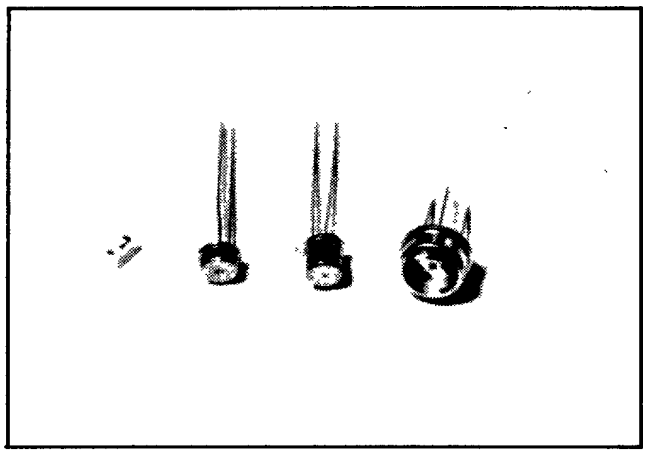
RCA Electro Optics

Photodiodes C30618, C30619, C30641, C30642

DATA SHEET

Large Area Planar PIN InGaAs Photodiodes



- Large areas with uniform responsivity (0.10 to 3.14 mm²)
- Spectral response range - 1100 to 1700 nm
- High responsivity
- Low capacitance
- Fast response time
- Low dark current and noise
- Available in a variety of convenient packages

RCA's new low capacitance, high speed InGaAs photodetectors utilize the latest passivation and contact technologies to provide lower dark current and noise, with negligible series resistance. 200°C purging, extended lifetest, and periodic qualification programs assure high quality, reliable devices ideally suited for today's demanding electro-optics and communications industries.

Absolute Maximum Ratings [1]

			C30618		C30619		C30641		C30642		UNITS
	Sym.	Pkg	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
Forward Current	I_F	(All)		25		50		100		200	mA
Ambient Temp.: Storage	T_{STG}										
		CER	-60	+125	-60	+125					°C
		E (T018)	-60	+125	-60	+125	-60	+125			°C
		E (T05)							-60	+125	°C
		EL	-60	+125	-60	+125					°C
Operating	T_A										
		CER	-40	+80	-40	+80					°C
		E (T018)	-40	+80	-40	+80	-40	+80			°C
		E (T05)							-40	+80	°C
		EL	-40	+80	-40	+80					°C
Soldering (10s)	T_{sd}	(All)		250		250		250		250	°C

[1] These are limiting values of operating and environmental conditions. Exceeding these values can cause damage to the device.

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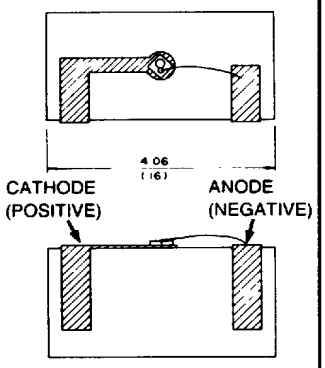
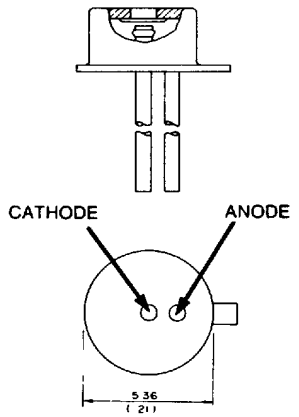
T-41-53

Electrical Characteristics (T_A = 25°C, V_r = V_r (Typ.)

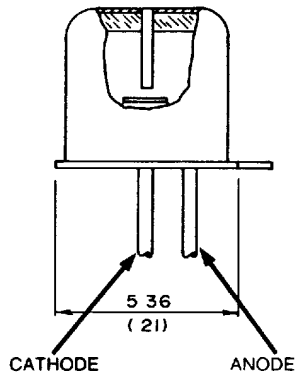
	Sym.	Pkg.	C30618 Min.	C30618 Typ.	C30618 Max.	C30619 Min.	C30619 Typ.	C30619 Max.	C30641 Min.	C30641 Typ.	C30641 Max.	C30642 Min.	C30642 Typ.	C30642 Max.	UNITS
Operating Voltage	Vr	(all)	0	5	10	0	5	10	0	2	5	0	2	5	V
Breakdown Voltage	Vb	(all)	20	40		20	40		20	30		15	25		V
Responsivity at 1300 nm	$R_{1.3}$	CER	.80	.86		.80	.86								A/W
		E (T018)	.78	.84		.78	.84		.78	.84					A/W
		E (T05)										.78	.84		A/W
		EL	.70	.75		.70	.75								A/W
Responsivity at 1550 nm	$R_{1.55}$	CER	.85	.90		.85	.90								A/W
		E (T018)	.83	.88		.83	.88		.83	.88					A/W
		E (T05)										.83	.88		A/W
		EL	.75	.80		.75	.80								A/W
Dynamic Impedance	Z_d	(all)	25			5.0			1.0			.25			MΩ
Reverse Dark Current	I_d	(all)		2	10		5	20		20	100		100	500	nA
Noise Current (f = 10 kHz, Δf = 1.0 Hz)	I_n	(all)		.05	.25		.1	.5		.4	2.0		2.0	10.0	$pA/Hz^{1/2}$
Capacitance	C	(all)													
	$V_r = V_v$ (Typ)			4	6		8	10		40	50		125	150	pF
	$V_r = 0$			12	18		20	25		100	125		250	300	pF
Rise / Fall	t_r, t_f	(all)		.3	1		1	3		2	6		6	15	ns
Chip Photosensitive Surface															
Shape		(all)		Circular			Circular			Circular			Circular		
Useful Area		(all)		.10			.20			.79			3.14		mm^2
Useful Diameter		(all)		.35			.50			1.0			2.0		mm



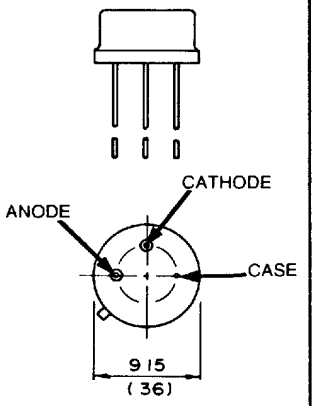
CER PACKAGE



E PACKAGE (TO-18)



EL PACKAGE (TO-18 with LIGHT PIPE)



C30642E (TO-5 PACKAGE)

Dimensions in millimeters. Dimensions in parentheses are in inches.

For further information, please contact your local RCA Electro Optics representative or
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RCA Inc., Electro Optics Printed in Canada ED-0020/03/88