

Variable Capacitance Diode

Description

The 1T402 is a variable capacitance diode designed for electronic tuning of UHF TV tuners using a super-small-miniature flat package (SSVC).

Features

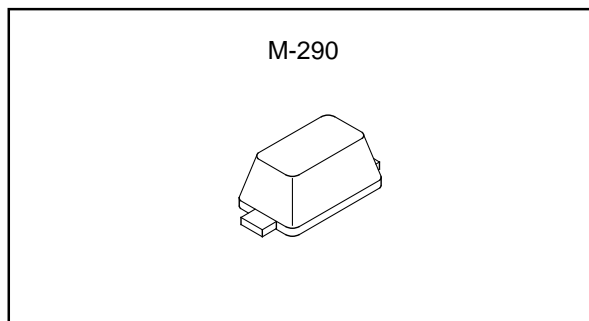
- Super-small-miniature flat package
- Low series resistance: 0.65 Ω Max. (f=470 MHz)
- Large capacitance ratio: 6.5 Typ. (C₂/C₂₅)
- Small leakage current: 10 nA Max. (V_R=28 V)
- Capacitance deviation in a matching group:
within 2 %

Applications

Electronic tuning of TV and CATV tuners

Structure

Silicon epitaxial planar type diode



Absolute Maximum Ratings (T_a=25 °C)

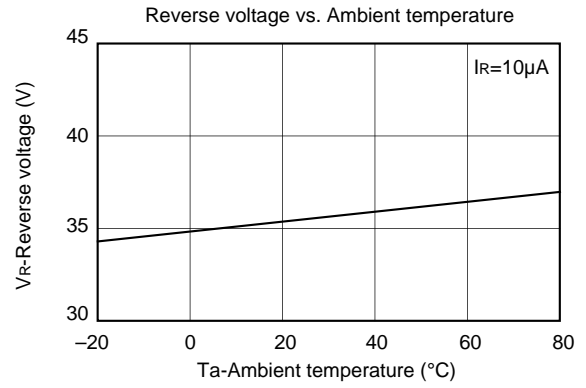
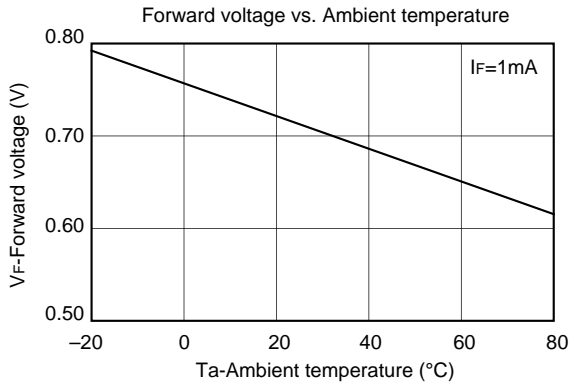
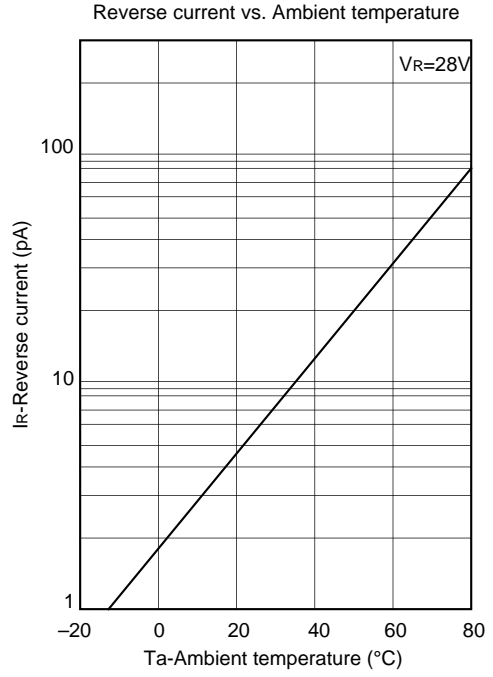
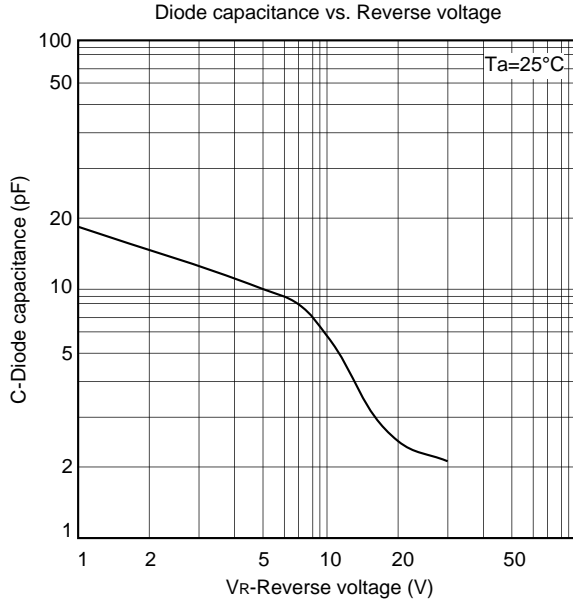
- | | | | |
|-------------------------|------------------|----------------------------------|----|
| • Reverse voltage | V _R | 30 | V |
| • Peak reverse voltage | V _{RM} | 35 | V |
| | | (R _L ≥10 k Ω) | |
| • Operating temperature | T _{opr} | -20 to +75 | °C |
| • Storage temperature | T _{stg} | -65 to +150 | °C |

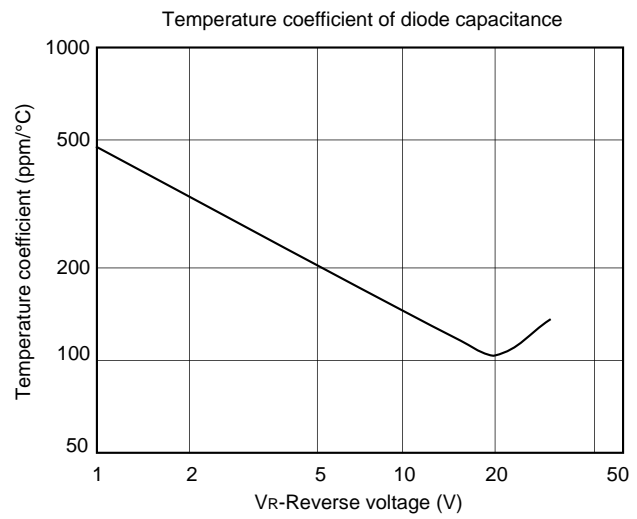
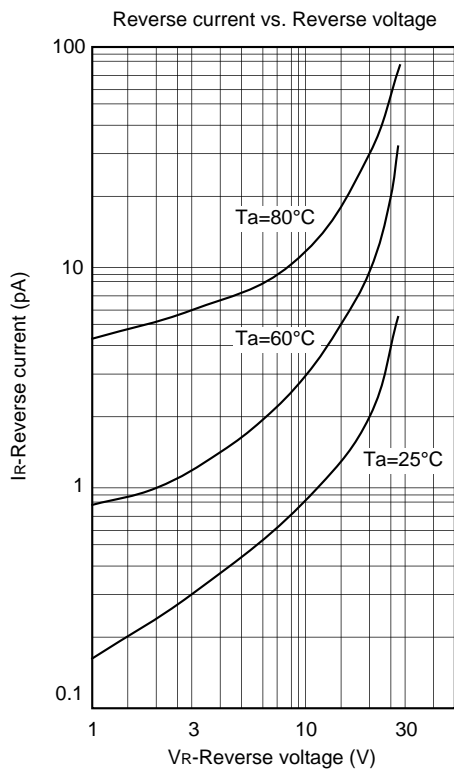
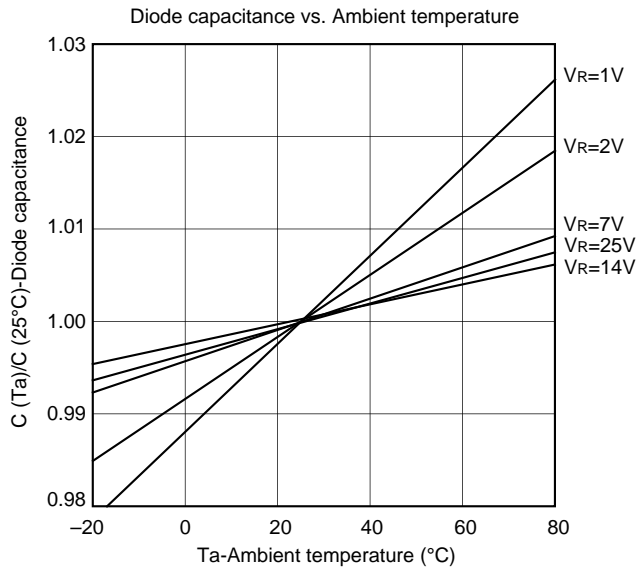
Electrical Characteristics

(T_a=25 °C)

| Item | Symbol | Conditions | Min. | Typ. | Max. | Unit |
|---|---------------------------------|------------------------------------|-------|------|-------|----------|
| Reverse current | I _R | V _R =28 V | | | 10 | nA |
| Diode capacitance | C ₂ | V _R =2 V, f=1 MHz | 13.97 | | 16.29 | pF |
| | C ₂₅ | V _R =25 V, f=1 MHz | 2.06 | | 2.35 | pF |
| Capacitance ratio | C ₂ /C ₂₅ | | | 6.5 | | |
| Series resistance | r _s | C _D =14 pF, f=470 MHz | | 0.57 | 0.65 | Ω |
| Capacitance deviation in a matching group | ΔC | V _R =2 to 25 V, f=1 MHz | | | 2 | % |

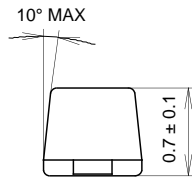
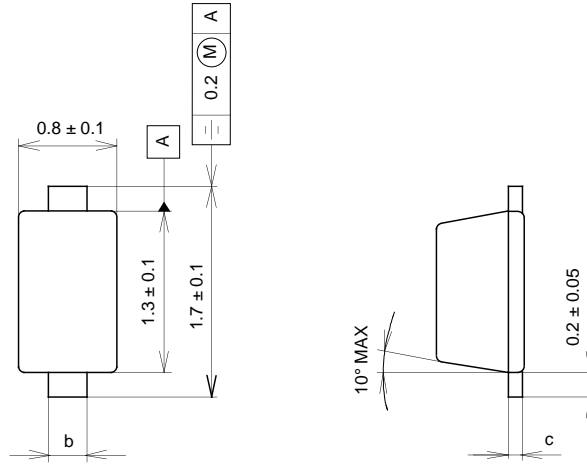
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Package Outline Unit : mm

M-290



| | BASE METAL | WITH PLATING |
|---|--------------|-------------------------|
| c | 0.11 ± 0.005 | 0.11 + 0.05 -0.01 |
| b | 0.3 ± 0.025 | 0.3 + 0.05 -0.02 |

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

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

Mark

