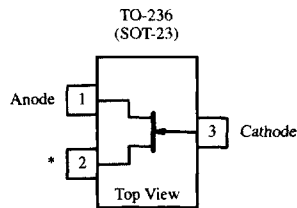


Current Regulator Diodes— $P_{OV(min)}$ 45 V

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.

4
Current Regulators

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.

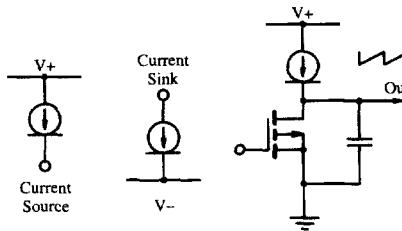
With nominal current ranges from 0.43 mA to 4.7 mA, the SST502 series will meet a wide array of design requirements.

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

Schematic Diagram



Applications



Linear Ramp Generator

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70711.

SST502 Series

TEMIC
Semiconductors

Absolute Maximum Ratings

Peak Operating Voltage	45 V	Power Dissipation ^d	350 mW
Reverse Current	50 mA	Notes:	
Storage Temperature	-55 to 150°C	a. Derate 2.8 mW/°C above 25°C	

Specifications^a

Parameter	Symbol	Test Conditions	Limits			Unit
			Min	Typ ^b	Max	
Peak Operating Voltage	P_{OV}	$I_F = 1.1 I_{F(max)}$ ^c	45	55		V
Reverse Voltage	V_R	$I_R = 1 \text{ mA}$		0.8		
Capacitance	C_F	$V_F = 25 \text{ V}, f = 1 \text{ MHz}$		1.5		pF

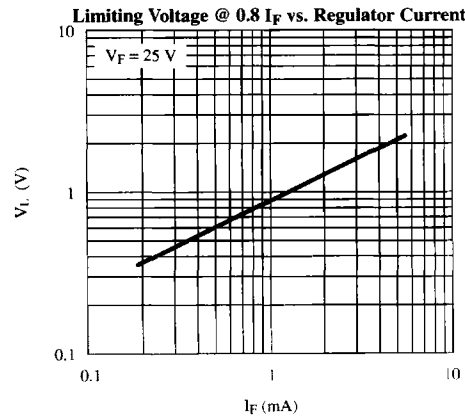
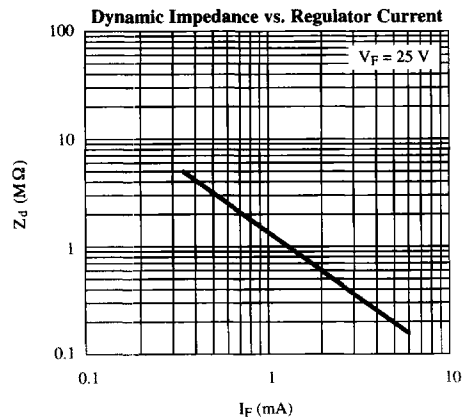
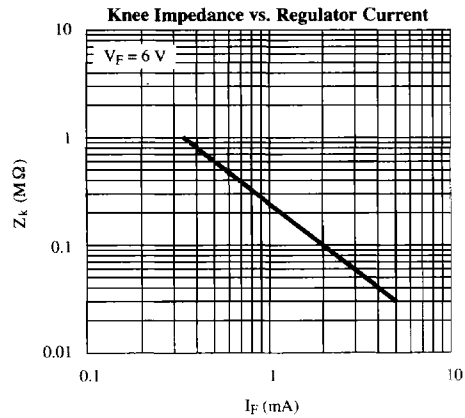
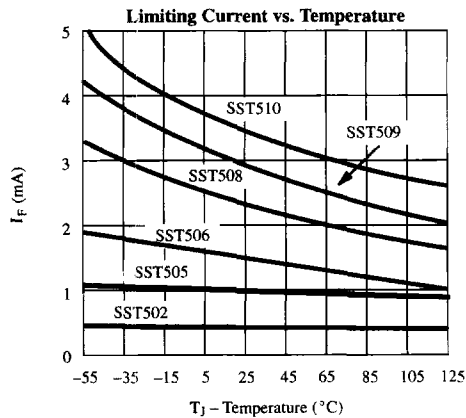
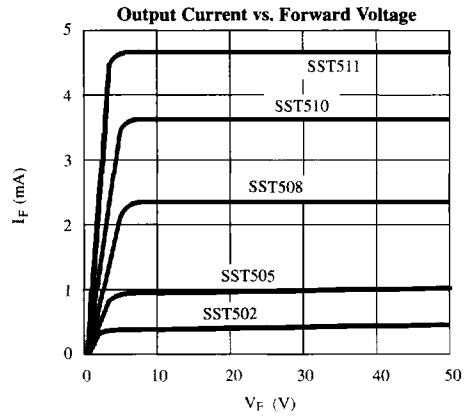
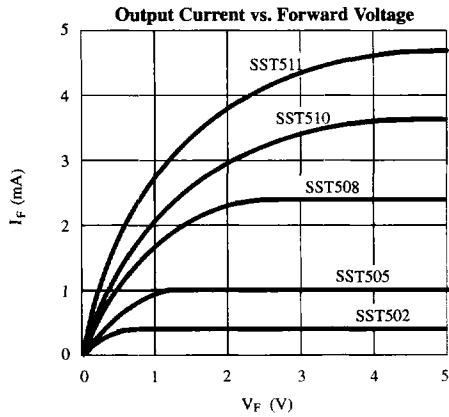
Part Number	Regulator Current ^d (I_F)			Dynamic Impedance ^e (Z_d)		Knee Impedance (Z_k)	Limiting Voltage ^f (V_L)		Temperature Coefficient (θ_I)
	$V_F = 25 \text{ V}$			$V_F = 25 \text{ V}$		$V_F = 6 \text{ V}$	$I_F = 0.8 I_{F(min)}$		$V_F = 25 \text{ V}$ $0^\circ\text{C} \leq T_A \leq 100^\circ\text{C}$
	Min	Nom	Max	Min	Typ ^b	Typ ^b	Max	Typ ^b	Typ ^b
SST502	0.344	0.43	0.516	1.0	2.7	0.7	1.5	0.6	+100
SST503	0.448	0.56	0.672	0.7	2.0	0.5	1.7	0.7	-100
SST504	0.600	0.75	0.900	0.5	1.5	0.4	1.9	0.8	-1000
SST505	0.800	1.00	1.200	0.4	1.0	0.3	2.1	0.9	-1700
SST506	1.120	1.40	1.680	0.3	0.8	0.2	2.5	1.1	-2500
SST507	1.440	1.80	2.160	0.2	0.6	0.12	2.8	1.3	-3000
SST508	1.900	2.40	2.900	0.1	0.4	0.08	3.1	1.5	-3500
SST509	2.400	3.00	3.600	0.09	0.3	0.06	3.5	1.7	-4000
SST510	2.900	3.60	4.300	0.08	0.3	0.04	3.9	1.9	-4500
SST511	3.800	4.70	5.600	0.07	0.2	0.03	4.2	2.1	-5200

Notes:

- $T_A = 25^\circ\text{C}$ unless otherwise noted.
- Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
- Max V_F where $I_F = 1.1 I_{F(max)}$ is guaranteed.
- Pulse test—steady state currents may vary.
- Pulse test—steady state impedances may vary.
- Min V_F required to insure $I_F = 0.8 I_{F(min)}$.

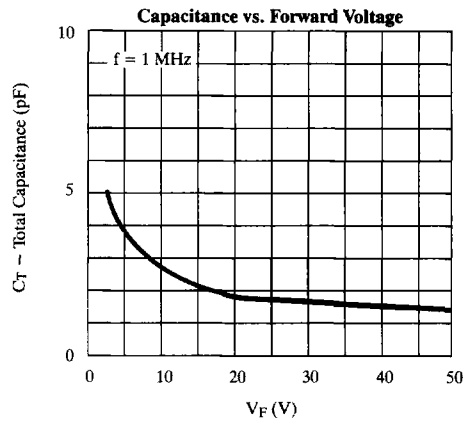
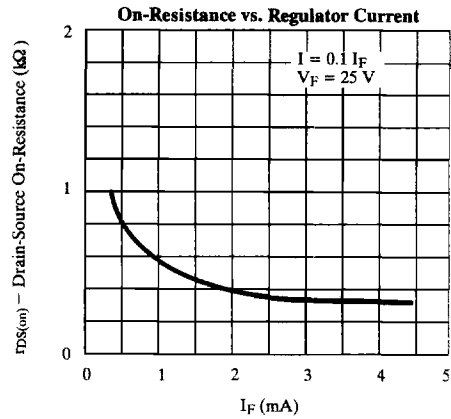
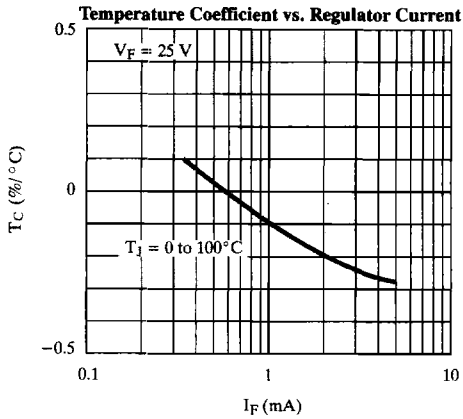
NPA

Typical Characteristics



4
Current Regulators

Typical Characteristics (Cont'd)



Current Regulator Diode V-I Characteristic

