New Jersey Semi-Conductor Products, Inc.

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2N499
GERMANIUM MICRO ALLOY DIFFUSED-BASE TRANSISTOR PNP POLARITY

I. General Description

This transistor is a PNP, germanium, triode transistor designed primarily for low power IF and RF amplifier applications in the up to 100mc frequency range for industrial service.

II. Mechanical Data

A. Outline drawing TO-1

B. Terminal Designations

Terminal	Element
1	Emitter
2	Base
3	Collector
Case	All leads insulated from case

III. Absolute Maximum Ratings

1. Maximum Temperature

1. Storage Temperature	-65°C to +100°C
2. Lead Temperature, 1/16" ± 1/32" from case for 10 seconds	230°C

B. Maximum Reverse Rating (T = 25°C)

1. Emitter-base, V_{EBO}	-0.5 volt
2. Collector-base, V_{CBO}	- 30 volts
3. Collector-emitter, V_{CEO}	- 18 volts

C. Maximum Current (DC)

1. Collector Current, I_C	- 50 ma

D. Power

1. Maximum Power Dissipation (T = 25°C)	60 mw
2. Derating Factor above 25°C	0.8 mw/°C

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JEDEC TYPE # 2N499A

IV. Electrical Characteristics, 25°C

		Min.	Max.	
A.	Static Characteristics			
1.	Collector Current, I_{CBO} Collector Voltage, V_{CB} = -5v		5	µa
2.	Collector Current, I_{CBO} Collector Voltage, V_{CBO} = -15v		15	µa
3.	Collector Current, I_{CEO} Collector Voltage, V_{CEO} = -18v		100	µa
B.	Breakdown Voltages			
1.	Collector Base Breakdown Voltage, BV_{CBO} I_E = 0, I_C = -100µa	30		v
C.	Small Signal Parameters			
1.	Low Frequency Parameters			
	Test Conditions Emitter Current, I_E = 1ma Collector Voltage, V_{CE} = -9v Frequency, f = 1kc			
a.	Forward Current Transfer Ratio, h_{fe}	20	80	
2.	High Frequency Parameters			
	Test Conditions Emitter Current, I_E = 2ma Collector Voltage, V_{CB} = -10v			
a.	Open Circuit Collector Base Capacitance, C_{ob} I_E = 0, at frequency 4mc	0.5	2.5	pf
b.	Collector Base Time Constant $r'_b C_c$ at frequency 46mc	5	250	ohm-pf
c.	Power Gain, f = 100mc in attached circuit	7.5		db
d.	Magnitude of High Frequency Forward Current Transfer Ratio, h_{fe} Frequency, f = 20mc	6		