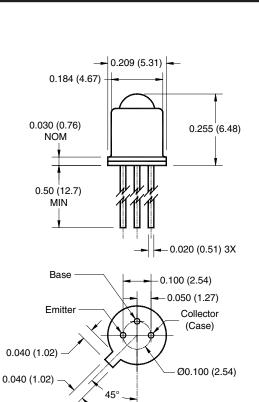


## **PACKAGE DIMENSIONS**



#### NOTES:

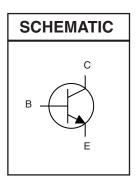
- 1. Dimensions for all drawings are in inches (mm).
- 2. Tolerance of  $\pm$  .010 (.25) on all non-nominal dimensions unless otherwise specified.

### **FEATURES**

- Hermetically sealed package
- · Narrow reception angle
- European "Pro Electron" registered

### **DESCRIPTION**

 The BPW36/37 are silicon phototransistors mounted in narrow angle TO-18 packages.



- 1. Derate power dissipation linearly 3.00 mW/°C above 25°C ambient.
- 2. Derate power dissipation linearly 6.00 mW/°C above 25°C case.
- 3. RMA flux is recommended.
- 4. Methanol or isopropyl alcohols are recommended as cleaning agents.
- 5. Soldering iron tip 1/16" (1.6mm) minimum from housing.
- 6. As long as leads are not under any stress or spring tension.
- 7. Light source is a GaAs LED emitting light at a peak wavelength of 940 nm.

ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25°C unless otherwise specified)							
Parameter	Symbol	Rating	Unit				
Operating Temperature	T <sub>OPR</sub>	-65 to +125	°C				
Storage Temperature	T <sub>STG</sub>	-65 to +150	°C				
Soldering Temperature (Iron)(3,4,5 and 6)	T <sub>SOL-I</sub>	240 for 5 sec	°C				
Soldering Temperature (Flow)(3,4 and 6)	T <sub>SOL-F</sub>	260 for 10 sec	°C				
Collector-Emitter Voltage	V <sub>CEO</sub>	45	V				
Collector-Base Voltage	V <sub>CBO</sub>	45	V				
Emitter-Base Voltage	V <sub>EBO</sub>	5	V				
Power Dissipation (T <sub>A</sub> = 25°C) <sup>(1)</sup>	P <sub>D</sub>	300	mW				
Power Dissipation (T <sub>C</sub> = 25°C) <sup>(2)</sup>	Pn	600	mW				



ELECTRICAL / OPTICAL CHARACTERISTICS (TA =25°C) (All measurements made under pulse conditions)								
PARAMETER	TEST CONDITIONS	SYMBOL	MIN	TYP	MAX	UNITS		
Collector-Emitter Breakdown	$I_{\rm C} = 10 \text{ mA}, \text{ Ee} = 0$	BVceo	45	_	_	V		
Emitter-Base Breakdown	$I_E = 100 \ \mu A, \ Ee = 0$	ВУЕВО	5.0	_	_	V		
Collector-Base Breakdown	$I_C = 100 \mu A, Ee = 0$	ВУсво	45	_	_	V		
Collector-Emitter Leakage	V <sub>CE</sub> = 10 V, Ee = 0	ICEO	_	_	100	nA		
Reception Angle at 1/2 Sensitivity		θ	_	±10	_	Deg.		
On-State Collector Current BPW36	Ee = 0.5 mW/cm <sup>2</sup>	IC(ON)	1.0	_	_	mA		
	$V_{CE} = 5 V^{(7)}$							
On-State Collector Current BPW37	Ee = 0.5 mW/cm <sup>2</sup>	Ic(on)	0.5	_	_	mA		
	$V_{CE} = 5 V^{(7)}$							
Turn-On Time	$I_{\rm C} = 2$ mA, $V_{\rm CC} = 10$ V		_	8	_	μs		
	$R_L$ = 100 $\Omega$	$t_{on}$						
Turn-Off Time	$I_{\rm C} = 2$ mA, $V_{\rm CC} = 10$ V	t <sub>off</sub>	_	7	_	μs		
	$R_L$ = 100 $\Omega$							
Saturation Voltage	$I_C = 1.0 \text{ mA}, Ee = 3.0 \text{ mW/cm}^2$	$V_{CE(SAT)}$	_	_	0.40	V		

### **TYPICAL PERFORMANCE CURVES**

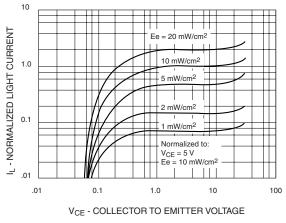


Fig. 1 Light Current vs. Collector to Emitter Voltage

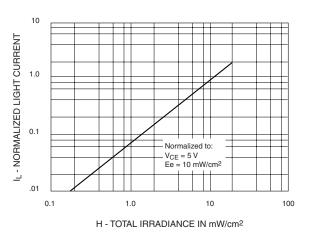


Fig. 2 Normalized Light Current vs. Radiation



### TYPICAL PERFORMANCE CURVES

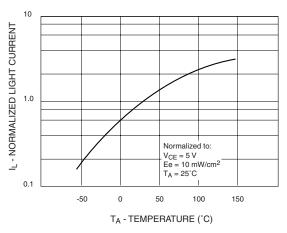


Fig. 3 Normalized Light Current vs. Temperature

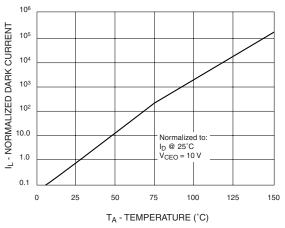


Fig. 5 Dark Current vs. Temperature

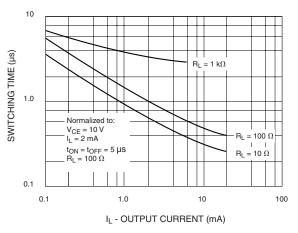


Fig. 4 Switching Times vs. Output Current

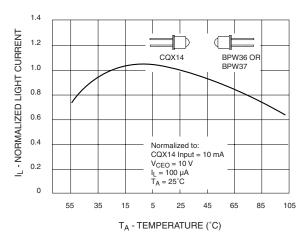


Fig. 6 Normalized Light Current vs. Temperature Both Emitter (CQX14) and Detector (BPW36 or BPW37) at Same Temperature



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