

**ECG905****DIODE ARRAY**

One Diode "Quad" and Two Isolated Diodes
on a Common Substrate

T-43-24

The ECG905 consists of one Diode "Quad" and two Isolated Diodes on a Common Substrate.

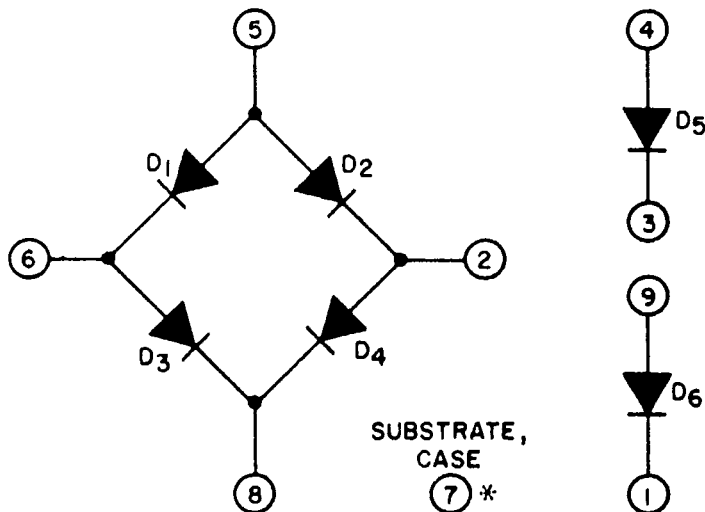
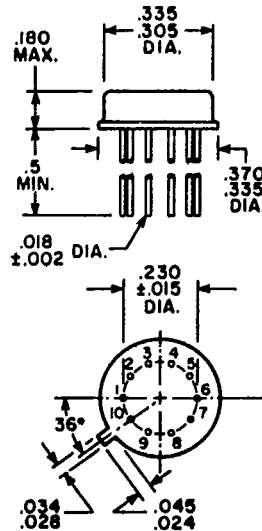
- Designed for use in Telemetry, Data-Processing, Instrumentation, and Communication Equipment
- Built-in Temperature Stability for Operation from -55°C to $+125^{\circ}\text{C}$
- 10-Terminal TO-5 Package
- Hermetically Sealed

HIGHLIGHTS

- Excellent Diode Match
- Low Leakage Current
- Low Pedestal Voltage when Gating

APPLICATIONS

- Modulator
- Mixer
- Balanced Modulator
- Analog Switch
- Diode Gate for Chopper-Modulator Applications

DIMENSIONAL OUTLINE

* Connect to most negative circuit potential.

Fig.1 - Schematic Diagram for ECG905.

ABSOLUTE-MAXIMUM RATINGS:**DISSIPATION:**

Any one diode unit 20 max. mW
 Total for device 120 max. mW

TEMPERATURE RANGE:

Storage -65 to +200 °C
 Operating -55 to +125 °C

VOLTAGE: See Table Below

T-43-24

Absolute-Maximum Voltage Limits at $T_A = 25^\circ\text{C}$

TERMINAL	VOLTAGE LIMITS		CONDITIONS	
	NEGATIVE	POSITIVE	TERMINAL	VOLTAGE
1	-3	+12	7	-6
2	-3	+12	7	-6
3	-3	+12	7	-6
4	-3	+12	7	-6
5	-3	+12	7	-6
6	-3	+12	7	-6
7	-18	0	1, 2, 3, 6, 8	0
8	-3	+12	7	-6
9	-3	+12	7	-6
10	NO CONNECTION			
CASE	INTERNALLY CONNECTED TO TERMINAL 7 DO NOT GROUND			

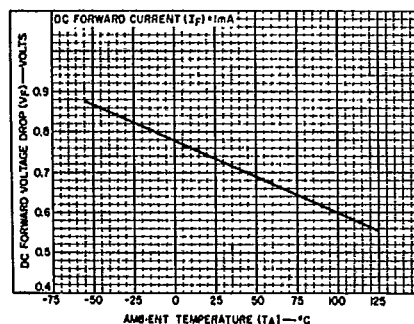
TYPICAL CHARACTERISTICS

Fig.2 - DC Forward Voltage Drop (any Diode) vs Temperature for ECG905.

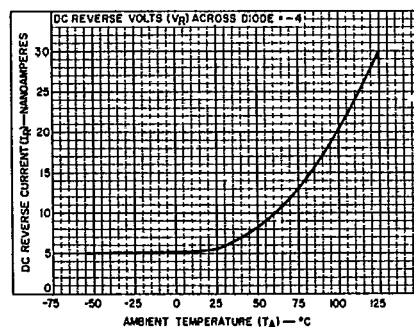


Fig.3 - Reverse (Leakage) Current (any Diode) vs Temperature for ECG905.

ELECTRICAL CHARACTERISTICS, at an Ambient Temperature, T_A , of 25°C
 CHARACTERISTICS APPLY FOR EACH DIODE UNIT, UNLESS OTHERWISE SPECIFIED.

T-43-24

CHARACTERISTICS	SYMBOLS	TEST CIRCUITS	SPECIAL TEST CONDITIONS	LIMITS				TYPICAL CHARAC-TERISTICS CURVES
		Fig.		TYPE ECG905			Fig.	
				Min.	Typ.	Max.		Units
DC Forward Voltage Drop	V _F	-	DC Forward Current (I _F) = 1 mA	-	0.73	0.78	V	2
DC Reverse Breakdown Voltage	V _(BR) R	-	DC Reverse Current (I _R) = -10 μA	4	6	-	V	-
DC Reverse Breakdown Voltage Between any Diode Unit and Substrate	V _(BR) R	-	DC Reverse Current (I _R) = -10 μA	25	80	-	V	-
DC Reverse (Leakage) Current	I _R	-	DC Reverse Voltage (V _R) = -4 V	-	0.0055	10	μA	3
DC Reverse (Leakage) Current Between any Diode Unit and Substrate	I _R	-	DC Reverse Voltage (V _R) = -4 V	-	0.010	10	μA	-
Magnitude of Diode Offset Voltage (Difference in DC Forward Voltage Drops of any Two Diode Units)	V _{F1} - V _{F2}	-	DC Forward Current (I _F) = 1 mA	-	1	5	mV	-
Single Diode Capacitance	C _D	-	Frequency (f) = 1 MHz DC Reverse Voltage (V _R) = -2 V	-	1.8	-	pF	4
Diode Quad-to-Substrate Capacitance	C _{DQ-1}		Frequency (f) = 1 MHz DC Reverse Voltage (V _R) between Terminal 2,5,6, or 8 of Diode Quad and Terminal 7 (Substrate) = -2 V					
			Terminal 2 or 6 to Terminal 7	-	4.4	-	pF	5
			Terminal 5 or 8 to Terminal 7	-	2.7	-	pF	6
Series Gate Switching Pedestal Voltage	V _S	7		-	10	-	mV	-

TYPICAL CHARACTERISTICS

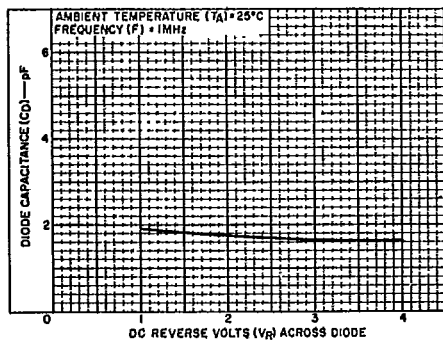


Fig.4 - Diode Capacitance (any Diode) vs Reverse Voltage for ECG905.

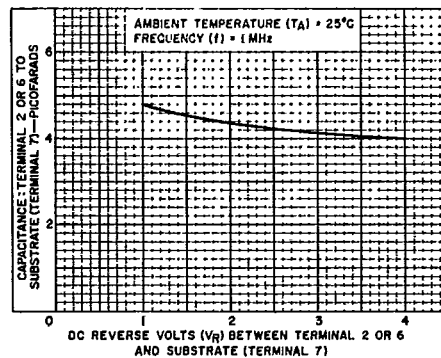


Fig.5 - Diode Quad-to-Substrate Capacitance vs Reverse Voltage for ECG905.

T-43-24

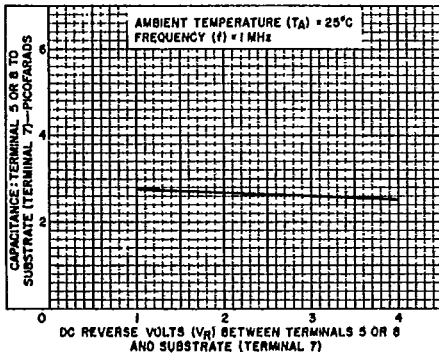


Fig.6 - Diode Quad-to-Substrate Capacitance vs Reverse Voltage for ECG905.

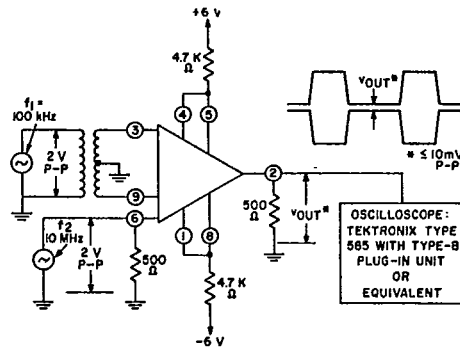


Fig.7 - Series Gate Switching Test Setup for ECG905.