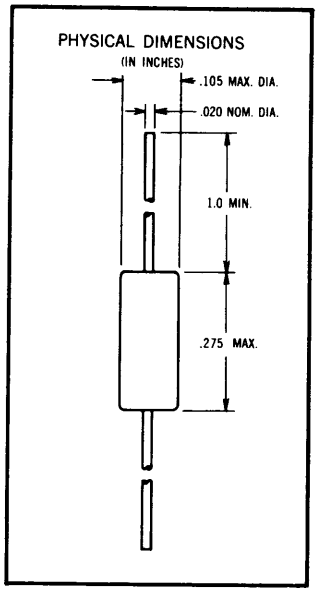
1N3062

LOW-CAPACITANCE PLANAR DIODE

1 pf AT 0 VOLTS

MAXIMUM RATINGS (25° C) [Note 1]

WIV	Working Inverse Voltage	50 Volts
I_o	Average rectified current	75 mA
I_F	Forward current steady state d.c.	115 mA
i_f	Recurrent peak forward current	225 mA
i_f (surge)	Peak forward surge current pulse width of 1.0 Second	500 mA
i_f (surge)	Peak forward surge current pulse width of 1.0 μSecond	2000 mA
P	Power dissipation	250 mW
P	Power dissipation derating factor	1.67 mW/°C
T_A	Operating temperature	-65° C to +175° C
T_{stg}	Storage temperature, ambient	-65° C to +200° C



ELECTRICAL SPECIFICATIONS (25° C unless otherwise noted)

Symbol	Characteristic	Min.	Typ.	Max.	Units	Test Conditions
V_F	Forward Voltage			1.0	Volt	I_F = 20 mA
I_R	Reverse Current			0.1	μA	V_R = 50 V
I_R	Reverse Current (150° C)			100	μA	V_R = 50 V
BV	Breakdown Voltage	75			Volts	I_R = 5.0 μA
t_{rr}	Reverse Recovery Time [Note 2]			2.0	nsec	I_f = 10 mA, V_r = 6.0 V, R_L = 100 ohms
C_o	Capacitance [Note 3]			1.0	pf	V_R = 0 V f = 1.0 mc
RE	Rectification Efficiency [Note 4]	45			%	f = 100 mc
$\Delta V_F/°C$	Forward Voltage Temperature Coefficient		-1.8		mV	

NOTES:

(1) The maximum ratings are limiting values above which life or satisfactory performance may be impaired.

(2) Recovery to 1.0 mA

(3) Capacitance as measured on Boonton Electronic Corporation Model No. 75A-S8 Capacitance Bridge or equivalent.

(4) Rectification efficiency is defined as the ratio of D. C. load voltage to peak rf input voltage to the detector circuit, measured with 2.0 V r. m. s. input to the circuit. Load resistance 5.0 K ohms, load capacitance 20 pf.

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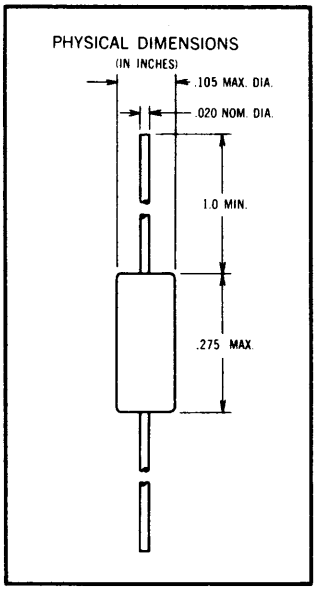
1N3063

ULTRA-FAST PLANAR DIODE

CONTROLLED FORWARD VOLTAGE

MAXIMUM RATINGS (25° C) [Note 1]

WIV	Working Inverse Voltage	50 Volts
I_o	Average rectified current	75 mA
I_F	Forward current steady state d.c.	115 mA
i_f	Recurrent peak forward current	225 mA
i_f (surge)	Peak forward surge current pulse width of 1.0 Second	500 mA
i_f (surge)	Peak forward surge current pulse width of 1.0 μSecond	2000 mA
P	Power dissipation	250 mW
P	Power dissipation at 125° C	100 mW
T_A	Operating temperature	-65° C to +175° C
T_{stg}	Storage temperature, ambient	-65° C to +200° C



ELECTRICAL SPECIFICATIONS (25° C unless otherwise noted)

Symbol	Characteristic	Min.	Typ.	Max.	Units	Test Conditions
V_F	Forward Voltage	0.700		0.850	Volt	I_F = 10 mA
V_F	Forward Voltage	0.610		0.710	Volt	I_F = 2.0 mA
V_F	Forward Voltage	0.550		0.650	Volt	I_F = 1.0 mA
V_F	Forward Voltage	0.505		0.575	Volt	I_F = 250 μA
I_R	Reverse Current			0.1	μA	V_R = -50 V
I_R	Reverse Current (150° C)			100	μA	V_R = -50 V
BV	Breakdown Voltage	75			Volts	I_R = 5.0 μA
t_{rr}	Reverse Recovery Time [Note 2]			4.0	mμSec	I_f = 10 mA
						I_r = 10 mA
C_o	Capacitance [Note 3]			2.0	$\mu\mu$f	V_R = 0 V f = 1.0 mc
RE	Rectification Efficiency [Note 4]	45			%	f = 100 mc
ΔV_F/° C	Forward Voltage Temperature Coefficient		-1.8		mV	

NOTES:

(1) The maximum ratings are limiting values above which life or satisfactory performance may be impaired.

(2) Recovery to 1.0 mA in E. G. and G. circuit.

(3) Capacitance as measured on Boonton Electronic Corporation Model No. 75A-S8 Capacitance Bridge or equivalent.

(4) Rectification efficiency is defined as the ratio of D. C. load voltage to peak rf input voltage to the detector circuit, measured with 2.0 V r. m. s. input to the circuit. Load resistance 5.0 K ohms, load capacitance 20 pf.

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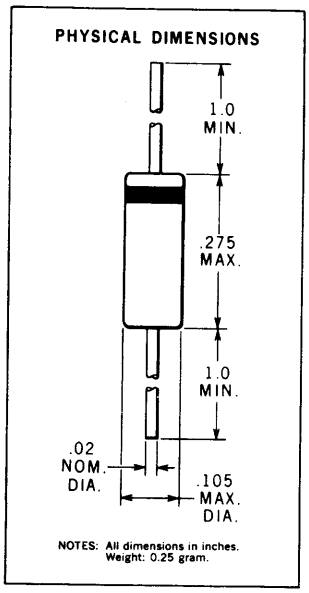
1N4610

HIGH CONDUCTANCE ULTRA FAST EPITAXIAL PLANAR DIODE

The 1N4610 is a silicon planar epitaxial diode that provides low capacitance, high conductance, and fast reverse recovery. With these features, the device is ideally suited for applications such as core devices, avalanche circuitry, logarithmic amplifiers for pulse applications, and for any critical circuit requiring high conductance and low internal power dissipation without sacrifice of speed capabilities.



ABSOLUTE MAXIMUM RATINGS (25°C) (Note 1)

WIV	Working Inverse Voltage	55 Volts
I_o	Average Rectified Current	200 mA
i_f	Recurrent Peak Forward Current	600 mA
i_f (surge)	Peak Forward Surge Current Pulse Width of 1 second	1.0 Amp
i_f (surge)	Peak Forward Surge Current Pulse Width of 1 μsec	4.0 Amp
P	Power Dissipation	500 mW
P	Power Dissipation	170 mW at 125°C
T_A	Operating Temperature	-65°C to +150°C
T_{stg}	Storage Temperature, Ambient	-65°C to +175°C

ELECTRICAL CHARACTERISTICS (25°C Free Air Temperature unless otherwise noted)

Symbol	Characteristic	Min.	Max.	Units	Test Conditions
V_{F1}	Forward Voltage	0.875	1.100	Volts	I_F = 300 mA
V_{F2}	Forward Voltage	0.850	1.000	Volts	I_F = 200 mA
V_{F3}	Forward Voltage	0.800	0.900	Volts	I_F = 100 mA
V_{F4}	Forward Voltage	0.760	0.840	Volts	I_F = 50 mA
V_{F5}	Forward Voltage	0.670	0.740	Volts	I_F = 10 mA
V_{F6}	Forward Voltage	0.640	0.705	Volts	I_F = 5 mA
V_{F7}	Forward Voltage	0.560	0.620	Volts	I_F = 1 mA
V_{F8}	Forward Voltage	0.530	0.590	Volts	I_F = 0.5 mA
V_{F9}	Forward Voltage	0.455	0.505	Volts	I_F = 0.1 mA

Additional Electrical Characteristics on page 2

NOTES:

(1) The maximum ratings are limiting values above which life or satisfactory performance may be impaired.

(2) Recovery to 10% of I_F.

(3) Capacitance as measured on Boonton Electronic Corporation Model No. 75-AS8 Capacitance Bridge or equivalent.

(4) The power dissipation is measured with an infinite heat sink at 3/8" from the body of the device.

(5) Leads are tinned. Gold plate with nickel strike may be obtained when specified.

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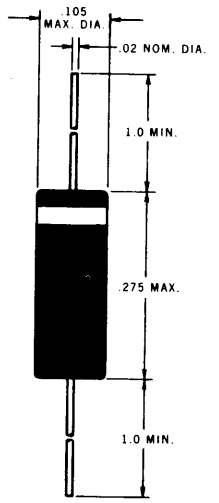
1N4950

HIGH CONDUCTANCE, ULTRA FAST PLANAR* EPITAXIAL DIODE

GENERAL DESCRIPTION — The 1N4950 is a silicon planar epitaxial diode that provides low capacitance, high conductance, and fast reverse recovery. With these features, the device is ideally suited for applications such as core devices, avalanche circuitry, logarithmic amplifiers for pulse applications and for any critical circuit requiring high conductance and low internal power dissipation without sacrifice of speed capabilities.

PHYSICAL DIMENSIONS



NOTE: All dimensions in inches

ABSOLUTE MAXIMUM RATINGS (25°C) (Note 1)

WIV	Working Inverse Voltage	25 Volts
I_O	Average Rectified Current	200 mA
i_f	Recurrent Peak Forward Current	900 mA
i_f(surge)	Peak Forward Surge Current Pulse Width of 1 second	1 A
i_f(surge)	Peak Forward Surge Current Pulse Width of 1 μs	4 A
P	Power Dissipation	500 mW
P	Power Dissipation	170 mW at +125°C
T_A	Operating Temperature	−65°C to +150°C
T_{stg}	Storage Temperature, Ambient	−65°C to +175°C

ELECTRICAL CHARACTERISTICS (25°C Free Air Temperature unless otherwise noted)

SYMBOL	CHARACTERISTICS	MIN.	MAX.	UNITS	TEST CONDITIONS
V_{F1}	Forward Voltage	.87	1.00	V	$I_F = 300$ mA
V_{F2}	Forward Voltage	.53	.61	V	$I_F = 1$ mA
V_{F3}	Forward Voltage	.64	.72	V	$I_F = 10$ mA
V_{F4}	Forward Voltage	.72	.82	V	$I_F = 50$ mA
V_{F5}	Forward Voltage	.77	.87	V	$I_F = 100$ mA
V_{F6}	Forward Voltage	.83	.93	V	$I_F = 200$ mA
I_{R1}	Reverse Current		100	nA	$V_R = 25$ V
I_{R2}	Reverse Current (+150°C)		100	μA	$V_R = 25$ V
BV	Breakdown Voltage	30		V	$I_R = 5\ \mu$A
C	Capacitance (Note 3)		3.3	pF	$V_R = 0$ V
t_{rr}	Reverse Recovery Time (Note 2)		4.0	ns	$I_F = I_R = 10$-200 mA, $R_L = 100\ \Omega$

NOTES:

(1) The maximum ratings are limiting values above which life or satisfactory performance may be impaired.
(2) Recovery to 0.1 I_R.
(3) Capacitance as measured on Boonton Electronic Corporation Model No. 75-AS8 Capacitance Bridge or equivalent.
(4) Leads are tinned. Gold plate with nickel strike may be obtained when specified.

*Planar is a patented Fairchild Process.

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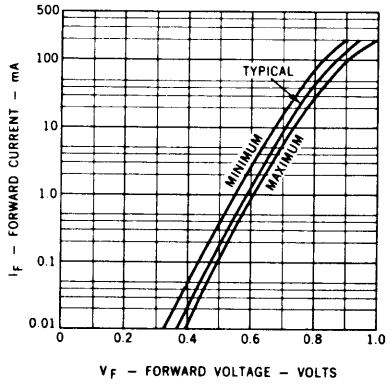
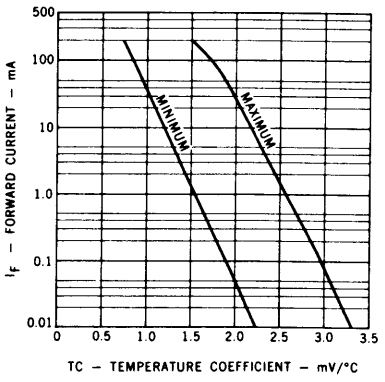
TYPICAL ELECTRICAL CHARACTERISTICS

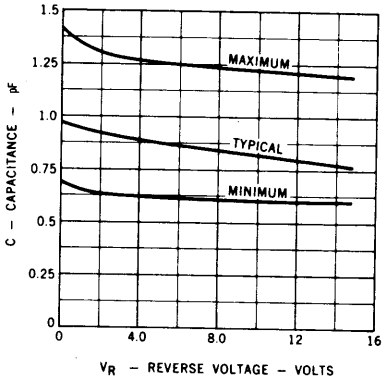
FORWARD VOLTAGE VERSUS FORWARD CURRENT



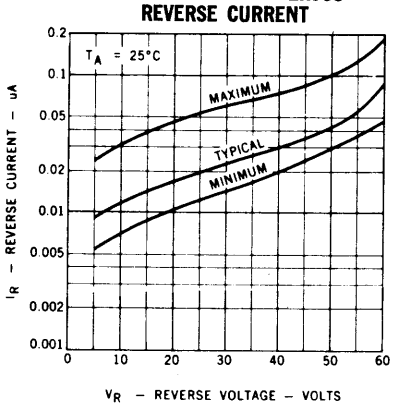
FORWARD CURRENT VERSUS TEMPERATURE COEFFICIENT



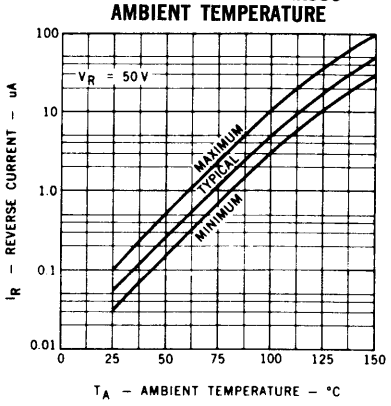
CAPACITANCE VERSUS REVERSE VOLTAGE



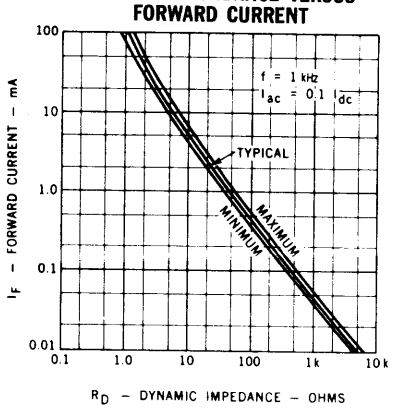
REVERSE VOLTAGE VERSUS REVERSE CURRENT



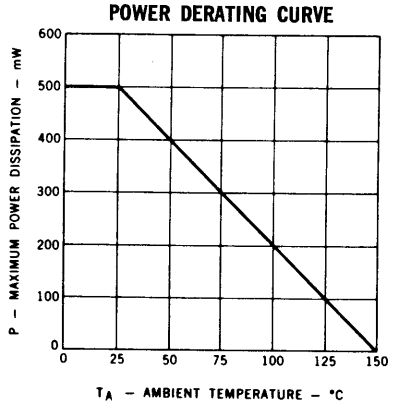
REVERSE CURRENT VERSUS AMBIENT TEMPERATURE



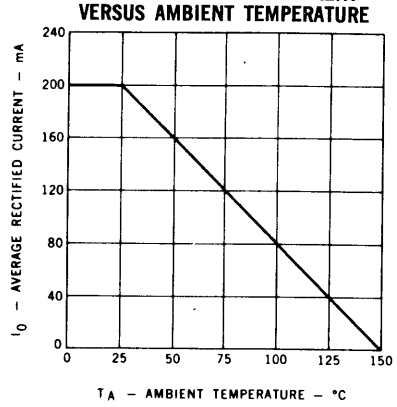
DYNAMIC IMPEDANCE VERSUS FORWARD CURRENT



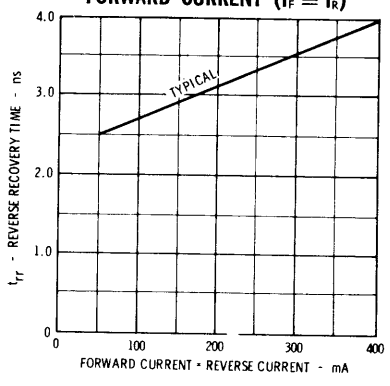
POWER DERATING CURVE



AVERAGE RECTIFIED CURRENT VERSUS AMBIENT TEMPERATURE



REVERSE RECOVERY TIME VERSUS FORWARD CURRENT ($I_F = I_R$)

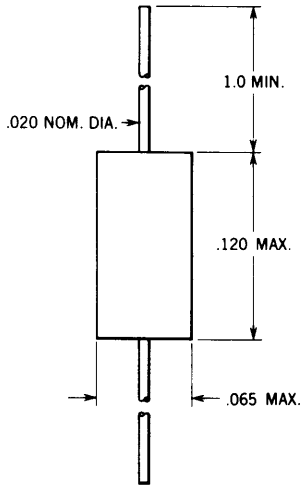


1N5317

ULTRA COMPACT, HIGH CONDUCTANCE, ULTRA FAST PLANAR* EPITAXIAL DIODE

GENERAL DESCRIPTION — The miniature 1N5317 is a silicon planar epitaxial diode that provides low capacitance, high conductance, and fast reverse recovery. With these features, the device is ideally suited for applications such as core devices, avalanche circuitry, logarithmic amplifiers for pulse applications and for any critical circuit requiring high conductance and low internal power dissipation without sacrifice of speed capabilities. Of special interest is the ultra-small size of this device.

PHYSICAL DIMENSIONS



NOTES: All dimensions in inches.

ABSOLUTE MAXIMUM RATINGS (25°C) (Note 1)

WIV	Working Inverse Voltage	55 Volts
I_O	Average Rectified Current	125 mA
i_f	Recurrent Peak Forward Current	400 mA
i_f(surge)	Peak Forward Surge Current Pulse Width of 1 second	500 mA
i_f(surge)	Peak Forward Surge Current Pulse Width of 1 μs	2 A
P	Power Dissipation (Package) (Note 2)	350 mW
$1/\theta$	Power Derating Factor	2.8 mW/°C
T_A	Operating Temperature	−65°C to +150°C
T_{stg}	Storage Temperature, Ambient	−65°C to +175°C

ELECTRICAL CHARACTERISTICS (25°C Free Air Temperature unless otherwise noted)

SYMBOL	CHARACTERISTICS	MIN.	MAX.	UNITS	TEST CONDITIONS
V_F	Forward Voltage (Pulse, Note 3)	1.050	1.300	V	$I_F = 500$ mA
V_F	Forward Voltage	0.920	1.100	V	$I_F = 300$ mA
V_F	Forward Voltage	0.800	0.900	V	$I_F = 100$ mA
V_F	Forward Voltage	0.670	0.725	V	$I_F = 10$ mA
V_F	Forward Voltage	0.550	0.600	V	$I_F = 1.0$ mA
V_F	Forward Voltage	0.450	0.490	V	$I_F = 0.1$ mA
I_R	Reverse Current		0.1	μA	$V_R = -55$ V
I_R	Reverse Current (+150°C)		100	μA	$V_R = -55$ V
BV	Breakdown Voltage	80			$I_R = 5\ \mu$A
t_{rr}	Reverse Recovery Time (Note 4)		4.0	ns	$I_F = I_R = 10$-200 mA, $R_L = 100\ \Omega$
t_{rr}	Reverse Recovery Time (Note 4)		2.0	ns	$I_F = 10$ mA; $V_R = 6$ V, $R_L = 100\ \Omega$
C_o	Capacitance (Note 5)		2.5	pF	$V_R = 0$ V, f = 1 MHz
T_{FR}	Forward Recovery (Note 6)		10	ns	$I_F = 200$ mA
V_{pK}	Peak Forward Voltage (Note 7)		2.0	V	$I_F = 500$ mA

Notes on page 2.

*Planar is a patented Fairchild Process.

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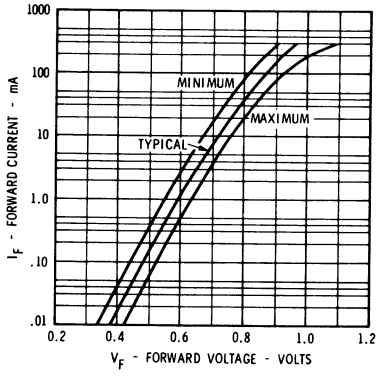
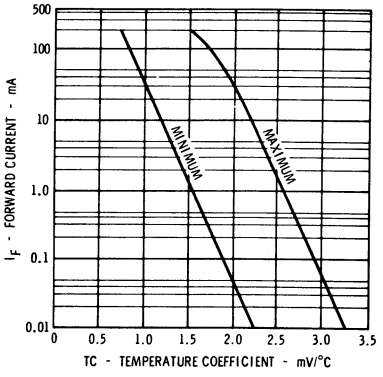
NOTES:
(1) Leads are tinned.
(2) Heat sunk in copper blocks ¼" from diode body.
(3) Pulse width 300 μs; Duty Cycle $\leq$ 1%.
(4) Recovery to .1 I_R.
(5) Capacitance as measured on Boonton Electronic Corporation Model No. 75-AS8 Capacitance Bridge or equivalent.
(6) T_R = .4 ns, V_{FR} = 1.0 V; Pulse Width = 100 ns, Duty Cycle $\leq$ 1%.
(7) T_R = 8 ns; Pulse Width = 1 μs; Duty Cycle $\leq$ 1%.

TYPICAL ELECTRICAL CHARACTERISTICS

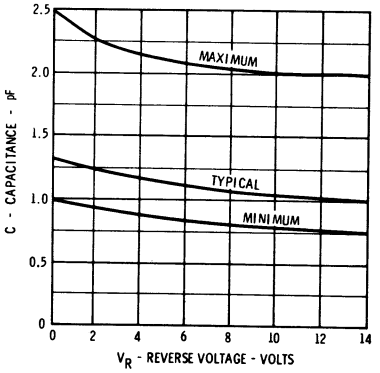
FORWARD VOLTAGE VERSUS FORWARD CURRENT



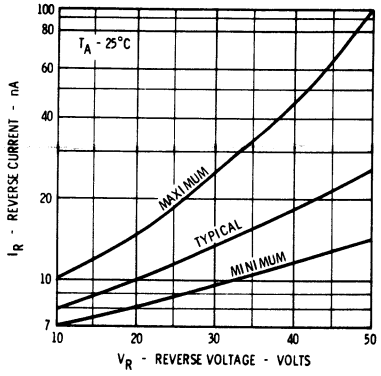
FORWARD CURRENT VERSUS TEMPERATURE COEFFICIENT



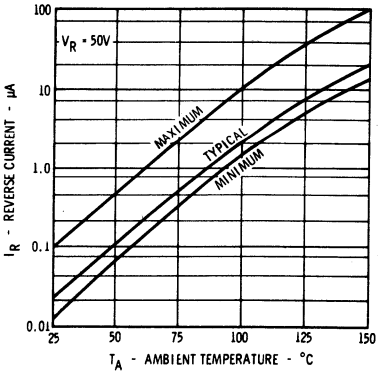
CAPACITANCE VERSUS REVERSE VOLTAGE



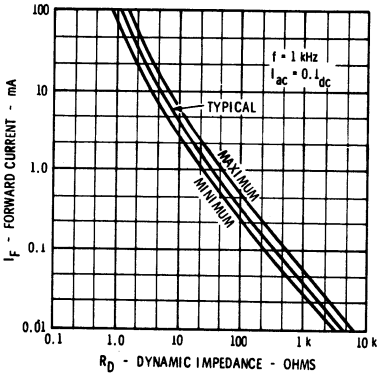
REVERSE CURRENT VERSUS REVERSE VOLTAGE



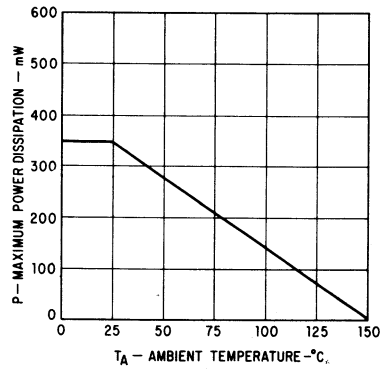
REVERSE CURRENT VERSUS AMBIENT TEMPERATURE



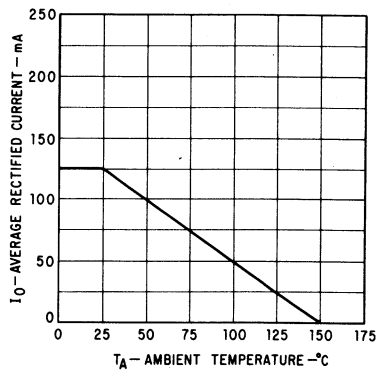
DYNAMIC IMPEDANCE VERSUS FORWARD CURRENT



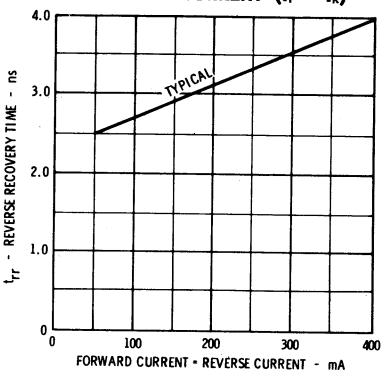
POWER DERATING CURVE



AVERAGE RECTIFIED CURRENT VERSUS AMBIENT TEMPERATURE



REVERSE RECOVERY TIME VERSUS FORWARD CURRENT ($I_F = I_R$)

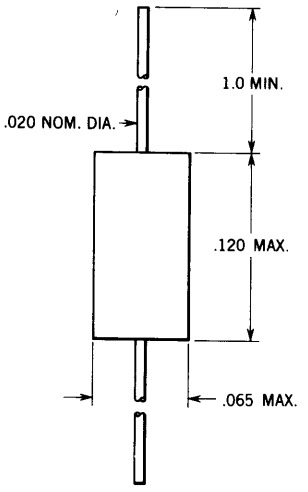


1N5318

ULTRA COMPACT, HIGH CONDUCTANCE, ULTRA FAST PLANAR* EPITAXIAL DIODE

GENERAL DESCRIPTION — The miniature 1N5318 is a silicon planar epitaxial diode that provides low capacitance, high conductance, and fast reverse recovery. With these features, the device is ideally suited for applications such as core devices, avalanche circuitry, logarithmic amplifiers for pulse applications and for any critical circuit requiring high conductance and low internal power dissipation without sacrifice of speed capabilities. Of special interest is the ultra-small size of this device.

PHYSICAL DIMENSIONS



NOTES: All dimensions in inches.

ABSOLUTE MAXIMUM RATINGS (25°C) (Note 1)

WIV	Working Inverse Voltage	50 Volts
I_O	Average Rectified Current	125 mA
i_f	Recurrent Peak Forward Current	400 mA
i_f(surge)	Peak Forward Surge Current Pulse Width of 1 second	500 mA
i_f(surge)	Peak Forward Surge Current Pulse Width of 1 μs	2 A
P	Power Dissipation (Package)	350 mW
$1/\theta$	Power Derating Factor	2.8 mW/°C
T_A	Operating Temperature	−65°C to +150°C
T_{stg}	Storage Temperature, Ambient	−65°C to +175°C

ELECTRICAL CHARACTERISTICS (25°C Free Air Temperature unless otherwise noted)

SYMBOL	CHARACTERISTICS	MIN.	MAX.	UNITS	TEST CONDITIONS
V_F	Forward Voltage	0.87	1.00		$I_F = 200$ mA
V_F	Forward Voltage	0.82	0.92		$I_F = 100$ mA
V_F	Forward Voltage	0.76	0.86		$I_F = 50$ mA
V_F	Forward Voltage	0.66	0.74		$I_F = 10$ mA
V_F	Forward Voltage	0.54	0.62		$I_F = 1.0$ mA
I_R	Reverse Current		0.1	μA	$V_R = -50$ V
I_R	Reverse Current (+150°C)		100	μA	$V_R = -50$ V
BV	Breakdown Voltage	75			$I_R = 5\ \mu$A
t_{rr}	Reverse Recovery Time (Note 2)		4.0	ns	$I_F = I_R = 10$-200 mA, $R_L = 100\ \Omega$
t_{rr}	Reverse Recovery Time (Note 2)		6.0	ns	$I_F = I_R = 200$-400 mA, $R_L = 100\ \Omega$
C_o	Capacitance (Note 3)		2.5	pF	$V_R = 0$ V, f = 1 MHz

*Planar is a patented Fairchild Process.

NOTES:

(1) The maximum ratings are limiting values above which life or satisfactory performance may be impaired.
(2) Recovery to 0.1 I_R.
(3) Capacitance as measured on Boonton Electronic Corporation Model No. 75-AS8 Capacitance Bridge or equivalent.
(4) Leads are tinned. Gold plate with nickel strike may be obtained when specified.

FAIRCHILD SEMICONDUCTOR
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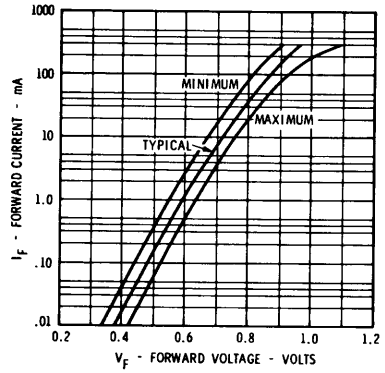
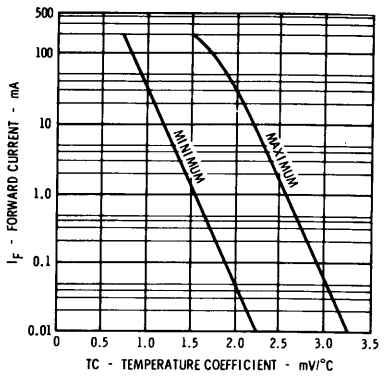
TYPICAL ELECTRICAL CHARACTERISTICS

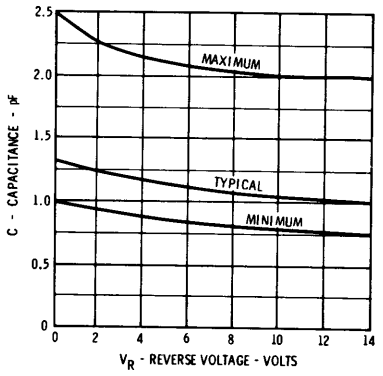
FORWARD VOLTAGE VERSUS FORWARD CURRENT



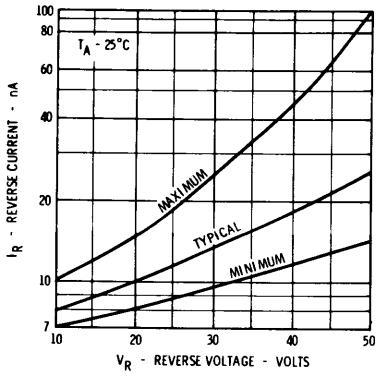
FORWARD CURRENT VERSUS TEMPERATURE COEFFICIENT



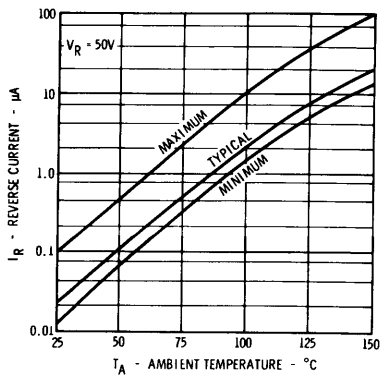
CAPACITANCE VERSUS REVERSE VOLTAGE



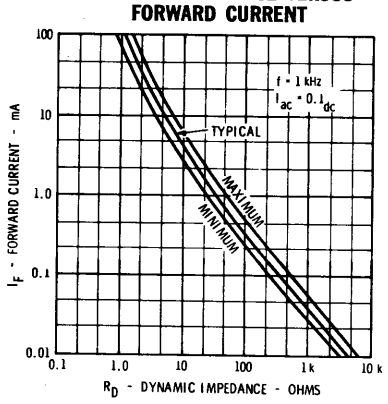
REVERSE CURRENT VERSUS REVERSE VOLTAGE



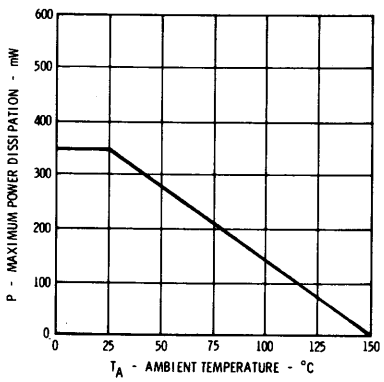
REVERSE CURRENT VERSUS AMBIENT TEMPERATURE



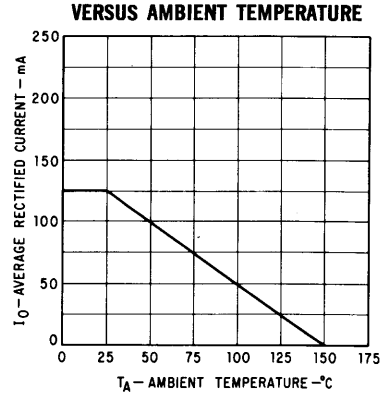
DYNAMIC IMPEDANCE VERSUS FORWARD CURRENT



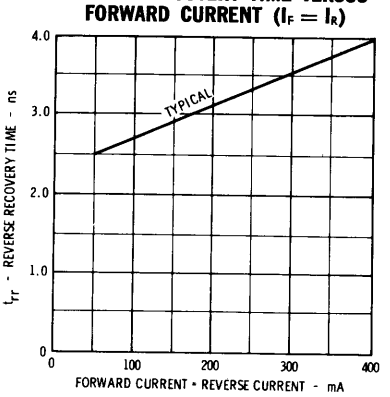
POWER DERATING CURVE



AVERAGE RECTIFIED CURRENT VERSUS AMBIENT TEMPERATURE



REVERSE RECOVERY TIME VERSUS FORWARD CURRENT ($I_F = I_R$)

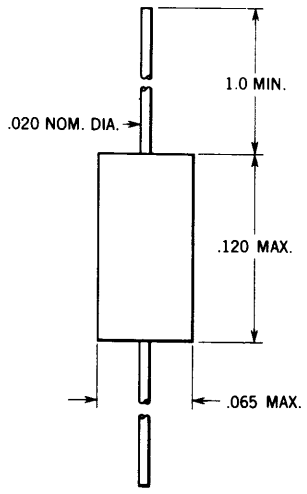


1N5319

ULTRA COMPACT, HIGH CONDUCTANCE, ULTRA FAST PLANAR* EPITAXIAL DIODE

GENERAL DESCRIPTION — The miniature 1N5319 is a silicon planar epitaxial diode that provides low capacitance, high conductance, and fast reverse recovery. With these features, the device is ideally suited for applications such as core drivers, avalanche circuitry, logarithmic amplifiers for pulse applications and for any critical circuit requiring high conductance and low internal power dissipation without sacrifice of speed capabilities. Miniature package and economy are the interesting features of this device.

PHYSICAL DIMENSIONS



NOTES: All dimensions in inches.

ABSOLUTE MAXIMUM RATINGS (25°C) (Note 1)

WIV	Working Inverse Voltage	25 Volts
I_O	Average Rectified Current	100 mA
i_f	Recurrent Peak Forward Current	400 mA
i_f(surge)	Peak Forward Surge Current Pulse Width of 1 second	500 mA
i_f(surge)	Peak Forward Surge Current Pulse Width of 1 μs	2 A
P	Power Dissipation (Package)	350 mW
$1/\theta$	Power Derating Factor	2.8 mW/°C
T_A	Operating Temperature	−65°C to +150°C
T_{stg}	Storage Temperature, Ambient	−65°C to +175°C

ELECTRICAL CHARACTERISTICS (25°C Free Air Temperature unless otherwise noted)

SYMBOL	CHARACTERISTICS	MIN.	MAX.	UNITS	TEST CONDITIONS
V_F	Forward Voltage		1.00	V	$I_F = 100$ mA
I_R	Reverse Current		0.1	μA	$V_R = -25$ V
I_R	Reverse Current (+100°C)		100	μA	$V_R = -25$ V
BV	Breakdown Voltage	40		V	$I_R = 5\ \mu$A
t_{rr1}	Reverse Recovery Time (Note 2)		4.0	ns	$I_F = I_R = 10$-200 mA $R_L = 100\ \Omega$
t_{rr2}	Reverse Recovery Time (Note 2)		6.0	ns	$I_F = I_R = 200$-400 mA $R_L = 100\ \Omega$
C_o	Capacitance (Note 3)		3.5	pF	$V_R = 0$ V, f = 1 MHz

*Planar is a patented Fairchild Process.

NOTES:

(1) The maximum ratings are limiting values above which life or satisfactory performance may be impaired.
(2) Recovery to 0.1 I_R.
(3) Capacitance as measured on Boonton Electronic Corporation Model No. 75-AS8 Capacitance Bridge or equivalent.
(4) Leads are tinned. Gold plate with nickel strike may be obtained when specified.

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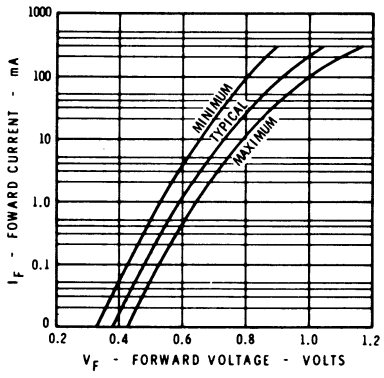
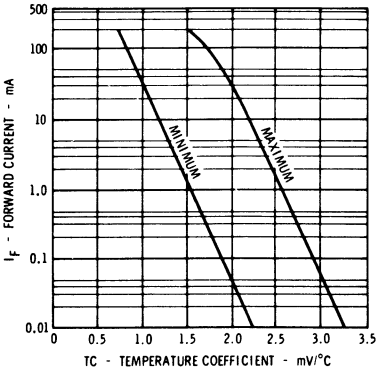
TYPICAL ELECTRICAL CHARACTERISTICS

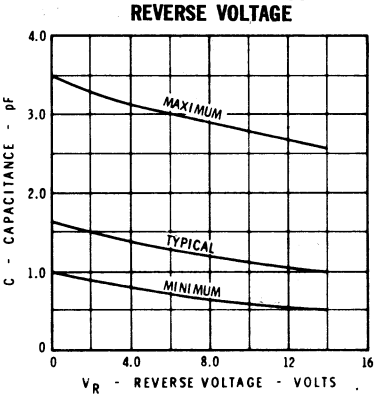
FORWARD VOLTAGE VERSUS FORWARD CURRENT



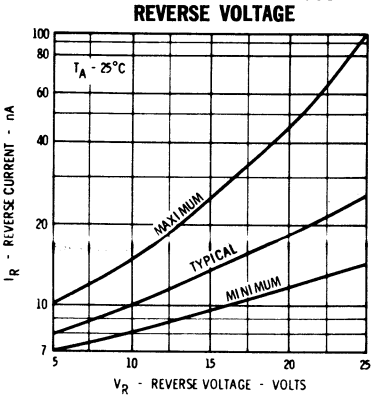
FORWARD CURRENT VERSUS TEMPERATURE COEFFICIENT



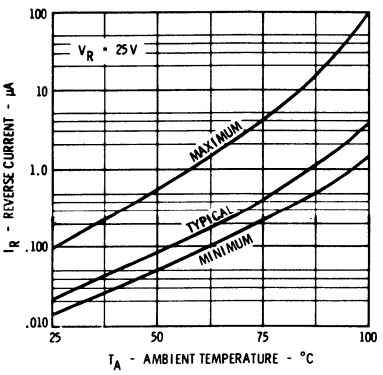
CAPACITANCE VERSUS REVERSE VOLTAGE



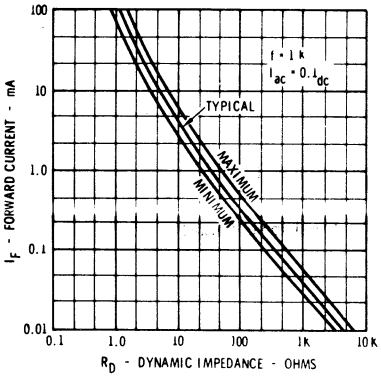
REVERSE CURRENT VERSUS REVERSE VOLTAGE



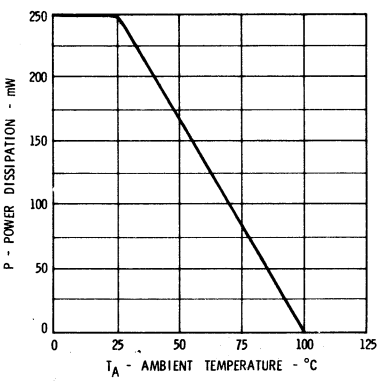
REVERSE CURRENT VERSUS AMBIENT TEMPERATURE



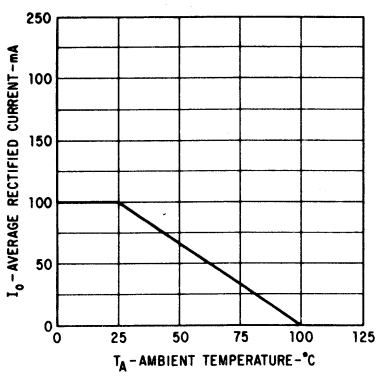
DYNAMIC IMPEDANCE VERSUS FORWARD CURRENT



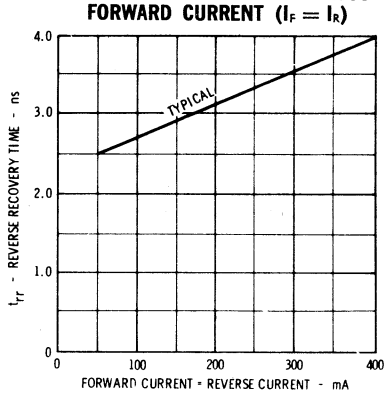
POWER DERATING CURVE



AVERAGE RECTIFIED CURRENT VERSUS AMBIENT TEMPERATURE



REVERSE RECOVERY TIME VERSUS FORWARD CURRENT ($I_F = I_R$)



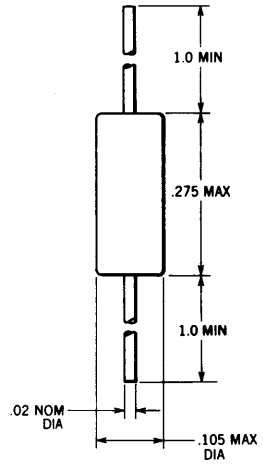
1N5427

RADIATION RESISTANT, FAST SWITCHING, PLANAR* DIODE

FEATURES

- **GUARANTEED PERFORMANCE AFTER FAST NEUTRON DOSAGE OF 1.0 x 10^{15} NVT**
- **LOW CAPACITANCE - - - $<$ 2.0 pF**
- **HIGH SPEED - - - - - - $<$ 4.0 nSec**
- **LOW LEAKAGE - - - - - $<$ 0.10 μA**
- **HIGH VOLTAGE - - - - - $>$ 75 V**

PHYSICAL DIMENSIONS



JEDEC DO-7

ABSOLUTE MAXIMUM RATINGS (25°C)

WIV	Working Inverse Voltage	50 V
I_o	Average Rectified Current	75 mA
i_f	Recurrent Peak Forward Current	225 mA
i_f(surge)	Peak Forward Surge Current, Pulse Width of 1.0 μSec.	2.0 A
P	Power Dissipation (Note 1)	250 mW
T_J	Operating Junction Temperature	−65°C to 150°C
T_A	Ambient Storage Temperature	−65°C to 175°C

ELECTRICAL CHARACTERISTICS (25°C)

SYMBOL	CHARACTERISTIC	PRE IRRADIATION MIN.	PRE IRRADIATION MAX.	POST IRRADIATION* MIN.	POST IRRADIATION* MAX.	UNITS	TEST CONDITIONS
B_v	Breakdown Voltage	75		75		Volts	$I_R = 5$ μA
I_{R1}	Reverse Current		0.10		0.15	μA	$V_R = 50$ V
I_{R2}	Reverse Current		100		150	μA	$V_R = 50$ V, T = 150°C
V_F	Forward Voltage		1.0		1.3	Volts	$I_F = 10$ mA
C	Capacitance		2.0		2.0	pF	$V_R = 0$ V, f = 1 MHz
T_{RR}	Reverse Recovery Time (Note 2)		4.0		4.0	ns	$I_F = I_R = 10$ mA

*IRRADIATION AT 1.0 x 10^{15} NVT, ENERGY LEVEL $>$ 10KeV.

NOTES:
(1) Derate at 2.0 mW/°C.
(2) $R_L = 100\ \Omega$, $C_L = 10$ pF, recover to $I_R = 1.0$ mA.
(3) Leads are Dumet, tin plated. Gold plate with nickel strike is also available.

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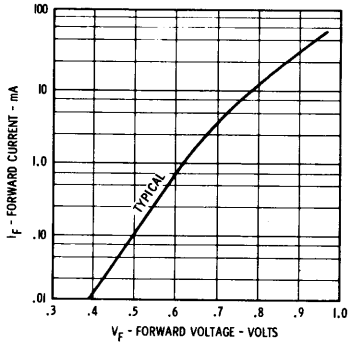
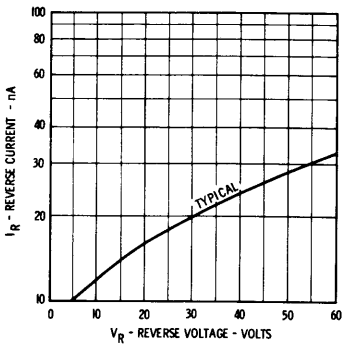
TYPICAL ELECTRICAL CHARACTERISTICS

PRE IRRADIATION

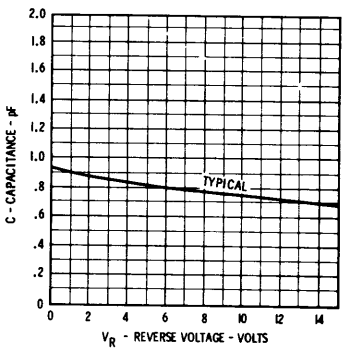
FORWARD VOLTAGE VERSUS FORWARD CURRENT



REVERSE CURRENT VERSUS REVERSE VOLTAGE

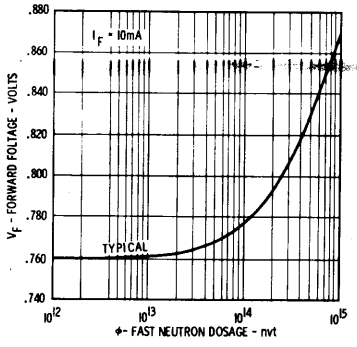


CAPACITANCE VERSUS REVERSE VOLTAGE

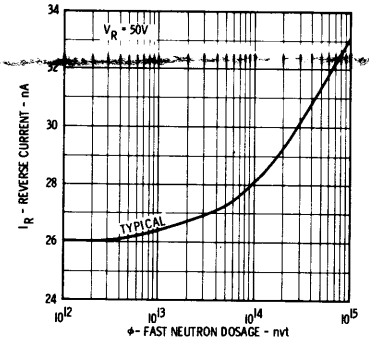


POST IRRADIATION

FORWARD VOLTAGE VERSUS FAST NEUTRON DOSAGE



REVERSE CURRENT VERSUS FAST NEUTRON DOSAGE



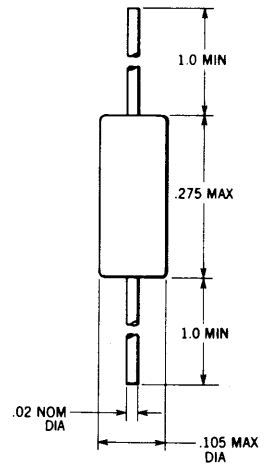
1N5428

RADIATION RESISTANT, HIGH VOLTAGE, FAST SWITCHING, PLANAR* DIODE

FEATURES

- **GUARANTEED PERFORMANCE AFTER FAST NEUTRON DOSAGE OF 3.0 x 10^{14} NVT**
- **HIGH VOLTAGE - - - - - - $>$ 200 V**
- **LOW LEAKAGE - - - - - - - $<$ 0.10 μA**
- **HIGH CONDUCTANCE - - - $>$ 100 mA**
- **LOW CAPACITANCE - - - - $<$ 5.0 pF**

PHYSICAL DIMENSIONS



JEDEC DO-7

ABSOLUTE MAXIMUM RATINGS (25°C)

WIV	Working Inverse Voltage	175 V
I_o	Average Rectified Current	100 mA
i_f	Recurrent Peak Forward Current	300 mA
i_f(surge)	Peak Forward Surge Current, Pulse Width of 1.0 μSec.	4.0 A
P	Power Dissipation (Note 1)	500 mW
T_J	Operating Junction Temperature	−65°C to 150°C
T_A	Ambient Storage Temperature	−65°C to 175°C

ELECTRICAL CHARACTERISTICS (25°C)

SYMBOL	CHARACTERISTIC	PRE IRRADIATION MIN.	PRE IRRADIATION MAX.	POST IRRADIATION* MIN.	POST IRRADIATION* MAX.	UNITS	TEST CONDITIONS
B_v	Breakdown Voltage	200		200		Volts	$I_R = 100\ \mu A$
I_{R1}	Reverse Current		0.10		0.15	μA	$V_R = 175V$
I_{R2}	Reverse Current		100		150	μA	$V_R = 175V$, $T = 150°C$
V_F	Forward Voltage		1.0		1.3	Volts	$I_F = 100$ mA
C	Capacitance		5.0		5.0	pF	$V_R = 0$ V, f = 1 MHz
T_{RR}	Reverse Recovery Time (Note 2)		50		50	ns	$I_F = I_R = 30$ mA

*IRRADIATION AT 3.0 x 10^{14} NVT, ENERGY LEVEL $>$ 10KeV.

NOTES:
(1) Derate at 4.0 mW/°C.
(2) $R_L = 100\ \Omega$, $C_L = 10$ pF, recover to $I_R = 3.0$ mA.
(3) Leads are Dumet, tin plated. Gold plate with nickel strike is also available.

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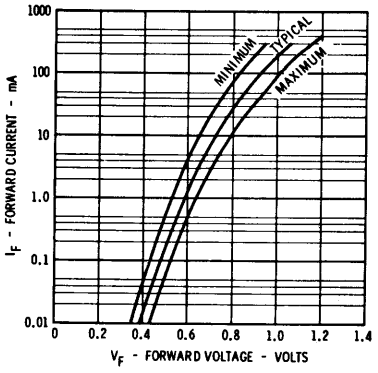
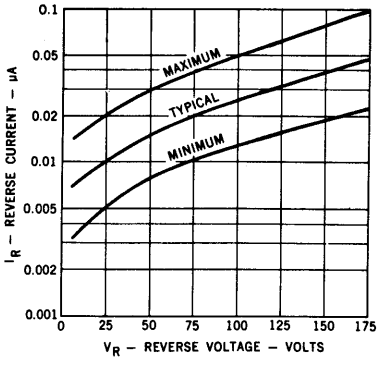
TYPICAL ELECTRICAL CHARACTERISTICS

PRE IRRADIATION

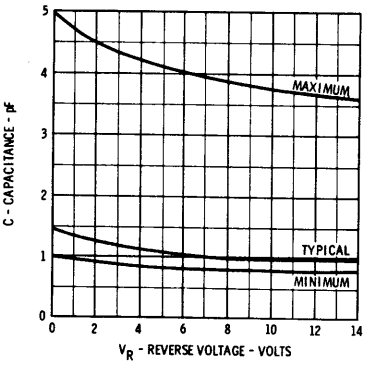
FORWARD VOLTAGE VERSUS FORWARD CURRENT



REVERSE VOLTAGE VERSUS REVERSE CURRENT

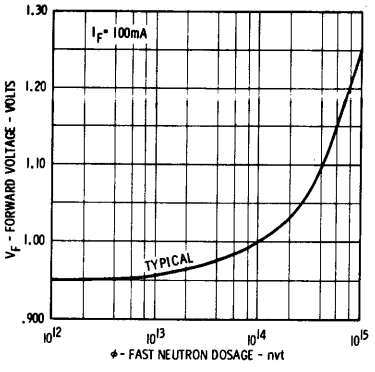


CAPACITANCE VERSUS REVERSE VOLTAGE

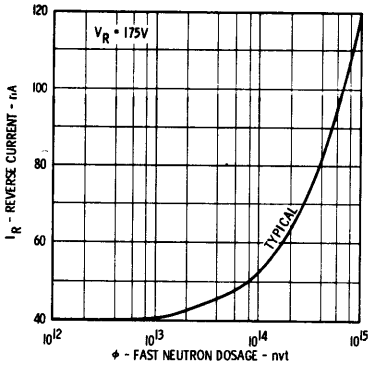


POST IRRADIATION

FORWARD VOLTAGE VERSUS FAST NEUTRON DOSAGE



REVERSE CURRENT VERSUS FAST NEUTRON DOSAGE



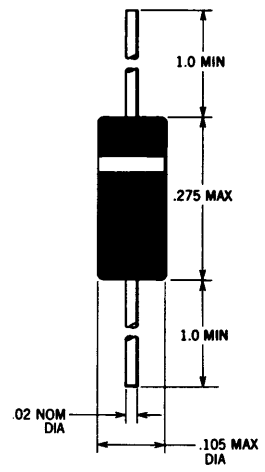
1N5429

RADIATION RESISTANT, LOW LEAKAGE, HIGH CONDUCTANCE, PLANAR* DIODE

FEATURES

- **GUARANTEED PERFORMANCE AFTER FAST NEUTRON DOSAGE OF 3.0 x 10^{14} NVT**
- **LOW LEAKAGE - - - - - - - $<$ 5.0 nA**
- **HIGH VOLTAGE - - - - - - $>$ 200 V**
- **LOW CAPACITANCE - - - - $<$ 6.0 pF**
- **HIGH CONDUCTANCE - - - $>$ 200 mA**

PHYSICAL DIMENSIONS



JEDEC DO-7

ABSOLUTE MAXIMUM RATINGS (25°C)

WIV	Working Inverse Voltage	125 V
I_O	Average Rectified Current	150 mA
i_f	Recurrent Peak Forward Current	450 mA
i_f(surge)	Peak Forward Surge Current, Pulse Width of 1.0 μsec.	4.0 A
P	Power Dissipation (Note 1)	500 mW
T_J	Operating Junction Temperature	−65°C to 150°C
T_A	Ambient Storage Temperature	−65°C to 175°C

ELECTRICAL CHARACTERISTICS (25°C)

SYMBOL	CHARACTERISTIC	PRE IRRADIATION MIN	PRE IRRADIATION MAX	POST IRRADIATION* MIN	POST IRRADIATION* MAX	UNITS	TEST CONDITIONS
B_v	Breakdown Voltage	200		200		Volts	$I_R = 100\ \mu A$
I_{R1}	Reverse Current		5.0		50	nA	$V_R = 125$ V
I_{R2}	Reverse Current		3.0		50	μA	$V_R = 125$ V, T = 150°C
V_{F1}	Forward Voltage	.870	1.0	.870	1.50	Volts	$I_F = 200$ mA
V_{F2}	Forward Voltage	.800	.880	.800	1.10	Volts	$I_F = 50$ mA
V_{F3}	Forward Voltage	.580	.680	.470	.700	Volts	$I_F = 1.0$ mA
C	Capacitance		6.0		6.0	pF	$V_R = 0$ V, f = 1 MHz

*IRRADIATION AT 3.0 x 10^{14} NVT, ENERGY LEVEL $>$ 10KeV.

NOTES:
(1) Derate at 4.0 mW/°C.
(2) Leads are Dumet, tin plated. Gold plate with nickel strike is also available.

FAIRCHILD SEMICONDUCTOR
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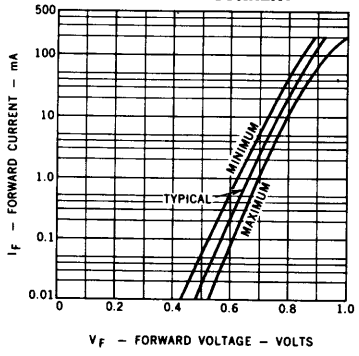
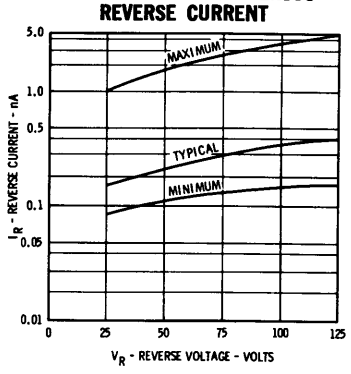
TYPICAL ELECTRICAL CHARACTERISTICS

PRE IRRADIATION

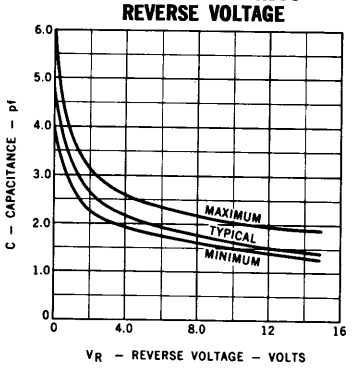
FORWARD VOLTAGE VERSUS FORWARD CURRENT



REVERSE VOLTAGE VERSUS REVERSE CURRENT

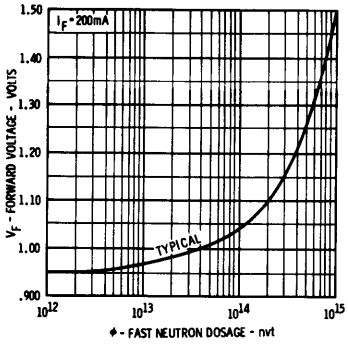


CAPACITANCE VERSUS REVERSE VOLTAGE

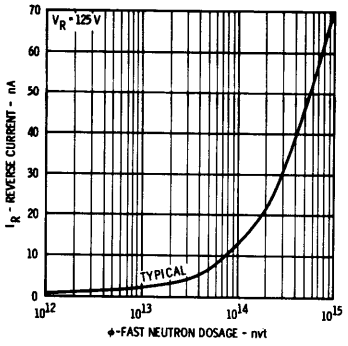


POST IRRADIATION

FORWARD VOLTAGE VERSUS FAST NEUTRON DOSAGE



REVERSE CURRENT VERSUS FAST NEUTRON DOSAGE



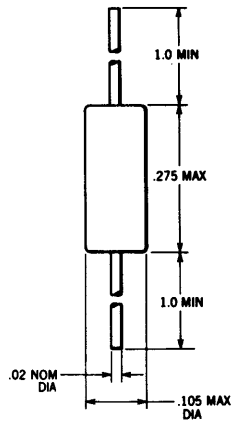
1N5430

RADIATION RESISTANT, HIGH CONDUCTANCE, ULTRA FAST, PLANAR* EPITAXIAL DIODE

FEATURES

- **GUARANTEED PERFORMANCE AFTER FAST NEUTRON DOSAGE OF 1.0 x 10^{15} NVT.**
- **HIGH CONDUCTANCE - - - > 200 mA**
- **LOW CAPACITANCE - - - - < 2.5 pF**
- **HIGH SPEED - - - - - - - - < 4.0 ns**
- **LOW LEAKAGE - - - - - - - < 0.10 μA**

PHYSICAL DIMENSIONS



JEDEC DO-7

ABSOLUTE MAXIMUM RATINGS (25°C)

WIV	Working Inverse Voltage	50 V
I_o	Average Rectified Current	200 mA
i_f	Recurrent Peak Forward Current	900 mA
i_f(surge)	Peak Forward Surge Current, Pulse Width of 1.0 μSec.	4.0 A
P	Power Dissipation (Note 1)	500 mW
T_J	Operating Junction Temperature	−65°C to 150°C
T_A	Ambient Storage Temperature	−65°C to 175°C

ELECTRICAL CHARACTERISTICS (25°C)

SYMBOL	CHARACTERISTIC	PRE IRRADIATION MIN.	PRE IRRADIATION MAX.	POST IRRADIATION* MIN.	POST IRRADIATION* MAX.	UNITS	TEST CONDITIONS
B_v	Breakdown Voltage	75		75		Volts	$I_R = 5\ \mu A$
I_{R1}	Reverse Current		0.10		0.15	μA	$V_R = 50$ V
I_{R2}	Reverse Current		100		150	μA	$V_R = 50$ V, T = 150°C
V_{F1}	Forward Voltage	.870	1.0	.870	1.05	Volts	$I_F = 200$ mA
V_{F2}	Forward Voltage	.660	.740	.620	.760	Volts	$I_F = 10$ mA
V_{F3}	Forward Voltage	.540	.620	.500	.640	Volts	$I_F = 1.0$ mA
C	Capacitance		2.5		2.5	pF	$V_R = 0$ V, f = 1 MHz
T_{RR}	Reverse Recovery Time (Note 2)		4.0		4.0	ns	$I_F = I_R = 10$ mA

*IRRADIATION AT 1.0 x 10^{15} NVT, ENERGY LEVEL > 10 KeV.

NOTES:
(1) Derate at 4.0 mW/°C.
(2) $R_L = 100\ \Omega$, recover to $I_R = 1.0$ mA.
(3) Leads are Dumet, tin plated. Gold plate with nickel strike is also available.

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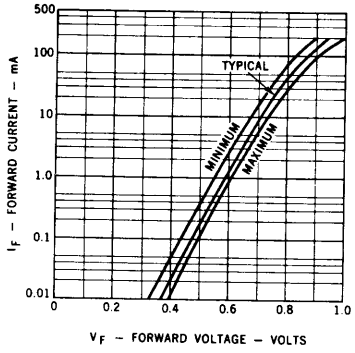
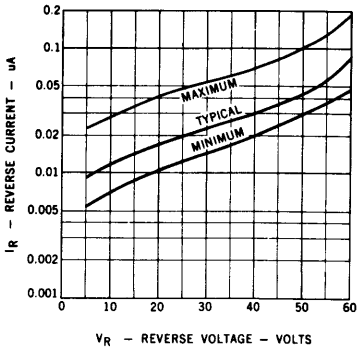
TYPICAL ELECTRICAL CHARACTERISTICS

PRE IRRADIATION

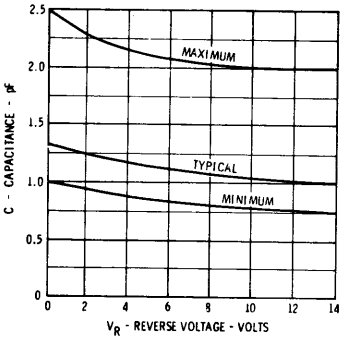
FORWARD VOLTAGE VERSUS FORWARD CURRENT



REVERSE VOLTAGE VERSUS REVERSE CURRENT

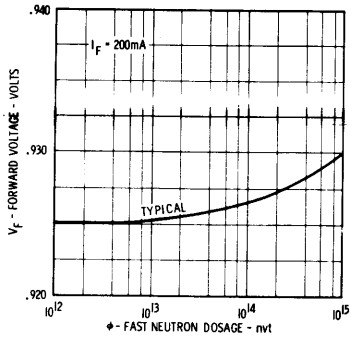


CAPACITANCE VERSUS REVERSE VOLTAGE

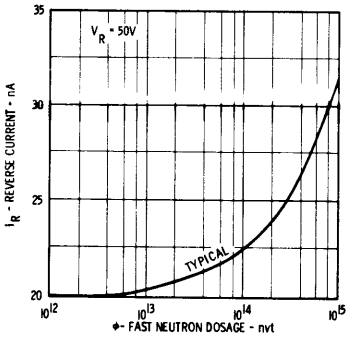


POST IRRADIATION

FORWARD VOLTAGE VERSUS FAST NEUTRON DOSAGE



REVERSE CURRENT VERSUS FAST NEUTRON DOSAGE



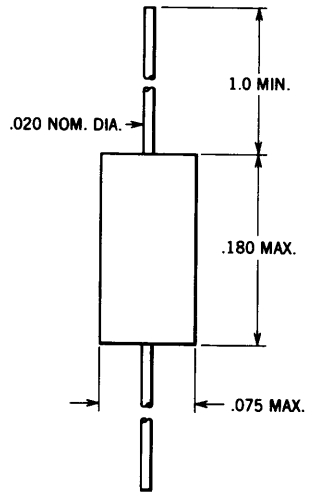
1N5431

RADIATION RESISTANT, MINIATURE SIZE, HIGH CONDUCTANCE, ULTRA FAST, PLANAR* EPITAXIAL DIODE

FEATURES

- **GUARANTEED PERFORMANCE AFTER FAST NEUTRON DOSAGE OF 1.0 x 10^{15} NVT.**
- **SMALL PACKAGE - - - - - - JEDEC DO-35**
- **HIGH CONDUCTANCE - - - > 500 mA**
- **LOW CAPACITANCE - - - - < 2.5 pF**
- **HIGH VOLTAGE - - - - - - > 80 V**
- **LOW LEAKAGE - - - - - - - < 0.10 μA**
- **HIGH SPEED - - - - - - - < 4.0 ns**

PHYSICAL DIMENSIONS



JEDEC DO-35

ABSOLUTE MAXIMUM RATINGS (25°C)

WIV	Working Inverse Voltage	55 V
I_o	Average Rectified Current	200 mA
i_f	Recurrent Peak Forward Current	600 mA
i_f(surge)	Peak Forward Surge Current, Pulse Width of 1.0 μSec.	4.0 A
P	Power Dissipation (Note 1)	500 mW
T_J	Operating Junction Temperature	−65°C to 150°C
T_A	Ambient Storage Temperature	−65°C to 175°C

ELECTRICAL CHARACTERISTICS (25°C)

SYMBOL	CHARACTERISTIC	PRE IRRADIATION MIN.	PRE IRRADIATION MAX.	POST IRRADIATION* MIN.	POST IRRADIATION* MAX.	UNITS	TEST CONDITIONS
B_v	Breakdown Voltage	80		80		Volts	$I_R = 5\ \mu A$
I_{R1}	Reverse Current		0.10		0.15	μA	$V_R = 55$ V
I_{R2}	Reverse Current		100		150	μA	$V_R = 55$ V, T = 150°C
V_{F1}	Forward Voltage	1.05	1.30	1.05	1.35	Volts	$I_F = 500$ mA (Note 2)
V_{F2}	Forward Voltage	.800	.900	.800	.950	Volts	$I_F = 100$ mA
V_{F3}	Forward Voltage	.550	.600	.520	.630	Volts	$I_F = 1.0$ mA
V_{F4}	Forward Voltage	.450	.490	.420	.520	Volts	$I_F = 0.1$ mA
C	Capacitance		2.5		2.5	pF	$V_R = 0$ V, f = 1 MHz
T_{RR}	Reverse Recovery Time		4.0		4.0	ns	$I_F = I_R = 10$ mA (Note 3)

*IRRADIATION AT 1.0 x 10^{15} NVT, ENERGY LEVEL > 10 KeV.

NOTES:
(1) Derate at 4.0 mW/°C.
(2) Pulse width 300 μSec, duty cycle < 1%.
(3) $R_L = 100\ \Omega$, recover to $I_R = 1.0$ mA.
(4) Leads are Dumet, tin plated. Gold plate with nickel strike is also available.

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FAIRCHILD
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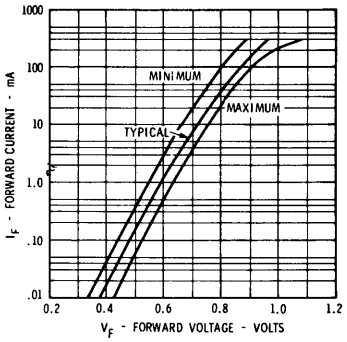
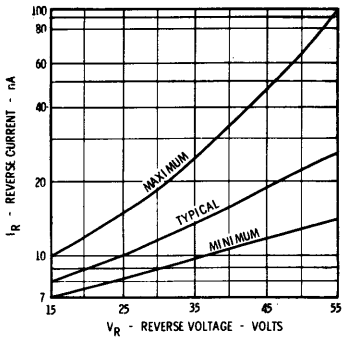
TYPICAL ELECTRICAL CHARACTERISTICS

PRE IRRADIATION

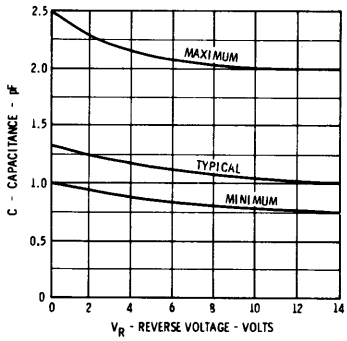
FORWARD VOLTAGE VERSUS FORWARD CURRENT



REVERSE CURRENT VERSUS REVERSE VOLTAGE

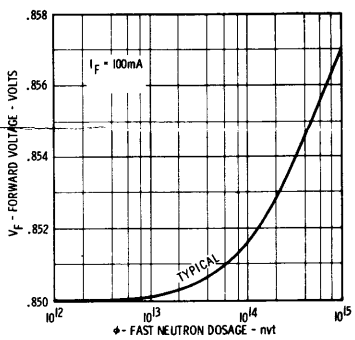


CAPACITANCE VERSUS REVERSE VOLTAGE

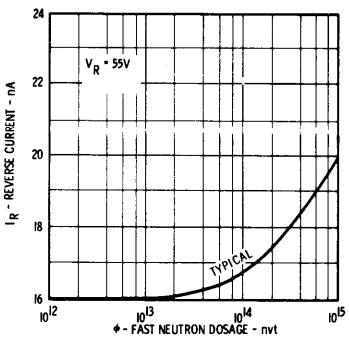


POST IRRADIATION

FORWARD VOLTAGE VERSUS FAST NEUTRON DOSAGE



REVERSE CURRENT VERSUS FAST NEUTRON DOSAGE



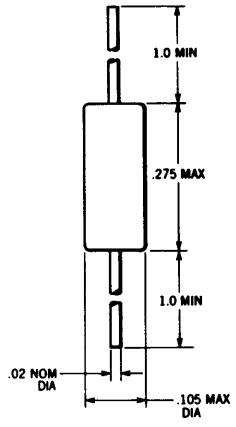
1N5432

RADIATION RESISTANT, PICOSECOND SWITCHING, PLANAR* EPITAXIAL DIODE

FEATURES

- **GUARANTEED PERFORMANCE AFTER FAST NEUTRON DOSAGE OF 1.0 x 10^{15} NVT.**
- **HIGH SPEED - - - - - - < 750 ps**
- **LOW CAPACITANCE - - - < 1.0 pF**
- **LOW LEAKAGE - - - - - < 50 nA**
- **CONTROLLED FORWARD CONDUCTANCE**

PHYSICAL DIMENSIONS



JEDEC DO-7

ABSOLUTE MAXIMUM RATINGS (25°C)

WIV	Working Inverse Voltage	10 V
I_o	Average Rectified Current	50 mA
i_f	Recurrent Peak Forward Current	150 mA
i_f(surge)	Peak Forward Surge Current, Pulse Width of 1.0 μSec.	1.0 A
P	Power Dissipation (Note 1)	250 mW
T_J	Operating Junction Temperature	−65°C to 150°C
T_A	Ambient Storage Temperature	−65°C to 175°C

ELECTRICAL CHARACTERISTICS (25°C)

SYMBOL	CHARACTERISTIC	PRE IRRADIATION MIN.	PRE IRRADIATION MAX.	POST IRRADIATION* MIN.	POST IRRADIATION* MAX.	UNITS	TEST CONDITIONS
B_v	Breakdown Voltage	20		20		Volts	$I_R = 5\ \mu A$
I_{R1}	Reverse Current		0.05		0.06	μA	$V_R = 10$ V
I_{R2}	Reverse Current		50		60	μA	$V_R = 10$ V, T = 150°C
V_{F1}	Forward Voltage	.910	1.30	.890	1.35	Volts	$I_F = 50$ mA
V_{F2}	Forward Voltage	.760	.930	.740	.950	Volts	$I_F = 10$ mA
V_{F3}	Forward Voltage	.530	.610	.510	.630	Volts	$I_F = 0.1$ mA
C	Capacitance		1.0		1.0	pF	$V_R = 0$ V, f = 1 MHz
T_{RR}	Reverse Recovery Time (Note 2)		750		750	ps	$I_F = I_R = 10$ mA (Figure 1)

*IRRADIATION AT 1.0 x 10^{15} NVT, ENERGY LEVEL > 10 KeV.

NOTES:
(1) Derate at 2.0 mW/°C.
(2) $R_L = 100\ \Omega$, recover to $I_R = 1.0$ mA. (See Figure 1 over.)
(3) Leads are Dumet, tin plated. Gold plate with nickel strike is also available.

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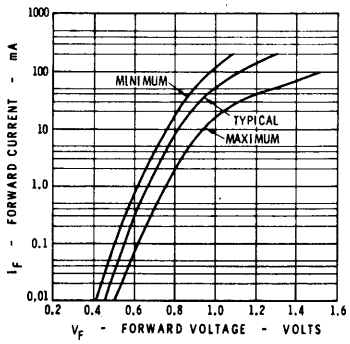
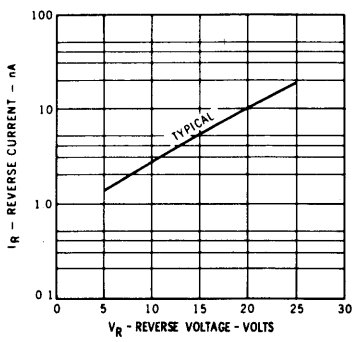
TYPICAL ELECTRICAL CHARACTERISTICS

PRE IRRADIATION

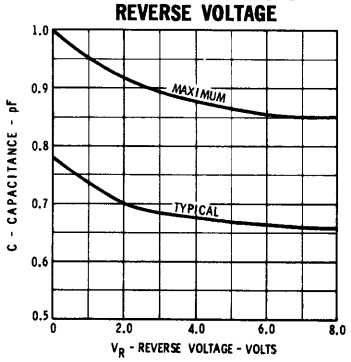
FORWARD CURRENT VERSUS FORWARD VOLTAGE



REVERSE VOLTAGE VERSUS REVERSE CURRENT

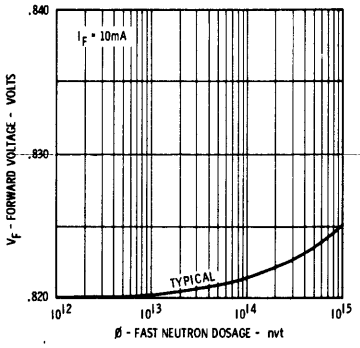


CAPACITANCE VERSUS REVERSE VOLTAGE

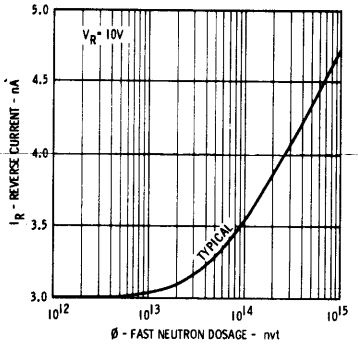


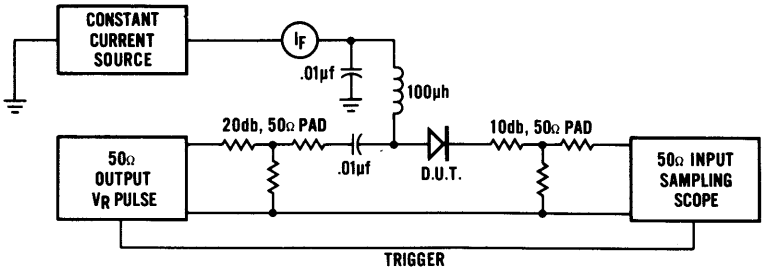
POST IRRADIATION

FORWARD VOLTAGE VERSUS FAST NEUTRON DOSAGE



REVERSE CURRENT VERSUS FAST NEUTRON DOSAGE





V_R PULSE RISETIME ≤0.25ns
DETECTOR RISETIME ≤0.1ns

FIGURE 1