

Variable Capacitance Diode

Description

The 1T405 is a variable capacitance diode designed for electronic tuning of wide-band CATV tuners using a super-small-miniature flat package (SSVC).

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

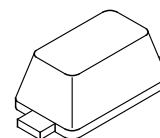
Applications

Electronic tuning of UHF and wide-band CATV tuners

Structure

Silicon epitaxial planar type diode

M-290



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

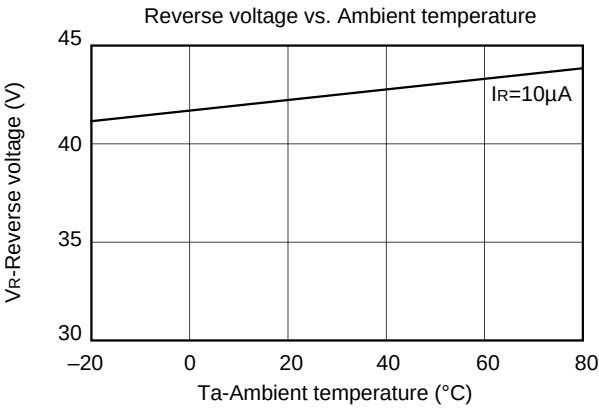
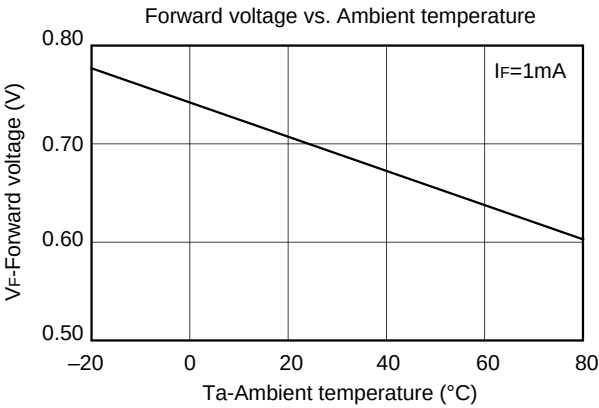
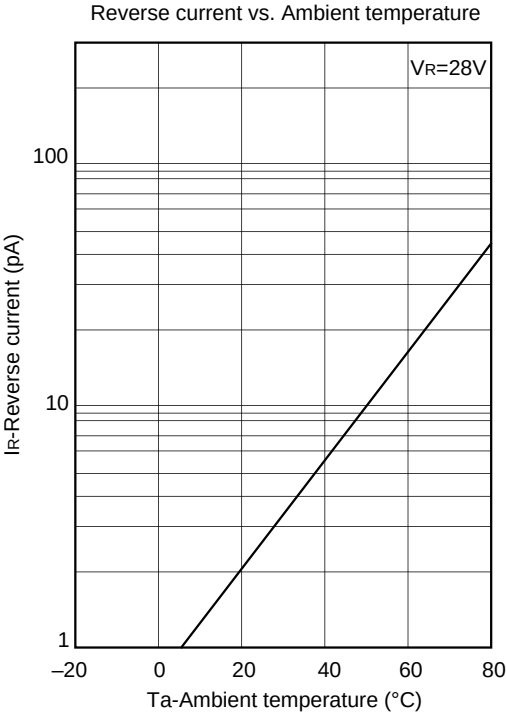
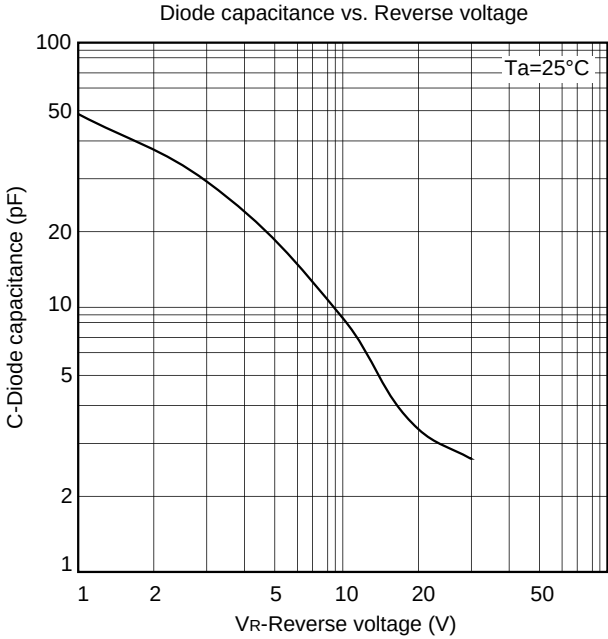
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|-------------------------|-----------|-----------------|------------------|
| • Reverse voltage | V_R | 34 | V |
| • Operating temperature | T_{opr} | -20 to $+75$ | $^\circ\text{C}$ |
| • Storage temperature | T_{stg} | -65 to $+150$ | $^\circ\text{C}$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

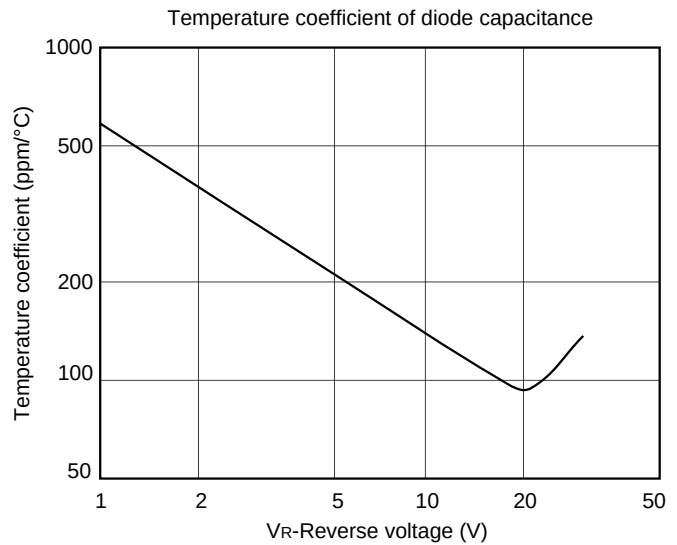
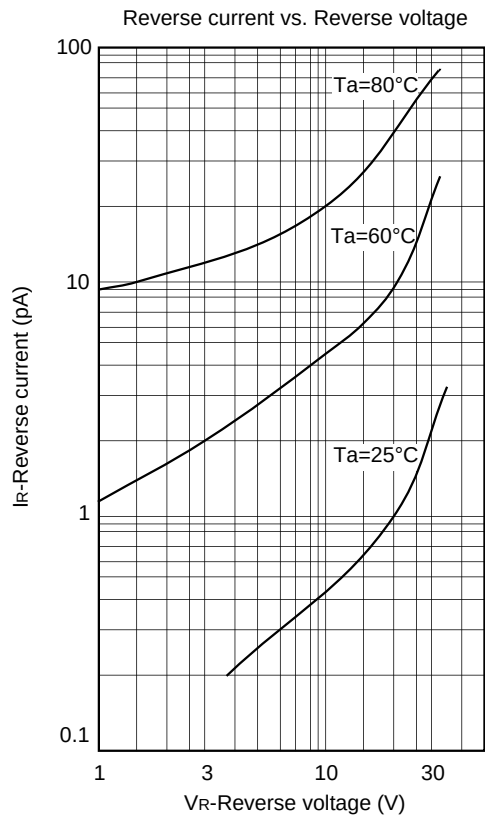
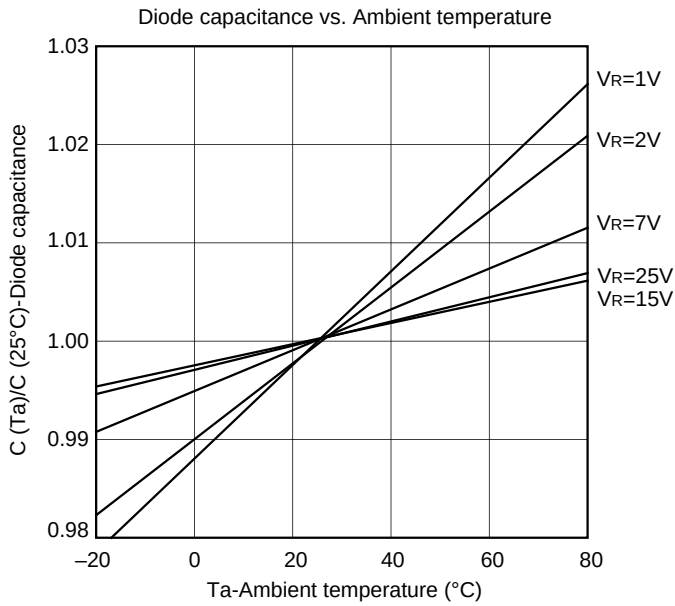
Electrical Characteristics

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

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		
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	%

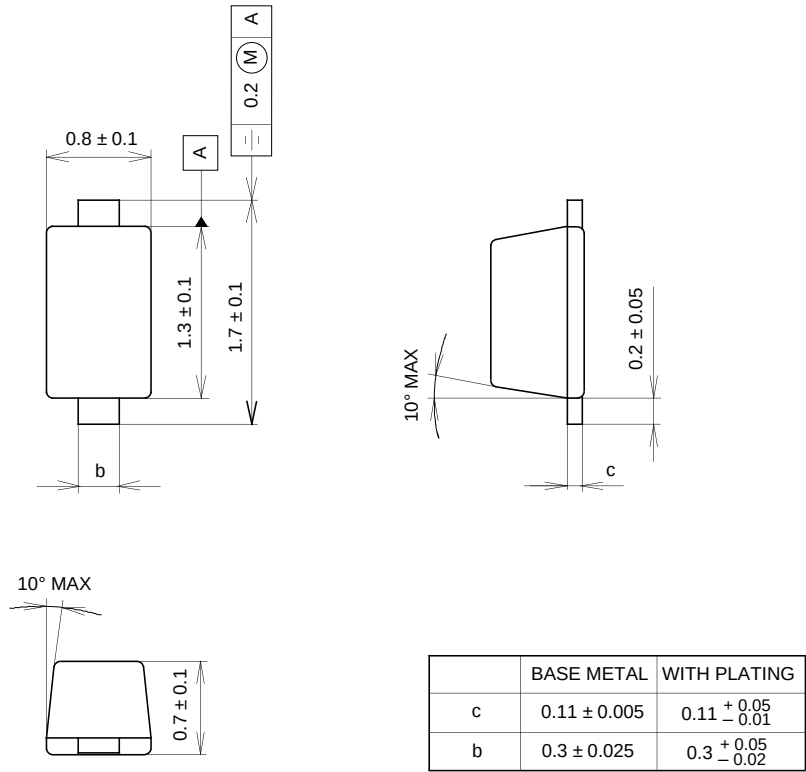
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Package Outline Unit : mm

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

