Calibration

Sunsensor and solar cell performance are critically dependent on short-circuit current values when illuminated by direct sunlight. For this reason, ADC offers a service for Air Mass Zero (AMO) calibration of detectors or solar cells.

Two services are offered: A calibration based on an actual balloon flight to a height of at least 115,000 feet to minimize atmospheric effects, or a high altitude mountain calibration with an atmospheric effect correction to AMO. Obviously, the balloon flight technique offers the highest accuracy (± 2% maximum error), but the balloon flight is only available annually. The terrestrial calibration is available with three-month delivery, weather permitting.

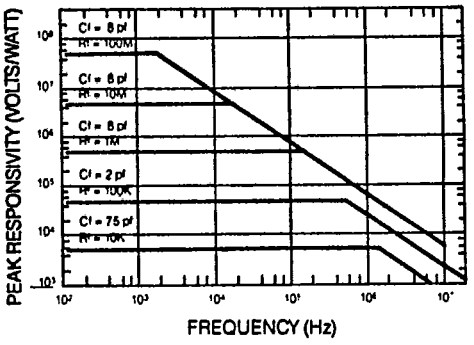
It is highly recommended that the calibration be performed using a detector which has an absolute spectral response which is typical of the devices which will make use of the calibration. Either an ADC detector or a customer detector can be used.

The calibrated detector is provided with a custom-designed housing, which protects the device when not in use and provides water connections for temperature control and a standard J-type thermocouple for temperature monitoring of the detector. Figure 2 is a photograph of a 2 cm × 4 cm calibrated detector mounted in our custom housing.

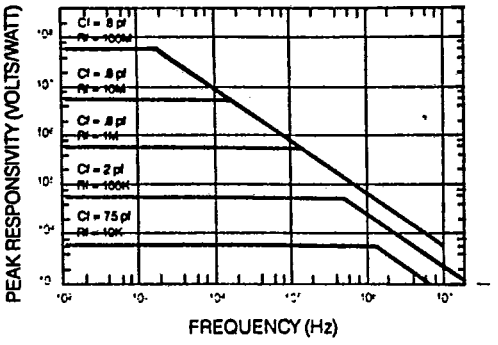
Opto-Hybrids

ADC produces opto-hybrids in single, dual, quadrant, and octal-element configurations. The standard configuration for the single, dual, and quadrant element opto-hybrids contains the detector and operational amplifier in a single housing with terminals available to connect the feedback resistor(s) as required. If desired, the resistors and capacitors can be placed internally to customer specifications. The standard configuration for the ADC octal configuration provides the resistive/capacitive network internally. As always, ADC will accommodate your design criteria.

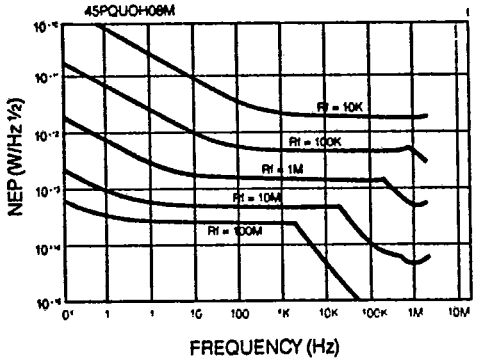
RESPONSIVITY vs. FREQUENCY (TYPICAL) For Single, Dual and Quadrant Opto-Hybrids



RESPONSIVITY vs. FREQUENCY (TYPICAL)



NEP vs. FREQUENCY (TYPICAL)



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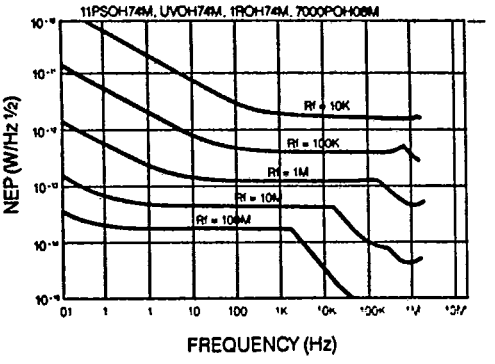
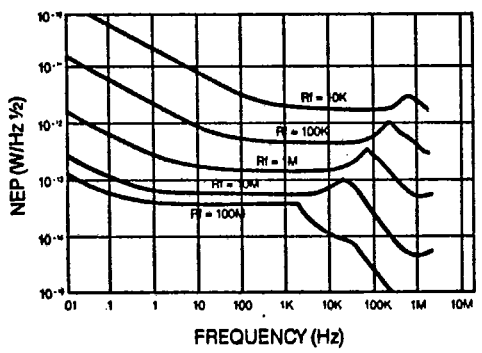
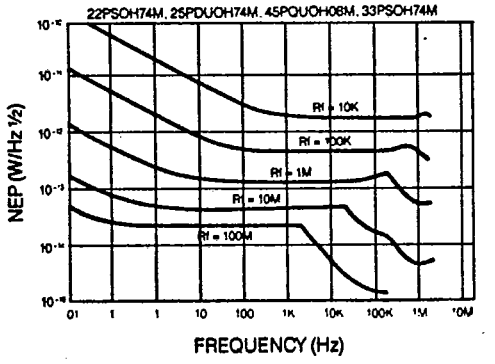


NEP vs. FREQUENCY (TYPICAL)



NEP vs. FREQUENCY (TYPICAL)

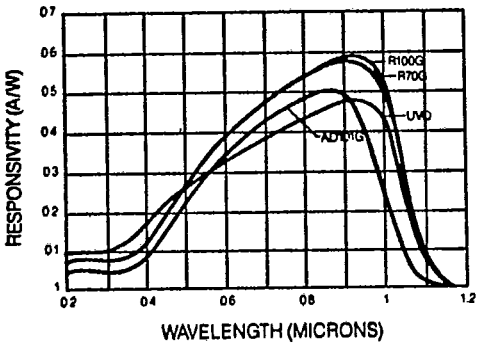


HYBRIDS

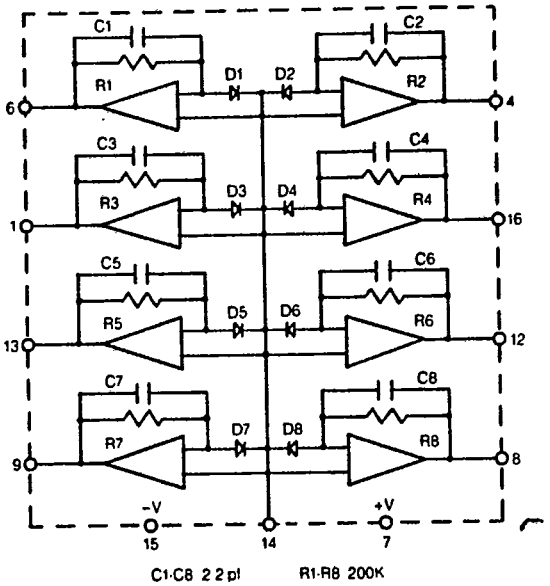
TYPE NUMBER	PACKAGE OUTLINE	No. OF ELEMENTS	ELEMENT DIMENSIONS (mm)	PITCH (mm)	PHOTO-SENSITIVE AREA (mm²)	RESPONSE CURVE TYPE	PEAK RESPONSE RANGE (nm)	WAVE-LENGTH (nm)	RESPONSIVITY[1] 254 nm (V/W)	550 nm (V/W)	PEAK (V/W)
11PSOH74M	TO74	1	1.02 x 1.02	—	1.0	R70G	320-1100	950	—	3.1E+07	5.8E+07
22PSOH74M	TO74	1	1.52 x 1.52	—	2.3	R70G	320-1100	950	—	3.1E+07	5.8E+07
33PSOH74M	TO74	1	2.29 x 2.29	—	5.2	R70G	320-1100	950	—	3.1E+07	5.8E+07
44PSOH74M	TO74	1	4.17 x 4.17	—	17	R70G	320-1100	950	—	3.1E+07	5.8E+07
AD1010H74M	TO74	1	2.14 DIAM.	—	3.6	AD101G	320-1060	875	—	2.7E+07	5.0E+07
UVOH74M1R	TO74	1	2.14 Dia.	—	3.6	UVQ	320-1100	950	>9E+06	2.8E+07	4.8E+07
25PDUOH74M	TO74	2	2.5 x 1.3	1.43	3.2	R70G	320-1100	950	—	3.1E+07	5.8E+07
45PQUOH08	TO8/12	2 x 2	1.3 x 1.3	1.43	1.7	R70G	320-1100	950	—	3.1E+07	5.8E+07
7000POH08M	TO8/16	2 x 4	2.3 x 1.3	2.8 x 1.6	2.9	R100G	320-1100	950	—	3.1E+07	5.9E+07

1) MINIMUM RESPONSIVITY IS 90% OF TYPICAL RESPONSIVITY.

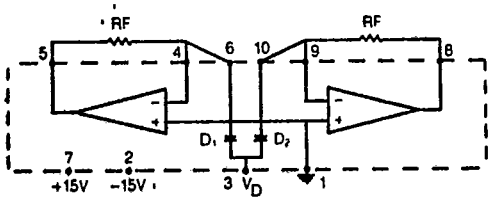
RESPONSIVITY CURVES (TYPICAL)



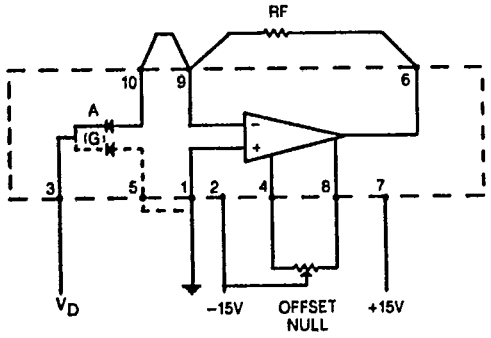
CONNECTION DIAGRAM FOR 7000POH08M



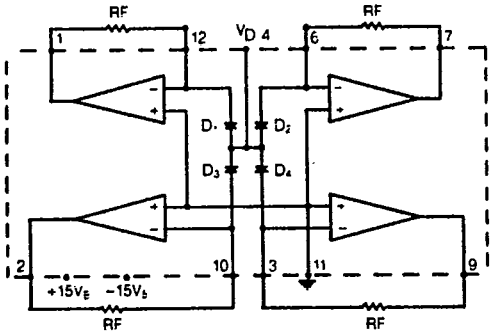
CONNECTION DIAGRAM FOR 25PDU0H74M



CONNECTION DIAGRAM FOR SINGLE ELEMENT OPTO-HYBRIDS

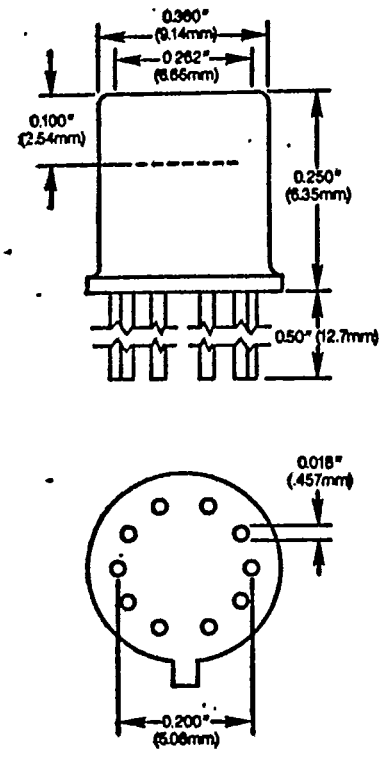


CONNECTION DIAGRAM FOR 45QUH08M

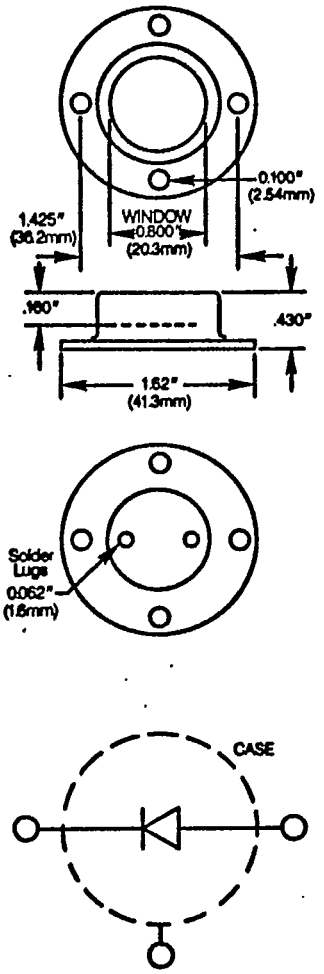


DARK CURRENT V_R = -0.01V MAX. (nA)	DARK CURRENT V_R = -10V[3] MAX. (nA)	BREAKDOWN VOLT. I_{DR} = 10μA MIN. (V)	SHUNT RESISTANCE TYP. (Mohm)	TYPICAL CAPACITANCE V_R = 0V (pF)	TYPICAL CAPACITANCE V_R = -10V (pF)	RISETIME[2] V_R = -10V (ns)	NEP[3] TYP. ($W\sqrt{Hz}$)	D* TYP. ($cm\sqrt{Hz}/W$)	VOLTAGE MIN. (+/-)	VOLTAGE MAX. (+/-)	CURRENT (mA)
0.10	2	75	200	22	4	300	1.8E-14	5E+12	5	18	4.5
0.20	5	70	100	50	9	310	2.2E-14	6E+12	5	18	4.5
0.33	14	50	100	110	19	410	5.1E-14	4E+12	5	18	4.5
0.67	36	20	50	370	64	630	3.5E-14	1E+12	5	18	4.5
0.10	30	100	200	75	13	300	2.4E-14	8E+12	5	18	4.5
0.04	1	20	300	79	13	300	1.5E-14	1E+12	5	18	4.5
0.23	1	10	50	70	12	310	2.7E-14	6E+12	5	18	9
0.34	1	10	100	37	6	310	2.2E-14	6E+12	5	18	18
0.10	10	20	200	17	3	900(V_R = 0V)	1.8E-14	9E+12	12	22	15

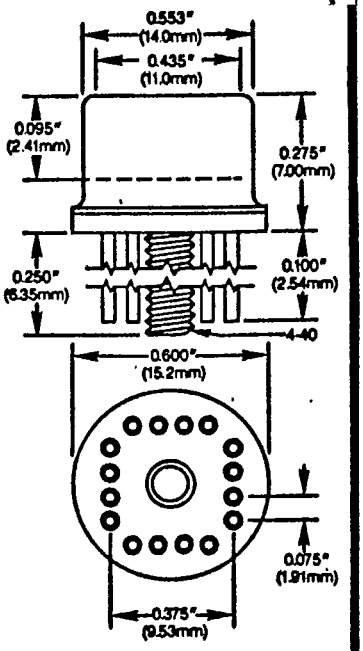
2) 50 OHM LOAD λ = 800 nm
3) QR AT ½ BREAKDOWN VOLTAGE, WHICH EVER IS LESS



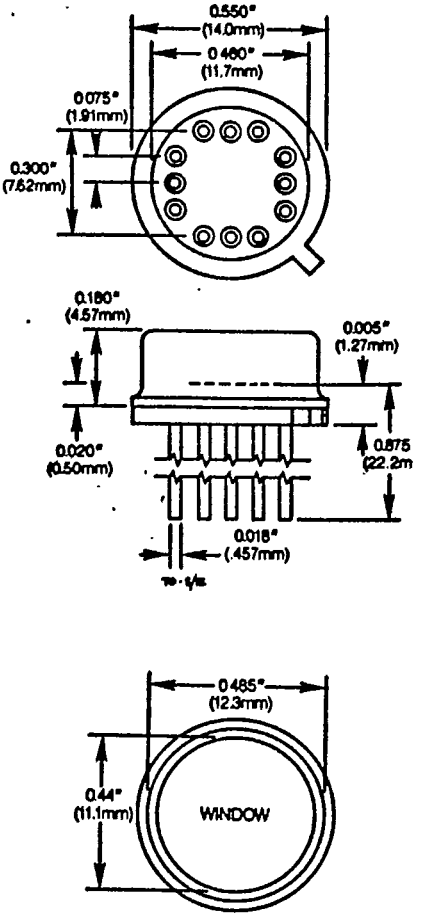
TO-74



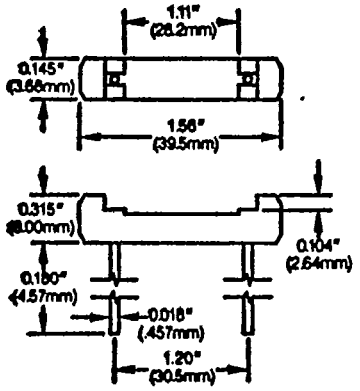
TO-3/3



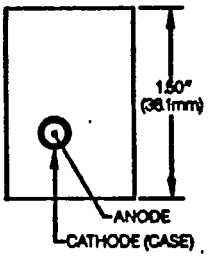
TO-8/16

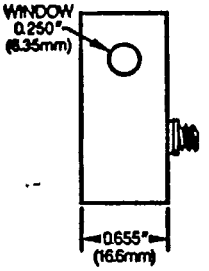


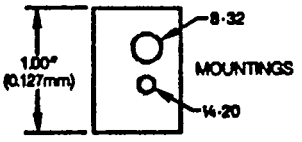
TO-8/12



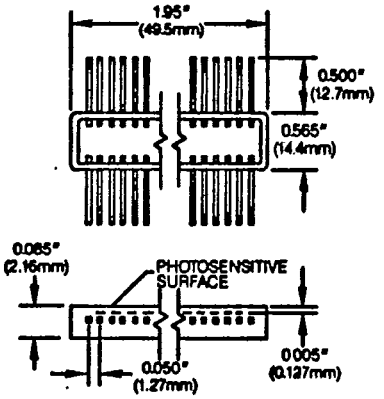
C1



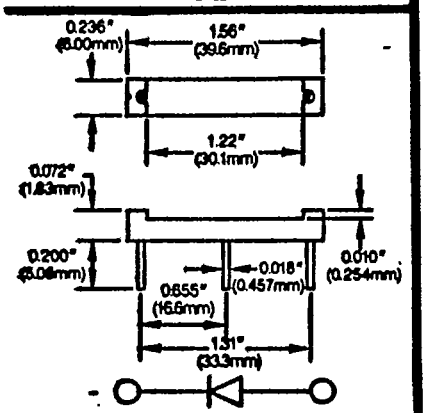




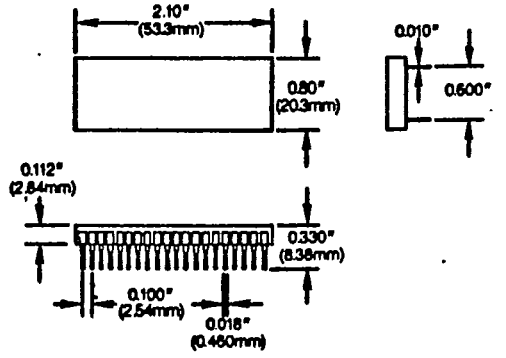
C4



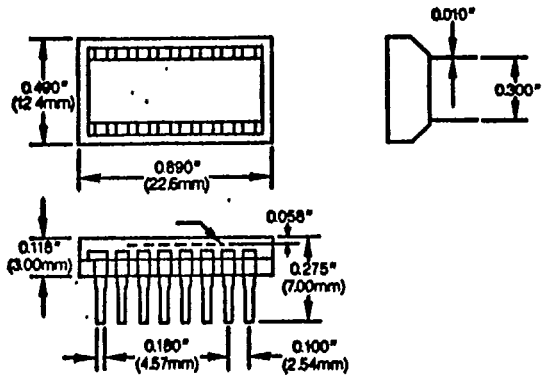
C5



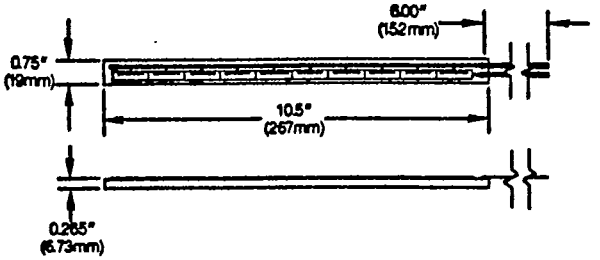
C2



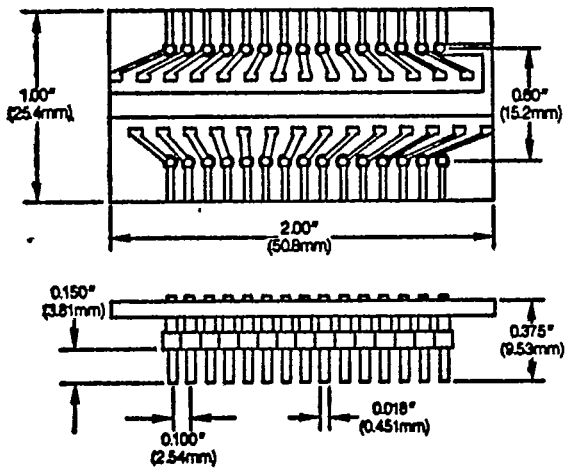
C6



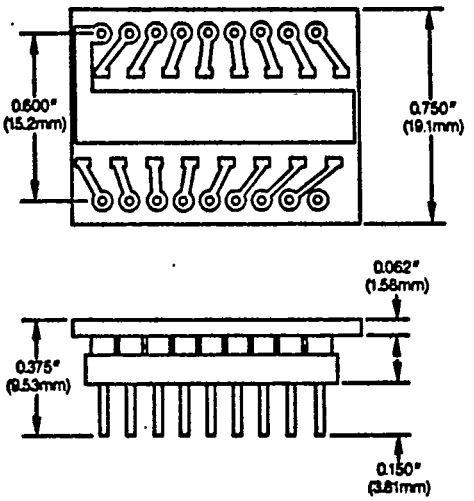
C7



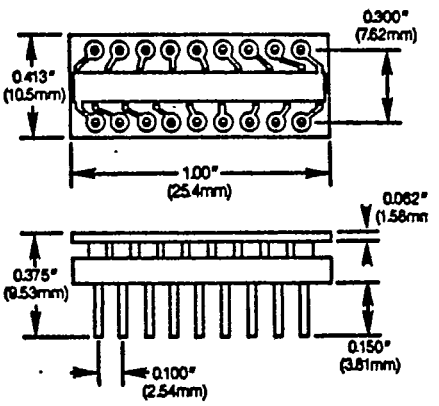
C8



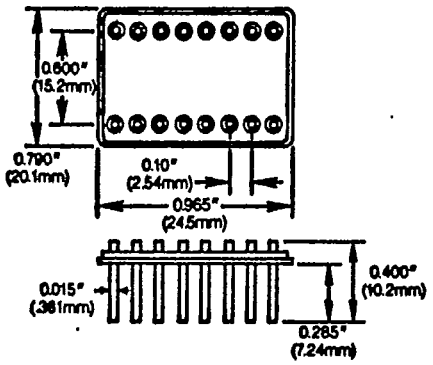
C9



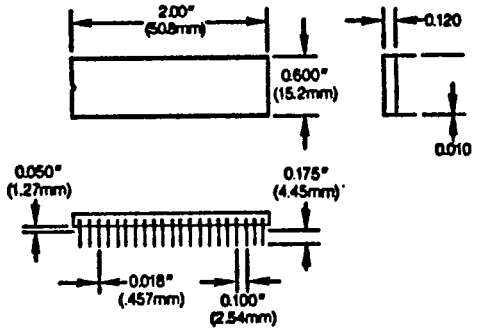
C10



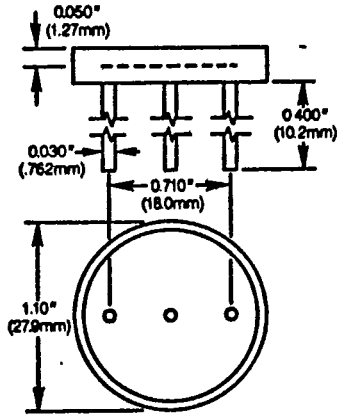
C11



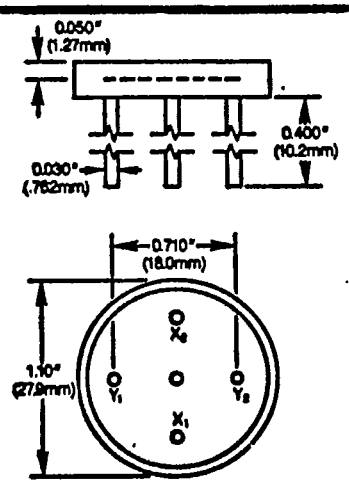
C12



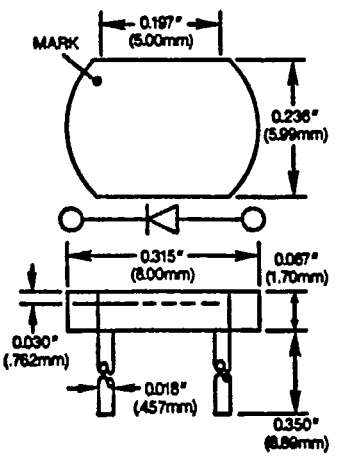
C13



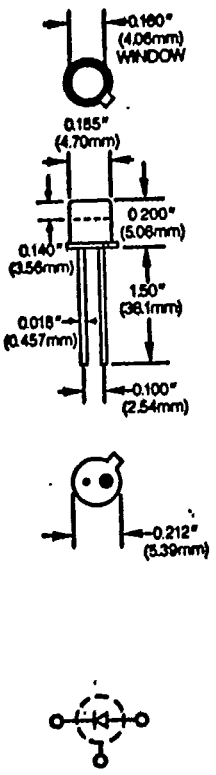
C14



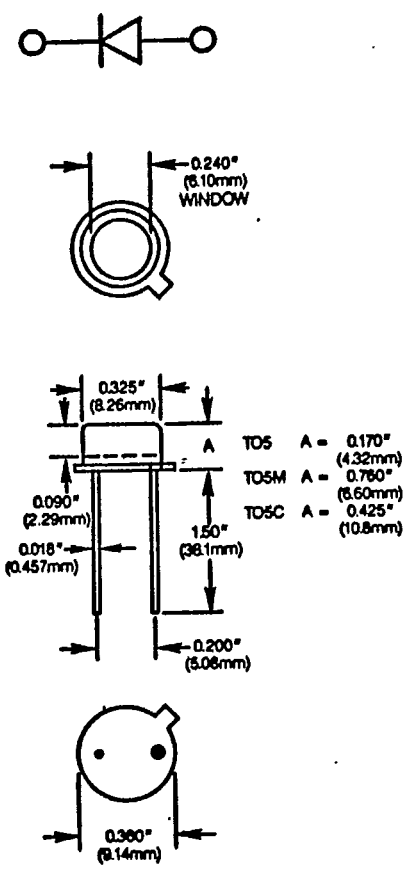
C15



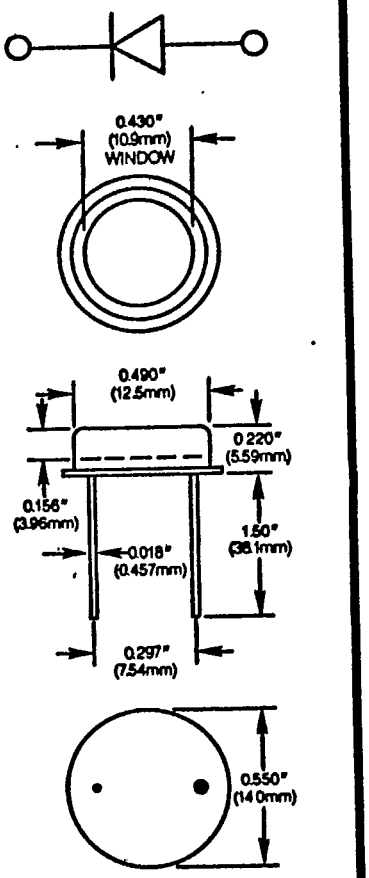
C16



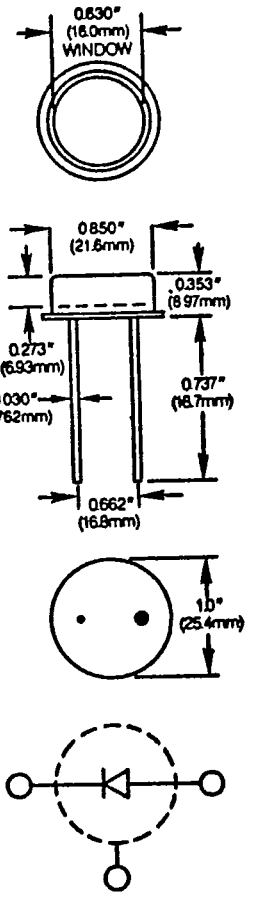
TO-18



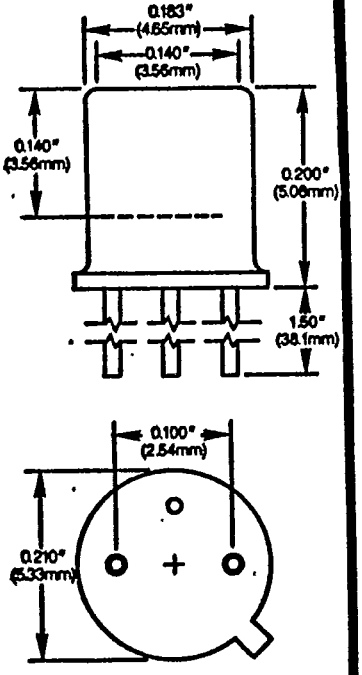
TO-5



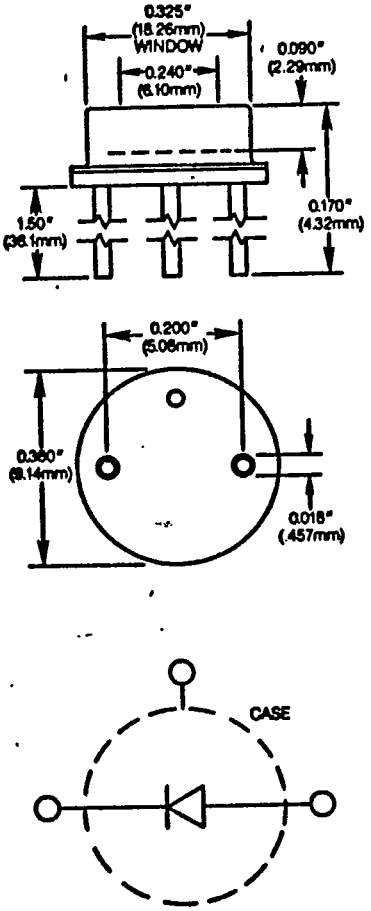
TO-8



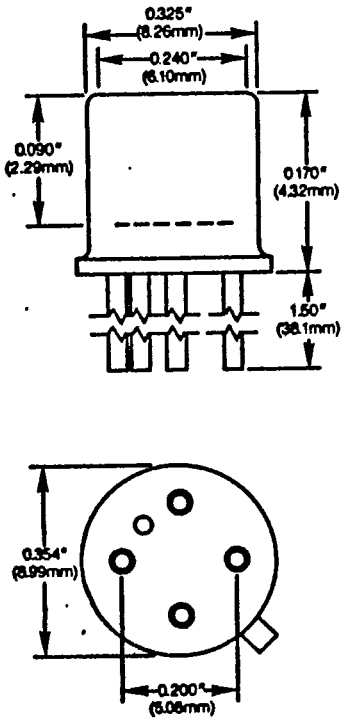
TO-3



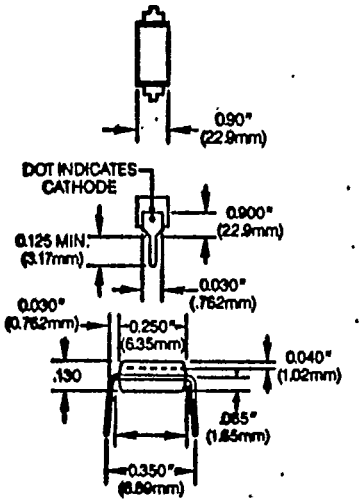
TO-18/3



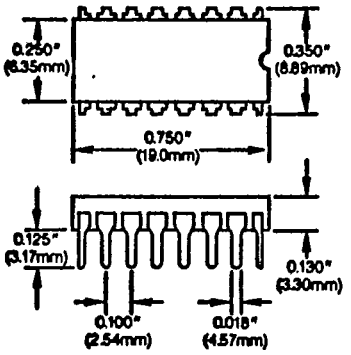
TO-5/3



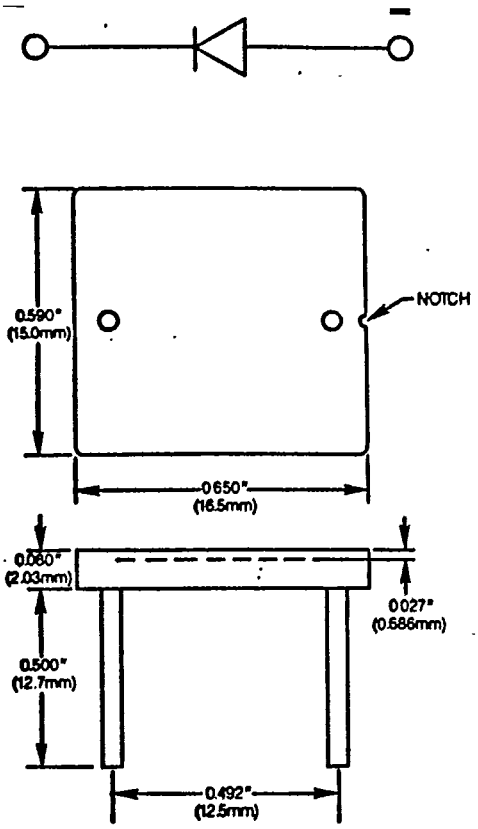
TO-5/5



PDIP1



PDIP2



PII