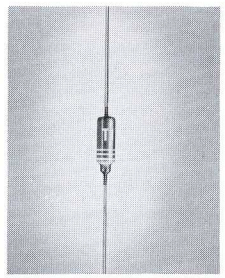
TENTATIVE

TYPES 1N914 AND 1N916
DIFFUSED SILICON MESA COMPUTER DIODES

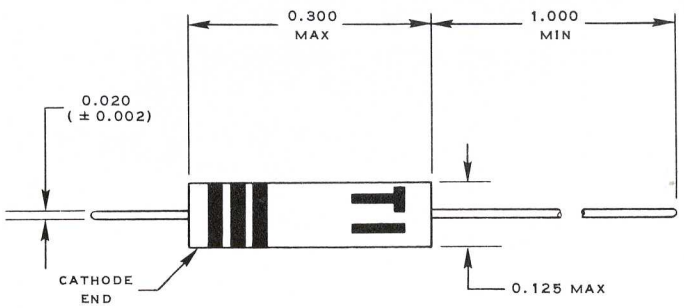
ALL ABBREVIATIONS AND SYMBOLS ARE IN ACCORDANCE WITH MIL-S-19500 B

75 ma average rectified forward current
Ruggedized to meet stringent military requirements
Designed for
- **4 mμsec maximum recovery time**
- **low capacitance**
- **severe environmental conditions**

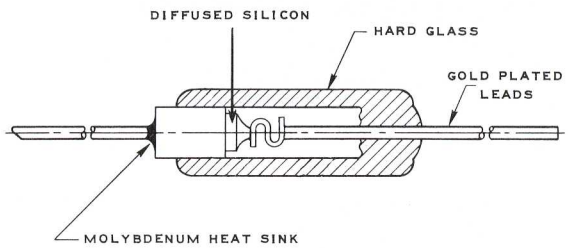


mechanical data

Hard glass hermetically sealed case with platinum alloy to gold contact. Unit weight is 0.195 gram.



ALL DIMENSIONS IN INCHES



maximum ratings

	CONDITIONS	1N914	1N916	UNIT
V_R	Reverse Voltage at —65 to +150°C	75	75	vdc
I_O	Average Rectified Forward Current at +25°C	75	75	mAdc
I_O	Average Rectified Forward Current at +150°C	10	10	mAdc
i_F	Recurrent Peak Forward Current at +25°C	225	225	ma
$i_{f(surge)}$	Surge Current, 1 Second at +25°C	500	500	ma
RE	Minimum Rectification Efficiency at 100 mc at 2 volts RMS	45	45	%
P	Power Dissipation at +25°C	250	250	mW
T_A	Operating Temperature, Ambient	—65 to +150		°C
T_{stg}	Maximum Storage Temperature, Ambient	+200		°C

specifications

BV	Minimum Saturation Voltage at 100 μa at +25°C	100	100	v
I_R	Maximum Reverse Current at V_R at +25°C	5	5	μAdc
I_R	Maximum Reverse Current at —20 v at +25°C	.025	.025	μAdc
I_R	Maximum Reverse Current at —20 v at +150°C	50	50	μAdc
V_F	Maximum Forward Voltage Drop at I_F = 10madc at +25°C	1	1	vdc
t_{rr}	Maximum Reverse Recovery Time* (10 ma I_F, 6 volts V_R recover to 1 ma reverse)	4	4	mμsec
C	Maximum Capacitance at V_R = 0 vdc at +25°C	4	2	μμf
t_{fr}	Forward Recovery Time [50 ma Peak Square Wave , 0.1 μsec pulse width, 5 kc - 100 kc rep. rate] Maximum Voltage Drop	2.5	2.5	v

*SEE REVERSE RECOVERY TIME TEST CIRCUIT

LICENSED UNDER BELL SYSTEM PATENTS

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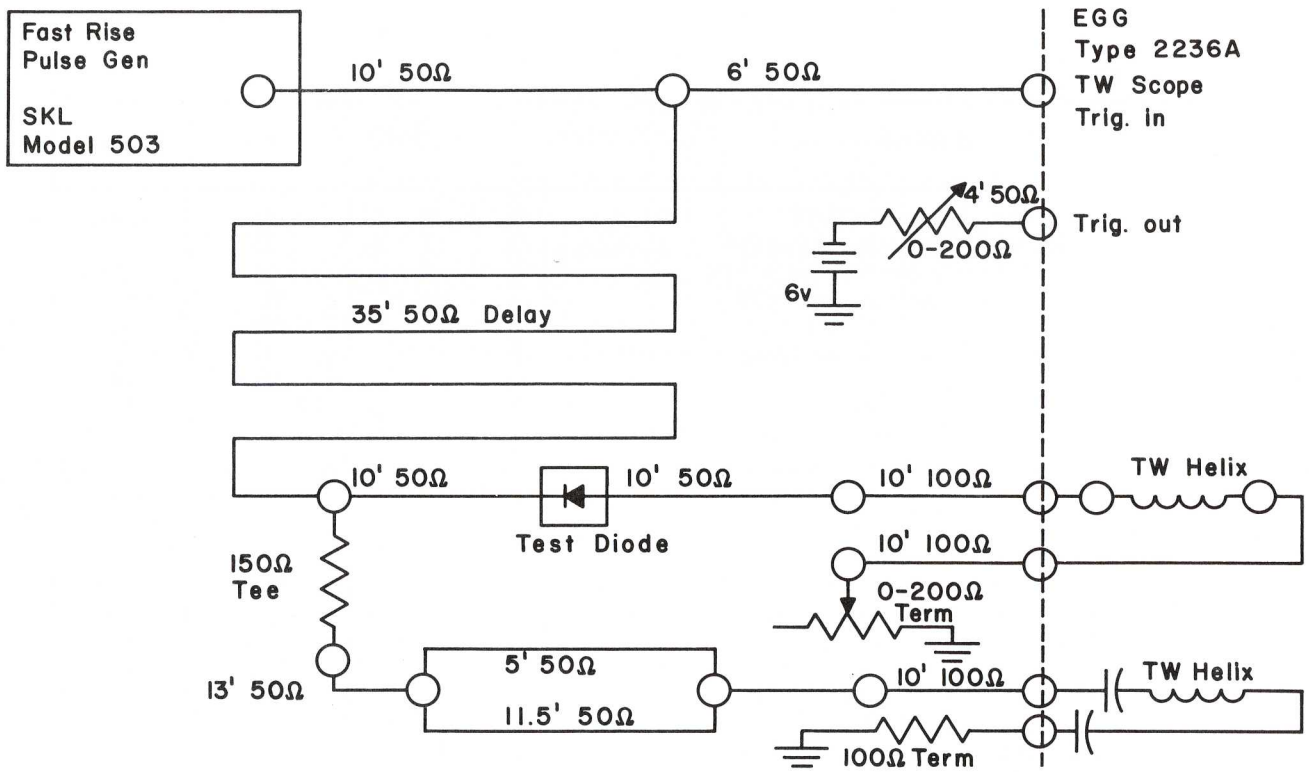
environmental specifications

TI Types 1N914 and 1N916 Diffused Silicon Mesa Computer Diodes meet or exceed environmental requirements of MIL-S-19500B as follows:

TEST	PARAGRAPH
Constant Acceleration	40.4
Lead Fatigue	40.5
Moisture Resistance	40.6
Salt Spray (Corrosion), 96 hr., 20% solution	40.9
Shock	40.10
Solderability	40.12
Temperature Cycling to 150° ± 3°C, 10 cycles	40.14
Tension Test, 2 lb.	40.15
Thermal Shock, 100° ± 5°C to 0° ± 5°C	40.16
Vibration Fatigue, 30 G	40.18
Vibration, Variable Frequency, 30 G	40.20

REVERSE RECOVERY TIME TEST CIRCUIT



Note the path of the current from the signal generator through the circuit. The signal splits at the first tee, part going through the delay cable and part to the triggering assembly. The delay cable holds the pulse deflection until the sweep is operating. Through the delay the signal again splits, part through the diode to one helix and part through the timing circuit to the other helix. The battery is used to maintain a steady current through the diode. The 150Ω tee prevents the dc signal from being shunted by the timing circuit.

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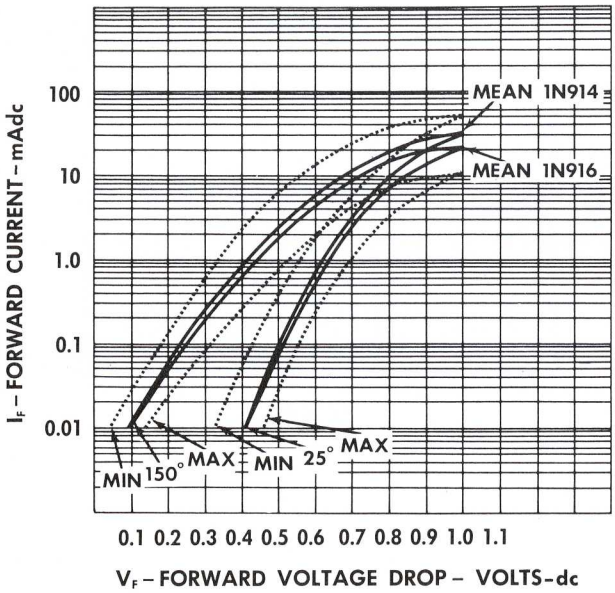
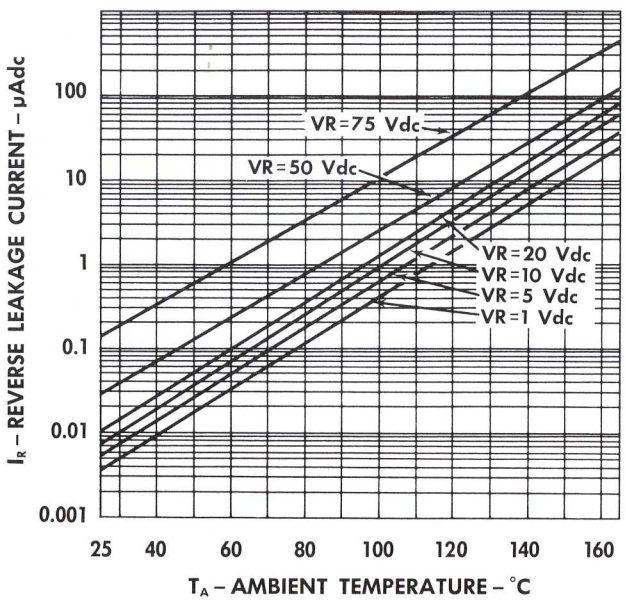
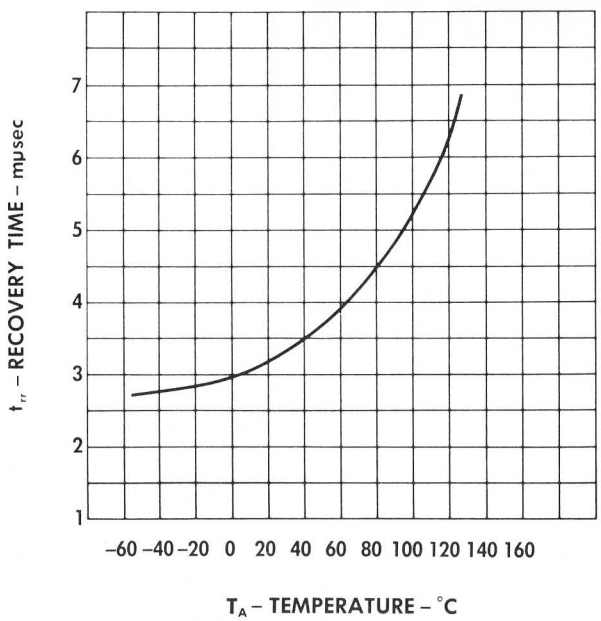
FORWARD VOLTAGE DROP VS FORWARD CURRENT AT ROOM TEMPERATURE AND AT +150°C



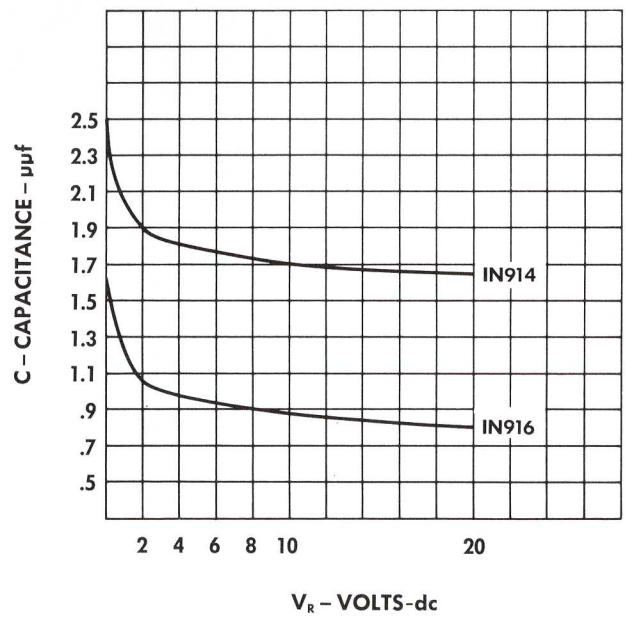
TYPICAL REVERSE CURRENT LEAKAGE VS TEMPERATURE



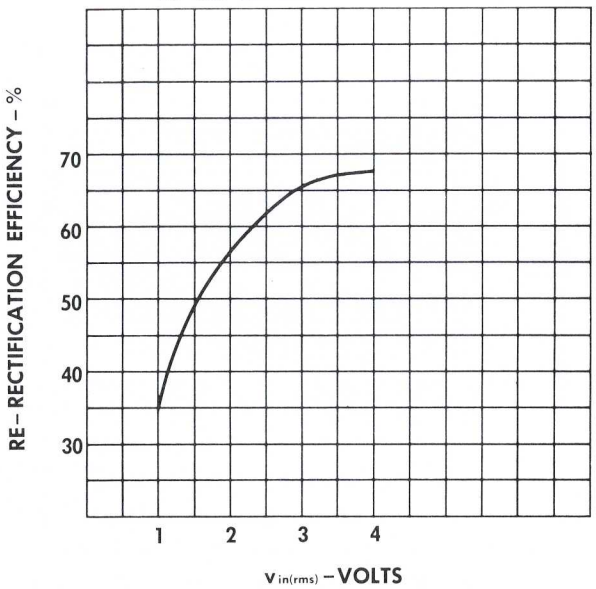
TYPICAL REVERSE RECOVERY TIME VS TEMPERATURE

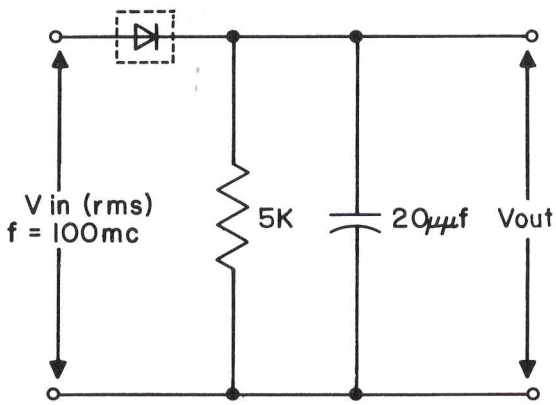


TYPICAL CAPACITANCE VS VOLTAGE



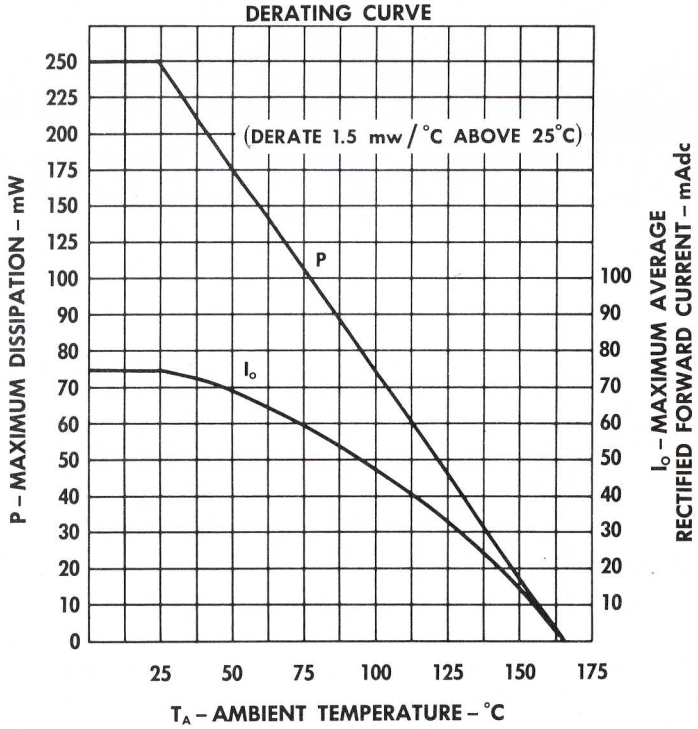
TYPICAL RECTIFICATION EFFICIENCY
AT 100 MEGACYCLES VS VOLTAGE





$$RE = \frac{Vout \times 100}{Vin\ (rms)\sqrt{2}}$$

ABSOLUTE MAXIMUM TEMPERATURE
DERATING CURVE



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