

New Jersey Semi-Conductor Products, Inc.

20 STERN AVE.
SPRINGFIELD, NEW JERSEY 07081
U.S.A.

TELEPHONE: (973) 376-2922
(212) 227-6005
FAX: (973) 376-8960



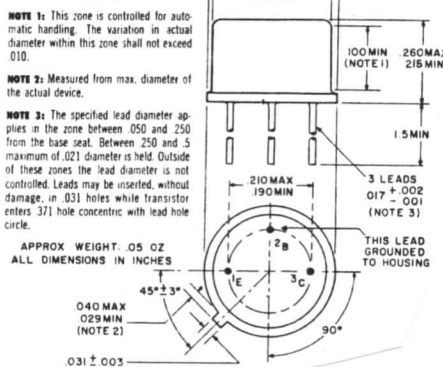
2N1924, 2N1925, and 2N1926 are PNP germanium alloy transistors for high voltage general purpose low frequency applications. Excellent reliability in use is assured by inclusion of a 100% hermeticity test* and military environmental testing.

Reliable circuit design is assured by a unique Reliability-Index, and high temperature I_{CBO} and low temperature forward current gain 1000 hour life end points. The high value of Reliability-Index is achieved by exacting control of parts and processes, and getter encapsulation, to prevent junction contamination.

absolute maximum ratings (25°C)

Voltages			
Collector to Base	V_{CBO}	— 60 volts	
Collector to Emitter ($R_{BF} \leq 10K$)	V_{CER}	— 40 volts	
Collector to Emitter ($R_{BF} \leq 10K$)	V_{CEX}	— 50 volts	
	($V_{BE} = +1.5v$)		
Emitter to Base	V_{EBO}	— 25 volts	
Collector Current (RMS)			
	I_{CM}	— 500 ma	
Temperatures			
Storage	T_{STG}	— 65 to + 100°C	
Operating	T_J	— 65 to + 85°C	
Lead Temperature, 1/16" ± 1/32" from case for 10 seconds maximum		260°C	
Total Transistor Dissipation			
	P_T	225 mw	
(Derate 3.7 mw/°C increase in ambient temperature above 25°C)			

DIMENSIONS WITHIN JEDEC OUTLINE TO-5



NJ Semi-Conductors reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by NJ Semi-Conductors is believed to be both accurate and reliable at the time of going to press. However, NJ Semi-Conductors assumes no responsibility for any errors or omissions discovered in its use. NJ Semi-Conductors encourages customers to verify that datasheets are current before placing orders.

Quality Semi-Conductors

ELECTRICAL CHARACTERISTICS (T_A = 25°C)

TEST	CONDITIONS	SYMBOL	UNITS
DC Characteristics			
Subgroup I			
Collector to Base Voltage	I _C = -200 μA	V _{CB0}	volts
Collector to Emitter Voltage	R _{BE} = 10K ohms, I _C = -600 μA	V _{CE0}	volts
Collector to Emitter Voltage	V _{BE} = +1.5v, R _{BE} = 10K ohms, I _C = -50 μA	V _{CEX}	volts
Reach-through Voltage		V _{RT}	volts
Emitter Cutoff Current	V _{EB} = -25v	I _{EB0}	μA
Subgroup II			
Collector Cutoff Current	V _{CB} = -45v	I _{CB0}	μA
Forward Current Transfer Ratio	I _C = -20ma, V _{CE} = -1v (Note 1)	h _{FE}	
Forward Current Transfer Ratio	I _C = -100 ma, V _{CE} = -1v	h _{FE}	
Subgroup III			
Base Input Voltage, Common Emitter	I _C = -20 ma, V _{CE} = -1v	V _{BE}	volts
Collector Saturation Voltage	I _C = -20 ma, I _B as shown	V _{CE} (SAT) (@ I _B)	volts ma
Small Signal Characteristics			
Subgroup I			
AC Forward Current Transfer Ratio	I _B = 1 ma, V _{CE} = -5v, f = 1kc	h _{fe}	
Input Impedance	I _B = 1 ma, V _{CE} = -5v, f = 1kc	h _{ie}	ohms
Output Admittance	I _B = 1 ma, V _{CE} = -5v, f = 1kc	h _{oe}	μmhos
Reverse Voltage Transfer Ratio	I _B = 1 ma, V _{CE} = -5v, f = 1kc	h _{re}	x10 ⁻⁴
Subgroup II			
Cutoff Frequency	I _B = 1ma, V _{CE} = -5v	f _α	mc
Output Capacity	I _B = 1 ma, V _{CE} = -5v, f = 1mc	C _{ob}	pf

Note 1: A minimum of 95% of the h_{FE} distribution is normally contained between values in parenthesis.

2N1924			2N1925			2N1926			AQL	INSP. LEVEL
MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.		
-60			-60			-60			1%	II
-40			-40			-40				
-50			-50			-50				
-50	-3	-10	-50	-3	-10	-50	-3	-10	0.65%	II
	-4	-10		-4	-10		-4	-10		
34(38)	50	(59)65	53(59)	70	(80)90	72(80)	95	(110)121		
30	45		47	80		65	80		1%	L6
	-235	-300		-230	-290		-225	-280		
-200	-080	-110	-190	-085	-110	-180	-090	-110		
	-1.33			-1.00			-0.67		2.5%	L6
30	44	64	44	64	88	60	80	120		
700	1400	2200	1200	2000	3200	1500	2500	4200		
15	30	60	20	35	65	25	40	70	1.5	L6
2.0	4.5	8.0	3.0	6.0	9.0	4.0	7.0	10.0		
1.0	3.0		1.3	3.5		1.5	4.0		18	30
	18	30		18	30		18	30		

RELIABILITY SPECIFICATIONS

TEST	CONDITIONS	% AQL		SAMPLING LEVEL
		AQL	LEVEL	
Subgroup I				
Physical Inspection	MIL-S-19500	2.5	L5	
Appearance		1.0	L8	
Lead Solderability		1.0	L8	
Subgroup II				
Temperature Cycling	MIL-S-19500	4.0	L5	
Thermal Shock	-65° to 100°C, 10 cycles 0° to 85°C, 5 cycles			
Subgroup III				
Shock, operating	MIL-S-19500	4.0	L5	
Constant Acceleration	10,000 G			
Vibration Fatigue	10G			
Vibration, Variable Frequency	20G			
Subgroup IV				
Lead Fatigue	MIL-S-19500	4.0	L5	
END POINTS (Subgroup II and III)				
Collector Cutoff Current	V _{CB} = -30v, T _A = 25°C	I _{CB0}	μA	-15
Forward Current Transfer Ratio	I _C = -20 ma, V _{CE} = -1v, T _A = 25°C	h _{FE}		30 71
	2N1924	h _{FE}		48 100
	2N1925	h _{FE}		65 133
	2N1926			

TEST	CONDITIONS	MAXIMUM FAILURE RATE, λ		
		(in percent per 1000 hours with 90% confidence)		
Subgroup V				
Storage Life (1000 hours)	MIL-S-19500 Method B 100° + 10°C, -0°C	5		
Subgroup VI				
Intermittent Power Life (1000 hours)	MIL-S-19500 Method B 225 mw, T _A = 25° ± 4°C V _{CE} = -22.5v, I _B = -10 ma On 50 ± 2 min, Off 10 ± 2 min	5	(25°C End Points)	
		10	(-55°C and +70°C End Points)	
END POINTS (Subgroup VI)				
Reliability-Index	Based on 25°C Forward Current Transfer Ratio, Subgroup VI	RI _I	3.33	12
Collector Cutoff Current	V _{CB} = -10v, T _A = +70° ± 1°C	I _{CB0}	μA	-80 -150
Forward Current Transfer Ratio	I _C = -20 ma, V _{CE} = -1v, T _A = -55° ± 2°C	h _{FE}		15 33
	2N1924	h _{FE}		24 46
	2N1925	h _{FE}		32 63
	2N1926			
END POINTS (Subgroup V and VI)				
Collector Cutoff Current	V _{CB} = -30v, T _A = 25°C	I _{CB0}	μA	-15
Forward Current Transfer Ratio	I _C = -20 ma, V _{CE} = -1v, T _A = 25°C	h _{FE}		30 71
	2N1924	h _{FE}		48 100
	2N1925	h _{FE}		65 133
	2N1926			