

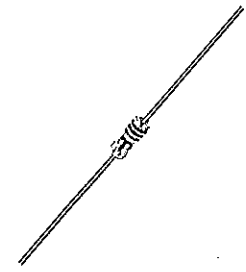
# Transitron

## GOLD BONDED GERMANIUM DIODES

### MILITARY TYPES

Transitron's military type gold bonded diodes are designed to meet the requirements of MIL-E-1C and are characterized by reliability under the most severe operating conditions. Rugged construction and 100% testing of electrical and mechanical characteristics insure excellent performance and long life.

The 1N270, 1N276, 1N277 and 1N281 are preferred types for new design. The 1N270 is designed for efficient core switching. The 1N277 is recommended for critical high temperature applications and replaces the existing military type 1N127A, 1N198, 1N38B and 1N70A. The 1N281, also a high conductance diode, replaces the 1N126A and 1N69A. The 1N276 is tested for both forward and inverse pulse recovery for satisfactory performance in computer circuitry.



SUBMINIATURE GLASS

### SPECIFICATIONS AT 25°C

### MAXIMUM RATINGS AT 25°C

TYPE	Minimum Forward Current @ +1V (ma.)	Maximum Inverse Current @ Specified Voltage (ua.)	Maximum Inverse Voltage (volts) (2)	Continuous Inverse Operating Voltage (volts) (3)	Continuous Average Forward Current (ma.)	Peak Recurrent Forward Current (ma.) (4)	Forward Surge Current 1 sec. (ma.)	MIL-E-1C TSS No.
JAN1N270	200	100 @ -50V	100	80	60	325	500	992A
JAN1N277	100	250 @ -50V (1) 75 @ -10V (1)	125	100	50	270	400	993A
JAN1N281	100	500 @ -50V 30 @ -10V	75	60	75	270	400	961
JAN1N276	40	100 @ -50V 20 @ -10V	100	50	40	150	400	1025
JAN1N198	5 (5)	250 @ -50V (1) 75 @ -10V (1)	100	80	30	90	300	700
JAN1N126A	5 (5)	850 @ -50V 50 @ -10V	75	60	30	90	350	156C
JAN1N127A	3 (5)	300 @ -50V 25 @ -10V	125	100	30	90	300	157C
JAN1N128	3	10 @ -10V	50	40	30	90	300	158B

- (1) Measured at 75°C.
- (2) Measured at 0.1 watt.
- (3) The continuous inverse operating voltage,  $V_{cont}$  must be reduced when the diode is operated at elevated junction temperatures. The PERCENT derating of  $V_{cont}$  for each 10°C temperature increment above 25°C is equal to  $V_{cont}/10$ .
- (4) May be exceeded for pulses of less than 200 micro-seconds duration.
- (5) Maximum Forward Current @ +1V=25 ma.

### ADDITIONAL CHARACTERISTICS AND RATINGS

Operating and Storage Temperature Range	-55°C to +90°C
Average Power Dissipation @ 25°C	80 mw
Derating above 25°C	10 mw/10°C
Typical Shunt Capacitance	0.8 uufd
Average 100 mc. Rect. Eff.	55%
Maximum Altitude	Any

### ENVIRONMENTAL TESTING:

1. Life testing in accordance with paragraph 4.11 (Group A), MIL-E-1C.
2. Moisture resistance testing per Method 106, MIL-STD-202.
3. For other environmental tests for a particular type, see the applicable Technical Specifications Sheet.

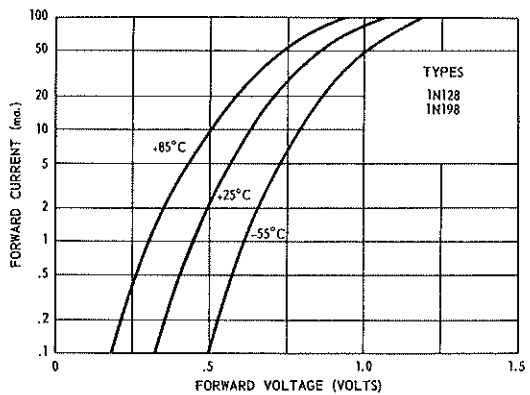
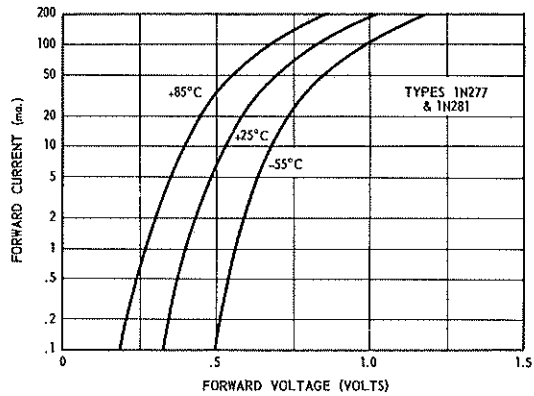
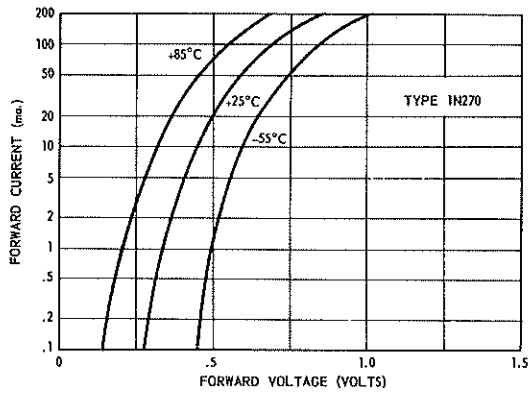
TE-1319 A  
11-58

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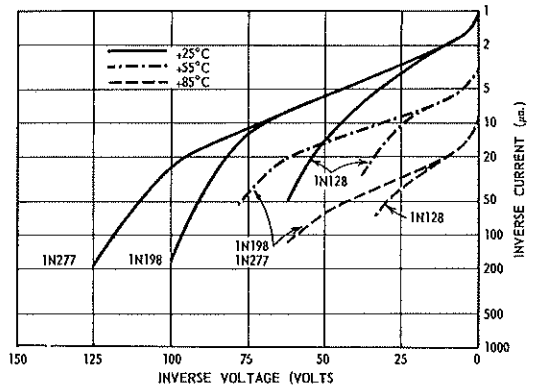
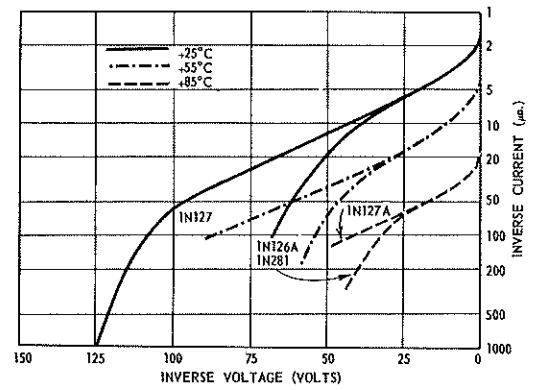
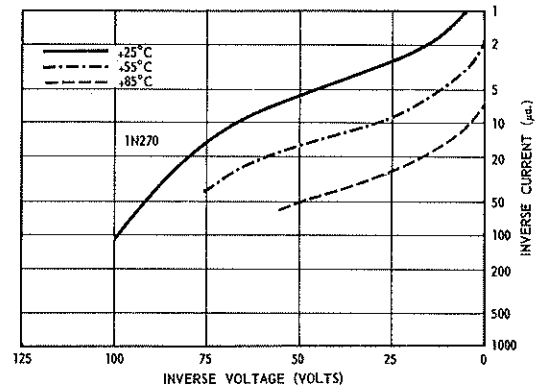
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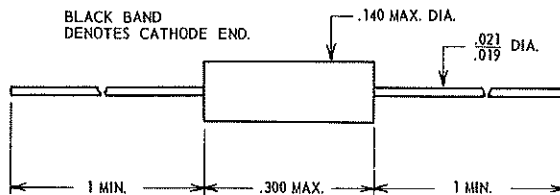
## TYPICAL FORWARD CHARACTERISTICS



## TYPICAL INVERSE CHARACTERISTICS



## MECHANICAL DATA



**ENCAPSULATION:** All glass hermetically sealed case insures complete environmental protection.

**LEADS:** Tinned dumet.

**MAXIMUM ALTITUDE:** Any.

It is recommended that a heat sink (long nose pliers) be used when soldering leads within 1/4" of glass base.



"leadership in semiconductors"

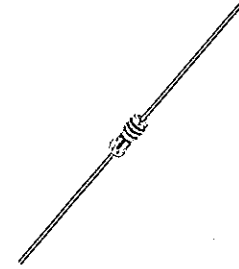
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## GOLD BONDED GERMANIUM DIODES

### COMPUTER TYPES

The Transitron subminiature computer diodes offer a wide range of types for nearly every computer application. These include very high conductance types with good switching characteristics for low impedance circuits, high resistance-high conductance types for efficient coupling, clamping, and matrix service, and forward and inverse pulse recovery tested types for critical pulse applications.

In addition to the types listed below, a wide variety of special computer diodes are also available. Our engineering staff will be glad to discuss your specific requirements.



SUBMINIATURE GLASS

#### SPECIFICATIONS AT 25°C

#### MAXIMUM RATINGS AT 25°C

TYPE	Minimum Forward Current @ +1V (ma.)	Maximum Inverse Current @ Specified Voltage (ua)	Maximum Inverse Voltage ① (volts)	Continuous Inverse Operating Voltage ② (volts)	Continuous Average Forward Current (ma.)	Peak Recurrent Forward Current ③ (ma.)	Forward Surge Current 1 sec. (ma.)	ADDITIONAL INFORMATION
T15G	125	500K between -20 and -90V ④	125	90	80	300	450	Inverse Recovery Time Tested. See Reverse.
1N695	100	2 @ -10V 20 @ -10V @ 70°C	25	20	100	300	400	
1N276 (T16G)	40	500K between -10 and -50V ④	75	60	70	250	400	
1N191	5	400K between -10 & -50V @ 55°C ④	75	60	50	180	300	
1N192	5	200K between -10 & -50V @ 55°C ④	75	60	50	180	300	
1N270 (T7G)	200	100 @ -50V	100	80	60	325	500	LOW IMPEDANCE FAST FORWARD SWITCHING TIME. (These types are particularly useful for magnetic core switching)
1N283 (T25G)	200	20 @ -10V	25	20	100	350	500	
1N273 (T11G)	100	20 @ -20V	35	30	80	300	450	
1N279 (T6G)	100	200 @ -20V	35	30	80	300	450	
T5G	40	100 @ -100V	125	100	70	250	400	Hi Res.-Hi Cond.
1N67A	5	50 @ -50V 5 @ -5V	100	80	50	180	300	Hi Resistance
T3G	20	50 @ -50V	75	60	60	200	350	Hi Res.-Hi Cond.
T2G	40	300 @ -50V	75	60	70	250	400	Hi Conductance
T12G	20	500 @ -50V 30 @ -10V	75	60	60	200	350	Hi Cond. equivalent to 1N34A

① Measured at 0.1 Watt

② The continuous inverse operating voltage rating,  $V_{cont}$  must be reduced when the diode is operated at elevated junction temperature. The PERCENT derating of  $V_{cont}$  for each 10°C temperature increment above 25°C is equal to  $V_{cont}/10$ . For critical high temperature-high voltage applications, it is recommended that diodes be 100% tested and specified at the elevated temperature. See Bulletin TE 1319E for specifications on high temperature tested types.

③ The peak operating current is generally the controlling factor in AC rectifier service and may be exceeded for pulses of less than 200 microseconds duration.

④ Measured with 60 CPS sweep.

⑤ With a 50 ma peak half sine wave forward pulse (.1 usec wide at base) applied at a repetition rate of 100 KC, the peak forward voltage drop will be less than 3.0V.

NOTE: Maximum voltage and current ratings can not be simultaneously applied.

#### ADDITIONAL SPECIFICATIONS

Ambient Temperature Range	-78°C to +90°C
Absolute Maximum Storage & handling Temperature Range	-78°C to +100°C
Avg. Power Dissipation @ 25°C	80 Milliwatts
Derating above 25°C	10 mw/10°C
Average Shunt Capacitance	0.5 uufd
Average 100 mc Rect. Eff.	55%

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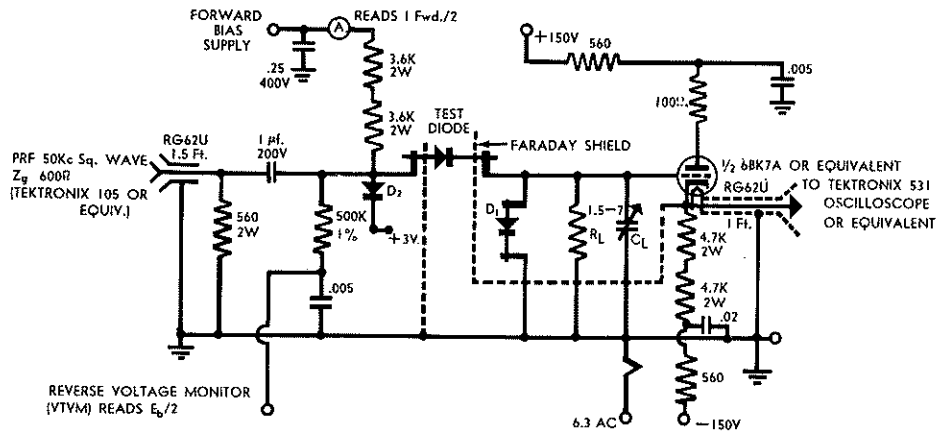
## INVERSE RECOVERY TEST

### Inverse Recovery

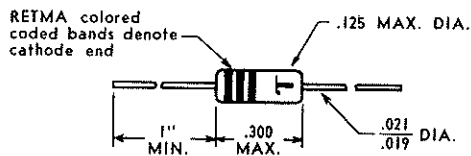
### Test Conditions

TYPE	Inverse Resistance Recovery Level (K ohms)	Time (usec)	Initial Fwd. Current Level (ma)	Inverse Voltage (Volts)	Load Resistance (K ohms)	Load Capacitance (uuf)
T15G	25	0.3	5	-40	2	10
1N276 (T16G)	80	0.3	5	-40	2	10
1N191	50 400	0.5 3.5	30 30	-35 -35	2 2	10 10
1N192	50 200	0.5 3.5	30 30	-35 -35	2 2	10 10
1N695	25	0.3	5	-20	1	10

### 256-JAN PULSE RECOVERY CIRCUIT



### MECHANICAL DATA



**ENCAPSULATION:** All glass hermetically sealed case insures complete environmental protection.

**LEADS:** Tinned dumet.

**MAXIMUM ALTITUDE:** Any.

It is recommended that a heat sink (long nose pliers) be used when soldering leads within  $\frac{1}{4}$ " of glass base.



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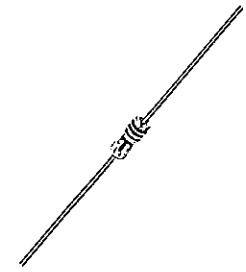
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## GOLD BONDED GERMANIUM DIODES

### HIGH RESISTANCE TYPES

Transitron subminiature glass high inverse resistance diodes have been developed for use in those critical applications requiring a minimum of diode inverse current. They are ideal for high impedance circuits where the diode inverse resistance must be many times higher than the circuit impedance.

Only types with a specified minimum inverse resistance of 1 megohm or greater are included in this group. Several types with a minimum inverse resistance of 5 megohms are available. This exceptionally high resistance has been achieved without sacrificing other diode characteristics.



SUBMINIATURE GLASS

#### SPECIFICATIONS AT 25°C

#### MAXIMUM RATINGS AT 25°C

TYPE	Minimum Forward Current @ +1V (ma.)	Maximum Inverse Current @ Specified Voltage (ua)	Maximum Inverse Voltage (2) (volts)	Continuous Inverse Operating Voltage (3) (volts)	Continuous Average Forward Current (ma.)	Peak Recurrent Forward Current (4) (ma.)	Forward Surge Current 1 sec. (ma.)	DESCRIPTION
T8G	100	20 @ -100V 5 @ -10V	125	100	80	300	450	100 VOLT TYPES
T5G	40	100 @ -100V	125	100	70	250	400	
T4G	5	100 @ -100V	125	100	50	180	300	
T9G	100	20 @ -50V 2 @ -10V	75	60	80	300	450	50 VOLT TYPES
1N67A	5	50 @ -50V 5 @ -5V	100	80	50	180	300	
1N99	10	50 @ -50V 5 @ -5V	100	80	50	180	300	
T3G	20	50 @ -50V	75	60	60	200	350	
1N273 (T11G)	100	20 @ -20V	35	30	80	300	450	20 VOLT TYPE
T13G	40	2 @ -10V	25	20	70	250	400	10 VOLT TYPES
T14G	40	5 @ -10V	25	20	70	250	400	
T26G	40	10 @ -10V	25	20	70	250	400	
1N128 (1)	3	10 @ -10V	50	40	30	90	300	

(1) JAN TYPE

(2) Measured at 0.1 Watt

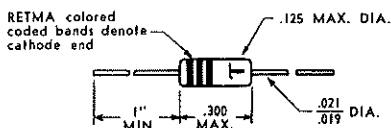
(3) The continuous inverse operating voltage rating,  $V_{cont}$  must be reduced when the diode is operated at elevated junction temperatures. The PERCENT derating of  $V_{cont}$  for each 10°C temperature increment above 25°C is equal to  $V_{cont}/10$ . For critical high temperature-high voltage applications, it is recommended that diodes be 100% tested and specified at the elevated temperatures. See Bulletin TE1319E for specifications on high temperature tested types.

(4) The peak operating current is generally the controlling factor in AC rectifier service and may be exceeded for pulses of less than 200 microseconds duration.

NOTE: Maximum voltage and current ratings can not be simultaneously applied.

#### ADDITIONAL SPECIFICATIONS

Ambient Temperature Range	-78°C to +90°C
Absolute Maximum Storage & handling Temperature Range	-78°C to +100°C
Avg. Power Dissipation @ 25°C	80 Milliwatts
Derating above 25°C	10 mw/10°C
Average Shunt Capacitance	0.5 uufd
Average 100 mc Rect. Eff.	55%



#### MECHANICAL DATA

ENCAPSULATION: All glass hermetically sealed case insures complete environmental protection.

LEADS: Tinned duntet.

MAXIMUM ALTITUDE: Any.

It is recommended that a heat sink (long nose pliers) be used when soldering leads within 1/4" of glass base.

TE-1319 C  
11-58

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## GOLD BONDED GERMANIUM DIODES

HIGH  
CONDUCTANCE  
TYPES

The Transitron subminiature glass high conductance diodes are particularly useful in low impedance circuits where high average or peak currents are encountered. Their very fast forward switching allows dependable operation even with fractional microsecond pulses.

The extremely low dynamic forward resistance of these diodes is maintained up to ampere current levels. There are no saturation effects (increasing dynamic resistance) at any point in the forward characteristic.

Usually Transitron high conductance diodes will replace several point contact diodes that have been paralleled to obtain greater current handling ability

SUBMINIATURE GLASS

### SPECIFICATIONS AT 25°C

### MAXIMUM RATINGS AT 25°C

TYPE	Minimum Forward Current @ +1V (ma.)	Maximum Inverse Current @ Specified Voltage (ua)	Maximum Inverse Voltage ① (volts)	Continuous Inverse Operating Voltage ② (volts)	Continuous Average Forward Current (ma.)	Peak Recurrent Forward Current ③ (ma.)	Forward Surge Current 1 sec. (ma.)	DESCRIPTION
1N270 (T7G) 1N283 (T25G)	200 200	100 @ -50V 20 @ -10V	100 25	80 20	60 100	325 350	500 500	200 MA TYPES
T8G T9G	100 100	20 @ -100V 5 @ -10V 20 @ -50V 2 @ -10V	125 75	100 60	80 80	300 300	450 450	100 MA TYPES
1N273 (T11G) 1N279 (T6G)	100 100	20 @ -20V 200 @ -20V	35 35	30 30	80 80	300 300	450 450	
T5G 1N100A 1N98A 1N118A T2G 1N96A T13G T14G T26G	40 40 40 40 40 40 40 40 40	100 @ -100V 50 @ -50V 5 @ -5V 100 @ -50V 8 @ -5V 100 @ -50V 300 @ -50V 500 @ -50V 2 @ -10V 5 @ -10V 10 @ -10V	125 100 100 75 75 75 25 25 25	100 80 80 60 60 60 20 20 20	70 70 70 70 70 70 70 70 70	250 250 250 250 250 250 250 250 250	400 400 400 400 400 400 400 400 400	40 MA TYPES
1N100 T3G 1N98 1N118 T12G 1N96	20 20 20 20 20 20	50 @ -50V 5 @ -5V 100 @ -50V 8 @ -5V 100 @ -50V 500 @ -50V 30 @ -10V 500 @ -50	100 75 100 75 75 75 75	80 60 80 60 60 60 60	60 60 60 60 60 60 60	200 200 200 200 200 200 200	350 350 350 350 350 350 250	20 MA TYPES

① Measured at 0.1 Watt.

② The continuous inverse operating voltage rating,  $V_{cont}$  must be reduced when the diode is operated at elevated junction temperatures. The PERCENT derating of  $V_{cont}$  for each 10°C temperature increment above 25°C is equal to  $V_{cont}/10$ . For critical high temperature-high voltage applications, it is recommended that diodes be 100% tested and specified at the elevated temperature. See Bulletin TE1319E for specifications on high temperature tested types.

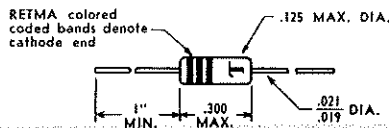
③ The peak operating current is generally the controlling factor in AC rectifier service and may be exceeded for pulses of less than 200 microseconds duration.

NOTE: Maximum voltage and current ratings can not be simultaneously applied.

### ADDITIONAL SPECIFICATIONS

Ambient Temperature Range -78°C to +90°C  
 Absolute Maximum Storage & handling Temperature Range -78°C to +100°C  
 Avg. Power Dissipation @ 25°C 80 Milliwatts  
 Derating above 25°C 10 mw/10°C  
 Average Shunt Capacitance 0.5 uufd  
 Average 100 mc. Rect. Eff. 55%

### MECHANICAL DATA



ENCAPSULATION: All glass hermetically sealed case insures complete environmental protection.

LEADS: Tinned dumet.

MAXIMUM ALTITUDE: Any.  
 It is recommended that a heat sink (long nose pliers) be used when soldering leads within 1/4" of glass base.

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11-58

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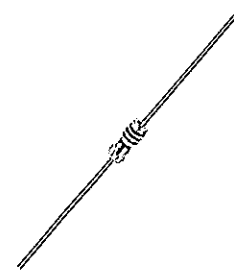
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## GOLD BONDED GERMANIUM DIODES

HIGH TEMPERATURE  
TYPES

In many electronic applications, germanium diodes are called upon to operate at high ambient temperatures. In these instances, it is desirable to have the diodes specified and rated at the elevated temperature to insure the desired performance. The Transitron line of high temperature subminiature diodes offers the designer a variety of types that are 100% tested at elevated temperatures to insure complete conformance to all specifications.

The high forward conductance in these types insures a lower internal power dissipation in any given circuit. This means greater reliability and power handling ability at elevated temperatures.



SUBMINIATURE GLASS

### SPECIFICATIONS AT 75° C

(unless otherwise noted)

### MAXIMUM RATINGS AT 75° C

TYPE	Minimum Forward Current @ +1V (ma.)	Maximum Inverse Current @ Specified Voltage (ua.)	Continuous Inverse Operating Voltage (volts)	Continuous Average Forward Current (ma.)	Peak Recurrent Forward Current ① (ma.)	Forward Surge Current 1 sec. (ma.)
1N278 (T18G)	20 @ 25°C	125 @ -50V	50	35	125	175
JAN1N198	5 @ 25°C	250 @ -50V 75 @ -10V	50	30	90	150
T19G	200 @ 25°C	180K avg. @ 40V RMS②	(4)	60	200	300
T20G	20 @ 25°C	500 @ -50V 30 @ -10V	50	35	125	175
T21G	20 @ 25°C	50 @ -20V	25	35	125	175
T22G	40 @ 25°C	20 @ -10V	15	40	150	200
T27G	40 @ 25°C	100 @ -10V	15	40	150	200
AT 60°C			AT 60°C			
T23G	20 @ 25°C	200 @ -50V⑤	50	45	150	250
T24G	20 @ 25°C	300 @ -30V⑤	35	45	150	250

① The peak operating current is generally the controlling factor in AC rectifier service and may be exceeded for pulses of less than 200 microseconds duration.

② This is the minimum value of average inverse resistance with a 40V RMS 60 CPS half sine wave applied. Minimum average forward current is 30 ma DC.

③ T20G at 75°C is electrically equivalent to 1N34A at 25°C.

④ 60 volt peak half sine wave at an average forward current of 30 ma DC.

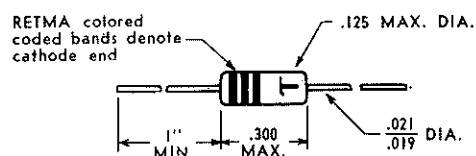
⑤ Measured with a 60 CPS sweep voltage.

### ADDITIONAL SPECIFICATIONS

Ambient Temperature Range	-78°C to +90°C
Absolute Maximum Storage & handling Temperature Range	-78°C to +100°C
Avg. Power Dissipation @ 25°C	80 Milliwatts
Derating above 25°C	10 mw/10°C
Average Shunt Capacitance	0.5 uufd
Average 100 mc Rect. Eff.	55%

NOTE: Maximum voltage and current ratings can not be simultaneously applied.

### MECHANICAL DATA



ENCAPSULATION: All glass hermetically sealed case insures complete environmental protection.

LEADS: Tinned dumet.

MAXIMUM ALTITUDE: Any.

It is recommended that a heat sink (long nose pliers) be used when soldering leads within 1/4" of glass base.

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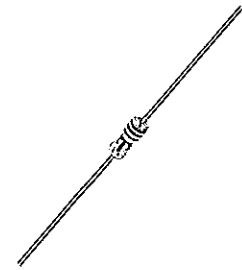
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## GOLD BONDED GERMANIUM DIODES

### GENERAL PURPOSE TYPES

Transitron subminiature glass general purpose diodes combine reliability, performance, and economy to the highest possible degree. They are ideally suited for most non-critical applications requiring small size, long life, and dependable performance.

The forward conductance of the Transitron general purpose diodes averages 5 times higher than conventional point contact types. This results in more efficient operation and greater power handling ability for any given application.



SUBMINIATURE GLASS

#### SPECIFICATIONS AT 25°C

#### MAXIMUM RATINGS AT 25°C

TYPE	Minimum Forward Current @ +1V (ma.)	Maximum Inverse Current @ Specified Voltage (ua)	Maximum Inverse Voltage ① (volts)	Continuous Inverse Operating Voltage ② (volts)	Continuous Average Forward Current (ma.)	Peak Recurrent Forward Current ③ (ma.)	Forward Surge Current 1 sec. (ma.)	DESCRIPTION
1N68A	5	625 @ -100V	130	100	50	180	300	HIGH VOLTAGE TYPE
1N97	10	100 @ -50V 8 @ -5V	100	80	50	180	300	MEDIUM VOLTAGE TYPES
1N89	5	100 @ -50V 8 @ -5V	100	80	50	180	300	
1N117	10	100 @ -50V	75	60	50	180	300	
1N116	5	100 @ -50V	75	60	50	180	300	
T2G	40	300 @ -50V	75	60	70	250	400	
T12G	20	500 @ -50V 30 @ -10V	75	60	60	200	350	
1N95	10	500 @ -50V	75	60	50	180	300	
1N90	5	500 @ -50V	75	60	50	180	300	
T1G	20	1500 @ -50V	50	40	60	200	350	
1N126A	5	850 @ -50V 50 @ -10V	75	60	30	90	350	
1N126	5	850 @ -50V 50 @ -10V	75	60	50	180	350	
1N127A	3	300 @ -50V 25 @ -10V	125	100	30	90	300	
1N127	3	300 @ -50V 25 @ -10V	125	100	50	180	300	
1N128	3	10 @ -10V	50	40	30	90	300	

① Measured at 0.1 Watt.

② The continuous inverse operating voltage rating,  $V_{cont}$  must be reduced when the diode is operated at elevated junction temperatures. The PERCENT derating of  $V_{cont}$  for each 10°C temperature increment above 25°C is equal to  $V_{cont}/10$ . For critical high temperature-high voltage applications, it is recommended that diodes be 100% tested and specified at the elevated temperature. See Bulletin TE1319E for specifications on high temperature tested types.

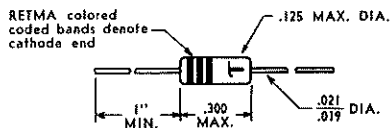
③ The peak operating current is generally the controlling factor in AC rectifier service and may be exceeded for pulses of less than 200 microseconds duration.

NOTE: Maximum voltage and current ratings can not be simultaneously applied.

#### ADDITIONAL SPECIFICATIONS

Ambient Temperature Range	-78°C to +90°C
Absolute Maximum Storage & handling Temperature Range	-78°C to +100°C
Avg. Power Dissipation @ 25°C	80 Milliwatts
Derating above 25°C	10 mw/10°C
Average Shunt Capacitance	0.5 uufd
Average 100 mc Rect. Eff.	55%

#### MECHANICAL DATA



ENCAPSULATION: All glass hermetically sealed case insures complete environmental protection.

LEADS: Tinned dumet.

MAXIMUM ALTITUDE: Any.  
It is recommended that a heat sink (long nose pliers) be used when soldering leads within ¼" of glass base.

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11-58

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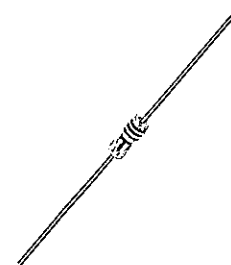
CATALOG NO. 11.22.10



# Transitron

## GOLD BONDED GERMANIUM DIODES

VERY FAST  
SWITCHING TYPES



SUBMINIATURE GLASS

Transitron's subminiature very fast switching diodes are recommended for use in extremely high speed transistorized computer circuitry and are intended for critical applications at normal transistor bias levels. These diodes can reduce the number of transistors in circuits. They may be used to simplify coupling and logic design, reducing dependence on critical timing and synchronization. In addition to the types listed below, a wide variety of special types, similar in switching characteristics, are available.

### SPECIFICATIONS AT 25°C

### MAXIMUM RATINGS AT 25°C

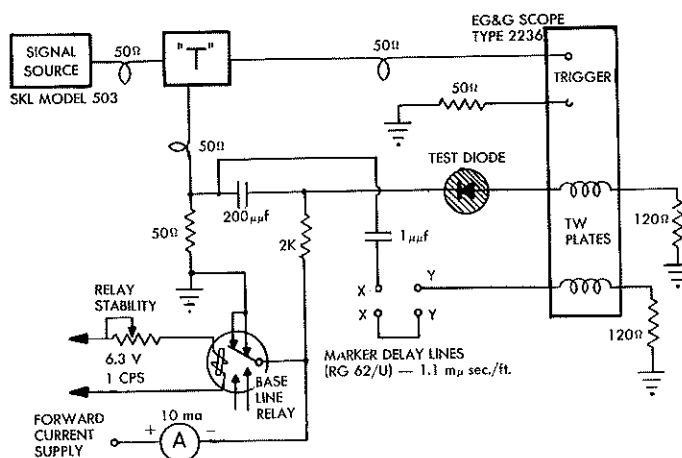
TYPE	Maximum Forward Voltage @ 10 ma (volts)	Maximum Inverse Current @ Specified Voltage (ua)	Maximum Inverse Voltage <sup>①</sup> (volts)	Maximum Inverse Pulse Recovery Time <sup>②</sup> (usec)	Continuous Average Forward Current (ma)	Peak Recurrent Forward Current <sup>③</sup> (ma)	Forward Surge Current 1 sec. (ma)
S570G	1.0	30 @ -6V	8	.002	20	30	100
S555G	0.5	10 @ -6V	15	.006	30	40	200

① Measured at 100 microamps.

② In switching from 10ma Forward current to -6 Volts inverse, recovery to 3 ma in specified time as measured in circuit below.

### ADDITIONAL SPECIFICATIONS

Ambient Temperature Range -55°C to +75°C  
Avg. Power Dissipation @ 25°C 50 Milliwatts  
Derating above 25°C 10 mw/10°C



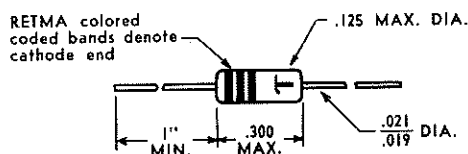
### TEST CONDITIONS

Forward Current = 10 mA.  
Inverse Voltage = 6 Volts  
Source Resistance = 25 ohms  
Load Resistance = 120 ohms  
Pulse Generator Rise Time =  
Less Than  $2 \times 10^{-10}$  seconds  
Base Line Relay Drive  
Frequency 1c/s closed 90% of time.  
Note, Forward current meter is calibrated to compensate for base line relay duty cycle.

③ The peak operating current is generally the controlling factor in AC rectifier service and may be exceeded for pulses of less than 200 microseconds duration.

Note: Maximum voltage and current ratings can not be simultaneously applied.

### MECHANICAL DATA



ENCAPSULATION: All glass hermetically sealed case insures complete environmental protection.

LEADS: Tinned dumet.

MAXIMUM ALTITUDE: Any.

It is recommended that a heat sink (long nose pliers) be used when soldering leads within 1/4" of glass base.

TE-1319 G  
11-58

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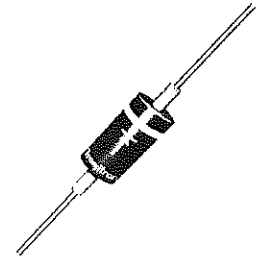
CATALOG NO. 11.25.10



# Transitron

## GOLD BONDED GERMANIUM DIODES

COMPUTER TYPES



In this package, integrally designed for clip-in mounting or conventional solder connections, Transitron offers a wide range of diodes to satisfy nearly every computer application. These include very high conductance types with good switching characteristics for low impedance circuits, high resistance-high conductance types for efficient coupling, clamping and matrix service, together with forward and inverse pulse recovery tested types for critical pulse applications.

In addition to the types listed below, a wide variety of special computer diodes is also available. Our engineering staff will be glad to discuss your specific requirements.

### SPECIFICATIONS AT 25°C

### MAXIMUM RATINGS AT 25°C

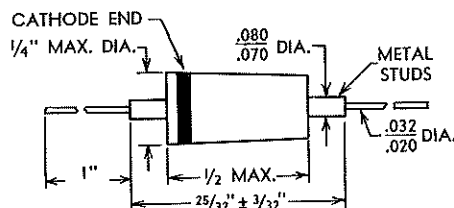
TYPE	Minimum Forward Current @ +1V (ma)	Maximum Inverse Current @ Specified Voltage ( $\mu$ a)	Maximum Inverse Voltage <sup>①</sup> (Volts)	Continuous Inverse Operating Voltage (Volts)	Continuous Average Forward Current (ma)	Peak Recurrent Forward Current <sup>②</sup> (ma)	Forward Surge Current 1 Sec. (ma)	Additional Information
T15	125	500K between -20 and -90V <sup>③</sup>	125	90	150	400	750	Inv. Recovery Time Tested <sup>⑤</sup>
T16	40	500K between -10 and -50V <sup>③</sup>	75	60	85	350	750	Inv. Recovery Time Tested <sup>⑥</sup>
1N111	5	125 @ -50V <sup>④</sup> 25 @ -10V <sup>④</sup>	75	60	50	150	500	
1N112	5	250 @ -50V <sup>④</sup> 50 @ -10V <sup>④</sup>	75	60	50	150	500	
1N113	5	125 @ -50V <sup>④</sup> 25 @ -10V <sup>④</sup>	75	60	50	150	500	
1N114	5	250 @ -50V <sup>④</sup> 50 @ -10V <sup>④</sup>	75	60	50	150	500	
1N115	5	500 @ -50V <sup>④</sup> 100 @ -10V <sup>④</sup>	75	60	50	150	500	

### ADDITIONAL SPECIFICATIONS

Ambient Temperature Range	-50°C to +80°C
Average Power Dissipation @ 25°C Derating above 25°C	130 Milliwatts 20 mw/10°C
Average Shunt Capacitance	0.9 $\mu$ fd.

- ① Measured at 0.25 Watts.
- ② The peak operating current is generally the controlling factor in AC rectifier service and may be exceeded for pulses of less than 200 microseconds duration.
- ③ Measured with a 60 CPS Sweep.
- ④ Measured at 55°C on an Oscilloscope Sweep.
- ⑤ In switching from 5 ma forward current to -40 volts inverse, the inverse resistance recovers to a minimum of 25K ohms in 0.3  $\mu$ sec. Loop resistance is approximately 2000 ohms.
- ⑥ In switching from 5 ma forward current to -40 volts inverse the inverse resistance recovers to a minimum of 80K ohms in 0.3  $\mu$ sec. Loop resistance approximately 2000 ohms.

NOTE: Maximum voltage and current ratings can not be simultaneously applied.



ENCAPSULATION: Phenolic case filled with moisture resistant impregnating compound.

MOUNTING: Any position, leads or clip-in.

LEADS: Staked and Tinned.

TE-1300A  
10-58

# Transitron

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CATALOG NO. 12-12-10

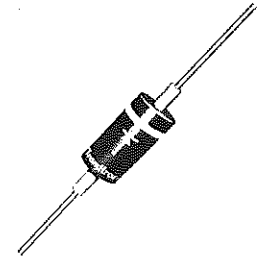




# Transitron

## GOLD BONDED GERMANIUM DIODES

### HIGH RESISTANCE TYPES



Transitron high inverse resistance diodes have been developed for use in those critical applications requiring a minimum of diode inverse current. They are ideal for high impedance circuits, where the diode inverse resistance must be many times higher than the circuit impedance.

Only types with a specified minimum inverse resistance of 1 megohm or greater are included in this group, and several types with a minimum inverse resistance of 5 megohms are available. It should be noted that this exceptionally high resistance has been achieved without sacrificing other diode characteristics.

#### SPECIFICATIONS AT 25°C

#### MAXIMUM RATINGS AT 25°C

TYPE	Minimum Forward Current @ +1V (ma)	Maximum Inverse Current @ Specified Voltage ( $\mu$ a)	Maximum Inverse Voltage (Volts) ①	Continuous Inverse Operating Voltage (Volts)	Continuous Average Forward Current (ma)	Peak Recurrent Forward Current (ma) ②	Forward Surge Current 1 Sec. (ma)
1N143(T5)	40	100 @ -100V	125	100	85	350	750
1N142(T4)	5	100 @ -100V	125	100	60	200	400
T9	100	20 @ -50V 2 @ -10V	75	60	100	300	600
1N141(T3)	20	50 @ -50V	85	70	70	250	500
1N63	5	50 @ -50V	125	100	60	200	400
1N75	5	50 @ -50V	125	100	50	150	400
1N54A	5	100 @ -50V 7 @ -10V	75	50	50	150	500
T13	40	2 @ -10V	25	20	85	350	750
T14	40	5 @ -10V	25	20	85	350	750
1N54	5	10 @ -10V	75	35	50	150	500

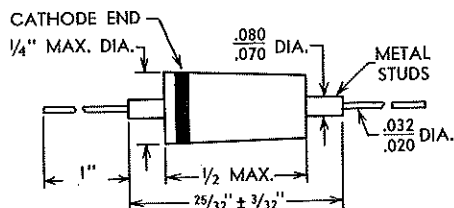
#### ADDITIONAL SPECIFICATIONS

Ambient Temperature Range      -50°C to +90°C  
 Average Power Dissipation @ 25°C      130 Milliwatts  
     Derating above 25°C      20 mw/10°C  
 Average Shunt Capacitance      0.9  $\mu$ fd.

① Measured at 0.25 watts.

② The peak operating current is generally the controlling factor in AC rectifier service and may be exceeded for pulses of less than 200 microseconds duration.

NOTE: Maximum voltage and current ratings can not be simultaneously applied.



ENCAPSULATION: Phenolic case filled with moisture resistant impregnating compound.

MOUNTING: Any position, leads or clip-in.

LEADS: Staked and Tinned.

TE-1300B  
10-58

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CATALOG NO. 12.13.10

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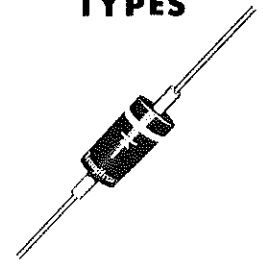
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# Transitron

## GOLD BONDED GERMANIUM DIODES

HIGH  
CONDUCTANCE  
TYPES



Transitron high conductance diodes are particularly useful in low impedance circuits, where high average or peak currents are encountered. Even where fractional microsecond pulses are handled, reliable operation is assured with the extremely fast forward switching characteristics of these devices. The very low dynamic forward resistance of these diodes is maintained up to ampere current levels. The forward characteristic is entirely free of saturation effects (increasing dynamic resistance). The greater current handling ability of Transitron high conductance diodes will often allow replacement of paralleled point contact diodes with a single unit.

### SPECIFICATIONS AT 25°C

### MAXIMUM RATINGS AT 25°C

TYPE	Minimum Forward Current @ +1V (ma)	Maximum Inverse Current @ Specified Voltage ( $\mu$ a)	Maximum Inverse Voltage (Volts) ①	Continuous Inverse Operating Voltage (Volts)	Continuous Average Forward Current (ma)	Peak Recurrent Forward Current (ma) ②	Forward Surge Current 1 Sec. (ma)	Description
T7	200	100 @ -50V	75	60	150	400	750	200 ma
T25	200	20 @ -10V	30	20	150	400	750	Types
T9	100	20 @ -50V 2 @ -10V	75	60	100	300	600	100 ma
T11	100	20 @ -20V	40	30	150	400	750	Types
1N144(T6)	100	200 @ -20V	40	30	150	400	750	
1N143(T5)	40	100 @ -100V	125	100	85	350	750	
1N140(T2)	40	300 @ -50V	85	70	85	350	750	40 ma
T13	40	2 @ -10V	25	20	85	350	750	Types
T14	40	5 @ -10V	25	20	85	350	750	
1N141(T3)	20	50 @ -50V	85	70	70	250	500	
T12	20	500 @ -50V 30 @ -10V	75	60	70	250	500	20 ma
1N139(T1)	20	1500 @ -50V	50	40	70	250	500	Types
1N56A	15	300 @ -30V	50	40	60	200	1000	15 ma Type

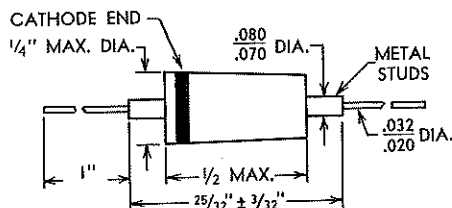
### ADDITIONAL SPECIFICATIONS

Ambient Temperature Range	-50°C to +80°C
Average Power Dissipation Derating above 25°C	130 Milliwatts 20 mw/10°C
Average Shunt Capacitance	0.9 $\mu$ fd.

① Measured at 0.25 watts.

② The peak operating current is generally the controlling factor in AC rectifier service and may be exceeded for pulses of less than 200 microseconds duration.

NOTE: Maximum voltage and current ratings can not be simultaneously applied.



ENCAPSULATION: Phenolic case filled with moisture resistant impregnating compound.

MOUNTING: Any position, leads or clip-in.

LEADS: Staked and Tinned.

TE-1300C  
10-58

# Transitron

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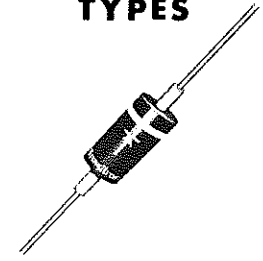
CATALOG NO. 12.14.10



# Transitron

## GOLD BONDED GERMANIUM DIODES

**HIGH  
TEMPERATURE  
TYPES**



The Transitron line of high temperature diodes offers the designer a variety of types that are tested to ensure complete conformance to all specifications at elevated temperatures.

The high forward conductance in these types ensures a lower internal power dissipation in any given circuit, resulting in greater reliability and power handling ability at elevated temperatures.

### SPECIFICATIONS AT 75°C

### MAXIMUM RATINGS AT 75°C

TYPE	Minimum Forward Current <sup>①</sup> @ +1V (ma)	Maximum Inverse Current @ Specified Voltage (μa)	Continuous Inverse Operating Voltage (Volts)	Continuous Average Forward Current (ma)	Peak Recurrent Forward Current <sup>②</sup> (ma)	Forward Surge Current 1 Sec. (ma)
T18	20	125 @ -50V	50	40	150	200
T19	200	180K Avg. @ 40V rms <sup>③</sup>	Note <sup>④</sup>	70	250	350
T20	20	500 @ -50V 30 @ -10V	50	40	150	200
T21	20	50 @ -20V	25	40	150	200
T22	40	20 @ -10V	15	50	180	250

### SPECIFICATIONS AT 60°C

### MAXIMUM RATINGS AT 60°C

T23	20	200 @ -50V <sup>⑤</sup>	50	50	180	300
T24	20	300 @ -30V <sup>⑤</sup>	35	50	180	300

### ADDITIONAL SPECIFICATIONS

Ambient Temperature Range -50°C to +80°C  
 Avg. Power Dissipation @ 25°C 130 Milliwatts  
 Derating above 25°C 20 mw/10°C  
 Average Shunt Capacitance 0.9 μfd.

① Measured at 25°C.

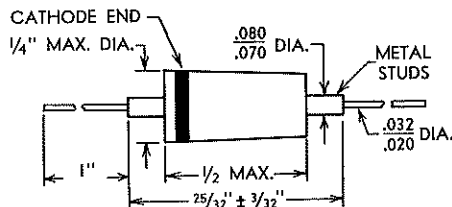
② The peak operating current is generally the controlling factor in AC rectifier service and may be exceeded for pulses of less than 200 microseconds duration.

③ This is the minimum value of average inverse resistance with a 40V RMS half sine wave applied. Minimum average forward current is 30 ma DC.

④ 60 volt peak half sine wave at an average forward current of 30 ma DC.

⑤ Measured with a 60 CPS sweep voltage.

NOTE: Maximum voltage and current ratings can not be simultaneously applied.



ENCAPSULATION: Phenolic case filled with moisture resistant impregnating compound.

MOUNTING: Any position, leads or clip-in.

LEADS: Staked and Tinned.

TE-1300D

10-58

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CATALOG NO. 12.15.10

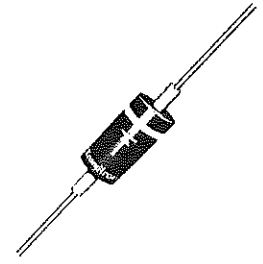


# Transitron

## GOLD BONDED GERMANIUM DIODES

### GENERAL PURPOSE TYPES

Transitron general purpose diodes combine reliability, performance and economy to the highest possible degree. They are ideally suited for most non-critical applications requiring small size, long life, and dependable performance. The forward conductance of Transitron general purpose diodes averages 5 times higher than conventional point contact types, affording more efficient operation and greater power handling ability for any given application.



#### SPECIFICATIONS AT 25°C

#### MAXIMUM RATINGS AT 25°C

TYPE	Minimum Forward Current @ +1V (ma)	Maximum Inverse Current @ Specified Voltage (µa)	Maximum Inverse Voltage (Volts) ①	Continuous Inverse Operating Voltage (Volts)	Continuous Average Forward Current (ma)	Peak Recurrent Forward Current (ma) ②	Forward Surge Current 1 Sec. (ma)	Description
T17	5	500 @ -100V 5 @ -3V	125	100	60	200	400	H.V. Type
1N52	5	150 @ -50V	85	70	50	150	400	M.V. Types
1N140(T2)	40	300 @ -50V	85	70	85	350	750	
1N48	5	800 @ -50V	85	70	60	200	400	
T12	20	500 @ -50V 30 @ -10V	75	60	70	250	500	
1N34A	5	500 @ -50V 30 @ -10V	75	60	50	150	500	
1N34	5	800 @ -50V 50 @ -10V	75	60	50	150	500	
1N139(T1)	20	1500 @ -50V	50	40	70	250	500	
1N51	2.5	1500 @ -50V	50	40	25	100	300	
1N35	7.5	10 @ -10V	75	50	22.5	60	100	Matched Duo Diode
1N38	3	625 @ -100V 6 @ -3V	125	100	50	150	500	100 Volt
1N55	5	800 @ -150V 300 @ -100V	170	150	50	150	500	150 Volt
1N55A	5	500 @ -150V	170	150	50	150	500	150 Volt
1N58	5	800 @ -100V	125	100	60	200	400	100 Volt
1N58A	5	600 @ -100V	125	100	50	150	500	100 Volt
1N38A	5	500 @ -100V 5 @ -3V	125	100	50	150	500	
1N69	5	800 @ -50V 50 @ -10V	85	70	40	125	400	
1N70	5	300 @ -50V 25 @ -10V	125	100	40	125	400	
1N81	5	10 @ -10V	50	40	40	125	400	

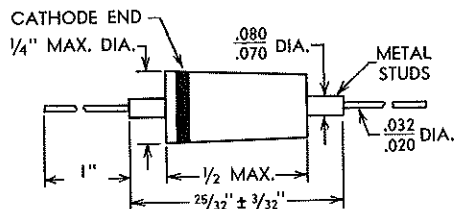
#### ADDITIONAL SPECIFICATIONS

Ambient Temperature Range -50°C to +80°C  
 Avg. Power Dissipation 130 Milliwatts  
 Derating above 25°C 20 mw/10°C  
 Average Shunt Capacitance 0.9 µµfd.

① Measured at 0.25 watts.

② The peak operating current is generally the controlling factor in AC rectifier service and may be exceeded for pulses of less than 200 microseconds duration.

NOTE: Maximum voltage and current ratings can not be simultaneously applied.



ENCAPSULATION: Phenolic case filled with moisture resistant impregnating compound.

MOUNTING: Any position, leads or clip-in.

LEADS: Staked and Tinned.

**TE-1300E**  
10-58

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CATALOG NO. 12,22,10

