

## Variable Capacitance Diode

### Description

The 1T403 is a variable capacitance diode designed for electronic tuning of VHF TV tuners and CATV tuners using a super-small-miniature flat package (SSVC).

### Features

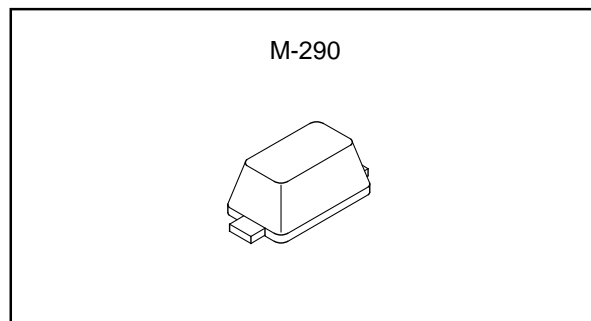
- Super-small-miniature flat package
- Low series resistance:  $0.8 \Omega$  Max. ( $f=470$  MHz)
- Large capacitance ratio: 15.0 Typ. ( $C_1/C_{28}$ )
- Small leakage current:  $10$  nA Max. ( $V_R=28$  V)
- Capacitance deviation in a matching group:  
within 2 %

### Applications

Electronic tuning of TV and CATV tuners

### Structure

Silicon epitaxial planar type diode



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

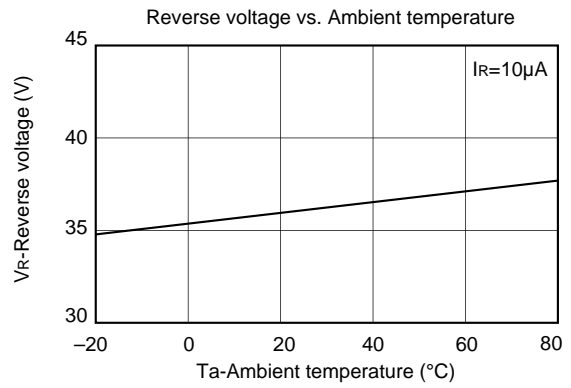
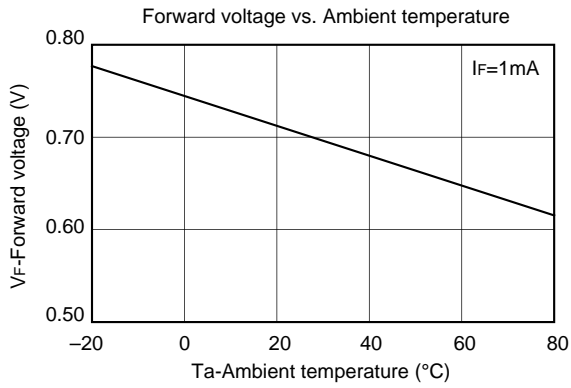
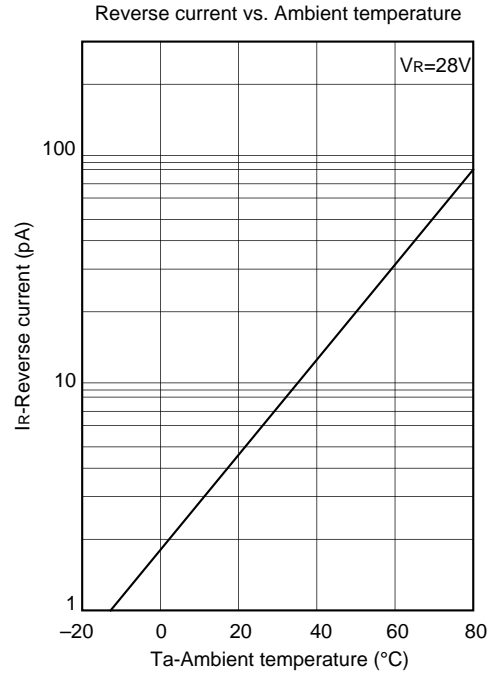
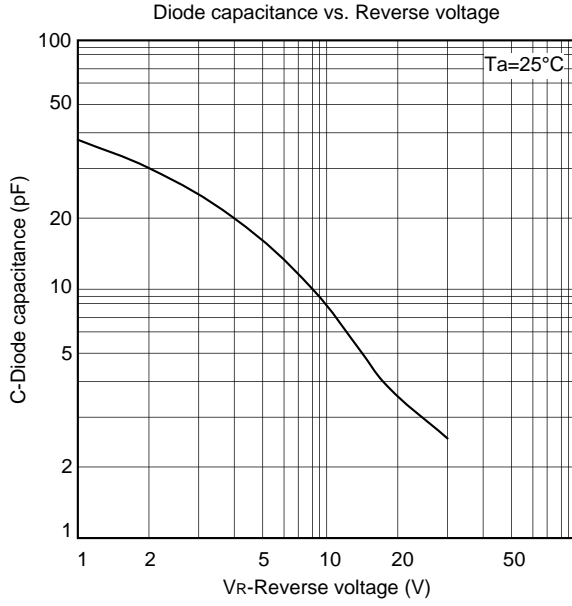
- |                         |           |                              |    |
|-------------------------|-----------|------------------------------|----|
| • Reverse voltage       | $V_R$     | 30                           | V  |
| • Peak reverse voltage  | $V_{RM}$  | 35                           |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

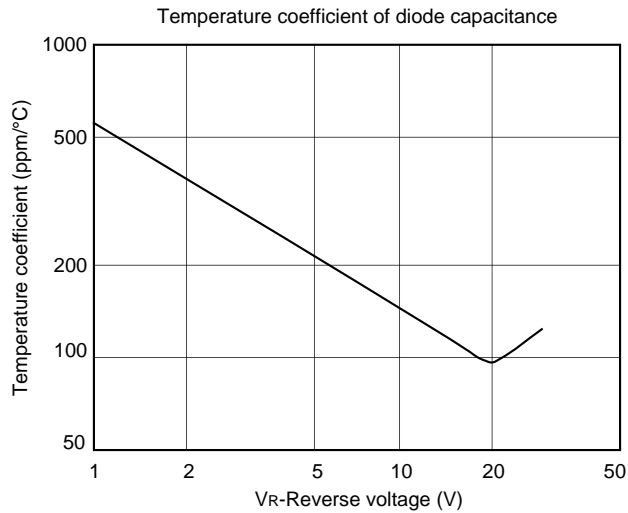
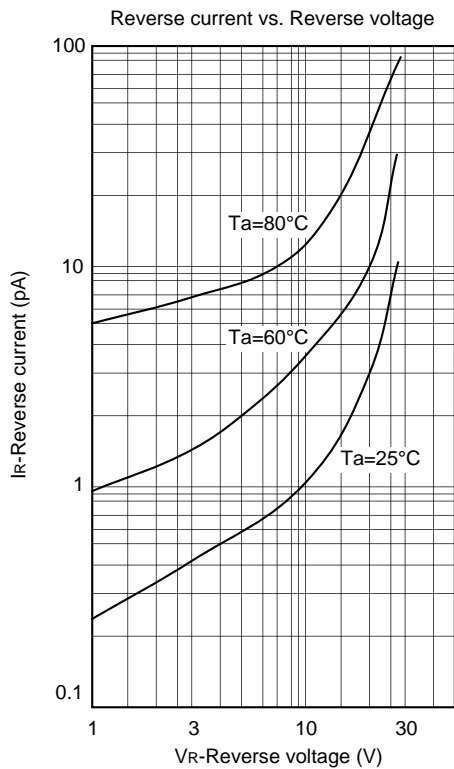
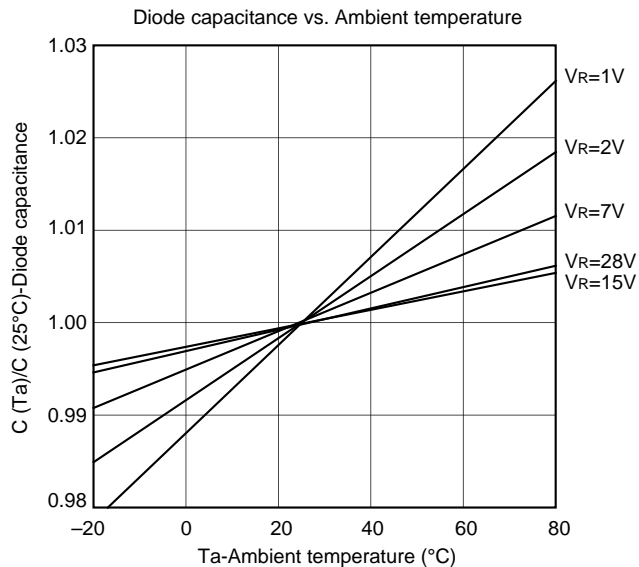
### Electrical Characteristics

( $T_a=25$  °C)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse current	$I_R$	$V_R=28$ V			10	nA
Diode capacitance	$C_1$	$V_R=1$ V, $f=1$ MHz	34.61		42.31	pF
	$C_{28}$	$V_R=28$ V, $f=1$ MHz	2.321		2.714	pF
Capacitance ratio	$C_1/C_{28}$		13.5	15.0		
Series resistance	$r_s$	$C_D=14$ pF, $f=470$ MHz		0.75	0.80	$\Omega$
Capacitance deviation in a matching group	$\Delta C$	$V_R=1$ to 28 V, $f=1$ MHz			2	%

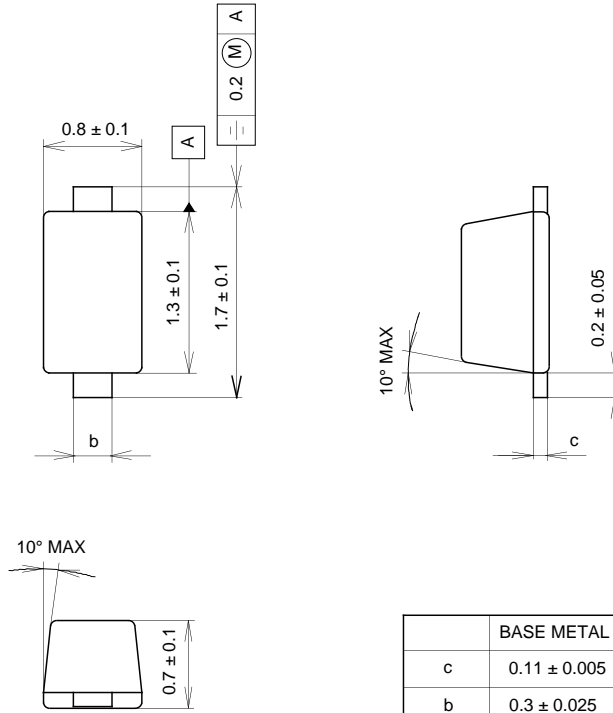
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Package Outline Unit : mm

M-290



	BASE METAL	WITH PLATING
c	0.11 ± 0.005	0.11 <sup>+0.05</sup> / <sub>-0.01</sub>
b	0.3 ± 0.025	0.3 <sup>+0.05</sup> / <sub>-0.02</sub>

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