Transitron

SILICON DIODES

MILITARY TYPES

Transitron's military type silicon junction diodes are designed to meet the requirements of MIL-E-1. They have low inverse currents and provide reliable operation up to 200°C. Their small size and superior electrical characteristics make them ideal for critical miniaturization applications. They are recommended for low level magnetic amplifier systems, power supplies, bridge modulators and similar applications up to 100 Kc.

MAXIMUM RATINGS / **SPECIFICATIONS**

TYPE	Max. DC Inverse Operating Voltage (volts) ①	Maximum RMS Inverse Voltage (volts) ②	Maximum Average Forward Current @25°C ③	Peak Recurrent Current (ma.) ③	Maximum Pulse Current (ma.) ③	Maximum Forward Voltage @25°C (volts) (ma.)	Inverse Current at Specified DC Test Voltage (μa.) 25°C	150°C	Test Volts	Minimum Saturation Voltage @25°C ④ (volts)
1N457	60	42	75	225	1000	1.0 @ 20	.025	5	60	70
1N458	125	88	55	165	800	1.0 @ 7	.025	5	125	150
1N459	175	125	40	120	400	1.0 @ 3	.025	5	175	200

① Diode will still have high impedance over the operating temperature range at this inverse voltage.

② Resistive or inductive load.

③ Current Ratings as specified in MIL-E-1. For additional current ratings, see other side of sheet.

④ Measured at 100 μa. inverse current.

ADDITIONAL CHARACTERISTICS AND RATINGS

Operating and storage temperature range:	-65°C to +200°C
Maximum operating altitude:	15 mm Hg
Maximum average power dissipation @25°C:	250 mw
Average Shunt Capacity @ -10V	3 μμf

SPECIFICATIONS / **MAXIMUM RATINGS AT 125°C**

TYPE	Maximum Forward Current @1V (ma.)	Maximum Inverse Current at Specified Voltage (μa.) @25°C	@100°C	Maximum Recovery Time ① (μsec.)	(μa.)	Maximum Inverse Operating Voltage (volts)	Continuous Average Forward Current ② (ma.)	Peak Recurrent Forward Current ② (ma.)	Forward Surge Current 1 Sec. ② (ma.)
1N251*	2	.2 @ -10V	10 @ -10V	.15	500	30	14	42	200

*The 1N251 is a high frequency silicon diode with very low shunt capacitance for use in critical high frequency and fast switching applications. For additional characteristics, see the High Frequency Bonded Types specification sheet.

① 256 JAN Circuit with E_b = 10V; I_f = 5 ma; R_L = 1K; C_L = 10 μμf

② Current ratings as specified in MIL-E-1.

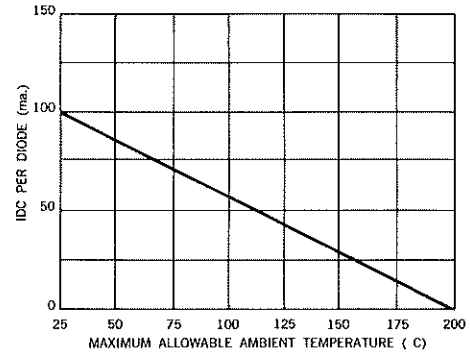
ADDITIONAL CHARACTERISTICS AND RATINGS

Operating and storage temperature range:	-65°C to +150°C
Maximum operating altitude:	15 mm Hg
Maximum average power dissipation @25°C:	125 mw
Average Shunt Capacitance:	0.8μμf

ENVIRONMENTAL SPECIFICATIONS

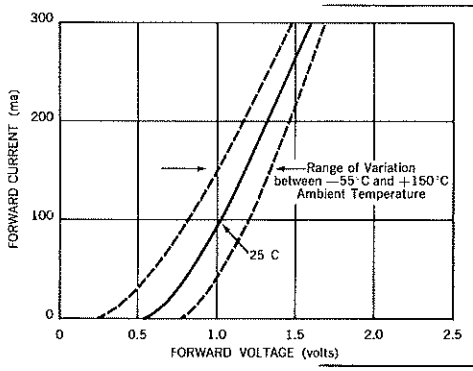
1. Life test in accordance with Para. 4.11, MIL-E-1 — 1000 hrs. min.
2. Moisture Resistance test Method 106, MIL-STD-202 — 10 cycles min.
3. For other environmental tests for a particular type, see the applicable MIL-E-1 specification sheet.

TE-1350A
11-58



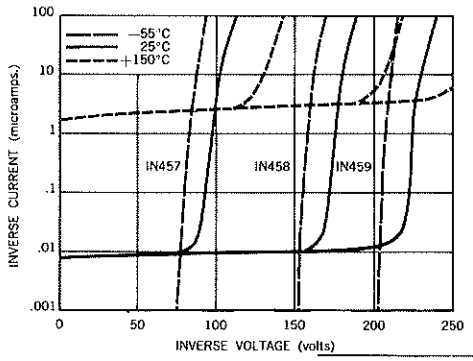
OPERATION AT HIGH TEMPERATURES

Transitron's subminiature glass silicon junction diodes may be operated at any temperature in the range -55°C to +200°C. While no voltage derating is necessary over this range, the current rating curve shown at left should be used in designing for desired load current.



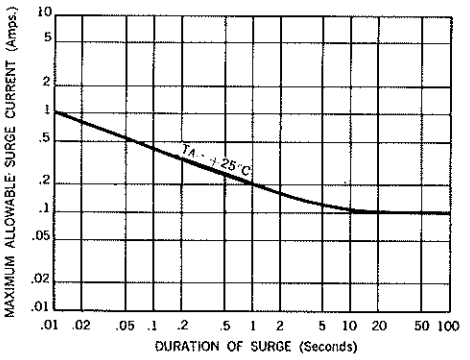
FORWARD CHARACTERISTICS

The forward E-I characteristics of a silicon junction diode can be approximated by considering a constant voltage drop in series with a constant resistance. The series resistance is low and affords excellent voltage regulation. Very efficient rectifier, detector and modulator circuits are possible because of the high conductance, low loss characteristics of the silicon junction diodes. For parallel operation, series equalizing resistances equal to the DC resistance of the diode should be used with each unit.



INVERSE CHARACTERISTICS

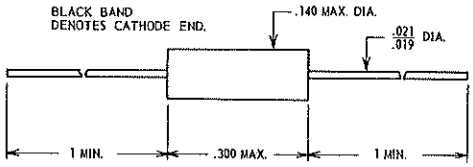
The leakage current in a subminiature glass silicon junction diode is extremely low, typically less than 0.015 milliamperes at 150°C. Inverse losses are, therefore, negligible and do not have to be considered in circuit design. The inverse voltage ratings given are absolute maximum value not to be exceeded under any operating conditions Silicon junction diodes may be operated in series to provide high inverse voltage ratings; no voltage equalizing resistors are necessary.



SURGE CURRENT RATINGS

Silicon junction diodes require protection from excessive surge currents when used in circuits having capacitive loads or filters. The curve at left shows the maximum surge currents for 200 ma. types as a function of time (approximately equal to the total series resistance times the load capacitance. Allowable surge currents for 100 ma. types are 50% of values shown for 200 ma. types. See Bulletin TE-1351 for further details on capacitive load operation.

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.

Transitron

SILICON DIODES

HIGH CONDUCTANCE JUNCTION TYPES

Transitron's subminiature glass silicon junction diodes feature high forward conductance and reliable operation up to 200°C. Their low inverse currents and small size make them ideal for critical miniature circuit designs. They are recommended for low level magnetic amplifier systems, power supplies, bridge modulators, and similar applications up to 100 Kc.

	MAXIMUM RATINGS						SPECIFICATIONS				
TYPE	Max. DC Inverse Operating Voltage (volts) ①	Maximum RMS Inverse Voltage (volts) ②	Maximum Average Forward ③ Current (ma.) @25°C	@150°C	Peak Recurrent Forward Current (ma.)	Maximum Surge Current (amp.) ④	Maximum Forward Voltage @100 ma @25°C (volts)	Inverse Current At Specified DC Test Voltage (μa.) 25°C	150°C	Test Volts	Minimum Saturation Voltage ⑤ @25°C (volts)
1N482	36	25	100	25	400	1.0	1.1	0.25	30	30	40
1N482A	36	25	200	50	650	2.0	1.0	0.025	15	30	40
1N482B	36	25	200	50	650	2.0	1.0	0.025	5	30	40
1N483	70	50	100	25	400	1.0	1.1	0.25	30	60	80
1N483A	70	50	200	50	650	2.0	1.0	0.025	15	60	80
1N483B	70	50	200	50	650	2.0	1.0	0.025	5	60	80
1N484	130	90	100	25	400	1.0	1.1	0.25	30	125	150
1N484A	130	90	200	50	650	2.0	1.0	0.025	15	125	150
1N484B	130	90	200	50	650	2.0	1.0	0.025	5	125	150
1N485	180	125	100	25	400	1.0	1.1	0.25	30	175	200
1N485A	180	125	200	50	650	2.0	1.0	0.025	15	175	200
1N485B	180	125	200	50	650	2.0	1.0	0.025	5	175	200
1N486	225	160	100	25	400	1.0	1.1	0.25	50	225	250
1N486A	225	160	200	50	650	2.0	1.0	0.05	25	225	250
1N486B	225	160	200	50	650	2.0	1.0	0.05	10	225	250
1N487	300	210	100	25	400	1.0	1.1	0.25	50	300	330
1N487A	300	210	200	50	650	2.0	1.0	0.1	25	300	330
1N488	380	265	100	25	400	1.0	1.1	0.25	50	380	420
1N488A	380	265	200	50	650	2.0	1.0	0.1	25	380	420
1N456	25	17	90	25	360	1.0	1.0 @ 40 ma.	0.025	5	25	30
1N457	60	42	100	25	400	1.0	1.0 @ 20 ma.	0.025	5	60	70
1N458	125	88	100	25	400	1.0	1.0 @ 7 ma.	0.025	5	125	150
1N459	175	125	100	25	400	1.0	1.0 @ 3 ma.	0.025	5	175	200
1N461	25	17	60	25	240	1.0	1.0 @ 15 ma.	0.5	30	25	30
1N462	60	40	50	25	200	1.0	1.0 @ 5 ma.	0.5	30	60	70
1N463	175	125	30	15	120	0.5	1.0 @ 1 ma.	0.5	30	175	200
1N464	125	85	40	20	160	0.5	1.0 @ 3 ma.	0.5	30	125	150

ADDITIONAL CHARACTERISTICS AND RATINGS

Operating and storage temperature range	-55°C to +200°C
Nominal frequency range	0 to 100 Kc
Typical forward dynamic resistance	0.8 ohm
Typical forward voltage temperature coefficient	-.001 V/°C
Typical inverse voltage temperature coefficient	+0.1 %/°C
Maximum average power dissipation at 25°C	250 mw
Average Shunt Capacity @ -10V	3 μμf

① Diode will still have high impedance over the operating temperature range at this inverse voltage.

② Resistive or inductive load.

③ See other side of page for current ratings at other temperatures.

④ See other side of page for additional surge current information.

⑤ Measured at 100 μa. inverse current.

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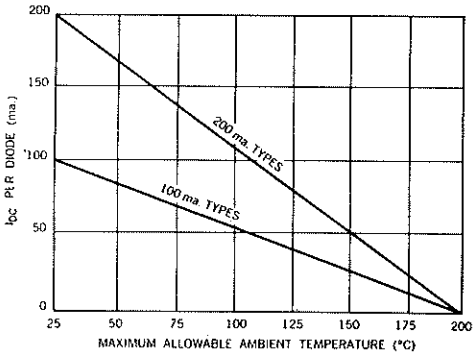
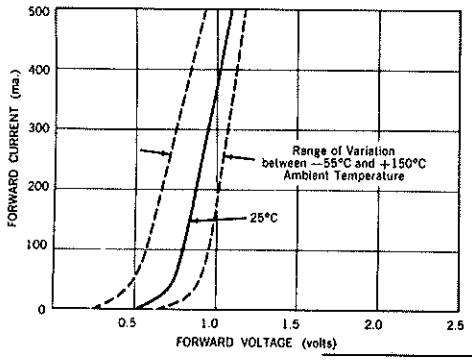


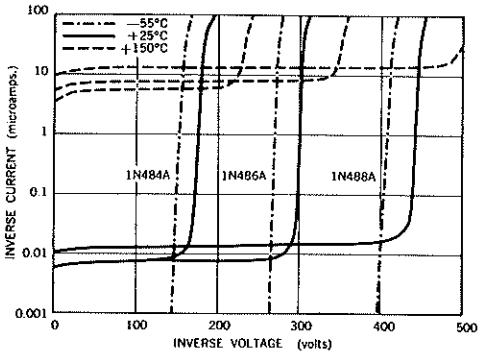
OPERATION AT HIGH TEMPERATURES

Transitron's subminiature glass silicon junction diodes may be operated at any temperature in the range -55°C to +200°C. While no voltage derating is necessary over this range, the current rating curve shown at left should be used in designing for desired load current.



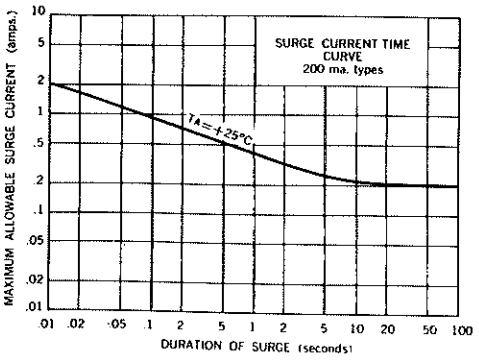
FORWARD CHARACTERISTICS

The forward E-I characteristics of a silicon junction diode can be approximated by considering a constant voltage drop in series with a constant resistance. The series resistance is low and affords excellent voltage regulation. Very efficient rectifier, detector and modulator circuits are possible because of the high conductance, low loss characteristics of the silicon junction diodes. For parallel operation, series equalizing resistances equal to the DC resistance of the diode should be used with each unit.



INVERSE CHARACTERISTICS

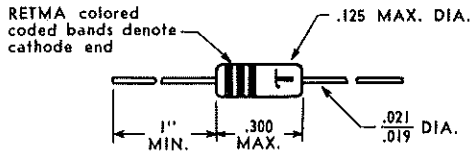
The leakage current in a subminiature glass silicon junction diode is extremely low, typically less than 0.015 milliamperes at 150°C. Inverse losses are, therefore, negligible and do not have to be considered in circuit design. The inverse voltage ratings given are absolute maximum value not to be exceeded under any operating conditions. Silicon junction diodes may be operated in series to provide high inverse voltage ratings; no voltage equalizing resistors are necessary.



SURGE CURRENT RATINGS

Silicon junction diodes require protection from excessive surge currents when used in circuits having capacitive loads or filters. The curve at left shows the maximum surge currents for 200 ma. types as a function of time (approximately equal to the total series resistance times the load capacitance. Allowable surge currents for 100 ma. types are 50% of values shown for 200 ma. types. See Bulletin TE-1351 for further details on capacitive load operation.

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.

Transitron SILICON DIODES

RECTIFIER TYPES

Transitron's subminiature glass silicon rectifiers combine high current and voltage ratings in a tiny, rugged package – ideal for printed circuits and terminal board assemblies. They feature high forward conductance and reliability at temperatures up to 175°C. Hermetic sealing and rigid production control insure dependable performance under the most severe operating conditions.

MAXIMUM RATINGS AT 150°C AMBIENT

SPECIFICATIONS

TYPE	Peak Recurrent Inverse Voltage (volts)	Maximum RMS Voltage (volts)	Maximum Average Forward Current (1)(ma) @150°C	@25°C	Peak Recurrent Forward Current (ma)	Maximum Surge Current (2) (amps)	Max. Forward Voltage @ Specified Current @25°C (Volts @ ma)	Max. Inverse Current @ Rated PIV @25°C (μa)		Maximum Average Inverse Current (3) @150°C (ma)	Minimum Saturation Voltage @25°C (volts) (4)
								@25°C	@100°C		@100°C
IN689 (TG62)	600	420	150	400	1.8	5	1 @ 400	1.0		.2	680
IN687 (TG61)	600	420	75	200	1.0	3	1 @ 200	1.0		.2	680
IN686 (TG52)	500	350	150	400	1.8	5	1 @ 400	1.0		.2	565
IN685 (TG51)	500	350	75	200	1.0	3	1 @ 200	1.0		.2	565
IN684 (TG42)	400	280	150	400	1.8	5	1 @ 400	1.0		.2	455
IN683 (TG41)	400	280	75	200	1.0	3	1 @ 200	1.0		.2	455
IN682 (TG32)	300	210	150	400	1.8	5	1 @ 400	1.0		.2	340
IN681 (TG31)	300	210	75	200	1.0	3	1 @ 200	1.0		.2	340
IN679 (TG22)	200	140	150	400	1.8	5	1 @ 400	1.0		.2	230
IN678 (TG21)	200	140	75	200	1.0	3	1 @ 200	1.0		.2	230
IN677 (TG12)	100	70	150	400	1.8	5	1 @ 400	1.0		.2	115
IN676 (TG11)	100	70	75	200	1.0	3	1 @ 200	1.0		.2	115
IN649	600	420	150	400	1.8	5	1 @ 400	.2	25	-	720
IN648	500	350	150	400	1.8	5	1 @ 400	.2	20	-	600
IN647	400	280	150	400	1.8	5	1 @ 400	.2	20	-	480
IN646	300	210	150	400	1.8	5	1 @ 400	.2	15	-	360
IN645	225	160	150	400	1.8	5	1 @ 400	.2	15	-	275

ADDITIONAL CHARACTERISTICS AND RATINGS

Maximum Operating and Storage Temperature Range	-65°C to +175°C
Typical Forward Dynamic Resistance	0.3 ohm
Typical Forward Voltage Temperature Coefficient	-.001 V/°C

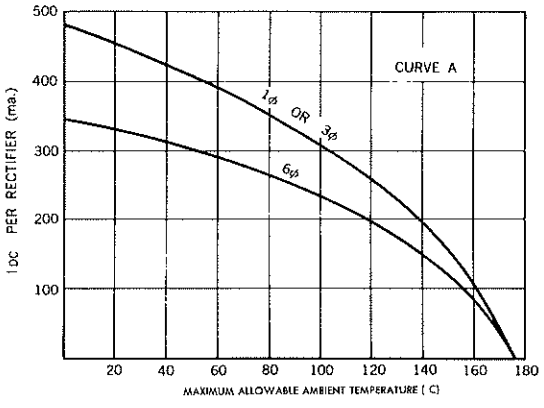
(1) Resistive or inductive load. See Curve A for current ratings at temperatures other than 150°C.

(2) Maximum allowable surge current for one cycle @ 60cps. For complete surge ratings see Curve D.

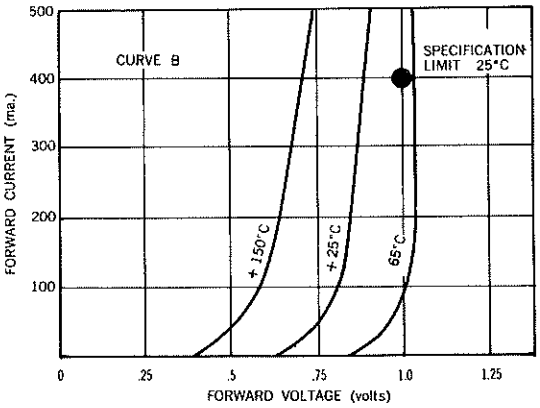
(3) Averaged over one cycle with rectifier operating at full rated current and voltage into a resistance load.

(4) Measured at 100μa.

TEMPERATURE RATINGS



TYPICAL FORWARD CHARACTERISTICS



Operation at High Temperatures: Transitron subminiature silicon rectifiers may be operated at any temperature in the range -65°C to +175°C. While no voltage derating is necessary over this range, the temperature rating curve shown should be used in designing for desired load current.

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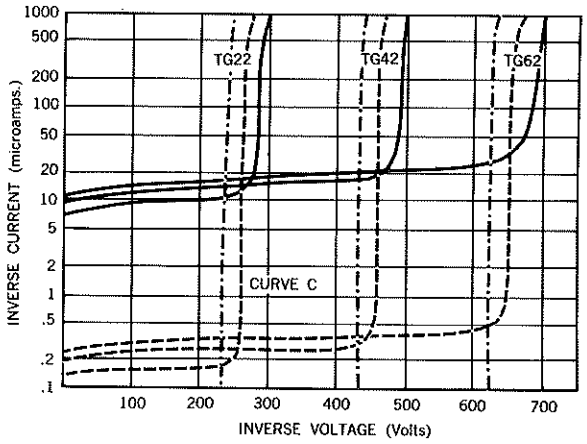
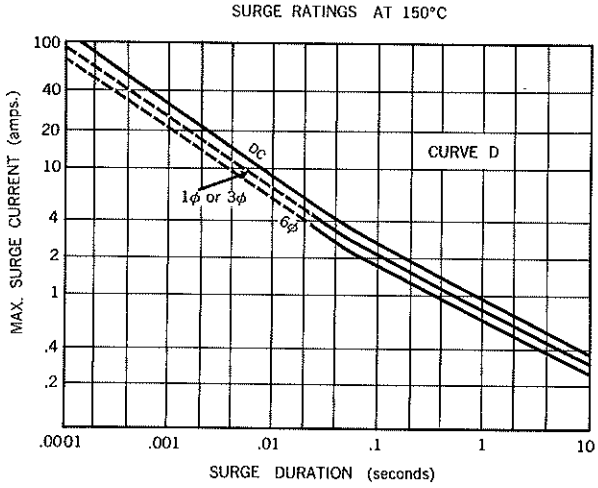
TYPICAL INVERSE CHARACTERISTICS



The leakage current in a subminiature silicon rectifier is extremely low, less than 0.2 milliampere average under full load conditions, at 150°C. Inverse losses are, therefore, negligible and do not normally need to be considered in circuit design. The inverse voltage does not require derating with temperature; in fact, the actual breakdown voltage increases slightly with increasing temperature. The inverse voltage ratings given are absolute maximum values and should not be exceeded under any operating conditions.

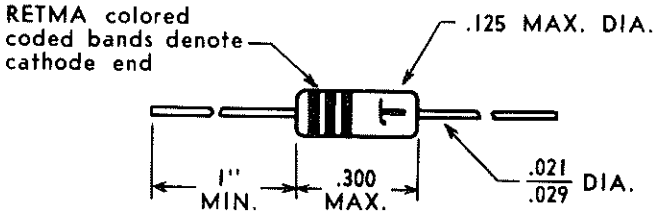


SURGE RATINGS

NOTE: For surge duration of 2 cycles or less, use the DC curve (the 1 ϕ or 3 ϕ and the 6 ϕ curves do not apply).

For surge duration greater than two cycles, use the maximum average surge current obtained from the appropriate curve.

MECHANICAL DATA



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

LEADS: Tinned dumet.

WEIGHT: Less than 0.2 gram.

MAXIMUM ALTITUDE: Any.

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

YOUR INQUIRIES ARE INVITED ON SPECIAL RECTIFIERS AND MOUNTING REQUIREMENTS.

Transitron SILICON DIODES

FAST SWITCHING JUNCTION TYPES

Transitron's fast switching silicon diodes are designed for pulse and switching circuits where diode recovery time is important. Along with fast recovery, they combine high inverse voltage ratings and high conductance, with an operating temperature range up to 150°C. Their low inverse leakage current and excellent stability are particularly important for critical computer applications. A range of types provide optimum characteristics for both low current and high current applications.

SPECIFICATIONS

MAXIMUM RATINGS

TYPE	Maximum Forward Voltage (V @ ma.)	Maximum Inverse Current, (μa.) 25°C	100°C	Test Volts	Maximum Recovery Time ⑤ (μsec.)	(μa)	Minimum Saturation Voltage ① (volts)	Maximum DC Inverse Working Voltage ② (volts)	Maximum Average Forward Current ③ (ma.) 25C	100C	Peak Pulse Current (ma.) ④
SG268	1.0 @ 4	.5	50⑦	100	.3	100 [5ma to -40V]	110	100	60	30⑦	400
SG269	1.0 @ 4	.5	50⑦	175	.3	100 [5ma to -40V]	200	180	60	30⑦	400
SG213	1.5 @ 5	.25	50	175	.3	100 [5ma to -40V]	200	180	30	20	100
SG212	1.5 @ 5	.25	20	125	.3	100 [5ma to -40V]	150	130	30	20	100
SG211	1.5 @ 5	.25	20	60	.3	100 [5ma to -40V]	80	70	30	20	100
SG223	1.5 @ 30	.25	50	175	.5	500 [20ma to -40V]	200	180	55	30	300
SG222	1.5 @ 30	.25	20	125	.5	500 [20ma to -40V]	150	130	55	30	300
SG221	1.5 @ 30	.25	20	60	.5	500 [20ma to -40V]	80	70	55	30	300
SG228	1.5 @100	.25	50	175	1	500 [20ma to -40V]	200	180	80	40	600
SG227	1.5 @100	.25	20	125	1	500 [20ma to -40V]	150	130	80	40	600
SG226	1.5 @100	.25	20	60	1	500 [20ma to -40V]	80	70	80	40	600
SG225	1.5 @100	.25	20	30	1	500	40	36	80	40	600
SG218	1.5 @ 5	.25	50	175	1	100 [5ma to -40V]	200	180	30	20	100
SG217	1.5 @ 5	.25	20	125	1	100 [5ma to -40V]	150	130	30	20	100
SG216	1.5 @ 5	.25	20	60	1	100 [5ma to -40V]	80	70	30	20	100
SG215	1.5 @ 5	.25	20	30	1	100	40	36	30	20	100
1N625	1.5 @ 4	1.0	30	20	1.0	87.5 [30ma to -35V ⑥]	35	25	30	20	100
1N626	1.5 @ 4	1.0	30	35	1.0	87.5 [30ma to -35V ⑥]	50	45	30	20	100
1N627	1.5 @ 4	1.0	30	75	1.0	87.5 [30ma to -35V ⑥]	100	85	30	20	100
1N628	1.5 @ 4	1.0	30	125	1.0	87.5 [30ma to -35V ⑥]	150	130	30	20	100
1N629	1.5 @ 4	1.0	30	175	1.0	87.5 [30ma to -35V ⑥]	200	180	30	20	100

① Measured at 100 μa inverse current.

② Diode will have high impedance over the operating temperature range at this inverse voltage.

③ See other side of page for current ratings at other temperatures.

④ Based on a 1% duty cycle, 2μsec. pulse duration.

⑤ Measured in 256-JAN circuit $R_L = 2K$, $C_L = 10\mu\mu f$.

⑥ Measured in Modified "Y" circuit.

⑦ Measured at 125°C.

ADDITIONAL CHARACTERISTICS

Power Dissipation	200 mw
Derating above 25°C	15 mw/10°C
Average Shunt Capacitance	2μμf
Operating and Storage Temperature Range	-65°C to 150°C

TE-1350D
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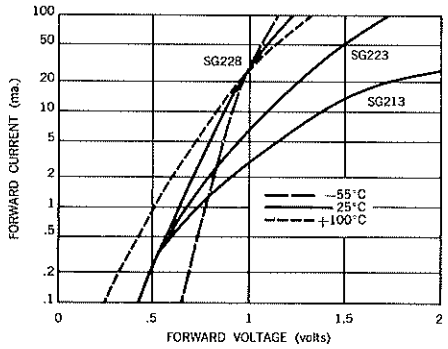
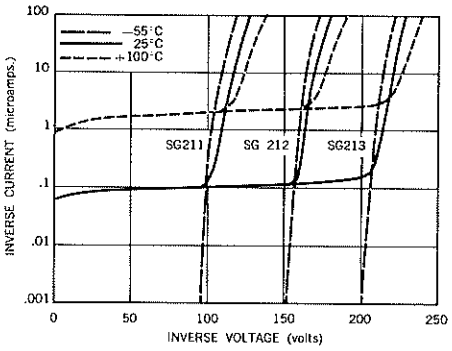
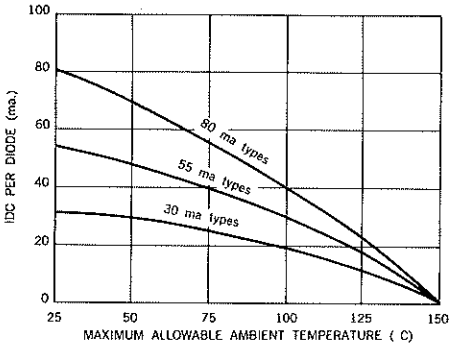
TYPICAL CHARACTERISTICS



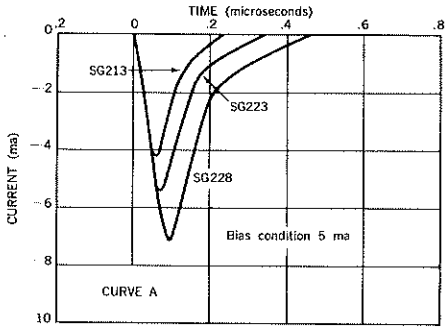


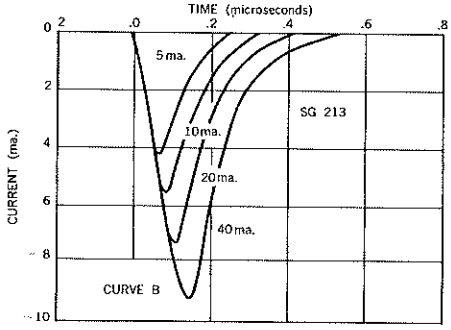
OPERATION AT HIGH TEMPERATURES



Transitron's fast switching diodes may be operated at any temperature in the range of -55°C to 150°C. While no voltage derating is necessary over this range, the current rating curves shown above should be used in designing for desired load current.

REVERSE RECOVERY CHARACTERISTICS

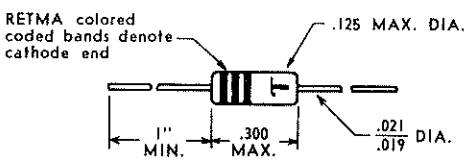




The above curves illustrate the typical recovery characteristics of the various classes of fast switching diodes in the 256 JAN circuit (R_L=2K C_L=10μμf) when an inverse voltage of 40 volts is applied. Curve A describes the relationship between the three prime classes of fast switching diodes measured with a 5 ma forward bias. The recovery characteristics are a function of the forward current prior to switching as indicated in Curve B. The recovery is essentially independent of voltage above 20 volts. As the voltage is decreased below 20, the peak reverse current decreases, and the time required to recover to a low current increases.

The type of circuit that is used to measure recovery affects the characteristics that will be observed. The test circuit, therefore, only measures relative merits and provides a method for selecting satisfactory diodes after correlation with circuit requirements. In order to improve correlation, the 256 JAN circuit used to measure these diodes has been adapted as the standard test method by ASESA.

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.

Transitron SILICON DIODES

HIGH FREQUENCY BONDED TYPES

Transitron's silicon bonded diodes are small-area junction diodes designed to provide excellent high frequency and switching characteristics at temperatures up to 150°C. Their extended high frequency properties make them particularly useful in detector, discriminator, or pulse circuitry. Because of the very low shunt capacitance of the silicon bonded diodes, they will directly replace vacuum or germanium diodes in almost any critical high frequency circuit.

SPECIFICATIONS — MAXIMUM RATINGS AT 125°C

TYPE	Minimum Forward Current @ 1.0V (ma.)	Maximum Inverse Current at Specified Voltage (μa.) @ 25°C	@ 125°C	Maximum Recovery Time ① (μsec)	(μa)	Maximum Inverse Operating Voltage (volts)	Continuous Average Forward Current (ma.) @ 25°C	@ 125°C	Peak Recurrent Forward Current (ma.)	Forward Surge Current 1 Sec. (ma.)
1N251	5	0.1 @ -10V 20 @ -20V	10 @ -10V	0.15	500	30	75	30	90	125
1N252	10	0.1 @ -5V 20 @ -12V	10 @ -5V	0.15	250	20	100	40	120	150
S4G	1	1 @ -10V 20 @ -15V	10 @ -10V	0.25	500	20	40	15	45	60
S5G	2	0.1 @ -10V 20 @ -20V	10 @ -10V	0.25	500	30	60	25	75	100
S6G	5	0.5 @ -5V 20 @ -10V	10 @ -5V	0.25	500	15	75	30	90	125
S9G	2	0.1 @ -20V 20 @ -30V	10 @ -20V	0.25	500	40	60	25	75	100
S10G	100 @ 1.7V	0.5 @ -5V 20 @ -10V	10 @ -5V	0.25	500	15	120	50	200	150

ADDITIONAL CHARACTERISTICS AND RATINGS	
Power dissipation at 25°C	150 mw
Derating above 25°C	10 mw/10°C
Typical Rectification Efficiency at 100 mc, 2 V rms.	60%
Average Shunt Capacitance	0.8 mmf
Operating Frequency Range	0-1000 mc
Operating and Storage Temperature range	-55°C to +150° C

① Inverse pulse recovery measured in 256-JAN circuit; $R_L = 1K$; $C_L = 10\mu\mu f$; $I_f = 5ma$; $E_b = 10V$.

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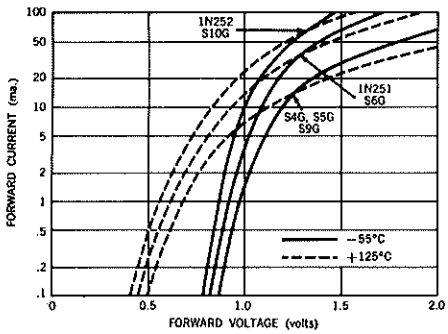
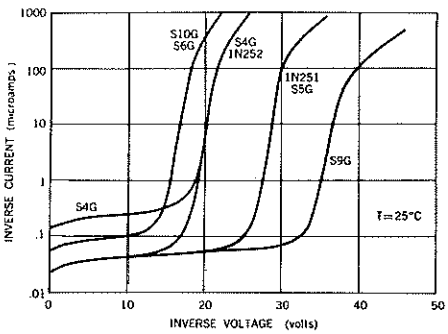
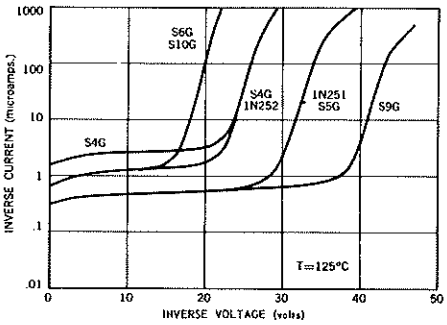
TYPICAL CHARACTERISTICS







APPLICATIONS INFORMATION

OPERATION AT HIGH TEMPERATURES

Silicon bonded diodes are being widely used in aircraft and missile applications where high ambient temperatures are encountered. They are designed for reliable operation over the temperature range -55°C to +150°C. No voltage derating is necessary over the operating temperature range. The inherently low inverse currents assure minimum circuit loading.

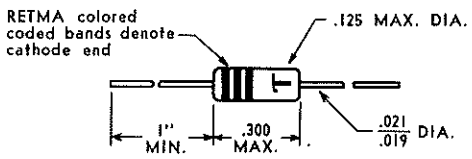
SWITCHING

The fast pulse recovery characteristics and the high inverse resistance of the silicon bonded diodes make them ideal for high speed computer and switching service. Typical applications include clipping, clamping, pulse stretching, capacity storage systems, and logic matrices. These diodes have recovery times considerably faster than germanium diodes. Specific information about pulse recovery testing is available upon request.

HIGH FREQUENCY OPERATION

The low shunt capacitance of Transitron's silicon bonded diodes permits operation at frequencies up to 1000 megacycles. This feature, along with high electrical and environmental ruggedness, allows the use of these diodes in many critical military and commercial applications. Typical uses include IF detectors, discriminators, and high-level mixers. These diodes are useful in some cases where microwave crystals have inadequate inverse voltage capabilities.

MECHANICAL DATA

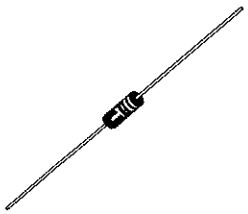


ENCAPSULATION: All glass hermetically sealed case insures complete environmental protection.
LEADS: Tinned dumet.
MAXIMUM ALTITUDE: Any.

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

Transitron SILICON DIODES

VERY FAST SWITCHING TYPE



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.

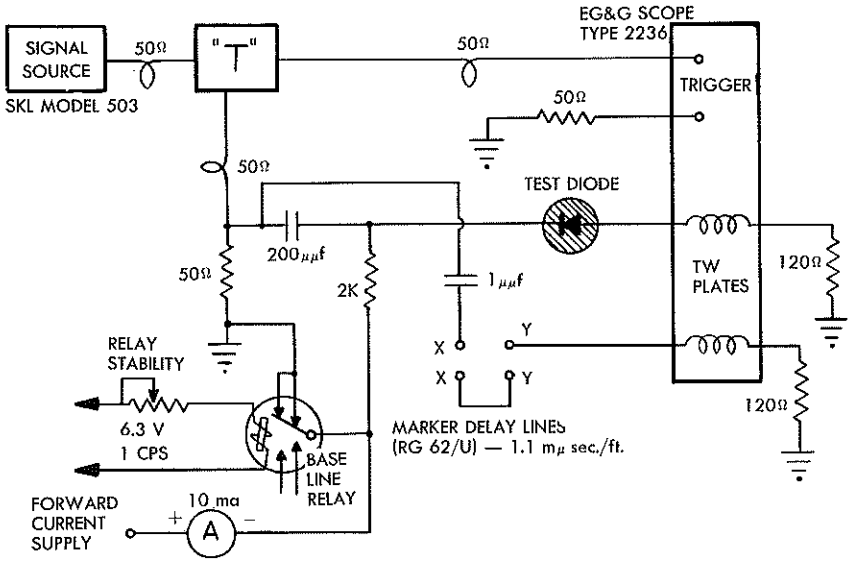
SPECIFICATIONS AT 25°C — MAXIMUM RATINGS AT 25°C

TYPE	Maximum Forward Voltage @ 10 ma. (volts)	Maximum Inverse Current @ Specified Voltage (μa)	Maximum Inverse Voltage (volts)	Maximum Inverse Pulse Recovery Time (1) (μsec)	Continuous Average Forward Current (ma.)	Peak Recurrent Forward Current (ma.)	Forward Surge Current 1 Sec. (ma.)
S266G	1.5	1.0 @ -6V	8	.004	20	50	100

ADDITIONAL SPECIFICATIONS

Ambient Temperature Range	-55°C to +150°C
Average Power Dissipation @ 25°C	50 Milliwatts
Derating above 25°C	10 mw/10°C

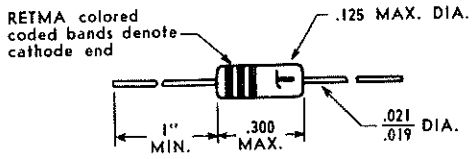
(1) In switching from 10ma Forward current to -6 Volts inverse, recovery to 3 ma in specified time as measured in circuit below.



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 x 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.

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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FAST SWITCHING SILICON DIODES PB 51

SUBMINIATURE GLASS PACKAGE

Type	Minimum Forward Current @ 1 V (ma)	Max. Rev. Current @ Specified Voltage (ua. @ volts) 25°C	125°C	Minimum Saturation Voltage @ 100 ua. (25°C) (volts)	Reverse Recovery (256 JAN) Max. Rec. Time usec	Rec. Level ua	I ma	V volts	C_L uuf	R_L ohms	Maximum Average Forward Current @ 25°C (ma)
1N806	4 Note 1	.5 @ 100	50 @ 100	110	0.3	100	5	40	10	2K	30
1N807	4 Note 1	.5 @ 175	50 @ 175	200	0.3	100	5	40	10	2K	30
1N808	100	1.0 @ 100	50 @ 100	110	0.3	350	30	35	10	500	100
1N809	100	1.0 @ 200	50 @ 200	220	0.3	350	30	35	10	500	100
		25°C	100°C	25°C							
1N643	10 Note 3	.025 @-10 1ma @ 100	5 @ -10 15 @ 100	200	0.3 Note2	200	5	40	40	2300	40
1N658	100	.05 @ 50	25 @ 50 150°C	120	0.3	500	5	40	10	2K	200
1N659	6 Note 3	5 @ 50	25 @ 50	55	0.3	88	30	35	10	2K	100
1N660	6 Note 3	5 @ 100	50 @ 100	110	0.3	88	30	35	10	2K	100
1N661	6 Note 3	10 @ 200	100 @ 200	220	0.3	88	30	35	10	2K	100
1N662	10 Note 3	1 @ 10 20 @ 50	20 @ 10 100 @ 50	100	0.5 Note2	400	5	40	40	2300	40
1N663	100	5 @ 75	50 @ 75	100	0.5 Note2	200	5	40	40	2300	60

Note 1: Maximum 1 mc Capacity = 3 uuf (-10 Volts)

Note 2: IBM Modified "Y" Circuit

Note 3: Typical 1 mc Capacity = 3 uuf (-10 Volts)

ADDITIONAL CHARACTERISTICS

Power Dissipation	200 mw
Derating above 25°C	15 mw/10°C
Operating and Storage Temperature Range	-55°C to 150°C