

### General Description

The LDS506P/504 is a 2-terminal current regulator capable of delivering a constant current over a wide voltage range, and requires no separate voltage source or supporting components.

The LDS506P/504 is a bipolar integrated circuit that replaces legacy JFET devices.

Its low cost, small size and simplicity makes the current regulator diode ideal for applications requiring an isolated constant current source.

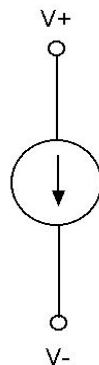
### Applications

- Audio circuits
- Timing circuits
- Current source or sink
- Current limiting circuits

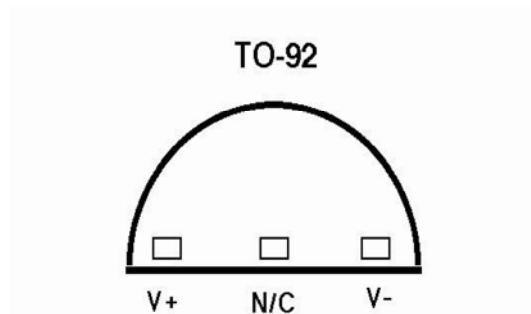
### Features

- No separate voltage source required
- Excellent temperature performance
- High Dynamic Impedance
- **RoHS compliant** available

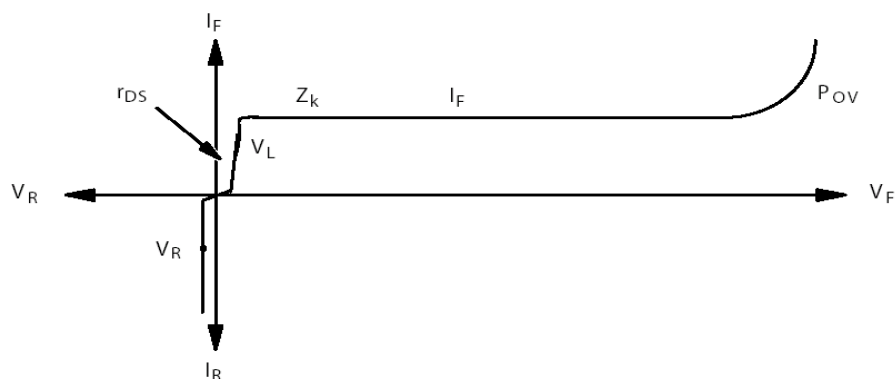
### Block Diagram



### Pin Configuration (Top View)



## Electrical Characteristic



## Absolute Maximum Ratings

Parameter	Value	Unit
Peak Forward Voltage	36	V
Reverse Current	50	mA
Operating Junction Temperature	150	°C
Lead Temperature (soldering 10 seconds)	300	°C
Storage Temperature Range	-80 to +150	°C

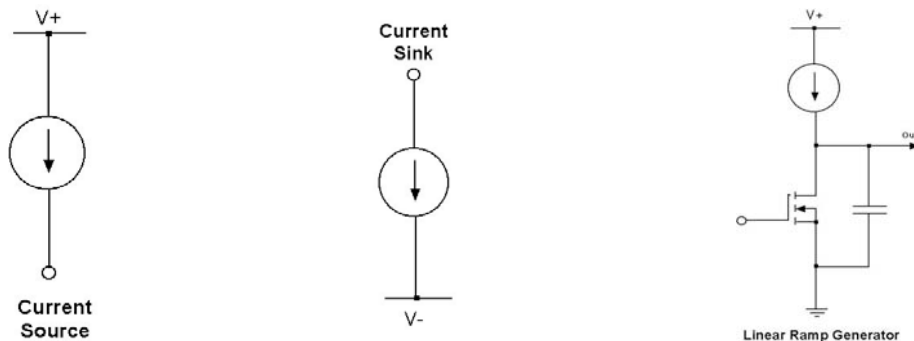
## Electrical Specifications

Electrical characteristics are guaranteed over the full temperature range  $0^{\circ}\text{C} \leq T_j \leq 100^{\circ}\text{C}$ . Ambient temperature must be de-rated based upon power dissipation and package thermal characteristics.

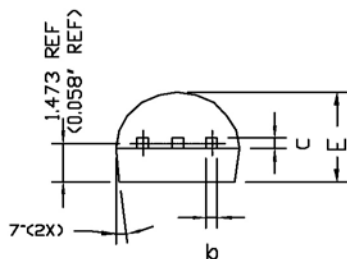
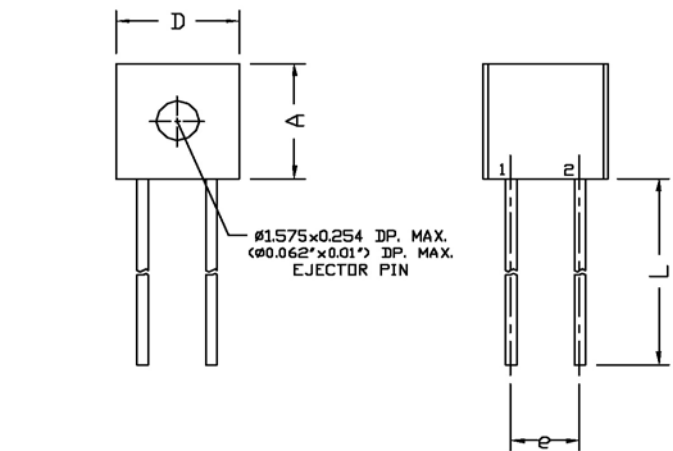
Symbol	Parameter	Conditions	Min	Typ	Max	Units
POV	Peak Operating Voltage	$I_F = 1.1 \cdot I_{F \text{ max}}$	36	45		Volts
VR	Reverse Voltage	$I_R = 1\text{mA}$		0.8		Volts
CF	Capacitance	$V_F = 25\text{V}$ , $f = 1\text{MHz}$		2.2		pF
IF	Regulator Current	LDS506P, $V_F = 25\text{V}$	1.12	1.40	1.68	mA
		LDS504, $V_F = 25\text{V}$	0.61	0.70	0.84	
Zd	Dynamic Impedance	$V_F = 25\text{V}$	.33	1.5		$\text{M}\Omega$
Zk	Knee Impedance	$V_F = 6\text{V}$		.25		$\text{M}\Omega$
VL	Limiting Voltage	$I_F = 0.8 \cdot I_{f \text{ min}}$		1.1	2.5	V
TC	Temperature Coefficient	$V_F = 25\text{V}$		.19		$\%/^{\circ}\text{C}$

Symbol	Parameter	Conditions	Min	Typ	Max	Units
		$0^{\circ}\text{C} \leq \text{TA} \leq 100^{\circ}\text{C}$				

### Typical Applications



### PACKAGE DIMENSIONS TO92-2



SYMBOL	COMMON					
	DIMENSIONS MILLIMETER			DIMENSIONS INCH		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	4.472	4.572	4.672	0.176	0.180	0.184
b	0.381	0.406	0.431	0.015	0.016	0.017
c	0.356	0.406	0.456	0.014	0.016	0.018
D	4.472	4.572	4.672	0.176	0.180	0.184
E	3.456	3.556	3.656	0.136	0.140	0.144
e	2.413	2.540	2.667	0.095	0.100	0.105
L	13.87	13.97	14.07	0.546	0.550	0.554

- NOTES :
1. CONTROLLING DIMENSION : MILLIMETER. CONVERTED INCH DIMENSION ARE NOT NECESSARILY EXACT.
  2. DIMENSIONING AND TOLERANCING PER ANSI Y14.5, 1973.
  3. FOR 2 LEAD PACKAGE CENTER LEAD IS CLIPPED

## Ordering Information

Device	Operating Tj	%Tol	Pkg Type	I FWD	Wrap	Order Number
LDS506P	0C° ≤100C°	20	TO-92-2	1.4mA	BULK	LDS506FV-N2-14-BL
LDS504P	0C° ≤100C°	20	TO-92-2	0.7mA	BULK	LDS504FV-N2-07-BL

**Note:** Lead Free and RoHS compliant.

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