n-channel JFETs current regulator diodes

Siliconix

designed for . . .

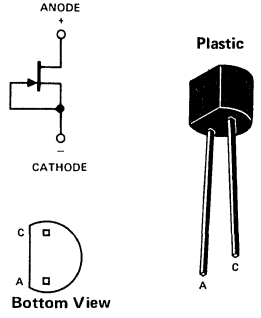
- **Current Regulation**
- **Current Limiting**
- **Biasing**
- **Linear Ramp and Staircase Generator**

Performance Curves NCL See Section 4

BENEFITS

- Low Cost
- Simple Two Lead Current Source
- Simplifies Floating Current Sources No Power Supplies Required
- Good Operating Current Tolerance ±20%

TO-92 (MODIFIED)
See Section 6



ABSOLUTE MAXIMUM RATINGS (25°C)

Peak Operating Voltage . . . . . 50 V
Forward Current . . . . . 20 mA
Reverse Current . . . . . 50 mA
Total Device Dissipation at 25°C Ambient
(Derate 3.27 mW/°C) . . . . . 360 mW
Operating Temperature Range . . . . . –55 to 135°C
Storage Temperature Range . . . . . –55 to 150°C
Lead Temperature Range
(1/16" from case for 10 seconds) . . . . . 300°C

ELECTRICAL CHARACTERISTICS (25°C unless otherwise noted)

		Characteristic			J500	J501	J502	J503	J504	J505	Unit	Test Conditions
1	STATIC	I_{FI}	Forward Current (Note 1)	Min	0.192	0.264	0.344	0.448	0.600	0.800	mA	V_F = 25 V
2				Nominal	0.240	0.330	0.430	0.560	0.750	1.000		
3				Max	0.288	0.396	0.516	0.672	0.900	1.200		
4		POV	Peak Operating Voltage (Notes 1 and 2)	Min	50	50	50	50	50	50	V	I_F = 1.1 I_{FI} (Max)
5		V_L	Limiting Voltage (Note 3)	Max	1.2	1 3	1 5	1.7	1.9	2.1		I_F = 0.9 I_{FI} (Min)
6				Typ	0 8	0.9	1.1	1.2	1.4	1.5		
7	DYN	Z_{FI}	Small-Signal Dynamic Impedance (Note 1)	Min	4.0	2 2	1 5	1 2	0.8	0 5	MΩ	V_F = 25 V, f = 1 kHz
8				Typ	8.0	6.0	4.4	3.4	2.5	1.9		
9		C_F	Anode-Cathode Capacitance	Typ	2	2	2	2	2	2	pF	V_F = 25 V, f = 1 MHz

NOTES:
1. Pulse test duration = 2 ms.
2. Maximum V_F where $I_F < 1.1\ I_{FI(Max)}$ is guaranteed
3. Minimum V_F required to insure $I_F > 0.9\ I_{FI(Min)}$.

NCL

Current-Limiter Diode
V-I Characteristic