

# n-channel JFETs current regulator diodes designed for . . .

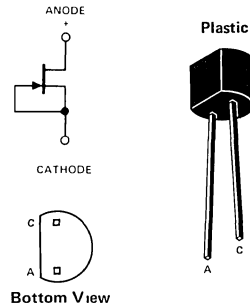
- **Current Regulation**
- **Current Limiting**
- **Biasing**
- **Linear Ramp and Staircase Generator**

**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		J506	J507	J508	J509	J510	J511	Unit	Test Conditions	
1 S T A T I C	I <sub>F1</sub> Forward Current (Note 1)	Min	1 120	1 440	1.9	2.4	2.9	mA	V <sub>F</sub> = 25 V	
		Nominal	1 400	1 800	2.4	3.0	3.6			4.7
		Max	1 680	2 160	2.9	3.6	4.3			5.6
4 P O V	Peak Operating Voltage (Notes 1 and 2)	Min	50	50	50	50	50	V	I <sub>F</sub> = 1.1 I <sub>F1</sub> (Max)	
		Max	2.5	2.8	3.1	3.5	3.9		4.2	I <sub>F</sub> = 0.9 I <sub>F1</sub> (Min)
5 V L	Limiting Voltage (Note 3)	Max	2.5	2.8	3.1	3.5	3.9	V	I <sub>F</sub> = 0.9 I <sub>F1</sub> (Min)	
		Typ	1.8	2.0	2.2	2.5	2.8			3.0
7 D Y N	Z <sub>F1</sub> Small-Signal Dynamic Impedance (Note 1)	Min	0.33	0.2	0.2	0.15	0.15	MΩ	V <sub>F</sub> = 25 V, f = 1 kHz	
		Typ	1.4	1.0	0.70	0.60	0.50			0.30
9	C <sub>F</sub> Anode-Cathode Capacitance	Typ	2	2	2	2	2	pF	V <sub>F</sub> = 25 V, f = 1 MHz	

**NOTES**

1. Pulse test duration = 2 ms
2. Maximum V<sub>F</sub> where I<sub>F</sub> < 1.1 I<sub>F1</sub>(Max) is guaranteed
3. Minimum V<sub>F</sub> required to insure I<sub>F</sub> > 0.9 I<sub>F1</sub>(Min)

**NCL**

Current-Limiter Diode  
V-I Characteristic

