

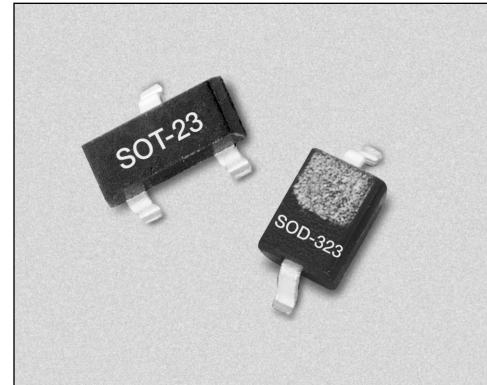
Hyperabrupt Junction Tuning Varactor



SMV1135 Series

Features

- High Tuning Ratio
- Low Series Resistance
- SOD-323 Package
- Designed for High Volume, Low Cost Applications
- Available in Tape and Reel Packaging





Description

The SMV1135-011 is a surface mount varactor diode in the SOD-323 plastic package. It is designed for very high capacitance tuning ratio while having low series resistance, which makes this device especially attractive for wideband VCO applications.

Absolute Maximum Ratings

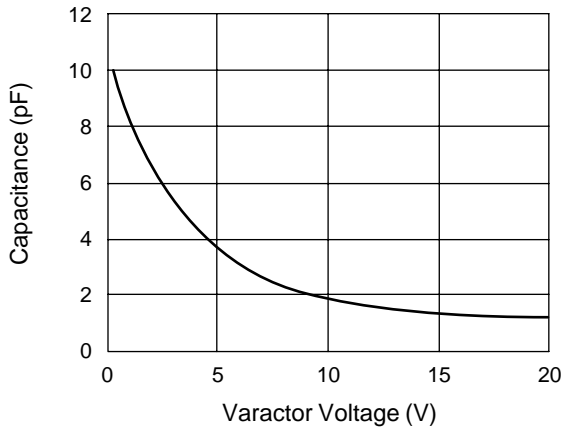
| Characteristic | Value |
|------------------------------------|-----------------|
| Forward Current (I_F) | 20 mA |
| Power Dissipation (P_D) | 250 mW |
| Storage Temperature (T_{ST}) | -55°C to +150°C |
| Operating Temperature (T_{OP}) | -55°C to +125°C |

| | |
|---|---|
|  |  |
| Single | Common Cathode |
| SOD-323 | SOT-23 |
| SMV1135-011 | SMV1135-004 |

Electrical Specifications at 25°C

| Parameter | Condition | Min. | Typ. | Max. | Unit |
|--------------------------------|--|-------|------|-------|----------|
| Reverse Current (I_R) | $V_R = 21\text{ V}$ | | | 20.00 | nA |
| Capacitance (C_T) | $C_T @ 1\text{ V}, V_R = 1\text{ V}, F = 1\text{ MHz}$ | 8.20 | | 10.00 | pF |
| Capacitance Ratio (C_{TR}) | $C_T(1\text{ V})/C_T(3\text{ V})$ | 1.47 | | 1.76 | |
| Capacitance Ratio (C_{TR}) | $C_T(1\text{ V})/C_T(9\text{ V})$ | 3.70 | | 4.50 | |
| Series Resistance (R_S) | $V_R = 1\text{ V}, F = 500\text{ MHz}$ | | | 1.20 | Ω |
| Breakdown Voltage (V_{BR}) | $I_R = 10\ \mu\text{A}$ | 28.00 | | | V |

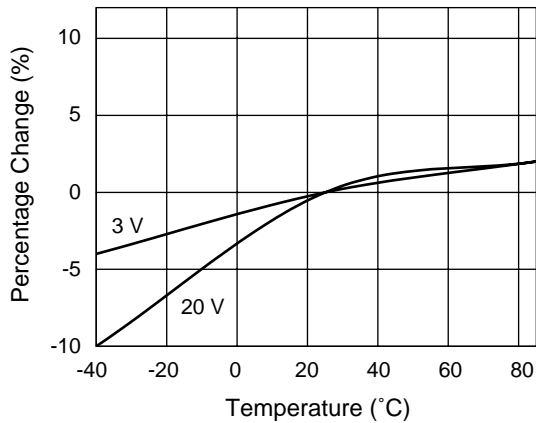
Typical Performance Data



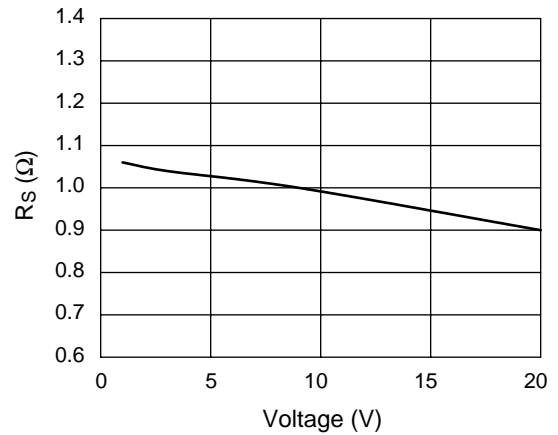
Capacitance vs. Voltage

Capacitance vs. Voltage

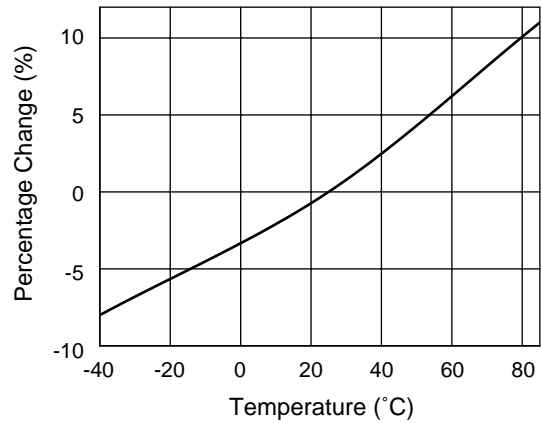
| V_R (V) | C_T (pF) |
|-----------|------------|
| 0.5 | 10.34 |
| 1.0 | 8.69 |
| 2.5 | 5.98 |
| 3.0 | 5.38 |
| 6.0 | 3.11 |
| 10.0 | 1.92 |
| 20.0 | 1.17 |



Relative Capacitance Change vs. Temperature

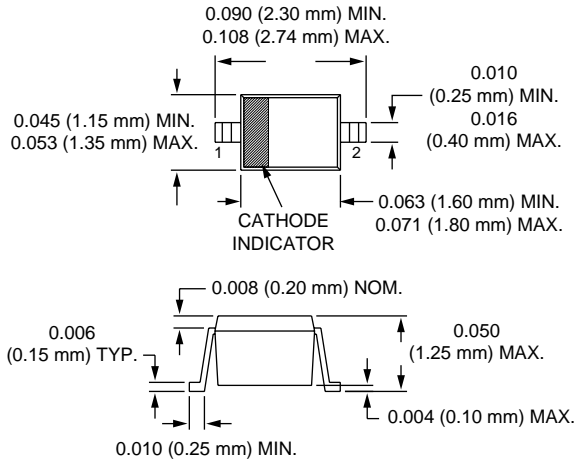


Series Resistance vs. Voltage

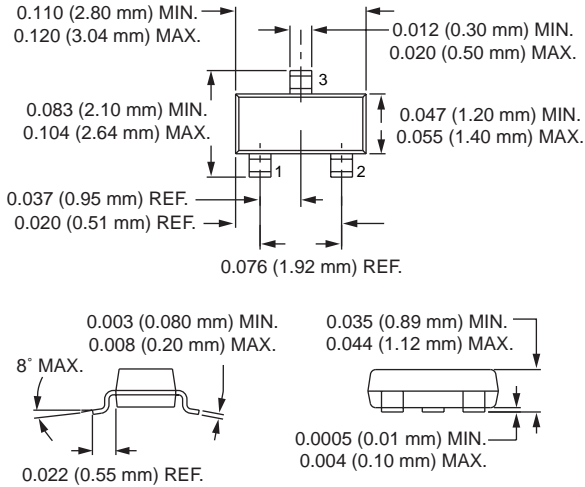


Relative Series Resistance Change vs. Temperature

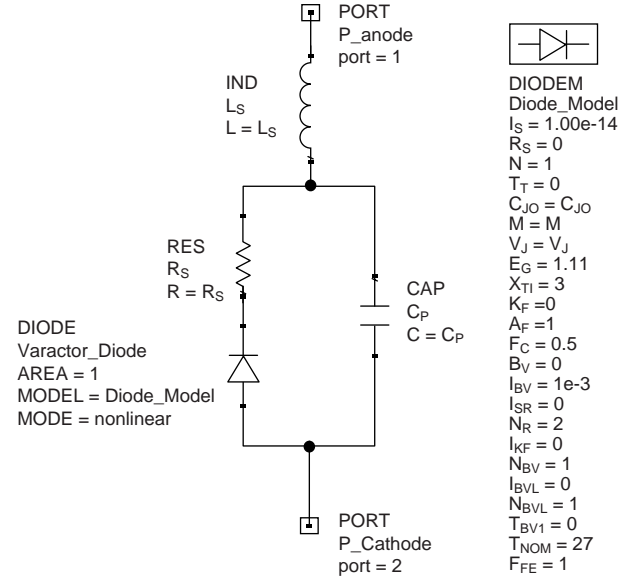
SOD-323



SOT-23



SPICE Model



| Part Number | C _{J0} (pF) | V _J (V) | M | C _P (pF) | R _S (Ω) | L _S (nH) |
|-------------|----------------------|--------------------|-----|---------------------|--------------------|---------------------|
| SMV1135-011 | 10.3 | 8.6 | 2.9 | 0.8 | 1.2 | 1.5 |