December 1998

Photonic Detectors Inc.
90 A-West Cochran Street
Simi Valley, CA 93065
805-527-3900, Fax 805-527-3931

OXIMETER EMITTER/DETECTOR COMPONENTS GUIDE

MANUFACTURER	EMITTER WAVELENGTH	DRIVE CONFIGURATION	PDI EMITTER P/N	DETECTOR SIZE (mm^2)	PDI DETECTOR P/N
BCI	660/905	2DL	PDI-E832	4.0	PDB-C164
CRITICARE	660/880	3D	PDI-E837	8.0	PDB-C165
DATA SCOPE	660/940	3D	PDI-E835	8.0	PDB-C165
DATEX	660/905	2DL	PDI-E832	8.0	PDB-C165
NELLCOR	660/905	2DL	PDI-E832	4.0	PDB-C164
NONIN MEDICAL	660/910	3DL	PDI-E834	8.0	PDB-C165
NOVA METRIX	660/940	3DL	PDI-E835	8.0	PDB-C165
OHMEDA	660/940	3DL	PDI-E835	8.0	PDB-C165
SCIMED	660/940	2DL	PDI-E833	8.0	PDB-C165
SENSOR MEDICS	660/880	3DL	PDI-E837	4.0	PDB-C2001

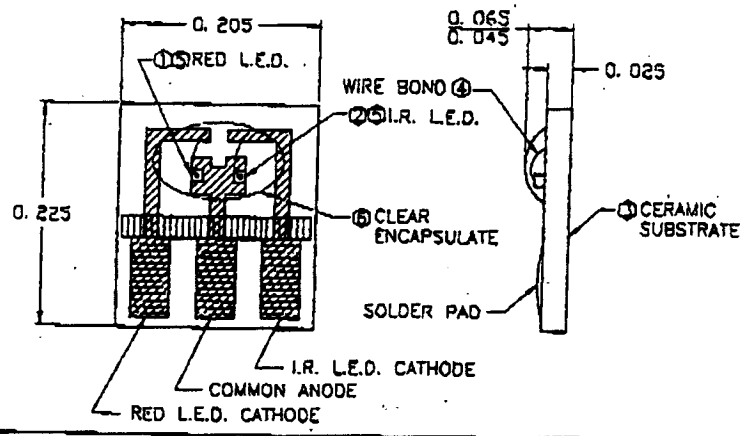
Note: Photonic Detectors is not responsible or liable for the information on the Oximeter Emitter/Detector Guide. Information was obtained from measuring O.E.M. probe assemblies. Information on this sheet is a guide and may not be correct.

photonic detectors INC.

805-527-3
FAX 805-527-3

DUAL EMITTER, OXIMETER COMPONENT
TYPE PDI-E837

PACKAGE DIMENSIONS inch (mm)



FEATURES
- LOW COST
- 660 nm ±3 nm
- 3 DRIVE LINE

DESCRIPTION
The **PDI-E837** is a three (3) drive line, dual emitter component, with a 660 nm and 880 nm high power LPE grown, GaAlAs emitters, packaged in a metalized ceramic with epoxy encapsulation with top side solder pads. Ideal for O.E.M. oximeter probe assemblies.

APPLICATIONS
- OXIMETER PROBES
- FINGER CLAMPS
- REUSABLE PROBES

ABSOLUTE MAXIMUM RATING (TA-25°C UNLESS OTHERWISE NOTED)

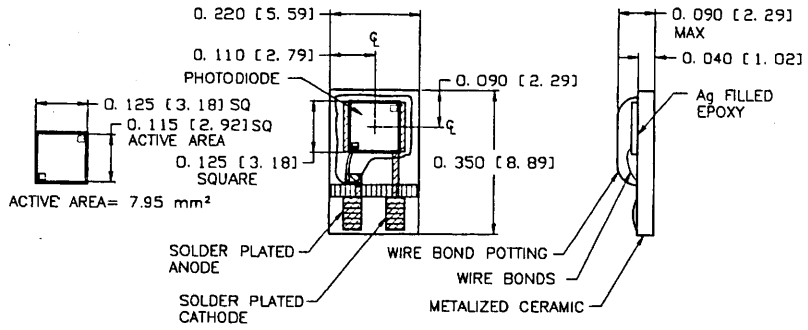
SYMBOL	PARAMETER	MIN	MAX	UNITS
Pd	POWER DISSIPATION IF=20 mA		250	mW
I_{FF}	CONTINUOUS FORWARD CURRENT		100	mA
I_{FP}	PEAK FORWARD CURRENT		2.5	A
V_R	REVERSE VOLTAGE		5	V
To & Ts	STORAGE & OPERATING TEMPERATURE	-40	+80	°C
TS	SOLDERING TEMPERATURE		240	°C

ELECTRO-OPTICAL CHARACTERISTICS (TA=25°C UNLESS OTHERWISE NOTED) IF=20 mA

SYMBOL	CHARACTERISTIC	RED			INFRARED			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Po	RADIANT FLUX	1.2	1.8		0.9	1.2		mW
Iv	LUMINOUS INTENSITY	20	30		12	20		mcd
V_F	FORWARD VOLTAGE		1.8	2.4		1.2	1.5	V
V_R	REVERSE BREAKDOWN	5			5			V
λp	PEAK WAVELENGTH	657	660	663	870	888	890	nm
$\Delta\lambda$	SPECTRAL BANDWIDTH		25			50		nm
Tr	RISE TIME		0.5			0.5		µS
Tr	FALL TIME		0.5			0.5		µS

OXIMETER, SILICON DETECTOR COMPONENT
TYPE PDB-C165

PACKAGE DIMENSIONS inch (mm)



Package Type: Metalized ceramic, top side solder contacts

Active area = 8.0 mm²

FEATURES

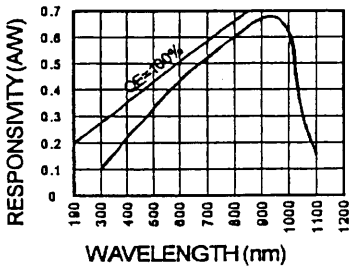
- 660 nm ENHANCED
- LOW DARK CURRENT
- LOW COST

DESCRIPTION

The **PDB-C165** is a silicon, PIN planar diffused photodiode, with a 8.0 mm² active area, packaged in a metalized ceramic substrate with top side pre-tinned solder contacts.

ABSOLUTE MAXIMUM RATING (TA-25°C UNLESS OTHERWISE NOTED)

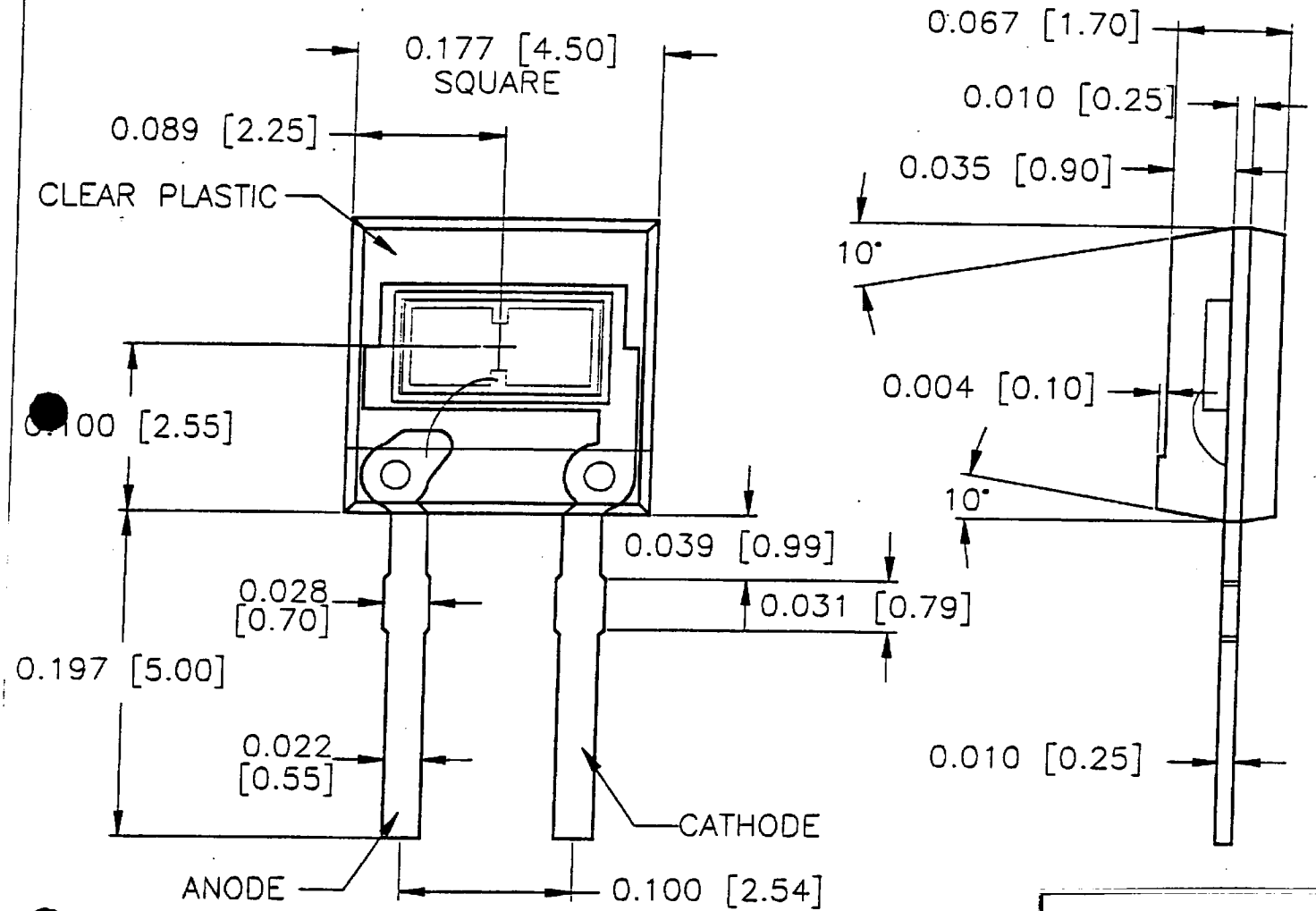
SYMBOL	PARAMETER	MIN	MAX	UNITS
V_{BR}	REVERSE VOLTAGE		100	V
TS	STORAGE TEMPERATURE	-45	+100	°C
T_O	OPERATING TEMPERATURE RANGE	-40	+80	°C
T_S	SOLDERING TEMPERATURE *		+240	°C
I_{MAX}	LIGHT CURRENT		5.0	mA

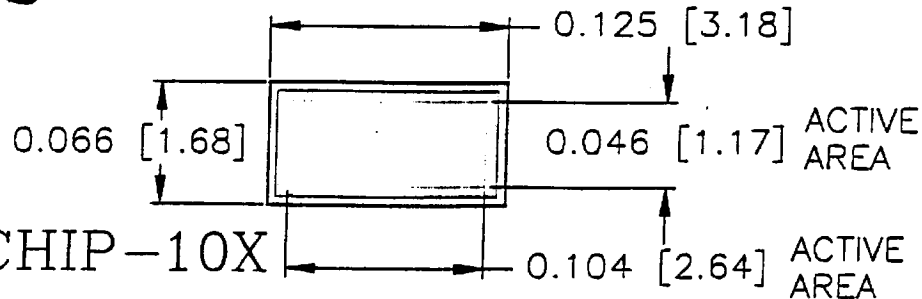


SPECTRAL RESPONSE

ELECTRO-OPTICAL CHARACTERISTICS (TA=25°C UNLESS OTHERWISE NOTED)

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Isc	SHORT CIRCUIT CURRENT	H=100 FC, 2850 K	90	110		μA
ID	DARK CURRENT	H=0, VR=10 V		1.0	10	NA
RSH	SHUNT RESISTANCE	H=0, VR=10 mV	100	500		MΩ
TC RSH	RSH TEMP. COEFFICIENT	H=0, VR=10 mV		-8		%/°C
CJ	JUNCTION CAPACITANCE	H=0, VR=0 V		125	150	pF
		H=0, VR=10 V		60	75	
Resp.	RESPONSIVITY	λ=660 nm, VR=0 V	0.40	0.45		A/W
		λ=900 nm, VR=0 V	0.60	0.65		
λp	SPECTRAL RESPONSE-RANGE		400		1100	nm
VBR	BREAKDOWN VOLTAGE	I=10 μA	50	75		V
NEP	NOISE EQUIVALENT POWER	VR=10 V, λ=850 nm		$9.0X10^{-14}$		W/√ HZ
tr	RESPONSE TIME	VR=10 V, λ=850 nm		100		nS





CHIP–10X

ACTIVE AREA = 2.98 mm²

NLESS OTHERWISE SPECIFIED
IMENSIONS ARE IN INCHES
OLERANCES ARE :

RACTIONS DECIMALS ANGLES
± 1/64 .X ± 0.1 ± 1°
.XX ± 0.01
.XXX ± 0.005

ATERIAL

INISH

O NOT SCALE DWG.

CONTRACT NO. /SPECIFICATION NO.

APPROVALS		IN	DATE
DRAWN	BKK	BK	3-13-98
CHECKED	RMK	RMK	3-13-98
ISSUED	DLM	DLM	3-13-98

PHOTONIC DETECTORS INC.

CUSTOM PHOTODIODE ASSEMBLY

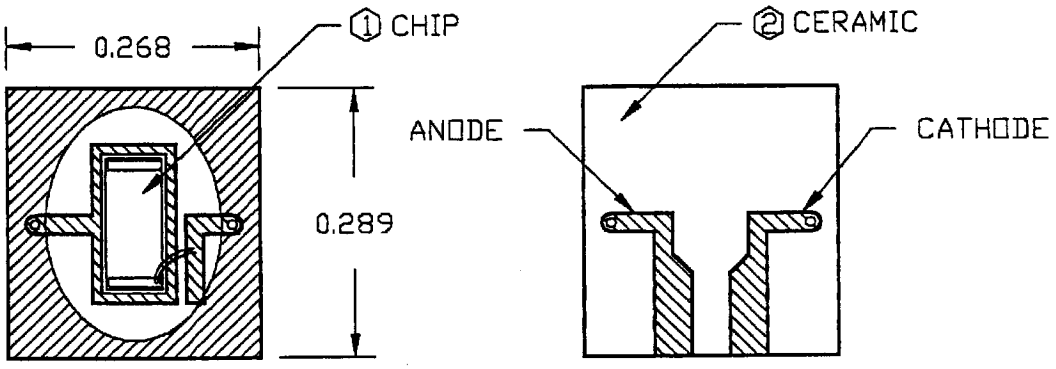
SIZE	FSCM NO.	DWG. NO.	REV
A		PDB–C	N/C

SCALE	FILE	SHEET
10X	C1048	1 OF 1

REVISION STATUS THIS PRINT NOT MAINTAINED AFTER

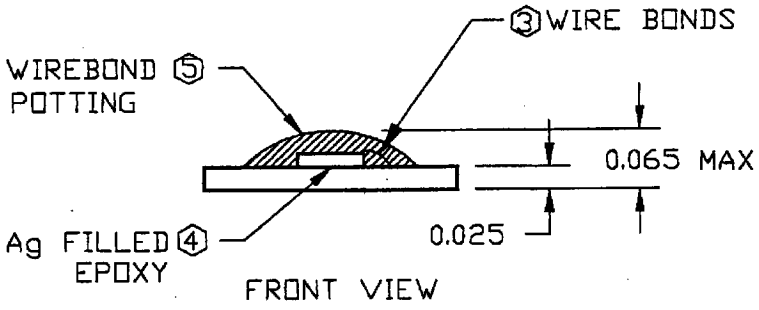
AUG 11 1998

DO NOT USE THIS PRINT UNLESS YOUR ORDER OR INSTRUCTIONS SPECIFY THE REVISION LEVEL SHOWN

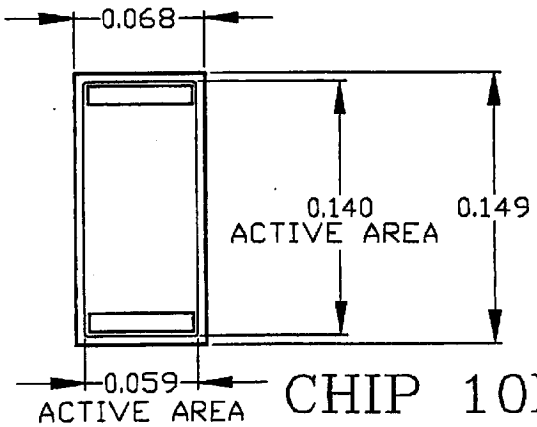


TOP VIEW

BOTTOM VIEW



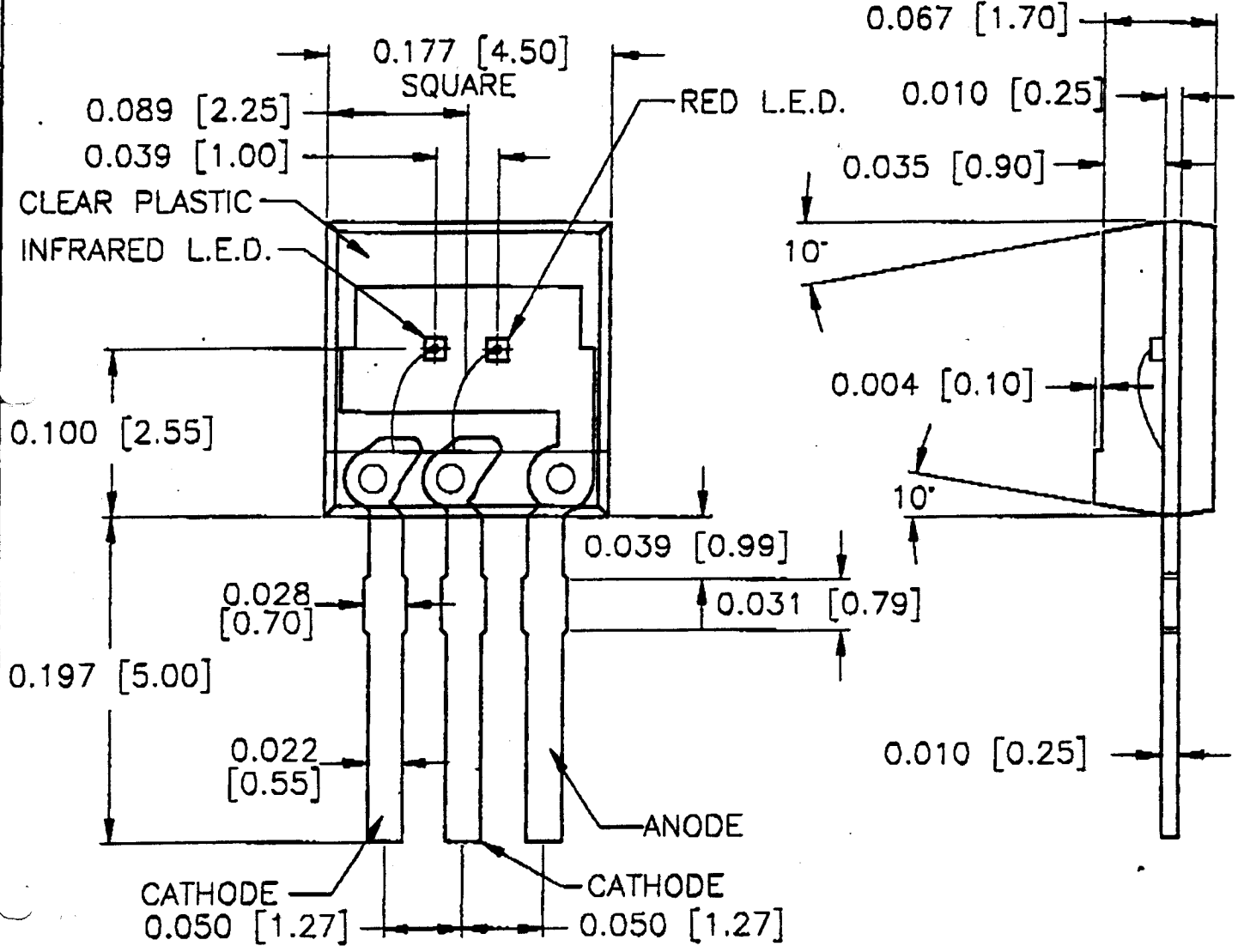
FRONT VIEW



CHIP 10X

ACTIVE AREA = 5.19 mm²

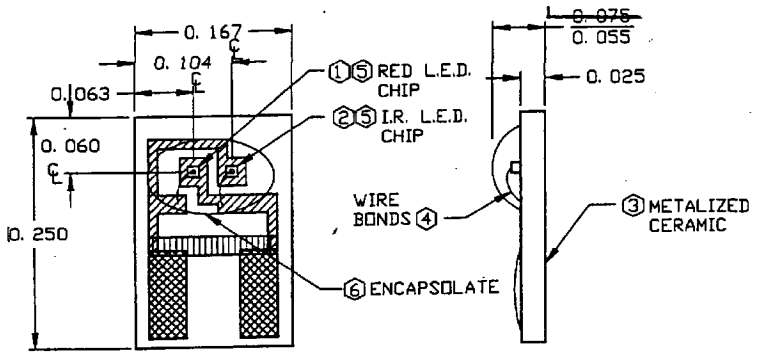
UNLESS OTHERVISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE : FRACTIONS ± 1/64 DECIMALS .X ± 0.1 .XX ± 0.01 .XXX ± 0.005 ANGLES ± 1°	CONTRACT NO. /SPECIFICATION NO.			PHOTONIC DETECTORS INC.
	APPROVALS	IN	DATE	CUSTOM PHOTODIODE ASSEMBLY
MATERIAL SEE ABOVE	DRAWN BKK	BK	8-11-98	
	CHECKED RMK	Rm	8-11-98	
FINISH	ISSUED DLM	DLM	8-11-98	SIZE A / FSCM NO. / DWG. NO. PDB-C1001 / REV D
DO NOT SCALE DWG				SCALE 5X / FILE C1001 / SHEET 1 OF 2



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± 1/64 DECIMALS .X ± 0.1 .XX ± 0.01 .XXX ± 0.005 ANGLES ± 1°	CONTRACT NO. /SPECIFICATION NO.		PHOTONIC DETECTORS INC.
MATERIAL	APPROVALS	IN	DATE
	DRAWN BKK	BK	3-13-98
FINISH	CHECKED RMK		3-13-98
	ISSUED DLM		3-13-98
NOT SCALE DWG			DUAL L.E.D. ASSEMBLY
	SIZE A	FSCM NO.	DWG. NO. PDI-E8 REV. N/C
	SCALE 10X	FILE E8022	SHEET 1 OF 1

DUAL EMITTER, OXIMETER COMPONENT
TYPE PDI-E832

PACKAGE DIMENSIONS inch (mm)



FEATURES

- LOW COST
- 660 nm ±3 nm
- 2 DRIVE LINE

DESCRIPTION

The **PDI-E832** is a two (2) drive line, dual emitter component, with a 660 nm and 905 nm high power LPE grown, GaAlAs emitters, packaged in a metalized ceramic with epoxy encapsulation with top side solder pads.

APPLICATIONS

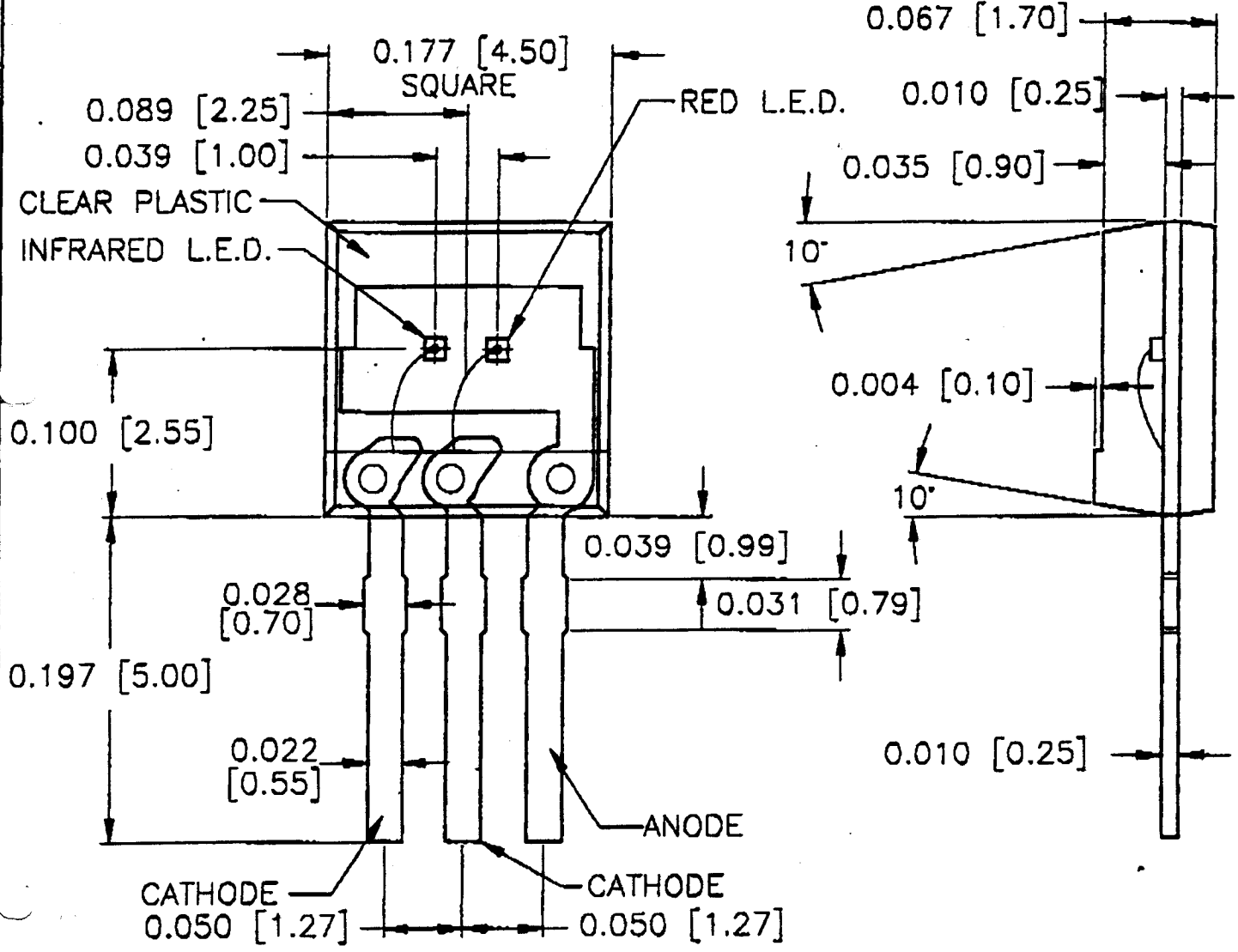
ABSOLUTE MAXIMUM RATING (TA-25°C UNLESS OTHERWISE NOTED)

SYMBOL	PARAMETER	MIN	MAX	UNITS
Pd	POWER DISSIPATION IF=20 mA		250	mW
I_{FP}	CONTINUOUS FORWARD CURRENT		100	mA
I_{FP}	PEAK FORWARD CURRENT		2.5	A
V_R	REVERSE VOLTAGE		5	V
To & Ts	STORAGE & OPERATING TEMPERATURE	-40	+80	°C
TS	SOLDERING TEMPERATURE		240	°C

ELECTRO-OPTICAL CHARACTERISTICS (TA=25°C UNLESS OTHERWISE NOTED) IF=20 mA

SYMBOL	CHARACTERISTIC	RED			INFRARED			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Po	RADIANT FLUX	1.2	1.8		0.9	1.2		mW
Iv	LUMINOUS INTENSITY	20	30		12	20		mcd
V_F	FORWARD VOLTAGE		1.8	2.4		1.2	1.5	V
V_R	REVERSE BREAKDOWN	5			5			V
λp	PEAK WAVELENGTH	657	660	663	870	880	890	nm
$\Delta\lambda$	SPECTRAL BANDWIDTH		25			50		nm
Tr	RISE TIME		0.5			0.5		μS
Tr	FALL TIME		0.5			0.5		μS

90 A-WEST COCHRAN ST. • SIMI VALLEY • CALIFORNIA • 93065 • 805-527-3900 • FAX 805 527-3931



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± 1/64 DECIMALS .X ± 0.1 .XX ± 0.01 .XXX ± 0.005 ANGLES ± 1°	CONTRACT NO. /SPECIFICATION NO.		PHOTONIC DETECTORS INC.
MATERIAL	APPROVALS	IN	DATE
	DRAWN BKK	BK	3-13-98
FINISH	CHECKED RMK		3-13-98
	ISSUED DLM		3-13-98
NOT SCALE DWG			DUAL L.E.D. ASSEMBLY
	SIZE A	FSCM NO.	DWG. NO. PDI-E8 REV. N/C
	SCALE 10X	FILE E8022	SHEET 1 OF 1

photonic detectors INC.

805-527-3900
FAX 805-527-3931

August 7, 1998

Viamed
15 Staton Road
Cross Hills
Keighley West Youker, Britain BD2070T

Attention: Mr. John Lamb

Subject: Oximeter Detector and Emitter O.E.M. Opto Components

Dear John:

Thank you for your phone call and interest in Photonic Detectors. I understand you are looking for a source of supply of oximeter detectors and emitter "opto" components. Enclosed please find our standard product data pack, including our oximeter detectors and emitter components. We currently supply several oximeter, OEM manufacturers. We manufacture low cost, plastic lead frame components, for disposable applications, ceramic substrate components for reusable applications and flex and other complete probe assemblies. Assemblies consist of tested emitters, detectors, cables and flex or other type of housings.

As you know, the 660 nm optical wavelength tolerance emitter, is critical to the performance of a pulsed oximeter. We guarantee the 660 nm wavelength to ± 3 nm. Each assembly lot is verified after component assembly. We supply lot testing data, material traceability and certification of compliance with each shipment.

The infrared emitter tolerances are not as tightly controlled. We guarantee ± 10 nm from center wavelength. Wavelengths can vary by oximeter manufacturers. We supply components with a range of wavelengths from 800 nm out to 950 nm. Popular ranges are 905 nm and 940 nm. We also offer a two (2) and three (3) emitter drive line components.

Several standard detector components are offered. All of the detector assemblies use a high speed, low junction capacitance, silicon planar diffused, blue enhanced, detector chip. Standard active area sizes include 1.5 mm^2, 3.0 mm^2 and 8.0 mm^2. Again, certain oximeter manufacturers probes and assemblies will use a particular size detector.

The size of the detector's active area will determine the amount of light current. The amount of light current effects the accuracy of the probe. The combination of the

emitter's center wavelength, intensity and the detector's responsivity and active area size, is what determines the amount of useable signal.

For a $50.00 opto-electrical evaluation fee, we will be happy to test and confirm the opto components that you currently use. The report will include both the emitter's optical wavelengths, approximate optical power and detector's size and light current. This evaluation will help determine which model number probe works with what manufacturer's model number instrument. Once we measure what you currently use, then we can determine which O.E.M. opto component you need to purchase.

Besides the enclosed standard emitters and detector oximeter components, we also offer custom devices. This could be a custom size substrate, which would fit into a silicone mold or finger clamp. It could be a specific emitter wavelength component, for two (2) or three (3) emitter drive line component. You might want to consider a custom configuration component, spectrically designed for your oximeter probe assembly.

Attached please find our standard price list. This includes price and delivery for our low cost disposable type plastic lead frame, devices and ceramic substrate emitters and detectors.

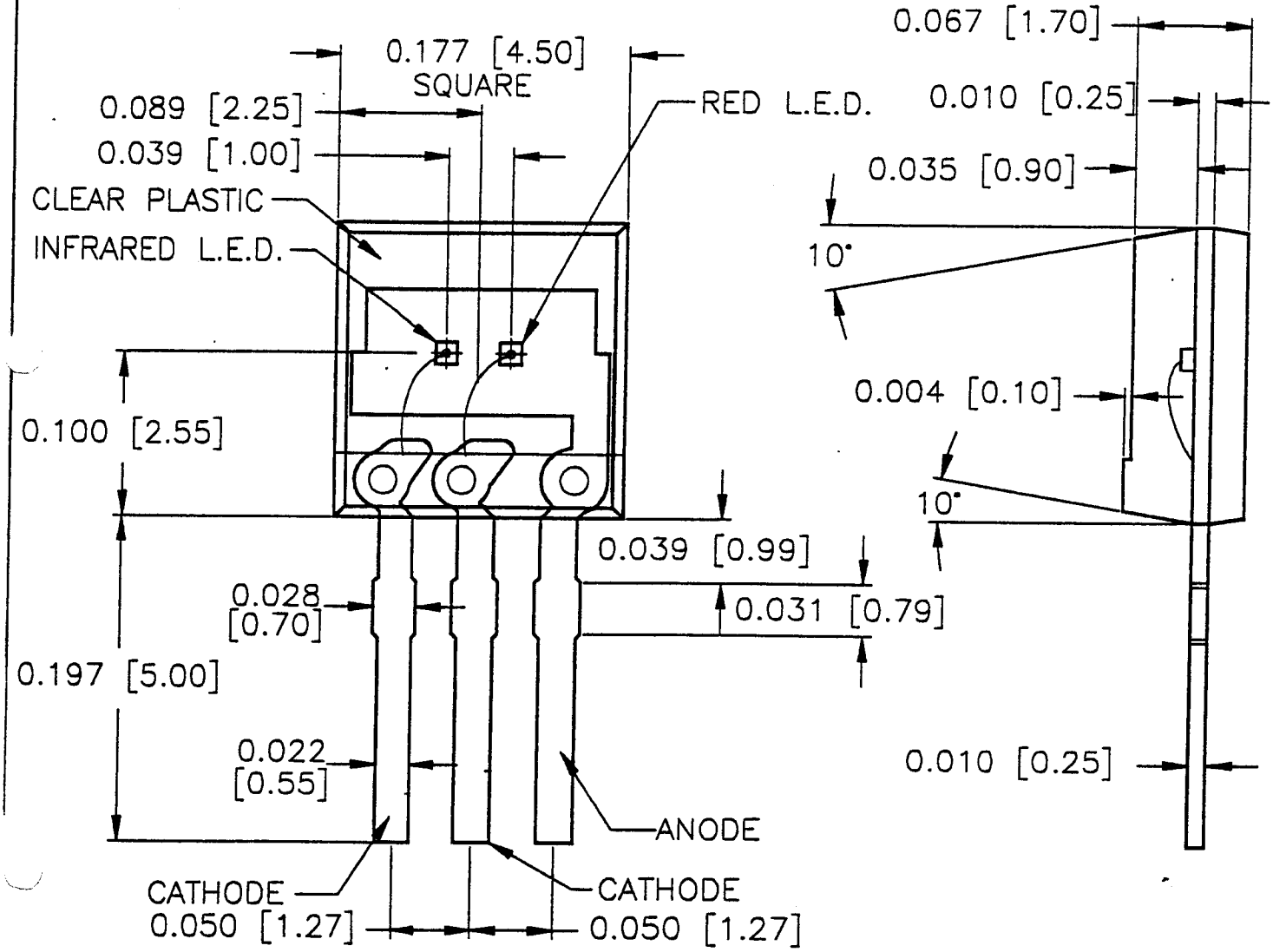
Please get back with me regarding your requirements. I will be happy to evaluate your current opto devices. If you are looking for a complete probe assembly, I will be happy to discuss your needs. Please do not hesitate to give me a call at extension 11 or send me a fax. I look forward to your favorable response to the enclosed information.

Sincerely,

PHOTONIC DETECTORS, INC.

Dennis L. Mattock
Vice President

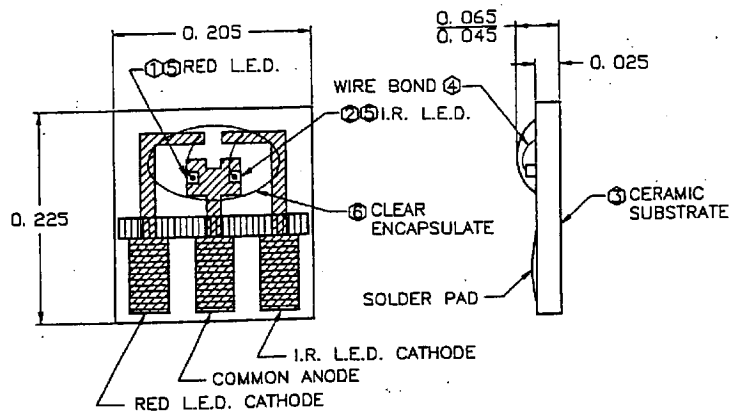
DLM:vw



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± 1/64, DECIMALS .X ± 0.1, .XX ± 0.01, .XXX ± 0.005, ANGLES ± 1°	CONTRACT NO. /SPECIFICATION NO.	PHOTONIC DETECTORS INC.	
MATERIAL	APPROVALS	IN	DATE
	DRAWN BKK	BK	3-13-98
	CHECKED RMK		3-13-98
FINISH	ISSUED DLM		3-13-98
DO NOT SCALE DWG		DUAL L.E.D. ASSEMBLY	
	SIZE A / FSCM NO. / DWG. NO. PDI- / REV N/C		
	SCALE 10X / FILE E8022 / SHEET 1 OF 1		

DUAL EMITTER, OXIMETER COMPONENT
TYPE PDI-E835

PACKAGE DIMENSIONS inch (mm)



FEATURES

- LOW COST
- 660 nm ±3 nm
- 3 DRIVE LINE

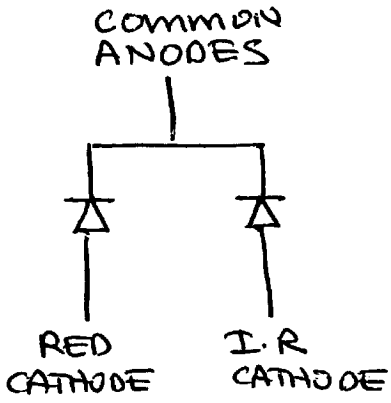
DESCRIPTION

The **PDI-E835** is a three (3) drive line, dual emitter component, with a 660 nm and 940 nm high power LPE grown, GaAlAs emitters, packaged in a metalized ceramic with epoxy encapsulation with top side solder pads.

APPLICATIONS

ABSOLUTE MAXIMUM RATING (TA-25°C UNLESS OTHERWISE NOTED)

SYMBOL	PARAMETER	MIN	MAX	UNITS
Pd	POWER DISSIPATION IF=20 mA		250	mW
I_{FP}	CONTINUOUS FORWARD CURRENT		100	mA
I_{FP}	PEAK FORWARD CURRENT		2.5	A
V_R	REVERSE VOLTAGE		5	V
To & Ts	STORAGE & OPERATING TEMPERATURE	-40	+80	°C
TS	SOLDERING TEMPERATURE		240	°C



ELECTRO-OPTICAL CHARACTERISTICS (TA=25°C UNLESS OTHERWISE NOTED) IF=20 mA

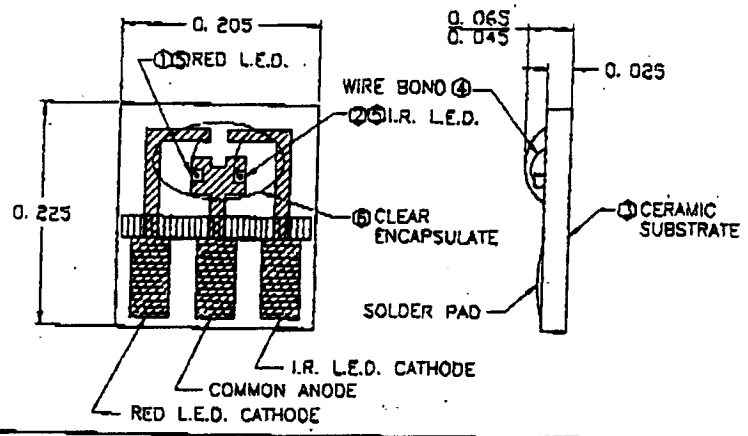
SYMBOL	CHARACTERISTIC	RED			INFRARED			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Po	RADIANT FLUX	1.2	1.8		0.9	1.2		mW
Iv	LUMINOUS INTENSITY	20	30		12	20		mcd
V_F	FORWARD VOLTAGE		1.8	2.4		1.2	1.5	V
V_R	REVERSE BREAKDOWN	5			5			V
λp	PEAK WAVELENGTH	657	660	663	930	940	950	nm
$\Delta\lambda$	SPECTRAL BANDWIDTH		25			50		nm
Tr	RISE TIME		0.5			0.5		μS
Tr	FALL TIME		0.5			0.5		μS

photonic detectors INC.

805-527-3
FAX 805-527-3

DUAL EMITTER, OXIMETER COMPONENT
TYPE PDI-E837

PACKAGE DIMENSIONS inch (mm)



FEATURES
- LOW COST
- 660 nm ±3 nm
- 3 DRIVE LINE

DESCRIPTION
The **PDI-E837** is a three (3) drive line, dual emitter component, with a 660 nm and 880 nm high power LPE grown, GaAlAs emitters, packaged in a metalized ceramic with epoxy encapsulation with top side solder pads. Ideal for O.E.M. oximeter probe assemblies.

APPLICATIONS
- OXIMETER PROBES
- FINGER CLAMPS
- REUSABLE PROBES

ABSOLUTE MAXIMUM RATING (TA-25°C UNLESS OTHERWISE NOTED)

SYMBOL	PARAMETER	MIN	MAX	UNITS
Pd	POWER DISSIPATION IF=20 mA		250	mW
I_{FF}	CONTINUOUS FORWARD CURRENT		100	mA
I_{FP}	PEAK FORWARD CURRENT		2.5	A
V_R	REVERSE VOLTAGE		5	V
To & Ts	STORAGE & OPERATING TEMPERATURE	-40	+80	°C
TS	SOLDERING TEMPERATURE		240	°C

ELECTRO-OPTICAL CHARACTERISTICS (TA=25°C UNLESS OTHERWISE NOTED) IF=20 mA

SYMBOL	CHARACTERISTIC	RED			INFRARED			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Po	RADIANT FLUX	1.2	1.8		0.9	1.2		mW
Iv	LUMINOUS INTENSITY	20	30		12	20		mcd
V_F	FORWARD VOLTAGE		1.8	2.4		1.2	1.5	V
V_R	REVERSE BREAKDOWN	5			5			V
λp	PEAK WAVELENGTH	657	660	663	870	888	890	nm
$\Delta\lambda$	SPECTRAL BANDWIDTH		25			50		nm
Tr	RISE TIME		0.5			0.5		µS
Tr	FALL TIME		0.5			0.5		µS

photonic detectors INC.

805-527
FAX 805-527

October 20, 1998

Viamed
15 Staton Road
Cross Hills
Keighley West Youker, Britain BD2070T

Attention: Mr. John Lamb

Dear John,

I hope you received the samples and my fax regarding Sensor Medics. Please regard the Sensor Medics information as highly sensitive. Enclosed please find the **PDI-E836** and **E837** data sheets. The **E837** is a three (3) drive, 660/880 nm dual emitter, which could be used as a top side contact Sensor Medic emitter. If you can use this top sided device, you could avoid the NRE cost.

Also enclosed per your request, is a sample of a Finger Probe Assembly we can supply. As covered in my earlier LQ-8260 quote, this finger probe would have either a Nellcor or Ohmeda type cable connector.

[illegible] assemblies.

John, let me know what you think about the Finger Probe Assembly. I look forward in supplying these to you.

Sincerely,

PHOTONIC DETECTORS, INC.

Dennis L. Mattock
Vice President

DLM:vw

photonic detectors INC.

805-527-39(
FAX 805-527-39.

PHOTONIC DETECTORS INC. 90-A WEST COCHRAN ST. SIMI VALLEY CALIF. 93065
Phone: 805-527-3900 Fax: 805-527-3931

PACKING SLIP

Sold to:

Ship to:
VIAMED LIMITED
15 STATION ROAD
CROSS HILLS, KEIGHLEY
WEST YORKSHIRE BD20 7DT
ATTN MR JOHN LAMB

Packing Slip # 5898	Customer No.:	Date: Oct 05 1998	Sales Rep: DM
PO No.: N/A	Terms: NO CHARGE	Ship Date: Oct 05 1998	Ship Via: UPS COLL

Product Code	Qty.	Shipped	Description
PDB-C165	6	6	DETECTOR 8mm² AA-DETECTOR
PDI-E832	6	6	EMITTER 660/905nm DUELCOR
PDB-C1001	6	6	DETECTOR SENSOR MEDICS
PDI-E8~~22~~ 8029	6	6	DETECTOR 660/880 nm
			4846 8588512

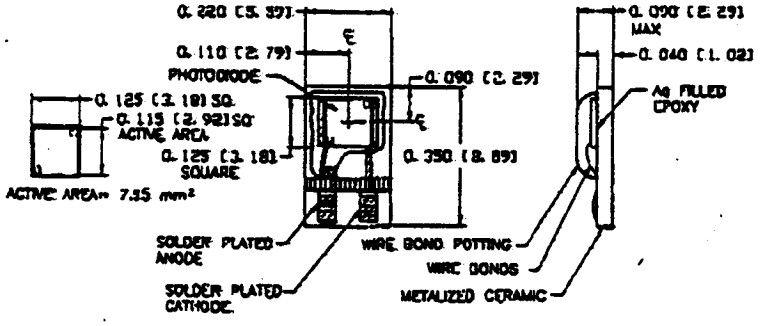
photonic detectors INC.

805-527-3

FAX 805-527-3

OXIMETER, SILICON DETECTOR COMPONENT TYPE PDB-C165

PACKAGE DIMENSIONS inch (mm)



Package Type: Metalized ceramic, top side solder contacts

Active area = 8.0 mm²

FEATURES

- 860 nm ENHANCED
- LOW DARK CURRENT
- LOW COST

DESCRIPTION

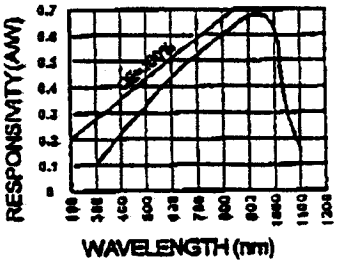
The PDB-C165 is a silicon, PIN planar diffused photodiode, with a 8.0 mm² active area, packaged in a metalized ceramic substrate with top side pre-tinned solder contacts. Ideal for many O.E.M. oximeter probe and finger clamp assemblies.

APPLICATIONS

- FINGER CLAMPS
- DISPOSABLE PROBES
- REUSABLE PROBES

ABSOLUTE MAXIMUM RATING (TA=25°C UNLESS OTHERWISE NOTED)

SYMBOL	PARAMETER	MIN	MAX	UNITS
V_{BR}	REVERSE VOLTAGE		100	V
TS	STORAGE TEMPERATURE	-45	+100	°C
T_O	OPERATING TEMPERATURE RANGE	-40	+80	°C
T_S	SOLDERING TEMPERATURE *		+240	°C
I_{MAX}	LIGHT CURRENT		5.0	mA



SPECTRAL RESPONS

ELECTRO-OPTICAL CHARACTERISTICS (TA=25°C UNLESS OTHERWISE NOTED)

SYMBOL	CHARACTERISTIC	TEST CONDITIONS	MIN	TYP	MAX	UNITS
Isc	SHORT CIRCUIT CURRENT	H=100 FC, 2850 K	90	110		μA
Io	DARK CURRENT	H=0, V_R=10 V		1.0	10	NA
R_{SH}	SHUNT RESISTANCE	H=0, V_R=10 mV	100	500		MΩ
TC R_{SH}	R_{SH} TEMP. COEFFICIENT	H=0, V_R=10 mV		-8		%/°C
C_J	JUNCTION CAPACITANCE	H=0, V_R=0 V		125	150	pF
		H=0, V_R=10 V		60	75	
Resp.	RESPONSIVITY	λ=660 nm, V_R=0 V	0.40	0.45		A/W
		λ=900 nm, V_R=0 V	0.60	0.65		
λp	SPECTRAL RESPONSE-RANGE		400		1100	nm
V_{BR}	BREAKDOWN VOLTAGE	I=10 μA	50	75		V
NEP	NOISE EQUIVALENT POWER	V_R=10 V, λ=850 nm		$9.0X10^{-14}$		W/√Hz
tr	RESPONSE TIME	V_R=10 V, λ=850 nm		100		nS

photonic detectors inc.

High Performance Opto Devices

90-A West Cochran Street • Simi Valley, CA 93065 • USA
Phone (805) 527-3900 • FAX (805) 527-3931

RTP OPTO SENSORS • I.R. EMITTERS • SILICON PIN PHOTODIODES • OPTO ASSEMBLIES

FAX COVER SHEET

To: _____ of _____

From: _____ of PHOTONIC DETECTORS, INC.

Date: _____ ☐ Original will not follow.

No. of Pages: _____ (including Fax Cover Sheet) ☐ Original will follow by:
☐ Regular mail
☐ Other _____

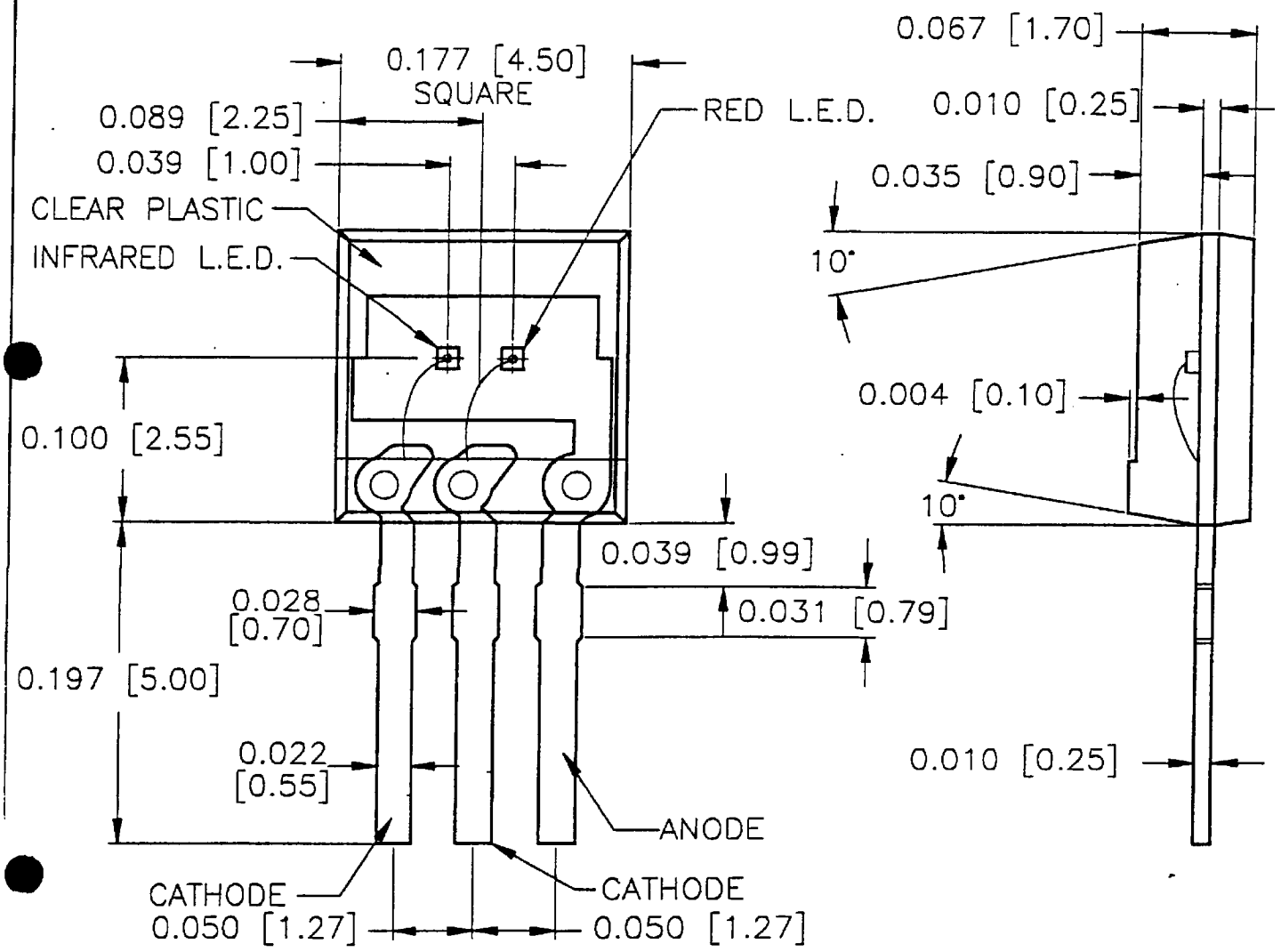
Message: THE GREEN DYE IS USED BY SIMUR MEDICS NOT US. IT IS USED TO ADJUST THE OUTPUT ON THEIR TEST STATION. I CAN NOT SUPPLY YOU ANY MORE INFO. [illegible] SOME OF YOUR [illegible]

SIMED

SIMED - THE PDB-C165 and PDI-EB33 ARE NOT ORIGINALS. ORIGINALS ARE A LITTLE LARGER IN SUBSTRATE SIZE. OUR STANDARD PDB-C165 & PDI-EB33 WILL WORK. SIMED THAT WE HAVE TESTED ARE 660/940 NM, WITH A 8mm² AA DETECTOR.
A PDI-E8029 IS A SPECIAL WE MAKE FOR ANOTHER CUSTOMER. IT IS 660/880 2 DRIVE NOT FOR RELLOR. WHERE DID YOU GET THIS P/N FROM?

REGARDS Dennis

Receiving Fax No.: (_____) _____



UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS ± 1/64 DECIMALS .X ± 0.1 .XX ± 0.01 .XXX ± 0.005 ANGLES ± 1°	CONTRACT NO. /SPECIFICATION NO.		PHOTONIC DETECTORS INC.
MATERIAL	APPROVALS	IN / DATE	DUAL L.E.D. ASSEMBLY
	DRAWN BKK	BK 3-13-98	
FINISH	CHECKED RMK	3-13-98	SIZE A / FSCM NO. / DWG. NO. PDI- / REV N/C
DO NOT SCALE DWG	ISSUED DLM	3-13-98	SCALE 10X / FILE E8022 / SHEET 1 OF 1

PDI-E8029

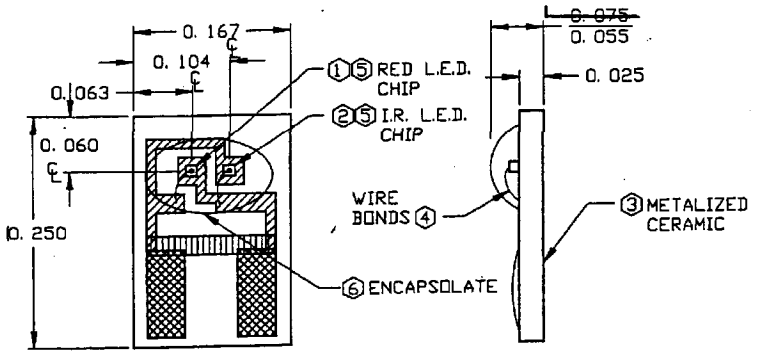
photonic detectors INC.

805-527-3900

FAX 805-527-3931

DUAL EMITTER, OXIMETER COMPONENT
TYPE PDI-E832

PACKAGE DIMENSIONS inch (mm)



FEATURES
- LOW COST
- 660 nm ±3 nm
- 2 DRIVE LINE

DESCRIPTION
The **PDI-E832** is a two (2) drive line, dual emitter component, with a 660 nm and 905 nm high power LPE grown, GaAlAs emitters, packaged in a metalized ceramic with epoxy encapsulation with top side solder pads. Ideal for O.E.M. oximeter probe assemblies.

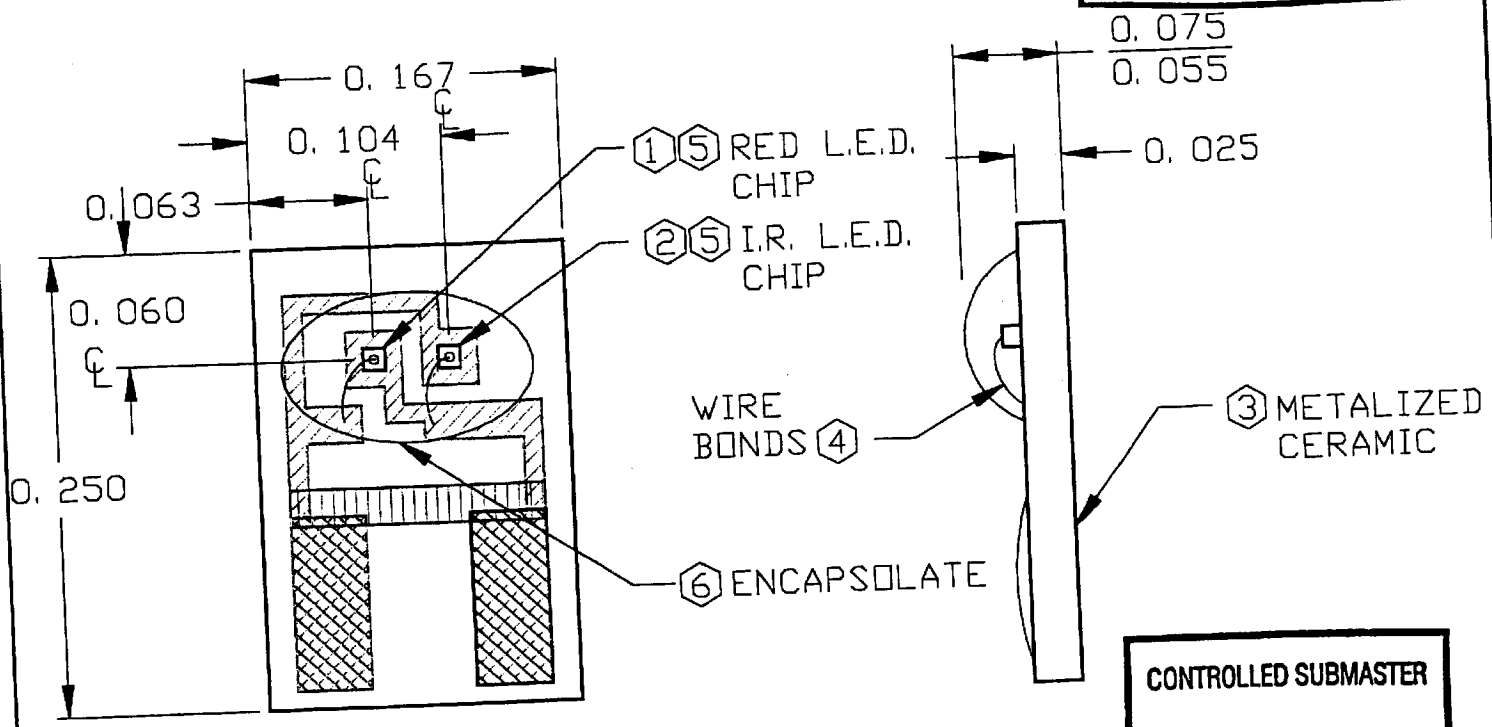
APPLICATIONS
- OXIMETER PROBES
- FINGER CLAMPS
- REUSABLE PROBES

ABSOLUTE MAXIMUM RATING (TA-25°C UNLESS OTHERWISE NOTED)

SYMBOL	PARAMETER	MIN	MAX	UNITS
Pd	POWER DISSIPATION IF=20 mA		250	mW
I_{FP}	CONTINUOUS FORWARD CURRENT		100	mA
I_{FP}	PEAK FORWARD CURRENT		2.5	A
V_R	REVERSE VOLTAGE		5	V
To & Ts	STORAGE & OPERATING TEMPERATURE	-40	+80	°C
TS	SOLDERING TEMPERATURE		240	°C

ELECTRO-OPTICAL CHARACTERISTICS (TA=25°C UNLESS OTHERWISE NOTED) IF=20 mA

SYMBOL	CHARACTERISTIC	RED			INFRARED			UNITS
		MIN	TYP	MAX	MIN	TYP	MAX	
Po	RADIANT FLUX	1.2	1.8		0.9	1.2		mW
Iv	LUMINOUS INTENSITY	20	30		12	20		mcd
V_F	FORWARD VOLTAGE		1.8	2.4		1.2	1.5	V
V_R	REVERSE BREAKDOWN	5			5			V
λp	PEAK WAVELENGTH	657	660	663	870 ~~895~~	880 ~~905~~	890 ~~915~~	nm
$\Delta\lambda$	SPECTRAL BANDWIDTH		25			50		nm
Tr	RISE TIME		0.5			0.5		μS
Tr	FALL TIME		0.5			0.5		μS



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	APPROVALS	IN	DATE
MATERIAL	DRAWN BKK	BK	10-5-98
	CHECKED DLM	DLM	10-5-98
FINISH	ISSUED RMK	RMK	10-5-98
DO NOT SCALE DWG		CUSTOM EMITTER ASSEMBLY	
	SIZE A / FSCM NO.	DWG. NO. PDI-E8029	REV N/C
	SCALE 10X	FILE E8029	SHEET 1 OF 1