Automotive Grade qualified parts

### For the Following Applications

- Emitter / detector pairs for sensor applications and motion detection
- High power light sources for camera illumination
- Versatile parts for automotive, industrial, and consumer applications



Gesture control, dashboard dimming, rain sensors, solar sensors



Wearables, smoke detectors, CCTV illumination, VR headsets, light curtains, remote controls

### Useful Links

- Emitters, Detectors, Sensors Selector Guide  
[www.vishay.com/doc?49495](http://www.vishay.com/doc?49495)
- SurfLight™: High Power IR Illumination Product Sheet  
[www.vishay.com/doc?49623](http://www.vishay.com/doc?49623)
- Dome Lens Product Sheet  
[www.vishay.com/doc?49609](http://www.vishay.com/doc?49609)

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