

### Linear Systems replaces discontinued Siliconix J509

The Linear Systems LSJ509 is a  $\pm 20\%$  range current regulator

The LSJ509 is a  $\pm 20\%$  range current regulator designed for demanding applications in test equipment and instrumentation. The LSJ509 utilizes JFET techniques to produce a single two-lead device which is extremely simple to operate.

- Two-Lead Plastic Package
- Guaranteed  $\pm 20\%$  Tolerance
- Operation up to 50V
- Excellent Temperature Stability
- Simple Series Circuitry, No Separate Voltage Source
- Tight Guaranteed Circuit Performance
- Excellent Performance in Low-Voltage/Battery Circuits and High-Voltage Spike Protection
- High Circuit Stability vs. Temperature

#### LSJ509 Applications:

- Constant-Current Supply
- Current-Limiting
- Timing Circuits

#### FEATURES

REPLACEMENT SOURCE FOR SILICONIX J509

WIDE CURRENT RANGE	3.00mA $\pm 20\%$
BIASING NOT REQUIRED	$V_{GS} = 0V$

#### ABSOLUTE MAXIMUM RATINGS<sup>1</sup>

@ 25 °C (unless otherwise stated)

#### Maximum Temperatures

Storage Temperature	-55 to 150°C
Junction Operating Temperature	-55 to 135°C

#### Maximum Power Dissipation

Continuous Power Dissipation @125°C	350mW
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#### Maximum Currents

Forward Current	20mA
Reverse Current	50mA

#### Maximum Voltages

Peak Operating Voltage	$P_{OV} = 45V$
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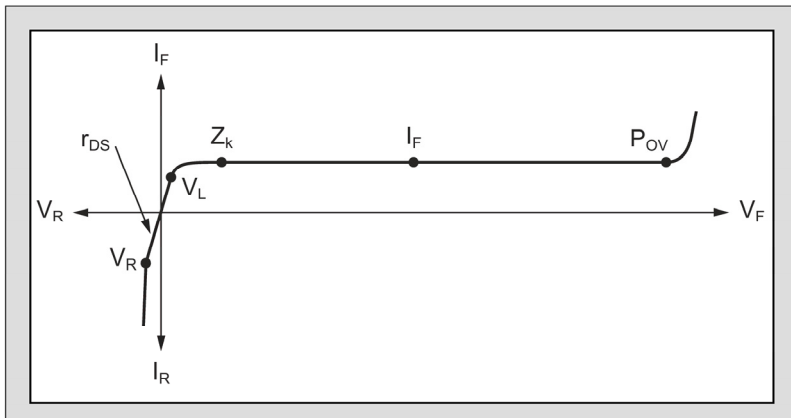
#### ELECTRICAL CHARACTERISTICS @ 25 °C (unless otherwise stated)

SYMBOL	CHARACTERISTIC	MIN	TYP	MAX	UNITS	CONDITIONS
$P_{OV}$	Peak Operating Voltage <sup>2</sup>	50			V	$I_F = 1.1I_{F(max)}$
$V_R$	Reverse Voltage		0.8		V	$I_R = 1mA$
$C_F$	Forward Capacitance		2.2		pF	$V_F = 25V, f = 1MHz$

#### SPECIFIC ELECTRICAL CHARACTERISTICS @ 25 °C (unless otherwise stated)

PART	Forward Current <sup>3</sup> $I_F$			Dynamic Impedance <sup>4</sup> $Z_d$		Knee Impedance $Z_k$	Limiting Voltage <sup>5</sup> $V_L$	
	$V_F = 25V$			$V_F = 25V$		$V_F = 6V$	$I_F = 0.8I_{F(min)}$	
	MIN	NOM	MAX	MIN	TYP	TYP	TYP	MAX
LSJ509	2.400	3.00	3.600	0.15	0.5	0.09	3.5	1.7

#### V-I CHARACTERISTICS CURRENT REGULATING DIODE

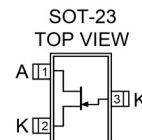


#### Notes:

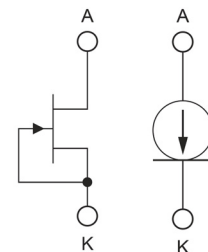
1. Absolute maximum ratings are limiting values above which serviceability may be impaired.
2. Pulsed,  $t = 2ms$ . Maximum  $V_F$  where  $I_F < 1.1I_{F(max)}$ .
3. Pulsed,  $t = 2ms$ . Continuous currents may vary.
4. Pulsed,  $t = 2ms$ . Continuous impedances may vary.
5. Min  $V_F$  required to ensure  $I_F = 0.8I_{F(min)}$ .

#### LSJ509 Availability:

SOT-23  
Bare die



Short Pins 2 & 3  
via PCB trace.



Please contact Micross for full package and die dimensions