

Linear Systems replaces discontinued Siliconix J504

The Linear Systems J504 is a $\pm 20\%$ range current regulator

The J504 is a $\pm 20\%$ range current regulator designed for demanding applications in test equipment and instrumentation. The J504 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.

J504 Applications:

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

FEATURES

REPLACEMENT SECOND SOURCE FOR SILICONIX J504

WIDE CURRENT RANGE 0.75mA \pm 20%

BIASING NOT REQUIRED $V_{GS} = 0V$

ABSOLUTE MAXIMUM RATINGS¹
@ 25°C (unless otherwise noted)

Maximum Temperatures

Storage Temperature -55°C to +150°C

Operating Junction Temperature -55°C to +135°C

Maximum Power Dissipation

Continuous Power Dissipation @ 125°C 360mW

Maximum Currents

Forward Current 20mA

Reverse Current 50mA

Maximum Voltages

Peak Operating Voltage $P_{OV} = 50V$

ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

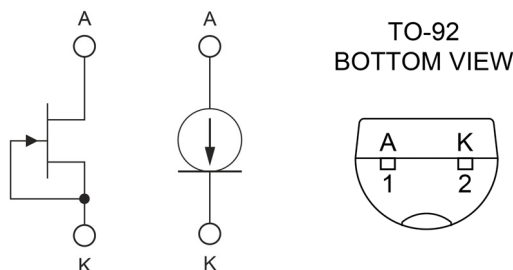
SYMBOL	CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS	CONDITIONS
P_{OV}	Peak Operating Voltage ²	50	--	--	V	$I_F = 1.1 I_{F(MAX)}$
V_R	Reverse Voltage	--	0.8	--	V	$I_R = 1mA$
C_F	Forward Capacitance	--	2.2	--	pF	$V_F = 25V, f = 1MHz$

SPECIFIC ELECTRICAL CHARACTERISTICS @ 25°C (unless otherwise noted)

PART	FORWARD CURRENT ³ I_F			DYNAMIC IMPEDANCE ⁴ Z_d		KNEE IMPEDANCE Z_k	LIMITING VOLTAGE ⁵ V_L	
	$V_F = 25V$			$V_F = 25V$		$V_F = 6V$	$I_F = 0.8 I_{F(MIN)}$	
	MIN	NOM	MAX	MIN	TYP	TYP	TYP	MAX
J504	0.60	0.75	0.90	0.80	3.5	0.55	1.9	0.8

Notes:

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



V-I CHARACTERISTICS CURRENT REGULATING DIODE

