

# TYPES 1N4531 THRU 1N4534, 1N4536 SILICON SWITCHING DIODES

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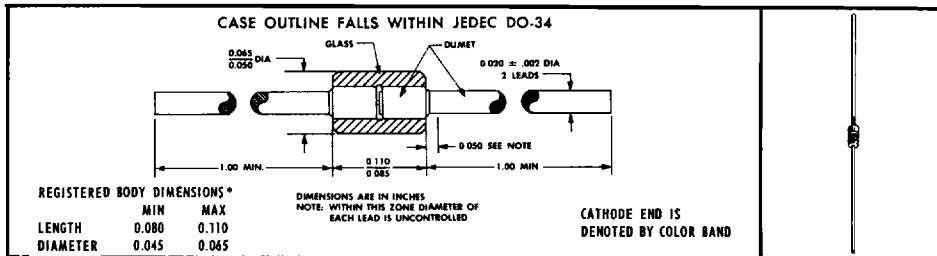
## FAST SWITCHING DIODES

- Rugged Double-Plug Construction
- Electrical Equivalents

1N4531 . . . 1N4148 . . . 1N914      1N4533 . . . 1N4152 . . . 1N3605  
1N4532 . . . 1N4454 . . . 1N3064      1N4534 . . . 1N4153 . . . 1N3606  
1N4536 . . . 1N4154 . . . 1N4009

### mechanical data

Double-plug construction affords integral positive contact by means of a thermal compression bond. Moisture-free stability is ensured through hermetic sealing. The coefficients of thermal expansion of the glass case and the dumet plugs are closely matched to allow extreme temperature excursions. Hot-solder-dipped leads are standard.



### absolute maximum ratings at 25°C free-air temperature (unless otherwise noted)

	1N4531	1N4532	1N4533	1N4534	1N4536	UNIT
V <sub>RM</sub> Peak Reverse Voltage	100				35	V
*V <sub>RM(w-k)</sub> Working Peak Reverse Voltage	75	75	40	50	25	V
*P Continuous Power Dissipation at (or below) 25°C Free-Air Temperature (See Note 1)			500			mW
*T <sub>stg</sub> Storage Temperature Range			—65 to 200			°C
*T <sub>L</sub> Lead Temperature 1/4 Inch from Case for 10 Seconds			300			°C

### \*electrical characteristics at 25°C free-air temperature (unless otherwise noted)

PARAMETER	TEST CONDITIONS	1N4531		1N4532		1N4533		1N4534		1N4536		UNIT
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
V <sub>(BR)</sub> Reverse Breakdown Voltage	I <sub>R</sub> = 5 μA	75	75	40	75	75	35					V
	I <sub>R</sub> = 100 μA	100										V
I <sub>R</sub> Static Reverse Current	V <sub>R</sub> = 20 V		0.025									μA
	V <sub>R</sub> = 20 V, T <sub>A</sub> = 150°C		50									μA
	V <sub>R</sub> = 25 V									0.1		μA
	V <sub>R</sub> = 25 V, T <sub>A</sub> = 150°C								100			μA
	V <sub>R</sub> = 30 V				0.05							μA
	V <sub>R</sub> = 30 V, T <sub>A</sub> = 150°C				50							μA
	V <sub>R</sub> = 50 V			0.1			0.05					μA
	V <sub>R</sub> = 50 V, T <sub>A</sub> = 150°C		100				50					μA
	I <sub>F</sub> = 0.1 mA				0.49	0.55	0.49	0.55				V
V <sub>F</sub> Static Forward Voltage	I <sub>F</sub> = 0.25 mA				0.53	0.59	0.53	0.59				V
	I <sub>F</sub> = 1 mA				0.59	0.67	0.59	0.67				V
	I <sub>F</sub> = 2 mA				0.62	0.70	0.62	0.70				V
	I <sub>F</sub> = 10 mA	1	1	0.70	0.81	0.70	0.81					V
	I <sub>F</sub> = 20 mA				0.74	0.88	0.74	0.88				V
	I <sub>F</sub> = 30 mA									1		V
	C <sub>T</sub> Total Capacitance	V <sub>R</sub> = 0, f = 1 MHz	4	2	2	2	2	4	4	pF		

NOTE 1: Derate linearly to 200°C free-air temperature at the rate of 2.85 mW/°C.

\*JEDEC registered data

# TYPES 1N4531 THRU 1N4534, 1N4536 SILICON SWITCHING DIODES

\*operating characteristics at 25°C free-air temperature

PARAMETER	TEST CONDITIONS	1N4531		1N4532		1N4533		1N4534		1N4536		UNIT
		MIN	MAX									
$t_{rr}$ Reverse Recovery Time	$I_F = 10 \text{ mA}, I_{RM} = 10 \text{ mA}, i_{rr} = 1 \text{ mA}, R_L = 100 \Omega$ , See Figure 1, Condition 1			4	4	4	4	4	4	ns		
	$I_F = 10 \text{ mA}, V_R = 6 \text{ V}, i_{rr} = 1 \text{ mA}, R_L = 100 \Omega$ , See Figure 1, Condition 2	4		2	2	2	2	2	2	ns		
$V_{FM(rec)}$ Forward Recovery Voltage	$I_F = 100 \text{ mA}, R_L = 50 \Omega$ , See Figure 2			3							V	

## \*PARAMETER MEASUREMENT INFORMATION

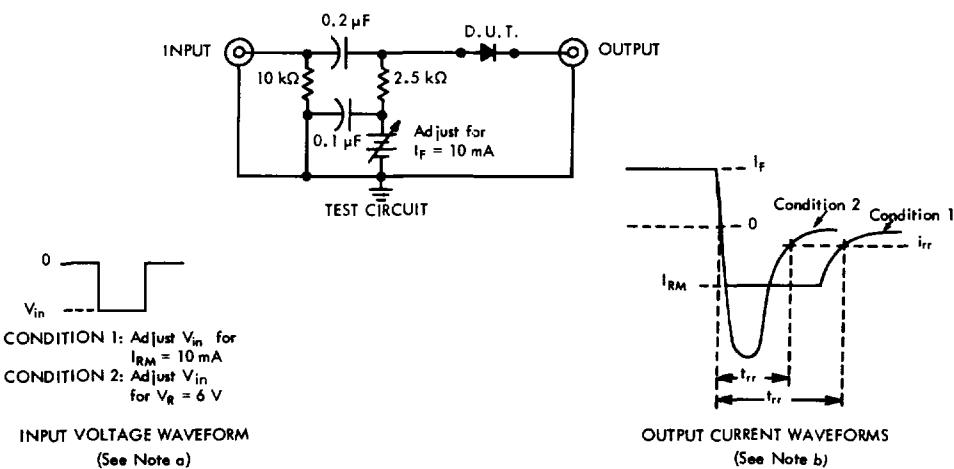
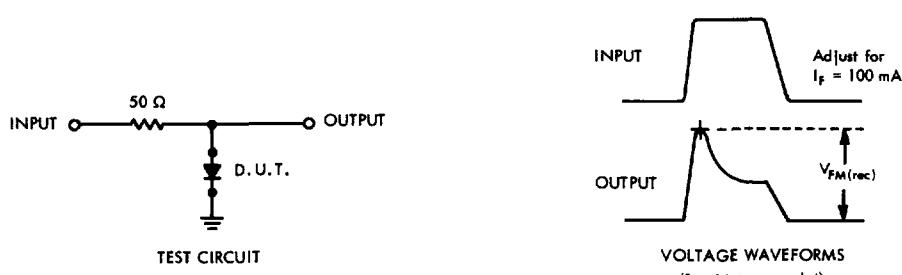


FIGURE 1 — REVERSE RECOVERY TIME

NOTES: a. The input pulse is supplied by a generator with the following characteristics:  $Z_{out} = 50 \Omega$ ,  $t_r \leq 0.5 \text{ ns}$ ,  $t_p \leq 100 \text{ ns}$ .  
b. Output waveforms are monitored on an oscilloscope with the following characteristics:  $t_r \leq 0.6 \text{ ns}$ ,  $Z_{in} = 50 \Omega$ .



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FIGURE 2 — FORWARD RECOVERY VOLTAGE

NOTES: c. The input pulse is supplied by a generator with the following characteristics:  $Z_{out} = 50 \Omega$ ,  $t_r \leq 30 \text{ ns}$ ,  $t_p = 100 \text{ ns}$ , PRR = 5 to 100 kHz.  
d. The output waveform is monitored on an oscilloscope with the following characteristics:  $t_r \leq 15 \text{ ns}$ ,  $R_{in} \geq 1 \text{ M}\Omega$ ,  $C_{in} \leq 5 \text{ pF}$ .

\* JEDEC registered data