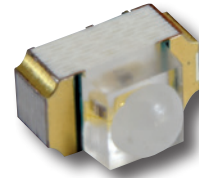


INFRARED EMITTER DIODE IRP3016V24-E5 – SIDE VIEW PACKAGE

The **IRP3016V24-E5** is a GaAlAs infrared LED in a small SMD package. The device has a peak wavelength of 940nm LED spectrally matched with phototransistor or photodiode.



FEATURES

- » Small side view package $3.0 \times 2.34 \times 1.6 \text{ mm}^3$
- » Viewing Angle = $\pm 22.5^\circ$
- » High reliability
- » Good spectral matching to Si photo detector
- » RoHS compliance

APPLICATIONS

- » Infrared sensor
- » Infrared Touch Panel applications

ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING
Continuous forward current I_F [mA]	70
Peak forward current I_{FP} [A] (pulse $\leq 100\mu\text{s}$, duty $\leq 1\%$)	1
Reverse voltage V_R [V]	5
Operating temperature T_{OPR} [$^\circ\text{C}$]	-40 ... +85
Storage temperature T_{STG} [$^\circ\text{C}$]	-40 ... +100
Thermal resistance (junction-ambient) $R_{th(j-a)}$ [$^\circ\text{C}/\text{W}$]	540
Power dissipation P_D [mW]	120

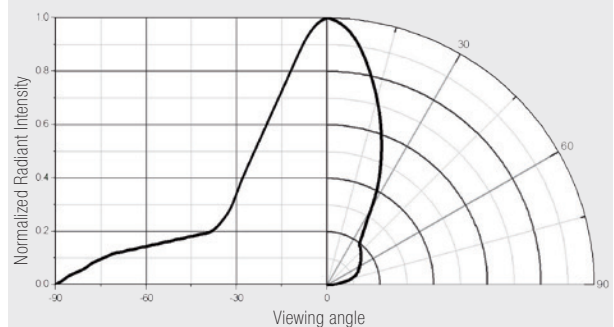
ELECTRO-OPTICAL SPECIFICATIONS

PARAMETER	RATING		
	min.	typ.	max.
Radiant intensity @ $I_F=20\text{mA}$ I_θ [mW/sr]	3.5	4.65	6.5
Radiant intensity @ $I_F=70\text{mA}$ I_θ [mW/sr]	-	16.0	-
Peak wavelength @ $I_F=20\text{mA}$ λ_p [nm]	-	940	-
Spectral bandwidth @ $I_F=20\text{mA}$ $\Delta\lambda$ [nm]	-	30	-
Angle of half intensity @ $I_F=20\text{mA}$ $\theta_{1/2}$ [deg]	-	-	-
Forward voltage @ $I_F=20\text{mA}$ V_F [V]	1.0	1.25	1.5
Forward voltage @ $I_F=70\text{mA}$ V_F [V]	1.1	1.38	1.7
Reverse current @ $V_R=5\text{V}$ I_R [μA]	-	-	10

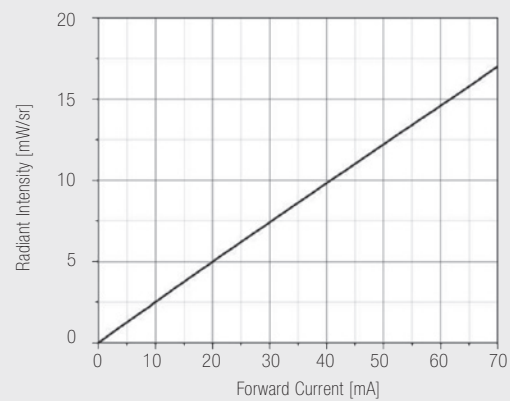
Ie BIN RANK

Bin Code	Fa	Ga
Min.	3.5	4.5
Max.	4.5	6.5

ANGULAR DISPLACEMENT



RADIANT INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT VS. AMBIENT TEMPERATURE

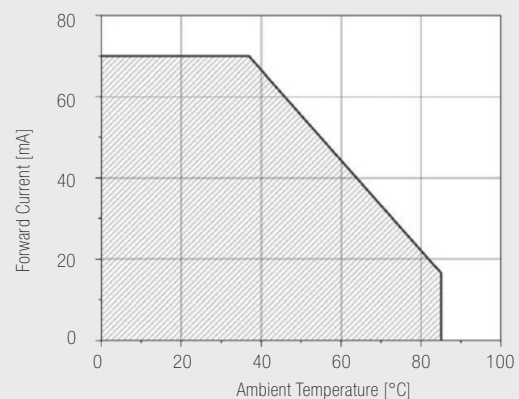
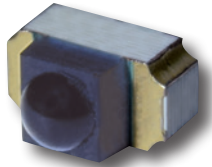
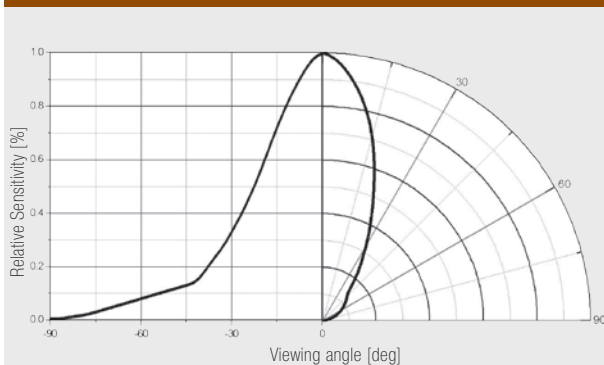


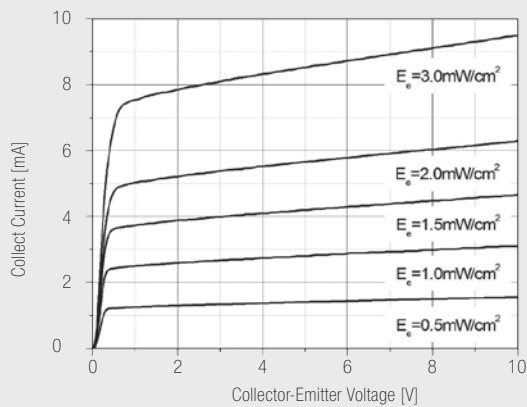
PHOTO TRANSISTOR PTP83016BT24 – SIDE VIEW PACKAGE



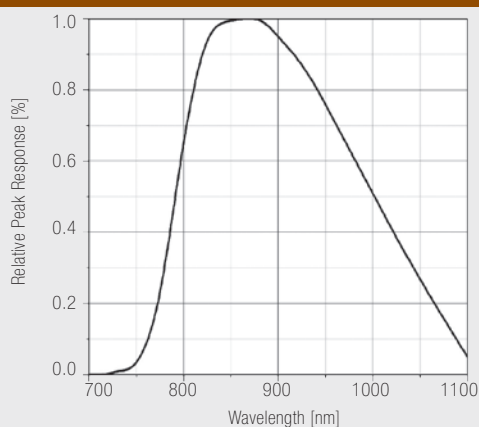
ANGULAR DISPLACEMENT



COLLECT CURRENT VS. COLLECTOR-EMITTER VOLTAGE



PEAK RESPONSE VS. WAVELENGTH



The **PTP83016BT24** is a silicon NPN phototransistor in SMD package. The device comes with a superior filtering for visible light by utilizing special black molding compound.

FEATURES

- » Small side view package $3.0 \times 2.34 \times 1.6 \text{ mm}^3$
- » High photo sensitivity
- » High reliability
- » Spectral range of sensitivity; 760 nm ... 1100 nm
- » Fast response time
- » RoHS compliance

ANWENDUNGEN

Infrared sensor and Infrared Touch Panel applications

ABSOLUTE MAXIMUM RATINGS

PARAMETER	RATING
Collector current I_C [mA]	20
Collector-Emitter Voltage $B_{V_{CE0}}$ [V]*	35
Emitter-Collector Voltage $B_{V_{CE0}}$ [V]**	5
Operating temperature T_{OPR} [°C]	-40 ... +85
Storage temperature T_{STG} [°C]	-40 ... +100

ELECTRO-OPTICAL SPECIFICATIONS

PARAMETER	RATING	min. typ. max.		
		min.	typ.	max.
Spectral bandwidth $\Delta \lambda$ [nm]		760	-	1100
Peak sensitivity ΔP [nm]		-	880	-
Angle of half intensity @ $V_{CE}=5 \text{ V}$ $\Delta \lambda_{1/2}$ [deg]		-	± 22.5	-
Dark current I_{CEO} [nA] @ $E_e=0 \text{ mW/cm}^2$, $V_{CE}=20 \text{ V}$		-	-	100
Coll.-Emitt. saturation voltage $V_{CE(sat)}$ [V] $E_e=1 \text{ mW/cm}^2$, $I_C=1.4 \text{ mA}$		-	-	0.4
Collector light current I_C [mA] @ $E_e=1 \text{ mW/cm}^2$, $V_{CE}=5 \text{ V}$, $\Delta P=940 \text{ nm}$		1.4	2.8	4.4
Terminal capacitance C_T [pF] @ $E_e=0 \text{ mW}$, $V_{CE}=5 \text{ V}$, $f=1 \text{ MHz}$		-	3.80	-
Rise time t_r [μs]		-	6	-
Fall time t_f [μs]		-	7	-
Turn on delay time t_{on} [μs]		-	11	-
Turn off delay time t_{off} [μs] @ $V_{CE}=5 \text{ V}$, $R_L=100 \Omega$, $I_C=1 \text{ mA}$		-	7.9	-

IC BIN RANK (Tolerance of Collector Light Current: $\pm 10\%$)

Bin Code	Ta	Tb
Min.	1.4	2.4
Max.	2.4	4.4