

# Silicon – Diode

## **FJT1101**

20V/150mA

# DATASHEET

OEM – Fairchild

Source: Fairchild Databook 1978

## FJT1100•FJT1101

### ULTRA LOW LEAKAGE

#### DIFFUSED SILICON PLANAR DIODES

- $I_R$  ... 1.0 pA (MAX) @ 5 V (FJT1100)
- $BV$  ... 20 V (MIN) (FJT1100)

#### ABSOLUTE MAXIMUM RATINGS (Note 1)

##### Temperature

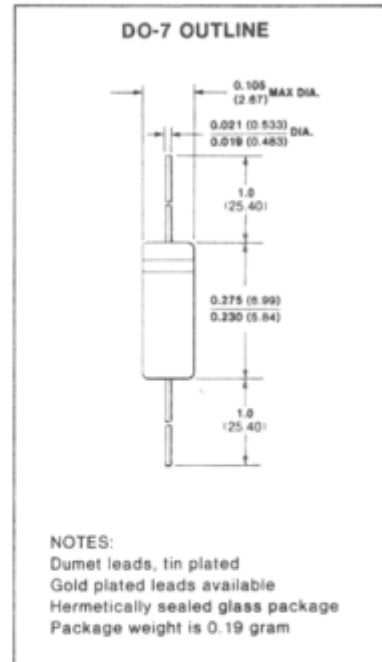
Storage Temperature Range	-55°C to +200°C
Maximum Junction Operating Temperature	+175°C
Lead Temperature	+260°C

##### Power Dissipation (Note 2)

Maximum Total Power Dissipation at 25°C Ambient	250 mW
Linear Power Derating factor (from 25°C)	1.67 mW/°C

##### Maximum Voltage and Current

WIV	Working Inverse Voltage	FJT1100	25 V
$I_f$	Continuous Forward Current	FJT1101	15 V
			150 mA



#### ELECTRICAL CHARACTERISTICS (25°C Ambient Temperature unless otherwise noted)

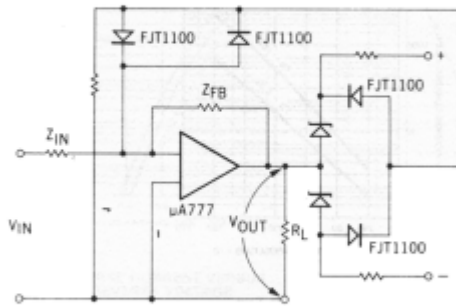
SYMBOL	CHARACTERISTIC		MIN	MAX	UNITS	TEST CONDITIONS
BV	Breakdown Voltage	FJT1100	30		V	$I_R = 5.0 \mu A$
		FJT1101	20		V	
$I_R$	Reverse Current	FJT1100		1.0	pA	$V_R = 5.0 V$
				10	pA	$V_R = 15 V$
		FJT1101		5.0	pA	$V_R = 5.0 V$
				15	pA	$V_R = 15 V$
$V_F$	Forward Voltage	FJT1100		1.05	V	$I_F = 50 mA$
		FJT1101		1.10	V	$I_F = 50 mA$
C	Capacitance	FJT1100		1.5	pF	$V_R = 0, f = 1 MHz$
		FJT1101		1.8	pF	$V_R = 0, f = 1 MHz$

#### NOTES:

1. These are limiting values above which the serviceability of the diode may be impaired.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty-cycle operation.
3. For product family characteristic curves and applications information, refer to Chapter 4, D6.

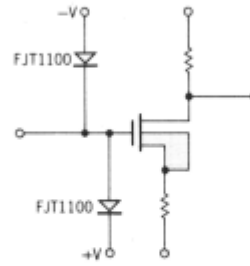
**CURVE SET NUMBER D6**  
**ULTRA-LOW LEAKAGE SMALL SIGNAL DIODE**

**A BOUND CIRCUIT FOR OPERATIONAL AMPLIFIERS**



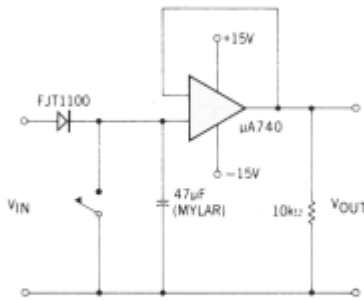
The bound circuit prevents overloading and saturation of operational amplifiers. The circuit has negligible effect on the operational amplifier until overload conditions occur. The use of the low leakage picoampere diode permits realization of extremely high input impedance for normal input voltages.

**MOS FET PROTECTION CIRCUIT**

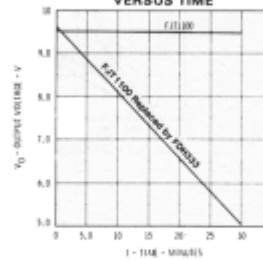


The picoampere diode affords excellent gate voltage protection while maintaining the DC input impedance at about one million megohms. In addition the very low capacity of the FJT1100 will have a relatively small effect on the circuit input capacity.

**PEAK FOLLOWER CIRCUIT**



**OUTPUT VOLTAGE OF THE PEAK FOLLOWER CIRCUIT VERSUS TIME**



A nearly constant voltage peak follower circuit is available by using a picoampere diode. A comparison between the use of the FJT1100 and a "low leakage" FDH333 diode in the circuit is shown in the curves of V<sub>OUT</sub> vs Time.