

Variable Capacitance Diode

Description

The 1T405A is a variable capacitance diode designed for electronic tuning of wide-band CATV tuners using a super-small-miniature flat package (SSVC).

High capacitance ratio (C_{25}/C_{28}) is improved to support guard band.

Features

- Super-small-miniature flat package
- Low series resistance $0.85\ \Omega$ Max. ($f=470\ \text{MHz}$)
- Large capacitance ratio 12.5 Typ. (C_2/C_{25})
 1.03 Min. (C_{25}/C_{28})
- Small leakage current $10\ \text{nA}$ Max. ($V_R=28\ \text{V}$)
- Capacitance deviation within $2\ \%$

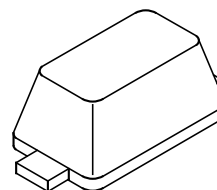
Applications

Electronic tuning of VHF band and wide-band CATV tuners

Structure

Silicon epitaxial planar type diode

M-290



Absolute Maximum Ratings ($T_a=25\ ^\circ\text{C}$)

- | | | | |
|-------------------------|-----------|-----------------|------------------|
| • Reverse voltage | V_R | 34 | V |
| • Operating temperature | T_{opr} | -20 to $+75$ | $^\circ\text{C}$ |
| • Storage temperature | T_{stg} | -65 to $+150$ | $^\circ\text{C}$ |

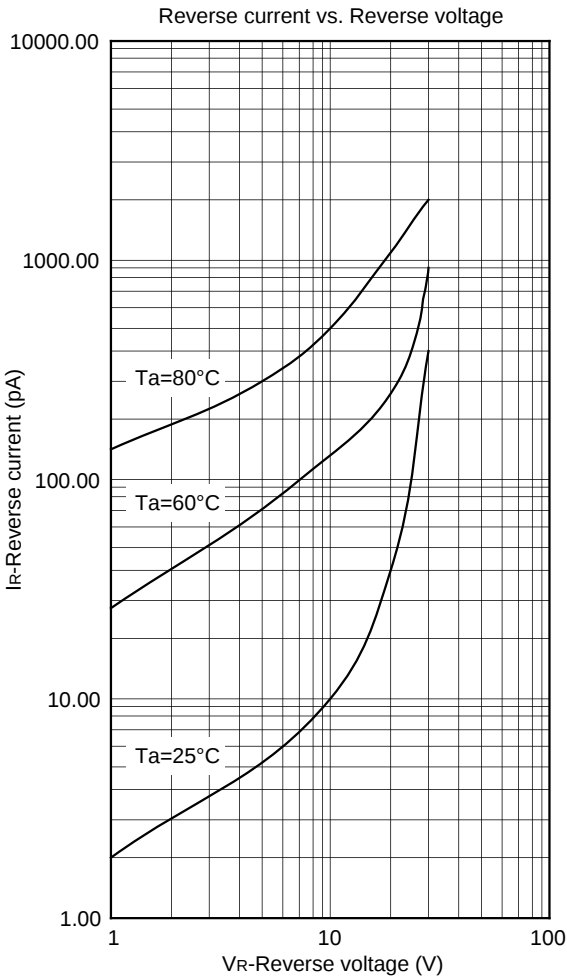
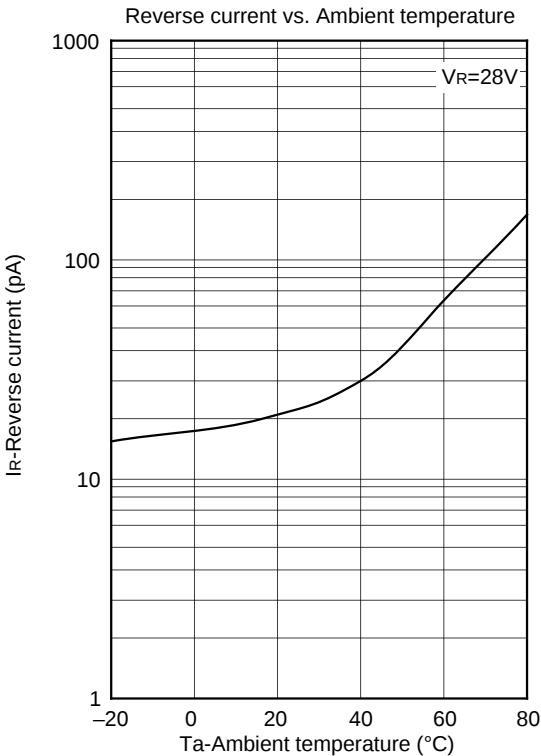
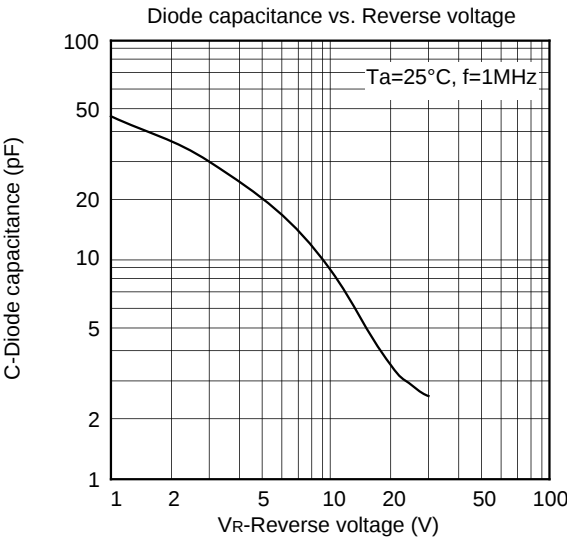
Electrical Characteristics

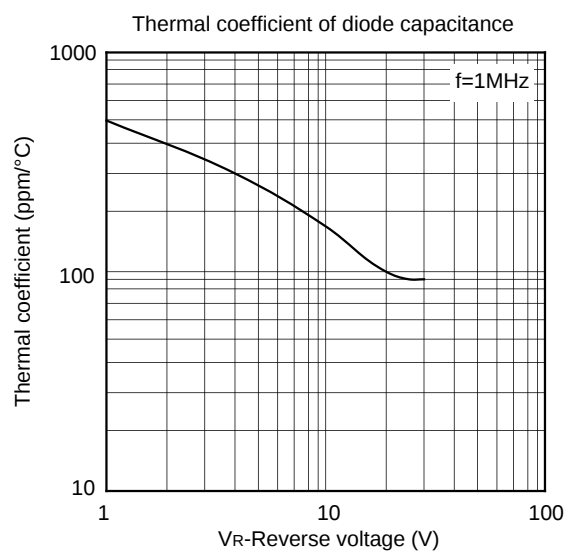
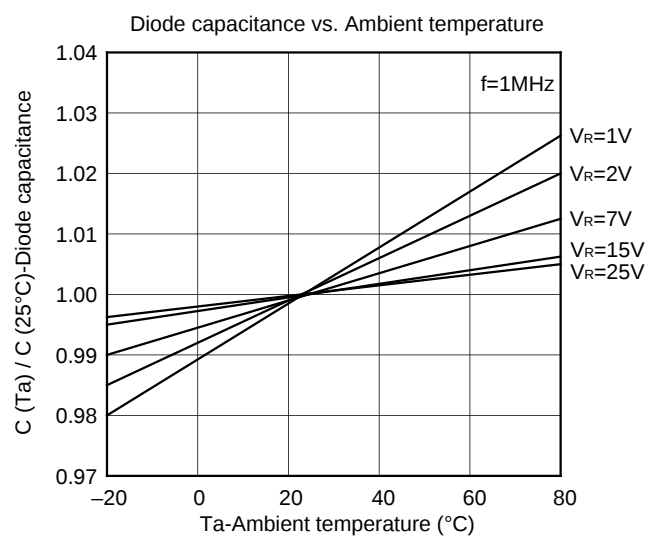
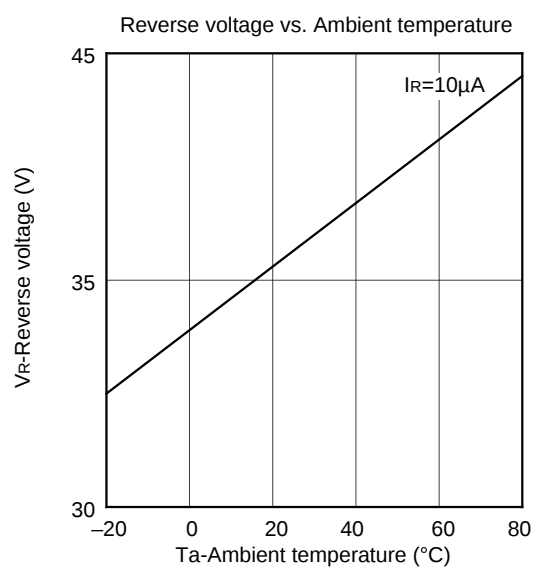
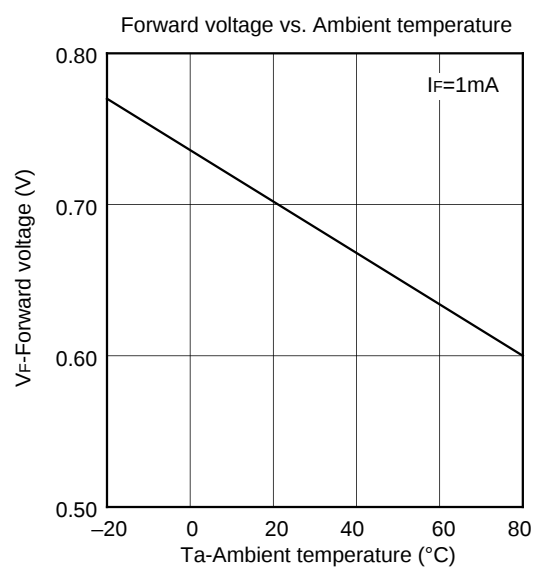
($T_a=25\ ^\circ\text{C}$)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse current	I_R	$V_R=28\ \text{V}$			10	nA
Reverse voltage	V_R	$I_R=1\ \mu\text{A}$	34			V
Diode capacitance	C_2	$V_R=2\ \text{V}$, $f=1\ \text{MHz}$	32.96		38.96	pF
	C_{25}	$V_R=25\ \text{V}$, $f=1\ \text{MHz}$	2.53		2.96	pF
Capacitance ratio	C_2/C_{25}		12.0	12.5		
	C_{25}/C_{28}		1.03			
Series resistance	r_s	$C_D=14\ \text{pF}$, $f=470\ \text{MHz}$			0.85	Ω
Capacitance deviation in a matching group	ΔC	$V_R=2$ to $25\ \text{V}$, $f=1\ \text{MHz}$			2	%

The continuous 20 pieces of ΔC are guaranteed.

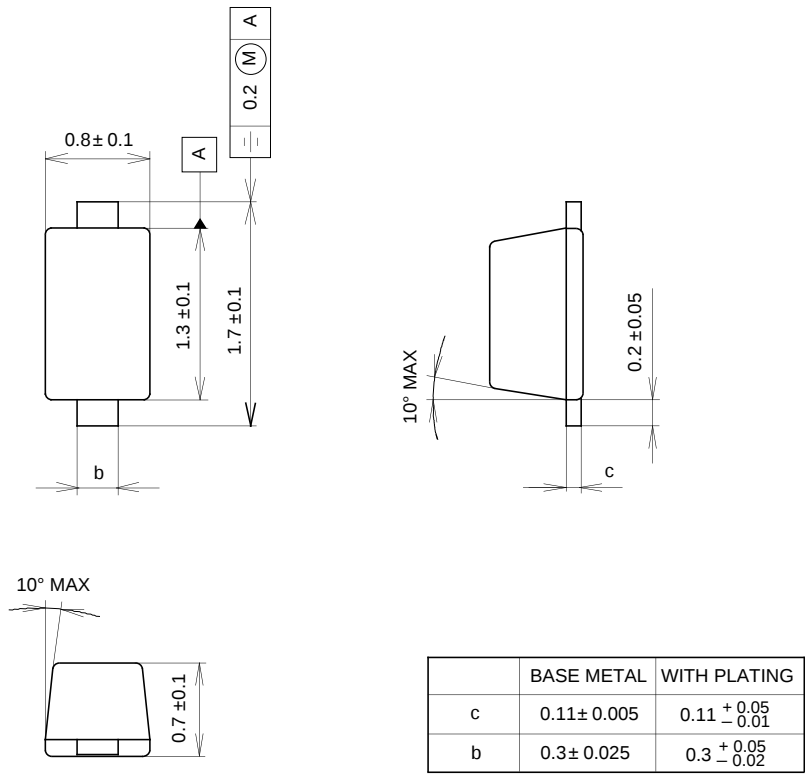
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Package Outline Unit : mm

M-290



SONY CODE	M-290
EIAJ CODE	_____
JEDEC CODE	_____

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

MARK



1 : Cathode
2 : Anode