

Variable Capacitance Diode

Description

The 1T403 is a variable capacitance diode designed for electronic tuning of VHF TV tuners and CATV tuners using a super-small-miniature flat package (SSVC).

Features

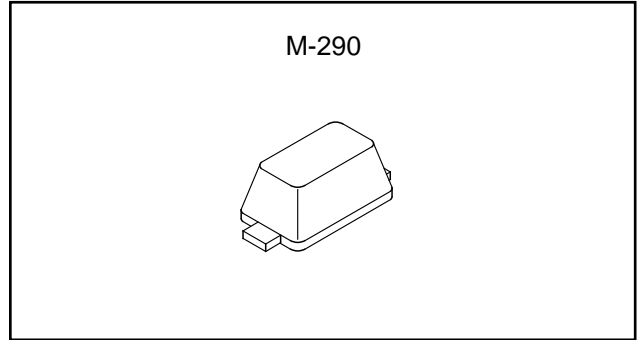
- Super-small-miniature flat package
- Low series resistance: 0.8 Ω Max. (f=470 MHz)
- Large capacitance ratio: 15.0 Typ. (C₁/C₂₈)
- Small leakage current: 10 nA Max. (V_R=28 V)
- Capacitance deviation in a matching group: within 2 %

Applications

Electronic tuning of TV and CATV tuners

Structure

Silicon epitaxial planar type diode



Absolute Maximum Ratings (T_a=25 °C)

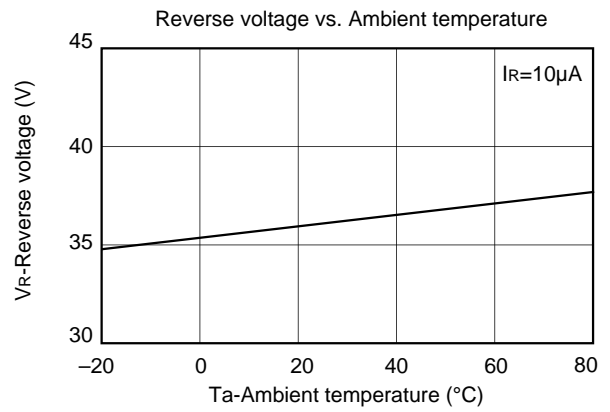
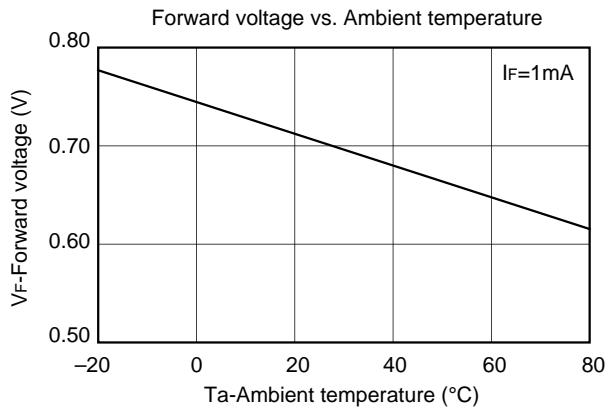
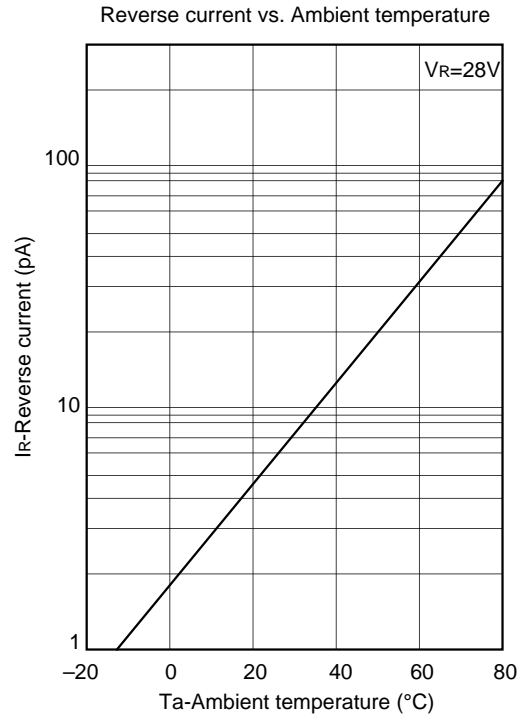
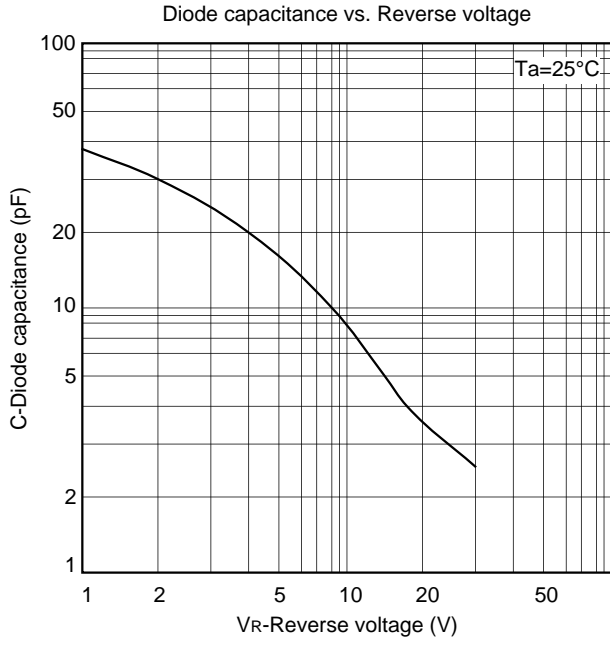
- Reverse voltage V_R 30 V
- Peak reverse voltage V_{RM} 35 V (R_L≥10 kΩ)
- Operating temperature T_{opr} -20 to +75 °C
- Storage temperature T_{stg} -65 to +150 °C

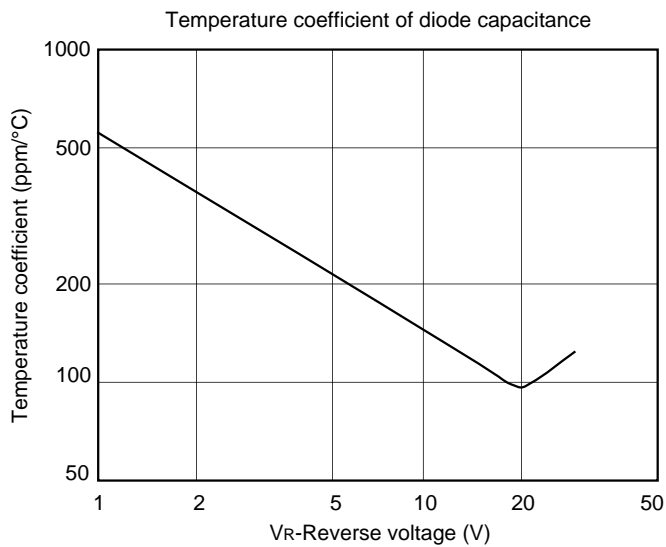
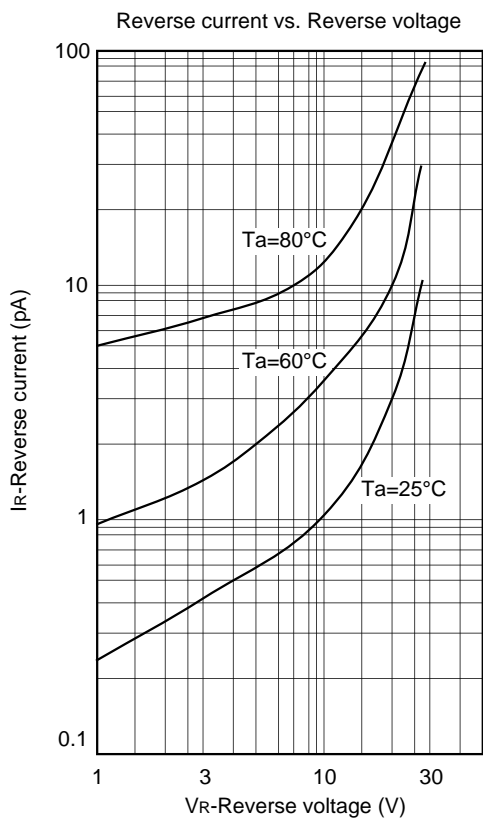
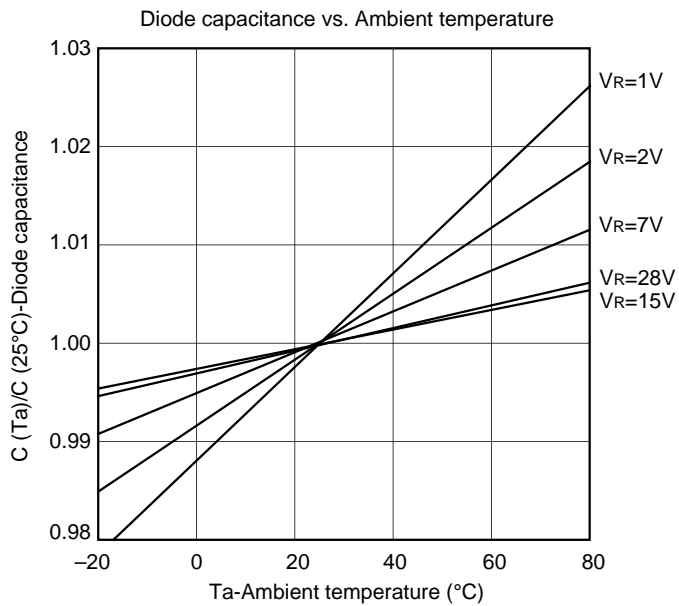
Electrical Characteristics

(T_a=25 °C)

| Item | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---------------------------------|------------------------------------|-------|------|-------|------|
| Reverse current | I _R | V _R =28 V | | | 10 | nA |
| Diode capacitance | C ₁ | V _R =1 V, f=1 MHz | 34.61 | | 42.31 | pF |
| | C ₂₈ | V _R =28 V, f=1 MHz | 2.321 | | 2.714 | pF |
| Capacitance ratio | C ₁ /C ₂₈ | | 13.5 | 15.0 | | |
| Series resistance | r _s | C _D =14 pF, f=470 MHz | | 0.75 | 0.80 | Ω |
| Capacitance deviation in a matching group | ΔC | V _R =1 to 28 V, f=1 MHz | | | 2 | % |

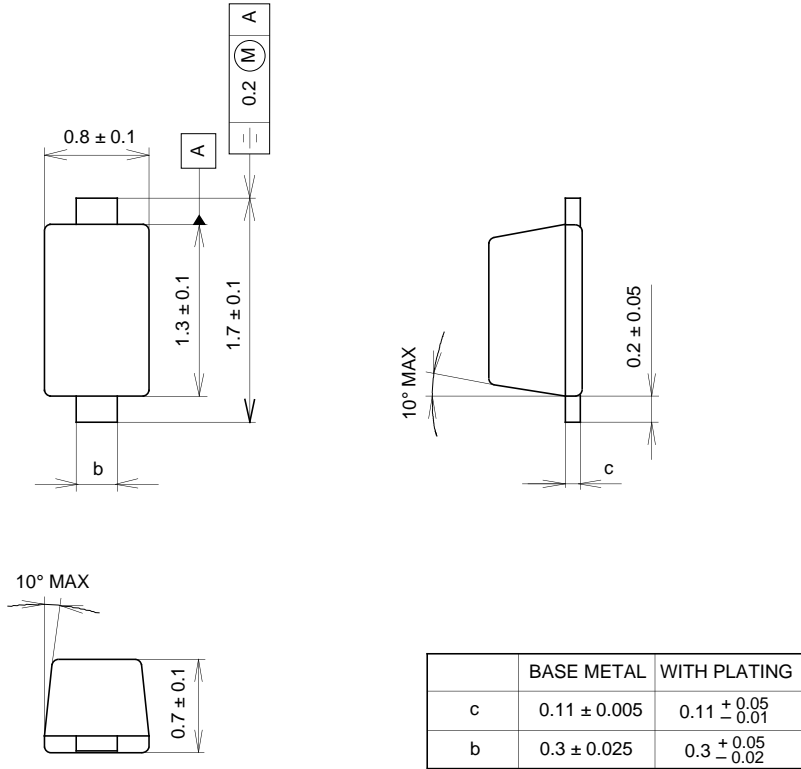
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Package Outline Unit : mm

M-290



| | BASE METAL | WITH PLATING |
|---|--------------|---|
| c | 0.11 ± 0.005 | 0.11 $\begin{smallmatrix} +0.05 \\ -0.01 \end{smallmatrix}$ |
| b | 0.3 ± 0.025 | 0.3 $\begin{smallmatrix} +0.05 \\ -0.02 \end{smallmatrix}$ |

| | |
|------------|-------|
| SONY CODE | M-290 |
| EIAJ CODE | _____ |
| JEDEC CODE | _____ |

| | |
|------------------|----------------|
| PACKAGE MATERIAL | EPOXY RESIN |
| LEAD TREATMENT | SOLDER PLATING |
| LEAD MATERIAL | COPPER |
| PACKAGE WEIGHT | 0.002g |

Mark

