

## 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

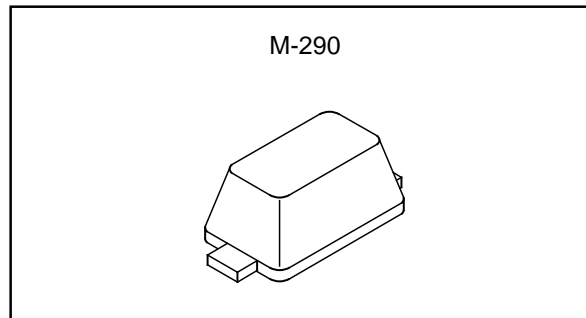
- Super-small-miniature flat package
- Low series resistance 0.85  $\Omega$  Max. ( $f=470$  MHz)
- Large capacitance ratio 12.5 Typ. ( $C_2/C_{25}$ )  
1.03 Min. ( $C_{25}/C_{28}$ )
- Small leakage current 10 nA Max. ( $V_R=28$  V)
- Capacitance deviation within 2 %

### Applications

Electronic tuning of VHF band and wide-band CATV tuners

### Structure

Silicon epitaxial planar type diode



### Absolute Maximum Ratings ( $T_a=25$ °C)

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

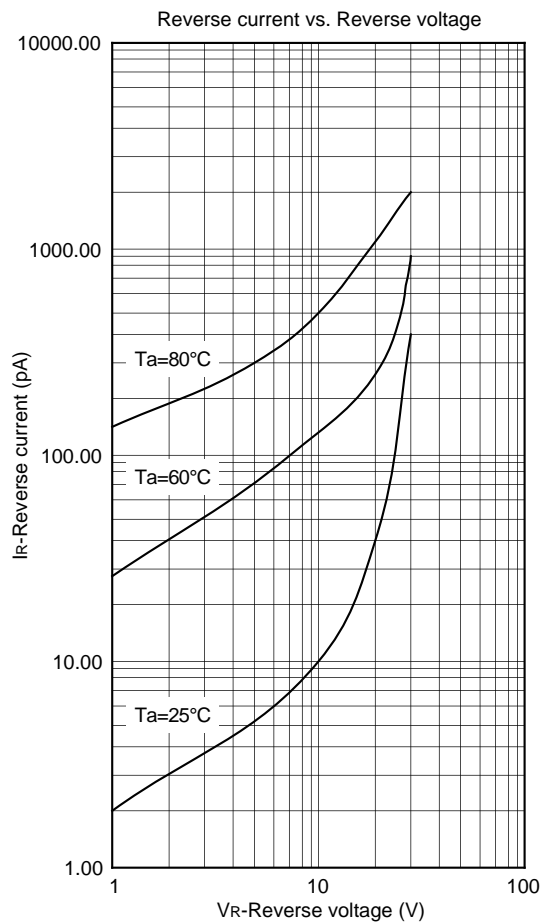
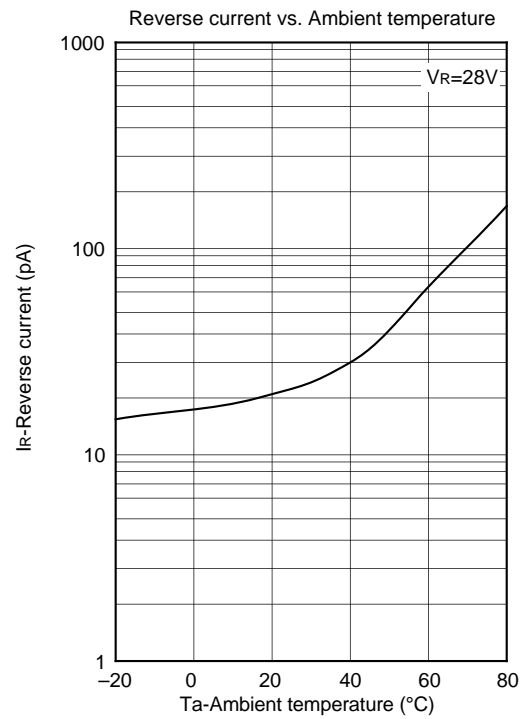
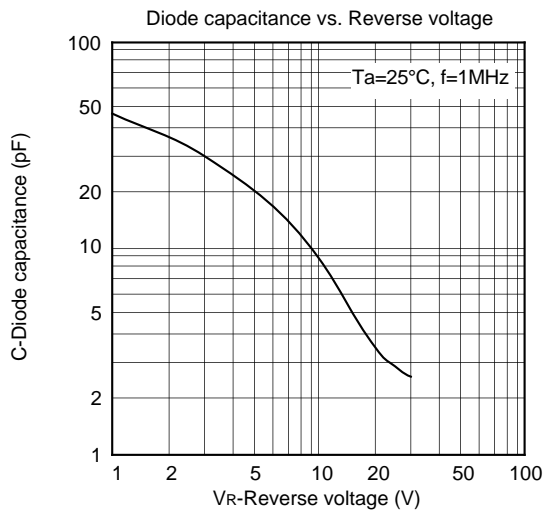
### Electrical Characteristics

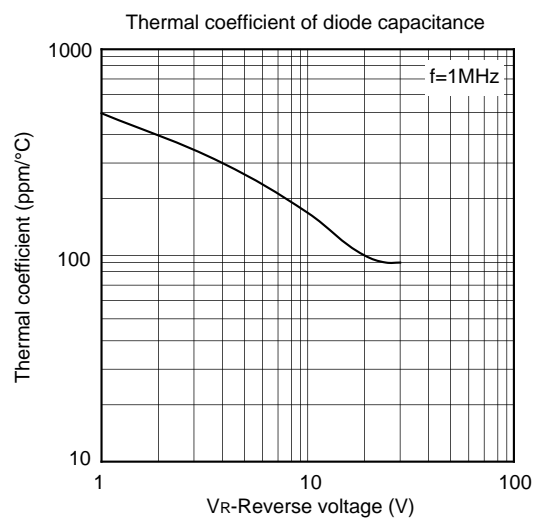
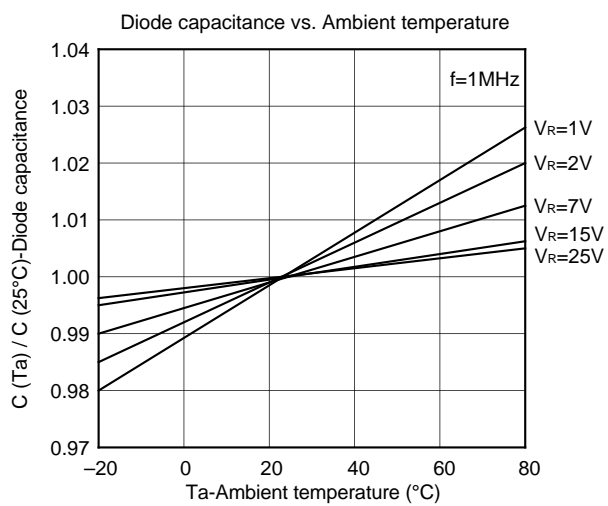
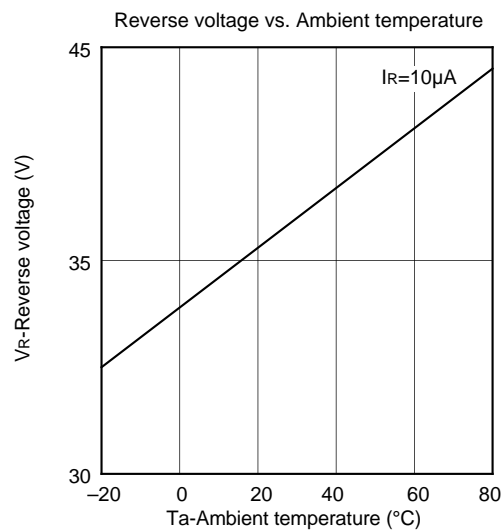
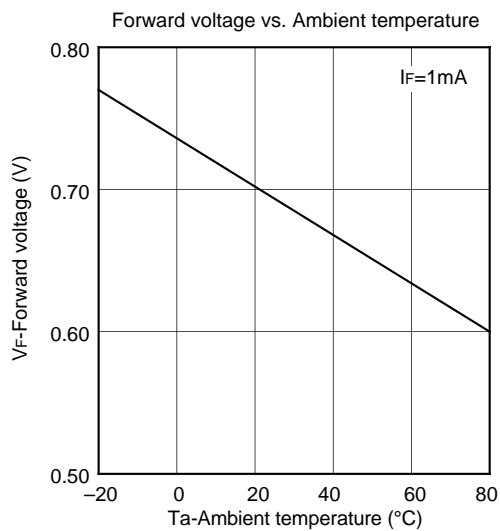
( $T_a=25$  °C)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse current	$I_R$	$V_R=28$ V			10	nA
Reverse voltage	$V_R$	$I_R=1$ $\mu$ A	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		
	$C_{25}/C_{28}$		1.03			
Series resistance	$r_s$	$C_D=14$ pF, $f=470$ MHz			0.85	$\Omega$
Capacitance deviation in a matching group	$\Delta C$	$V_R=2$ to 25 V, $f=1$ MHz			2	%

The continuous 20 pieces of  $\Delta C$  are guaranteed.

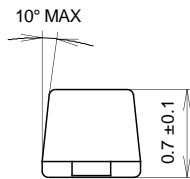
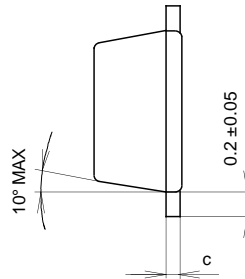
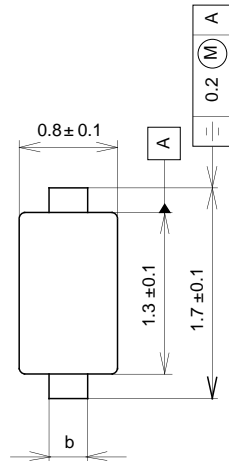
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Package Outline Unit : mm

M-290

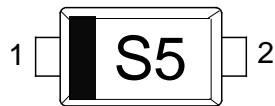


	BASE METAL	WITH PLATING
c	0.11±0.005	0.11 +0.05 -0.01
b	0.3±0.025	0.3 +0.05 -0.02

SONY CODE	M-290
EIAJ CODE	_____
JEDEC CODE	_____

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

MARK



- 1 : Cathode
- 2 : Anode