

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. (C_2/C_{25})
- Small leakage current: 10 nA Max. ($V_R=28$ V)
- Capacitance deviation in a matching group:
within 2 %

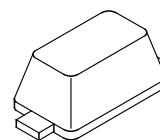
Applications

Electronic tuning of TV and CATV tuners

Structure

Silicon epitaxial planar type diode

M-290



Absolute Maximum Ratings (Ta=25 °C)

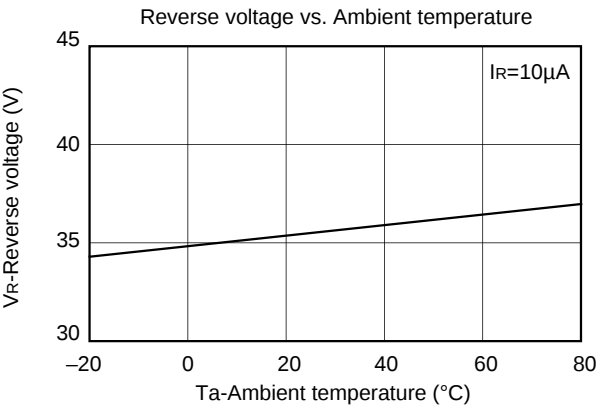
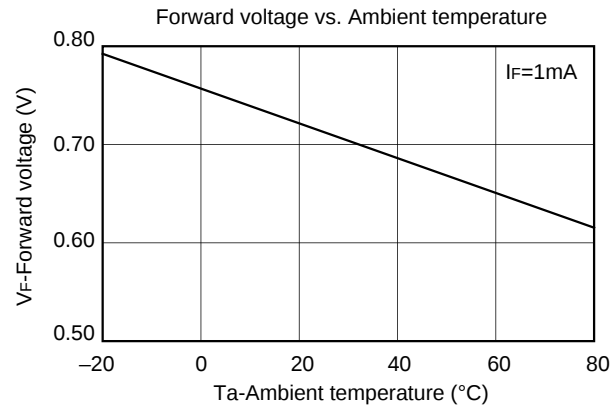
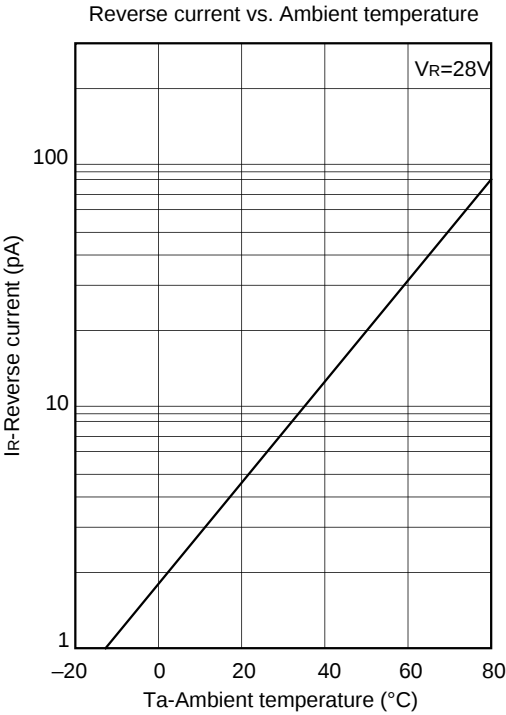
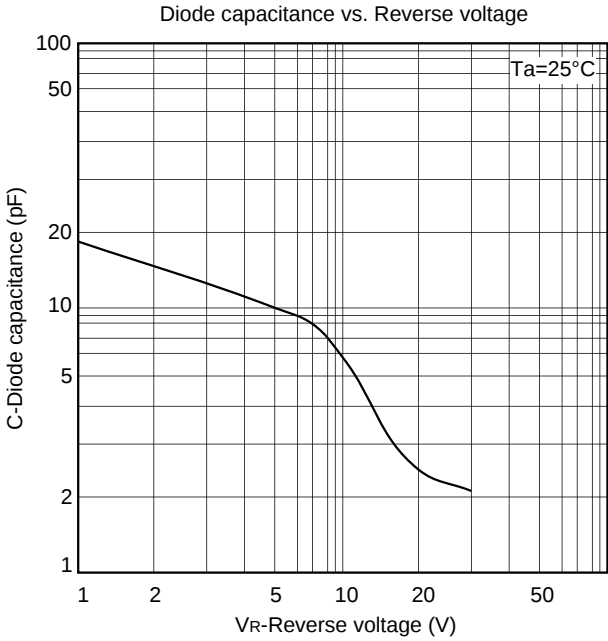
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|-------------------------|-----------|------------------------------|----|
| • Reverse voltage | V_R | 30 | V |
| • Peak reverse voltage | V_{RM} | 35 | V |
| | | ($R_L \geq 10$ k Ω) | |
| • Operating temperature | T_{opr} | -20 to +75 | °C |
| • Storage temperature | T_{stg} | -65 to +150 | °C |

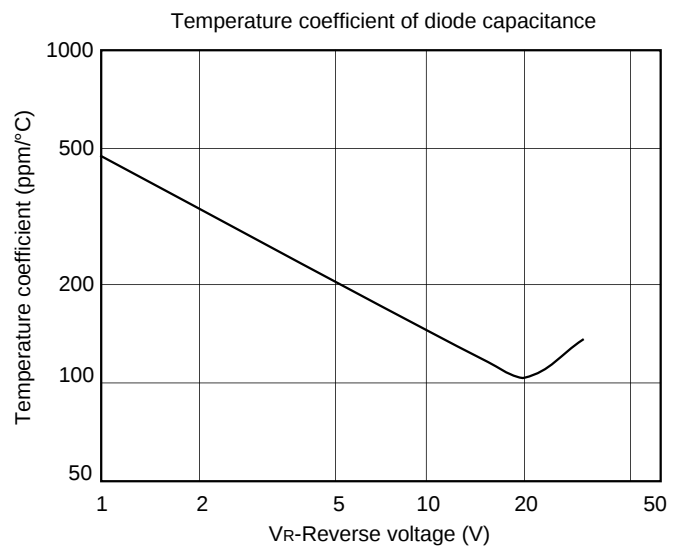
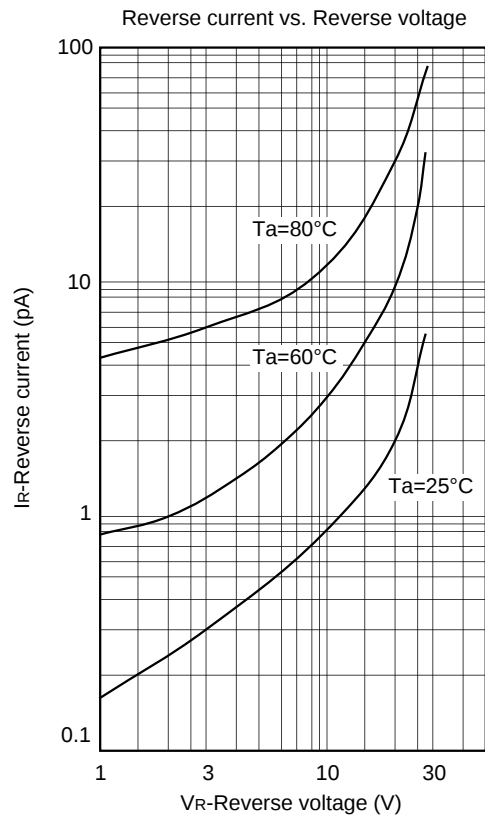
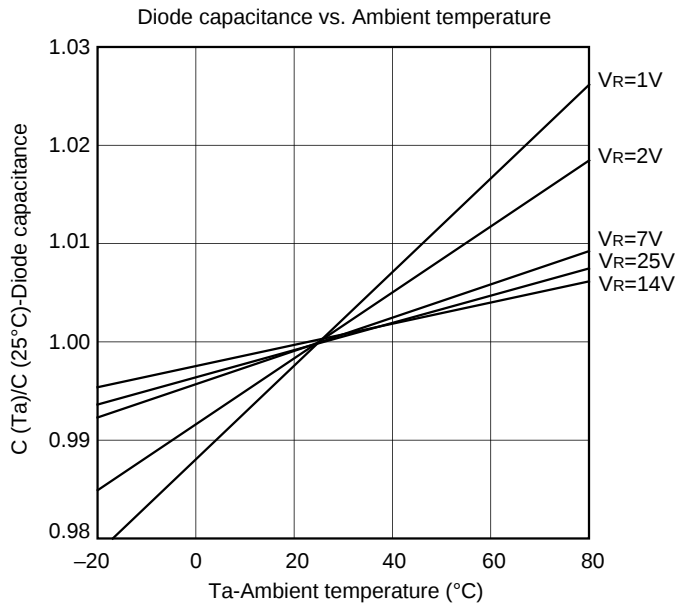
Electrical Characteristics

(Ta=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	%

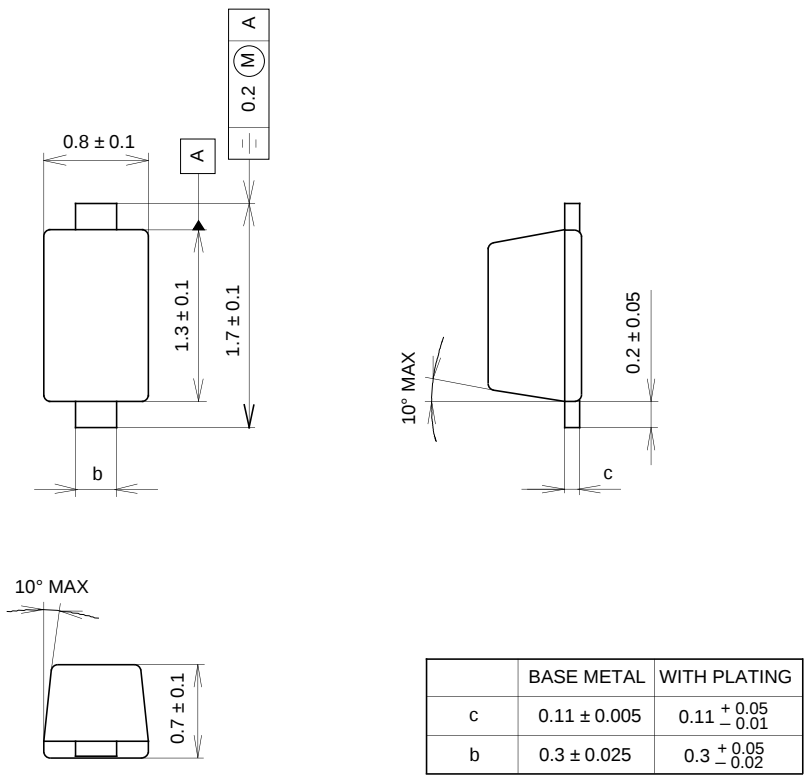
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Package Outline Unit : mm

M-290



	BASE METAL	WITH PLATING
c	0.11 ± 0.005	$0.11 \begin{smallmatrix} +0.05 \\ -0.01 \end{smallmatrix}$
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

