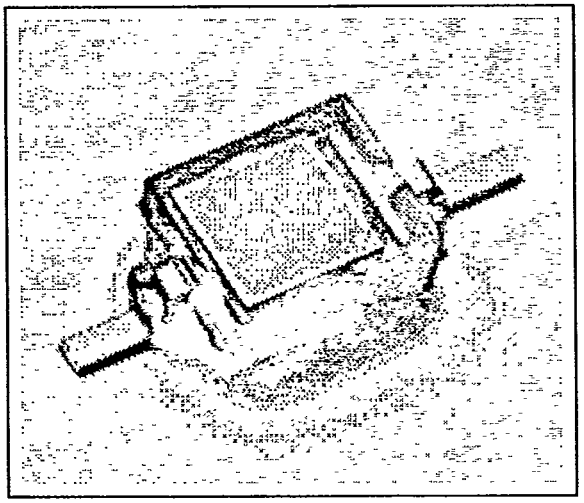
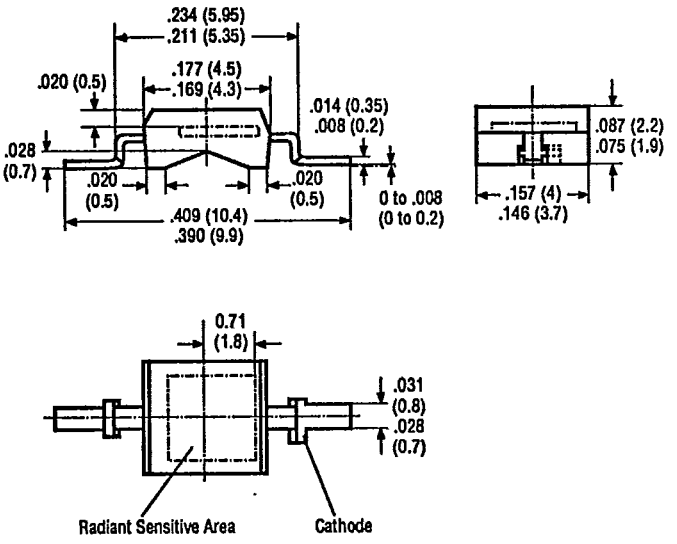
SIEMENS

BPW34-1028

SILICON PIN PHOTODIODE
SMT LEADS ON PLASTIC CARRIER



Package Dimensions in Inches (mm)



FEATURES

- **Silicon Planar PIN Photodiode**
- **Transparent Plastic Package**
- **High Sensitivity**
- **Short Switching Time**
- **Leads Bent for Surface Mounting**
- **Supplied on Industry Standard Plastic Carrier (16 mm Wide Tape)**
- **2000 Pieces Per 13" Diameter Reel**

DESCRIPTION

The BPW34-1028 is a silicon planar PIN photodiode housed in a transparent plastic package. The leads of the device are configured for surface mounting, and the part is supplied on industry standard plastic carriers.

This versatile photodiode can be used as a diode as well as a photovoltaic cell. The signal to noise ratio is favorable even at low illuminances. The part has extremely low junction capacitance, high cut-off frequency and short switching times. Applications include IR sound transmission and exposure meters.

Maximum Ratings

Parameter	Symbol	Value	Unit
Operating & storage temperature	T_{op}, T_{stg}	-40 to +80	°C
Soldering temperature (≥2 mm distance from package, solder time t ≤ 3 s)	T_S	230	°C
Reverse voltage	V_R	32	V
Power dissipation (T_{amb} = 25°C)	P_{tot}	150	mW

Specifications subject to change without notice.

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Characteristics (T_{amb} = 25 °C)

Parameter	Symbol	Value	Unit
Photosensitivity (V_R = 5 V)[1]	S	80 (≥50)	nA/lx
Wavelength at max. sensitivity	λ_{Smax}	880	nm
Spectral range of photosensitivity(S = 10% of Smax)	λ	400 to 1100	nm
Radiant sensitive area	A	7.00	mm²
Dimensions of radiant sensitive area	L x W	2.65 X 2.65	mm
Distance between chip surface to package surface	H	0.5	mm
Half angle	φ	±60	Deg.
Dark Current (V_R = 10 V)	I_R	2 (≤30)	nA
Spectral photosensitivity (λ = 850 nm)	Sλ	0.62	A/W
Quantum yield (λ = 850 nm)	η	0.90	electrons/photon
Open circuit voltage (E_V = 1000 lx)[1]	V_O	365 (≥300)	mV
Short circuit current (E_V = 1000 lx)[1]	I_{SC}	80 (≥50)	µA
Rise and fall times of photocurrent from 10% to 90% and from 90% to 10% of final value (R_L = 1 Ω, V_R = 5 V, λ = 830 nm, I_p = 70 µA	t_r, t_f	350	ns
Forward voltage (I_F = 100 mA, E_e = 0, T_{amb} = 25°C)	V_F	1.3	V
Capacitance (V_R = 0 V, f = 1 MHz, E = 0)	C_O	72	pF
Temperature coefficient of V_O	TC_V	-2.6	mV/K
Temperature coefficient of I_p	TC_I	0.18	%/K
Noise equivalent power (V_R = 10 V)	NEP	4.1 X 10^{-14}	w/√Hz
Detection limit (V_R = 10 V)	D	6.6 X 10^{12}	cm/√Hz/W

Note 1: The illuminance indicated refers to unfiltered radiation of a tungsten filament lamp at a color temperature of 2856 K (standard light A per DIN 5030 and IEC publication 306-1).

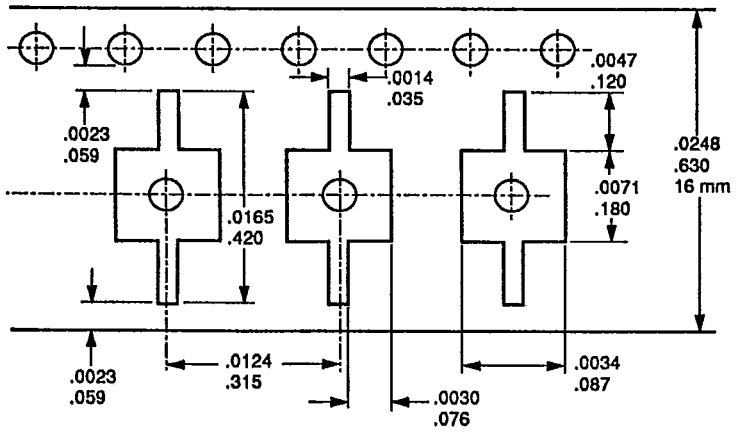
Carrier Specifications

Physical Properties	Units	Average Values[1]	Test Methods
Specific Gravity		1.07	ASTM D-792
Tensile Strength	psi	3500	ASTM D-538
Flexural Strength, 72°F	psi	5500	ASTM D-790
Flexural Modulus, 72°F	10^5 psi	2.3	ASTM D-790
Hardness	Rockwell Scale F	63	ASTM D-785
Heat Deflection Temperature, 264 psi	°F	170	ASTM D-846
Thermoforming	Low, °F	340	Machine
Temperature Range	High, °F	400	
Mold Shrinkage	inch/inch	0.005-0.007	0.6
Surface Resistivity	Ω[2]	≤10^5	ASTM D-257

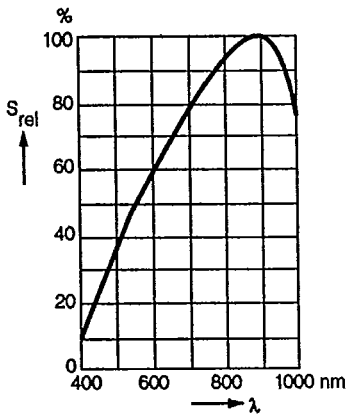
Note 1: .0125" thickness or caliper.

16 mm Wide Tape, 8mm Pitch

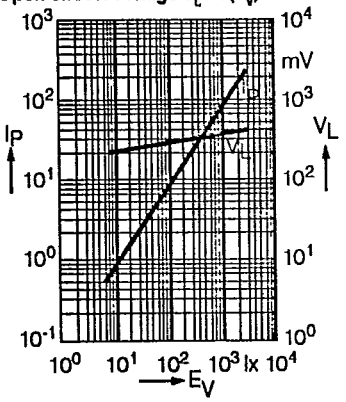
Approximately 125 pockets per meter. Pocket hole is optional



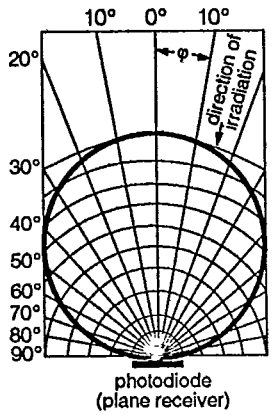
Relative spectral sensitivity, $S_{REL} = f(\lambda)$



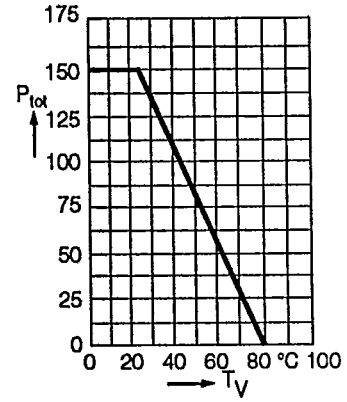
Photocurrent $I_P = f(E_V)$
Open circuit voltage $V_L = f(E_V)$



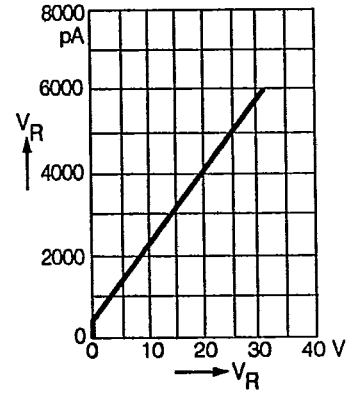
Directional characteristic—$S_{REL} = f(\varphi)$



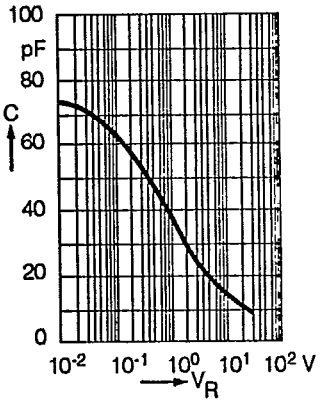
Power Dissipation, $P_{TOT} = f(T_A)$



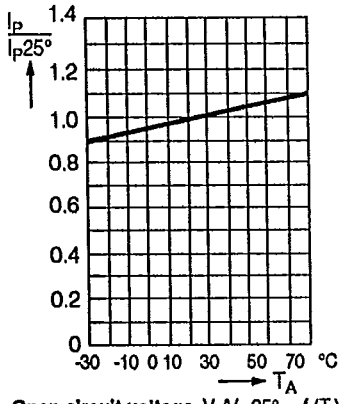
Dark current, $I_R = f(V_R)$, E = 0



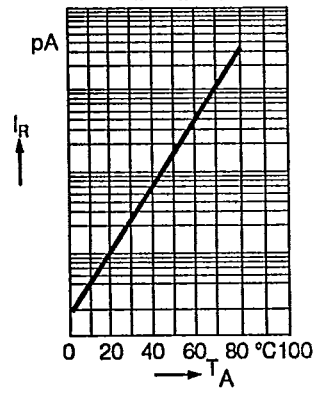
Capacitance, $C = f(V_R)$, f = 1 MHz, E = 0



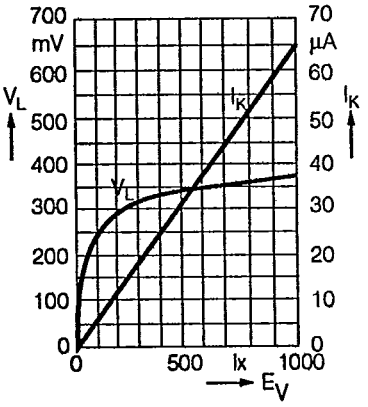
Photocurrent, $I_R = I_P/I_P 25° = f(T_A)$



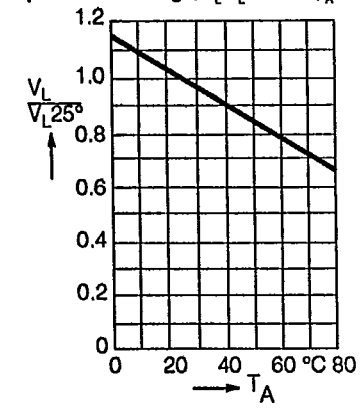
Dark current, $I_R = f(T_A)$, V_R = 10 V, E = 0



Open circuit voltage $V_L = f(E_V)$
Short circuit current $I_K = f(E_V)$



Open circuit voltage, $V_L/V_L 25° = f(T_A)$



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