

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

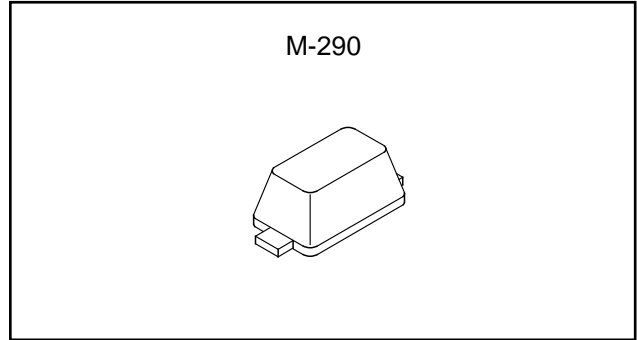
- Super-small-miniature flat package
- Low series resistance: 0.85 Ω Max. (f=470 MHz)
- Large capacitance ratio: 12.5 Typ. (C₂/C₂₅)
- Small leakage current: 10 nA Max. (V_R=28 V)
- Capacitance deviation in a matching group: within 2%

Applications

Electronic tuning of UHF and wide-band CATV tuners

Structure

Silicon epitaxial planar type diode



Absolute Maximum Ratings (Ta=25 °C)

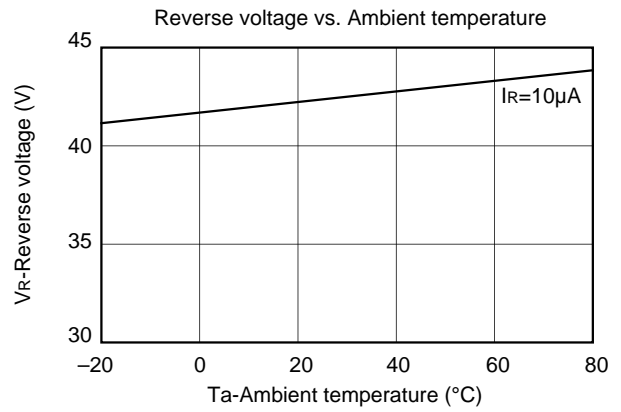
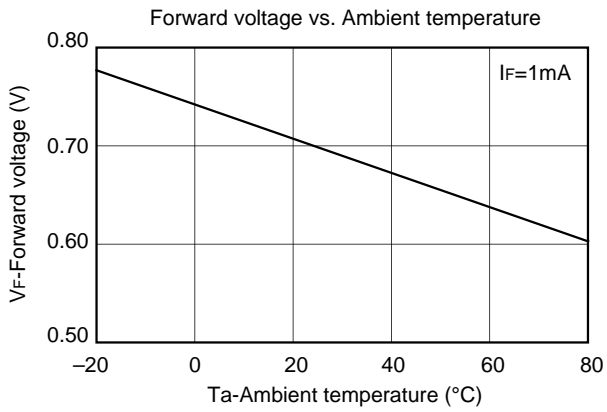
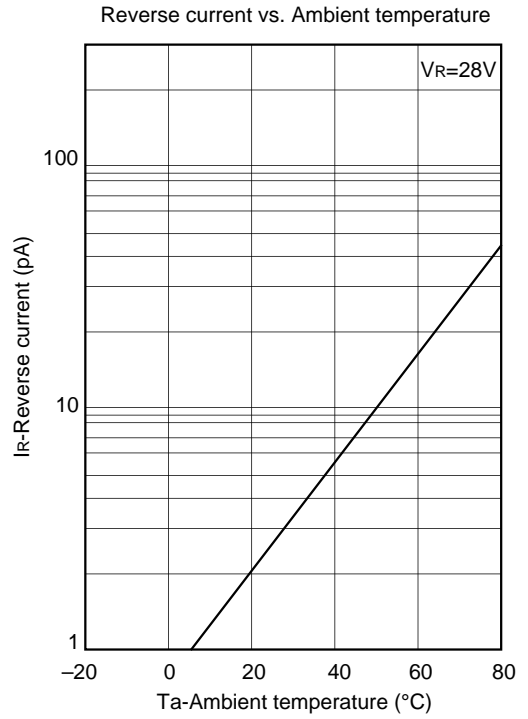
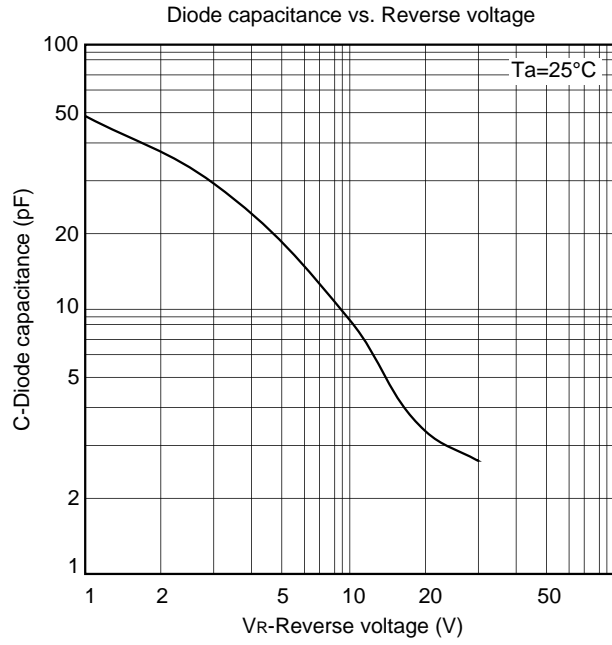
- Reverse voltage V_R 34 V
- Operating temperature T_{opr} -20 to +75 °C
- Storage temperature T_{stg} -65 to +150 °C

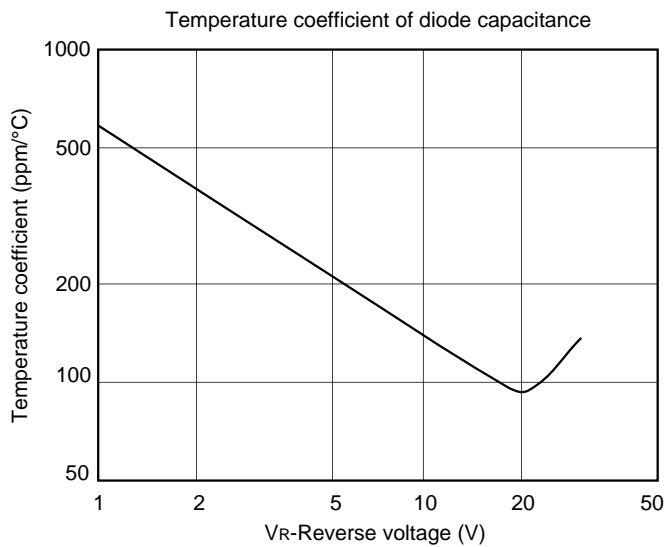
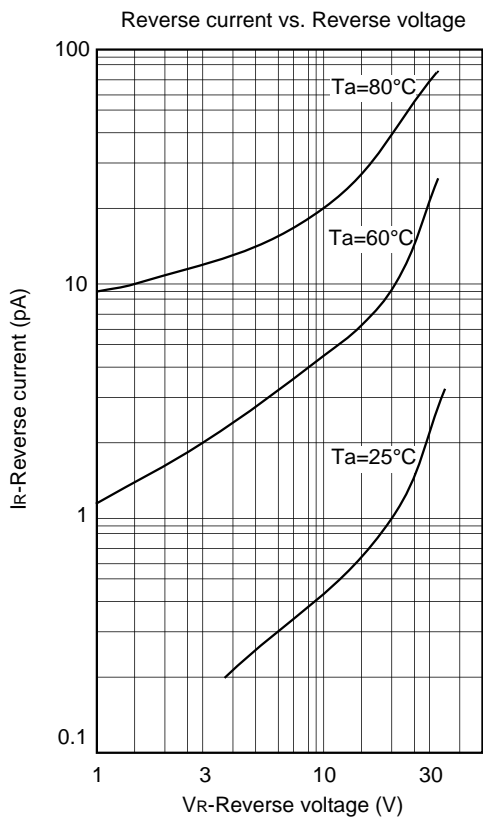
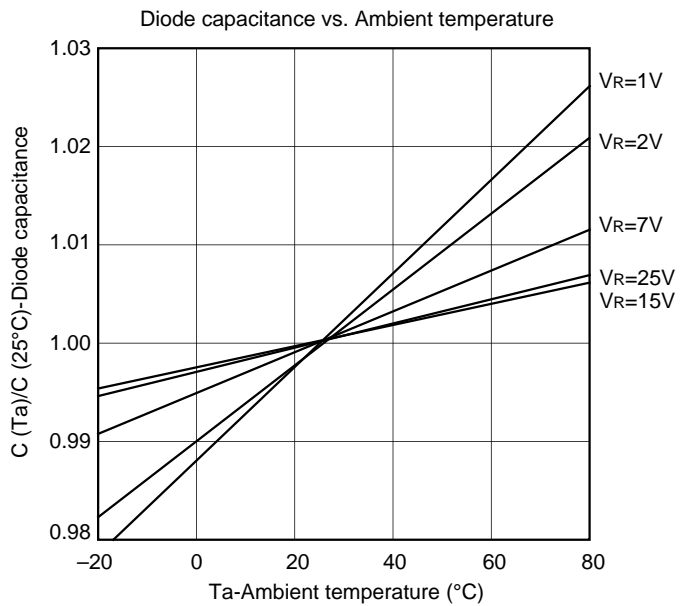
Electrical Characteristics

(Ta=25 °C)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse current	I _R	V _R =28 V			10	nA
Reverse voltage	V _R	I _R =1 μA	34			V
Diode capacitance	C ₂	V _R =2 V, f=1 MHz	32.96		38.96	pF
	C ₂₅	V _R =25 V, f=1 MHz	2.53		2.96	pF
Capacitance ratio	C ₂ /C ₂₅		12.0	12.5		
Series resistance	r _s	C _D =14 pF, f=470 MHz			0.85	Ω
Capacitance deviation in a matching group	ΔC	V _R =2 to 25 V, f=1 MHz			2	%

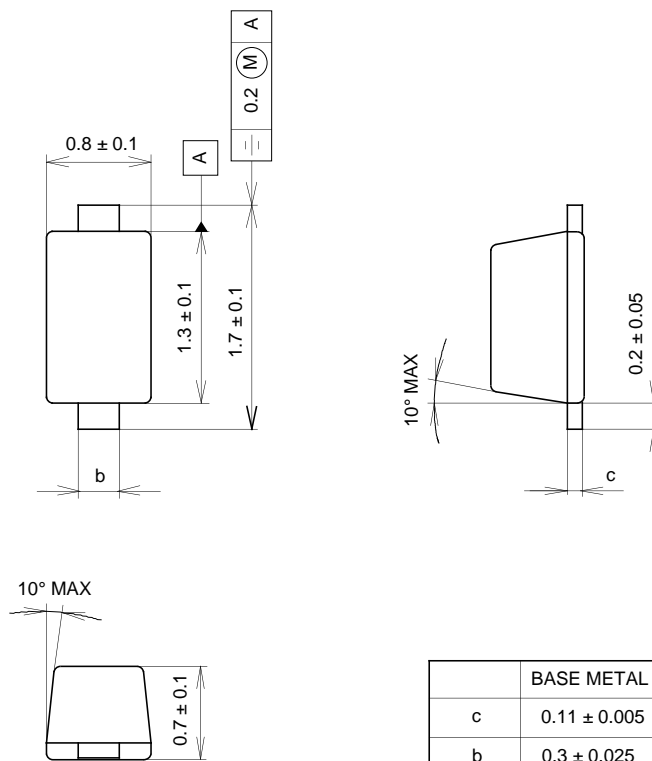
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Package Outline Unit : mm

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

