



# Current Regulator Diodes— $P_{OV(min)}$ 45 V

SST502

SST504

SST506

SST508

SST510

SST503

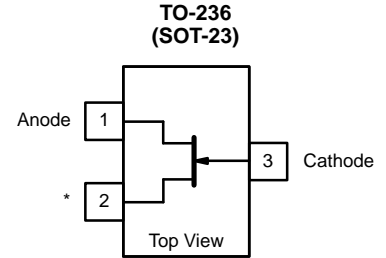
SST505

SST507

SST509

SST511

PRODUCT SUMMARY					
Part Number	Typ $I_F$ (mA)	Marking	Part Number	Typ $I_F$ (mA)	Marking
SST502	0.43	L2	SST507	1.80	L7
SST503	0.56	L3	SST508	2.40	L8
SST504	0.75	L4	SST509	3.00	L9
SST505	1.00	L5	SST510	3.60	L0
SST506	1.40	L6	SST511	4.70	L1



\*Short lead #2 to Cathode (lead #3) via circuit board trace.

### FEATURES

- Surface-Mount Package
- Guaranteed  $\pm 20\%$  Tolerance
- Operation from 1 V (SST502, 3) to 45 V
- Good Temperature Stability

### BENEFITS

- 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

### APPLICATIONS

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

### DESCRIPTION

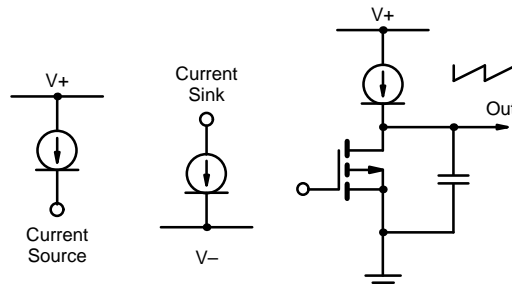
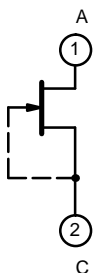
The SST502 series is a family of  $\pm 20\%$  range current regulators designed for demanding applications in test equipment and instrumentation. These devices utilize the JFET techniques to produce a device which is extremely simple to operate.

With nominal current ranges from 0.43 mA to 4.7 mA, the SST502 series will meet a wide array of design requirements.

The low-cost TO-236 surface-mount package ensures a cost-effective design solution.

### SCHEMATIC DIAGRAM

### APPLICATIONS



Linear Ramp Generator



### ABSOLUTE MAXIMUM RATINGS

Peak Operating Voltage ..... 45 V  
 Reverse Current ..... 50 mA  
 Storage Temperature ..... -55 to 150°C

Power Dissipation<sup>a</sup> ..... 350 mW

Notes:  
 a. Derate 2.8 mW/°C above 25°C

SPECIFICATIONS <sup>a</sup>						
Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ <sup>b</sup>	Max	
Peak Operating Voltage	P <sub>OV</sub>	I <sub>F</sub> = 1.1 I <sub>F(max)</sub> <sup>c</sup>	45	55		V
Reverse Voltage	V <sub>R</sub>	I <sub>R</sub> = 1 mA		0.8		
Capacitance	C <sub>F</sub>	V <sub>F</sub> = 25 V, f = 1 MHz		1.5		pF

Part Number	Regulator Current <sup>d</sup> (I <sub>F</sub> )			Dynamic Impedance <sup>e</sup> (Z <sub>d</sub> )		Knee Impedance (Z <sub>k</sub> )	Limiting Voltage (V <sub>L</sub> )		Temperature Coefficient (θ <sub>1</sub> )
	V <sub>F</sub> = 25 V			V <sub>F</sub> = 25 V		V <sub>F</sub> = 6 V	I <sub>F</sub> = 0.8 I <sub>F(min)</sub>		V <sub>F</sub> = 25 V 0°C ≤ T <sub>A</sub> ≤ 100°C
	Min	Nom	Max	Min	Typ <sup>b</sup>	Typ <sup>b</sup>	Max	Typ <sup>b</sup>	%/°C
SST502	0.344	0.43	0.516	1.0	2.7	0.7	1.5	0.6	-0.08%
SST503	0.448	0.56	0.672	0.7	2.0	0.5	1.7	0.7	-0.12%
SST504	0.600	0.75	0.900	0.5	1.5	0.4	1.9	0.8	-0.16%
SST505	0.800	1.00	1.200	0.4	1.0	0.3	2.1	0.9	-0.20%
SST506	1.120	1.40	1.680	0.3	0.8	0.2	2.5	1.1	-0.24%
SST507	1.440	1.80	2.160	0.2	0.6	0.12	2.8	1.3	-0.28%
SST508	1.900	2.40	2.900	0.1	0.4	0.08	3.1	1.5	-0.31%
SST509	2.400	3.00	3.600	0.09	0.3	0.06	3.5	1.7	-0.34%
SST510	2.900	3.60	4.300	0.08	0.3	0.04	3.9	1.9	-0.37%
SST511	3.800	4.70	5.600	0.07	0.2	0.03	4.2	2.1	-0.40%

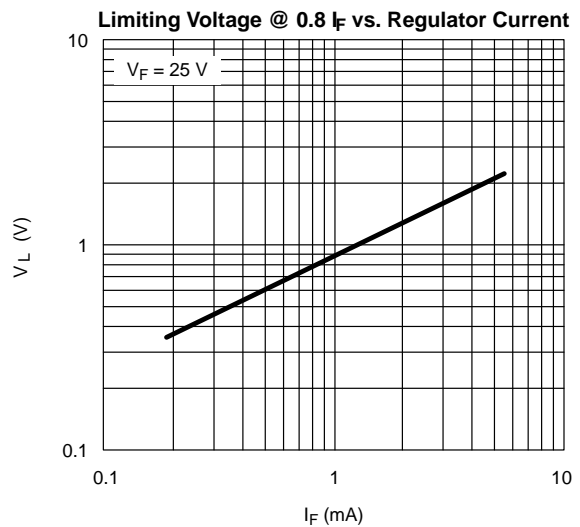
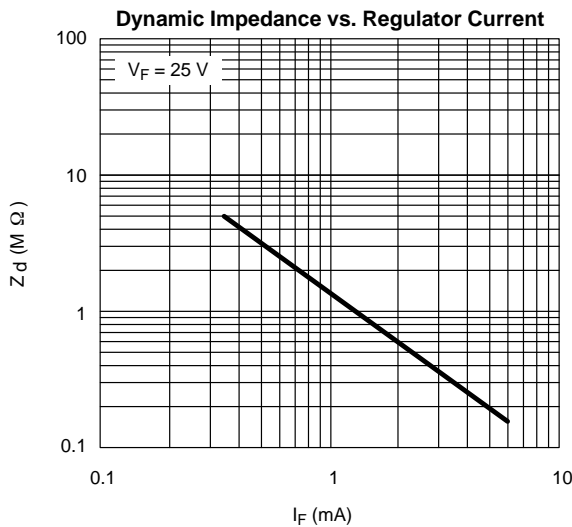
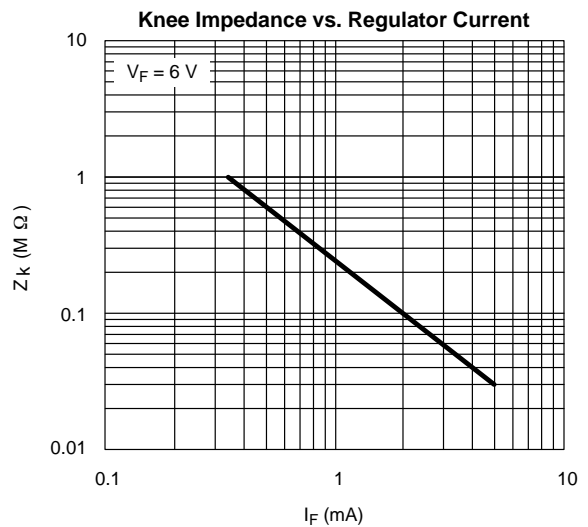
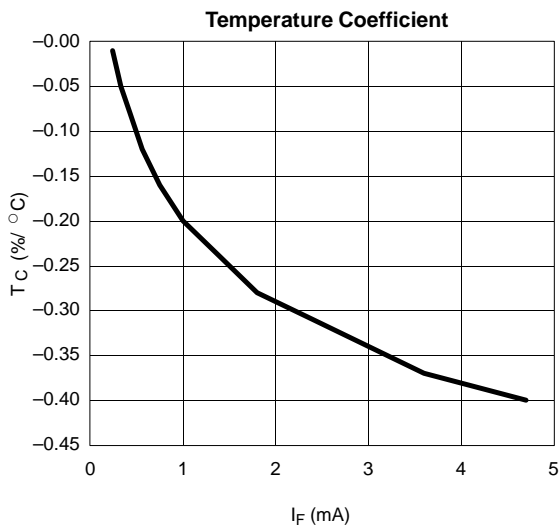
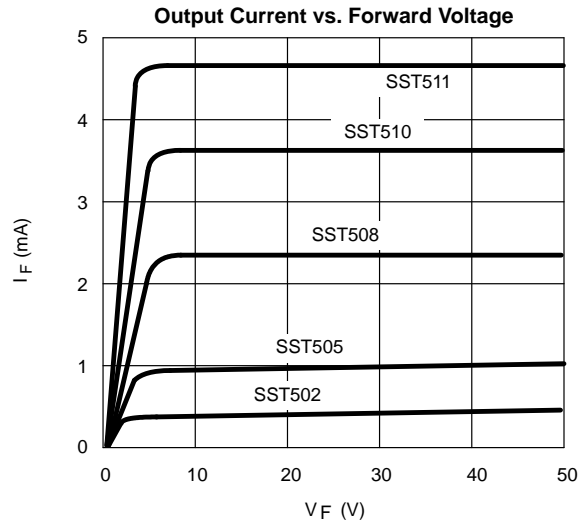
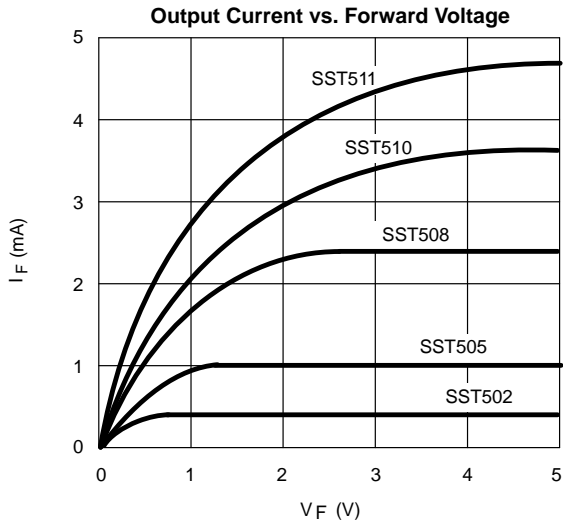
Notes:

- T<sub>A</sub> = 25°C unless otherwise noted.
- Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
- Max V<sub>F</sub> where I<sub>F</sub> = 1.1 I<sub>F(max)</sub> is guaranteed.
- Pulse test—steady state currents may vary.
- Pulse test—steady state impedances may vary.
- Min V<sub>F</sub> required to insure I<sub>F</sub> = 0.8 I<sub>F(min)</sub>.

NPA

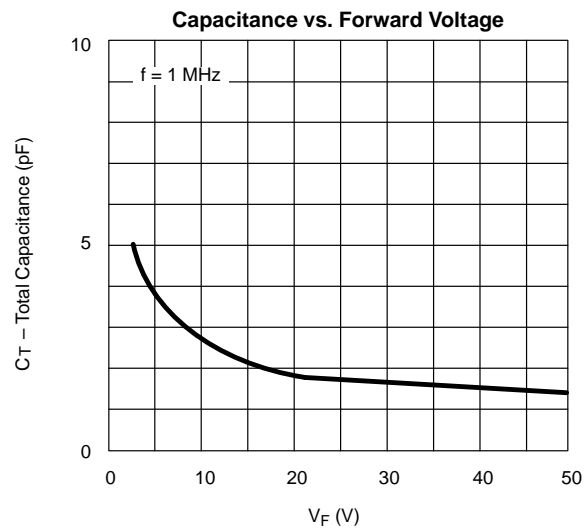
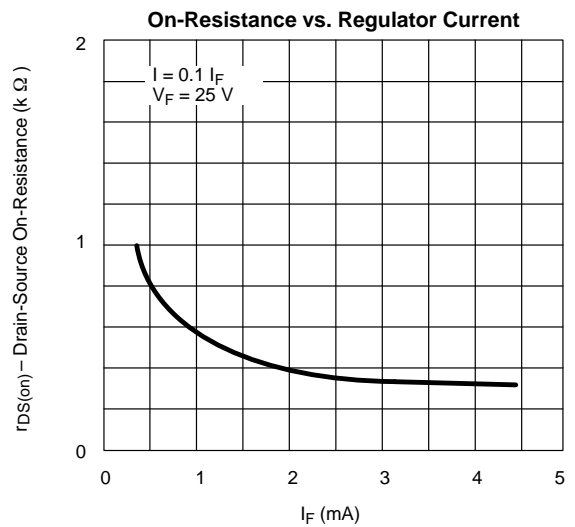
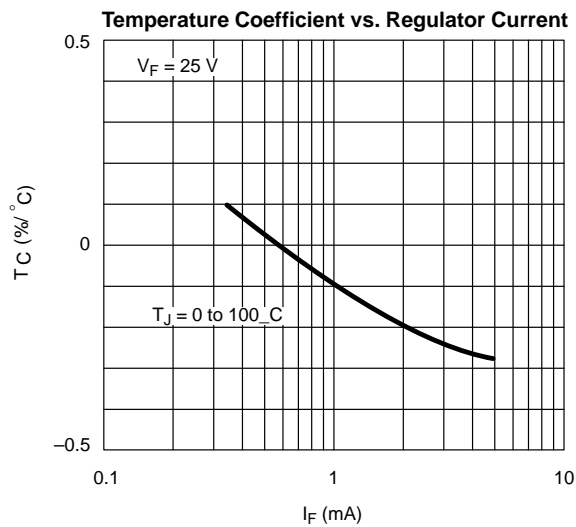


**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**





**TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)**



**CURRENT REGULATOR DIODE V-1 CHARACTERISTIC**

