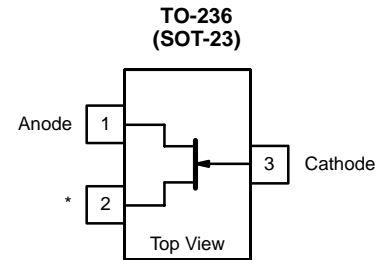




Current Regulator Diodes— $P_{OV(min)}$ 45 V

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 |



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

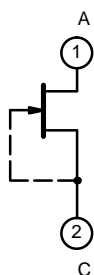
DESCRIPTION

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.

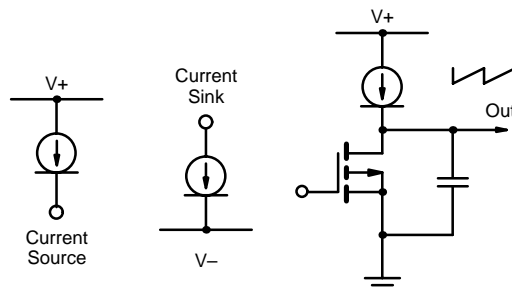
With nominal current ranges from 0.43 mA to 4.7 mA, the SST502 series will meet a wide array of design requirements.

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^a 350 mW

Notes:

a. Derate 2.8 mW/°C above 25°C

| SPECIFICATIONS (T _A = 25°C) UNLESS OTHERWISE NOTED | | | | | | |
|---|-----------------|--|--------|------------------|-----|------|
| Parameter | Symbol | Test Conditions | Limits | | | Unit |
| | | | Min | Typ ^a | Max | |
| Peak Operating Voltage ^b | P _{OV} | I _F = 1.1 I _{F(max)} | 45 | 55 | | V |
| Reverse Voltage | V _R | I _R = 1 mA | | 0.8 | | |
| Capacitance | C _F | V _F = 25 V, f = 1 MHz | | 1.5 | | pF |

| Part Number | Regulator Current ^c (I _F) | | | Dynamic Impedance ^d (Z _d) | | Knee Impedance (Z _k) | Limiting Voltage ^e (V _L) | | Temperature Coefficient (θ ₁) |
|-------------|---|------|-------|---|------------------|-------------------------------------|--|------------------|---|
| | V _F = 25 V | | | V _F = 25 V | | V _F = 6 V | I _F = 0.8 I _{F(min)} | | V _F = 25 V 0°C ≤ T _A ≤ 100°C |
| | mA | | | MΩ | | MΩ | V | | %/°C |
| | Min | Nom | Max | Min | Typ ^a | Typ ^a | Max | Typ ^a | Typ ^a |
| 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 |

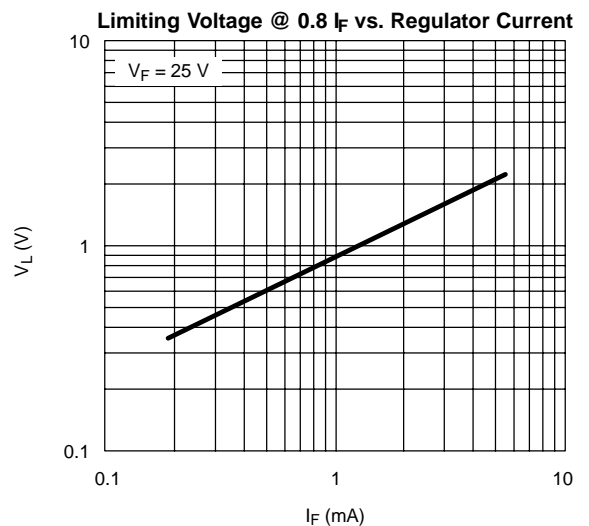
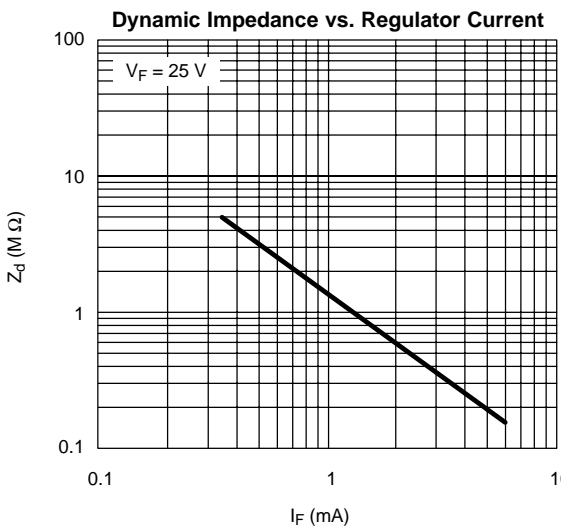
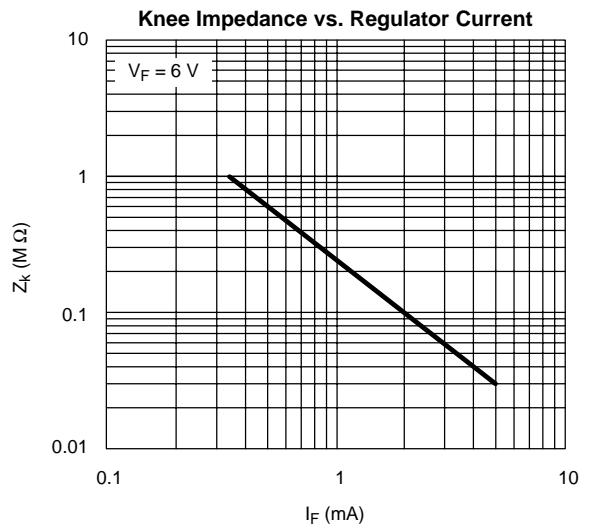
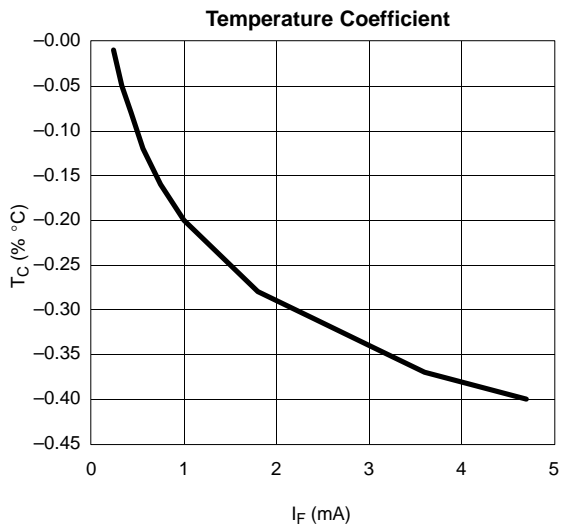
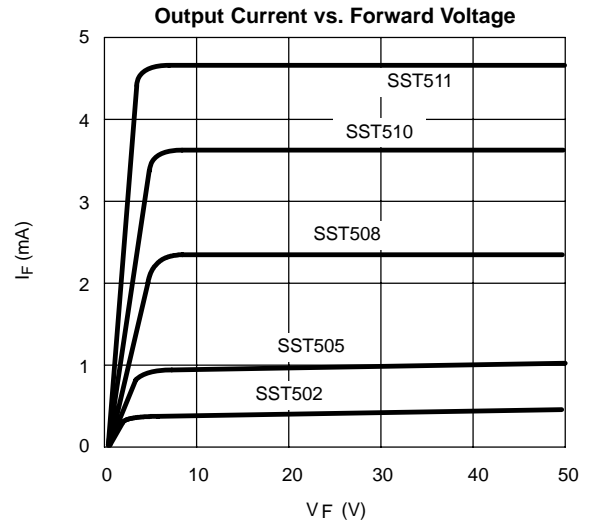
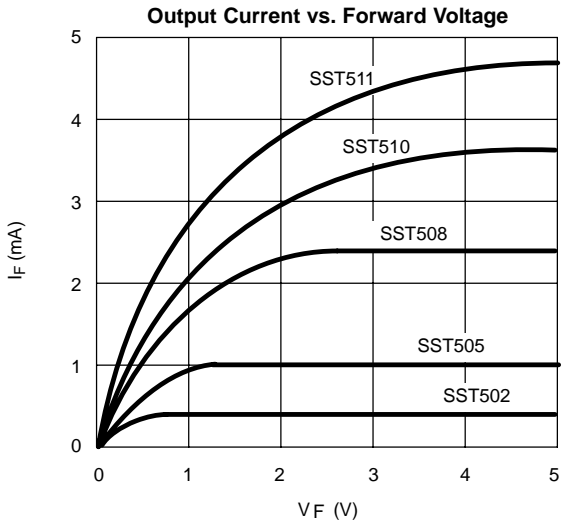
Notes:

- a. Typical values are for DESIGN AID ONLY, not guaranteed nor subject to production testing.
- b. Max V_F where I_F = 1.1 I_{F(max)} is guaranteed.
- c. Pulse test—steady state currents may vary.
- d. Pulse test—steady state impedances may vary.
- e. Min V_F required to insure I_F = 0.8 I_{F(min)}.

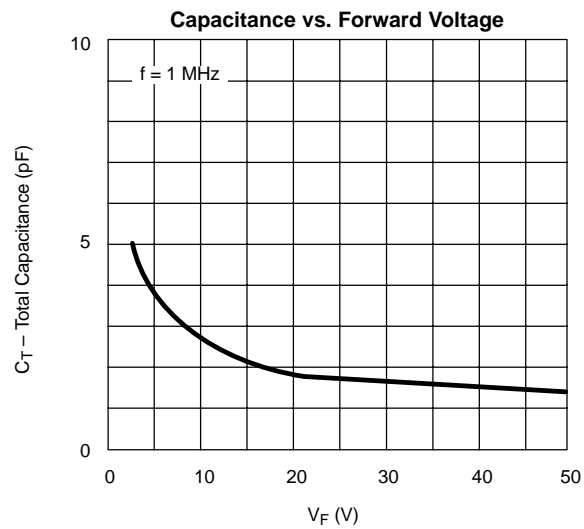
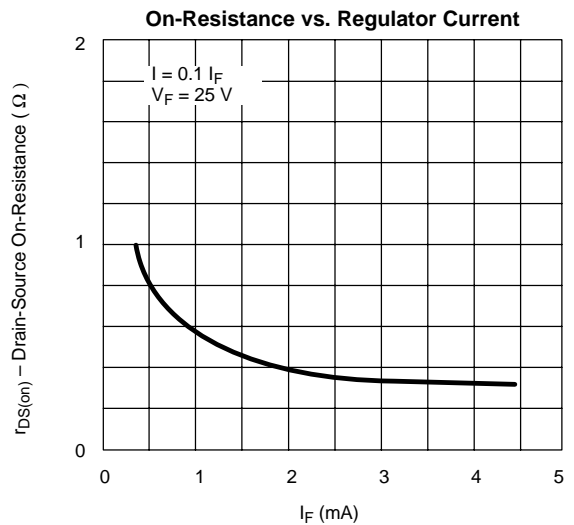
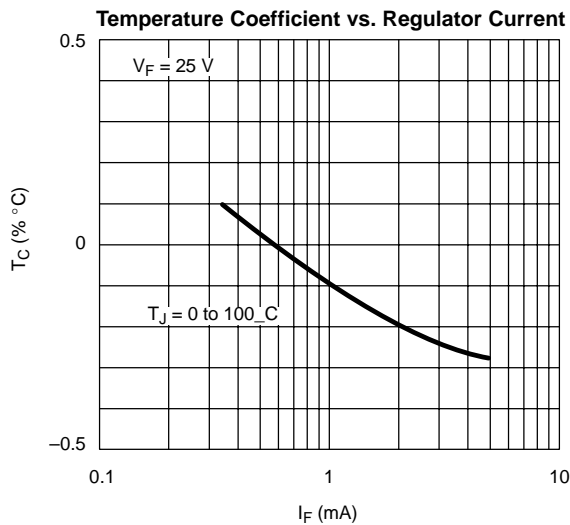
NPA



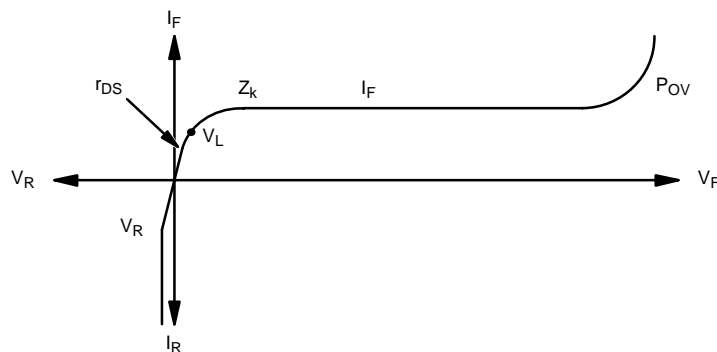
TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)



TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)



CURRENT REGULATOR DIODE V-1 CHARACTERISTIC





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