

## Variable Capacitance Diode

### Description

The 1T412 is a variable capacitance diode designed for electronic tuning of BS tuners using a super-small-miniature flat package (SSVC).

### Features

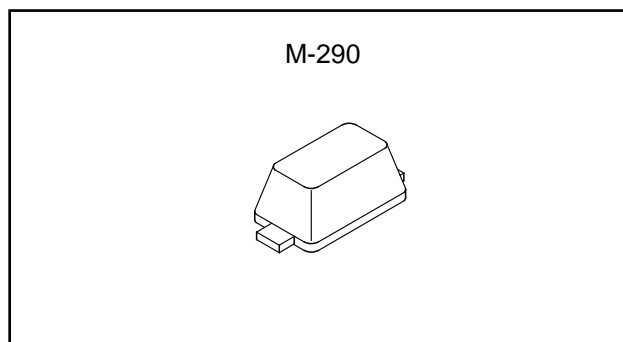
- Super-small-miniature flat package
- Low series resistance: 1.8  $\Omega$  Max. (f=470 MHz)
- Large capacitance ratio: 5.7 Typ. (C<sub>2</sub>/C<sub>25</sub>)
- Small leakage current: 10 nA Max. (V<sub>R</sub>=28 V)
- Capacitance deviation in a matching group:  
within 5 %

### Applications

Electronic tuning of BS tuners

### Structure

Silicon epitaxial planar type diode



### Absolute Maximum Ratings (Ta=25 °C)

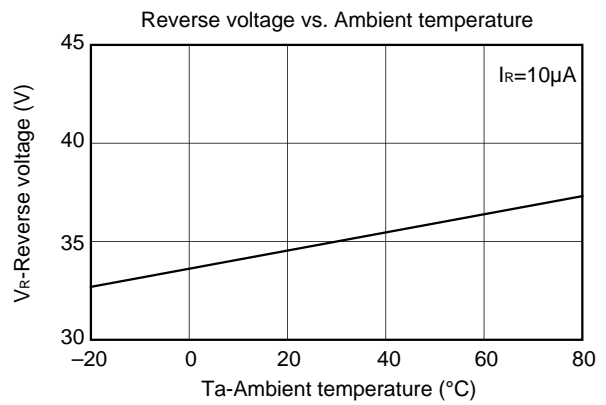
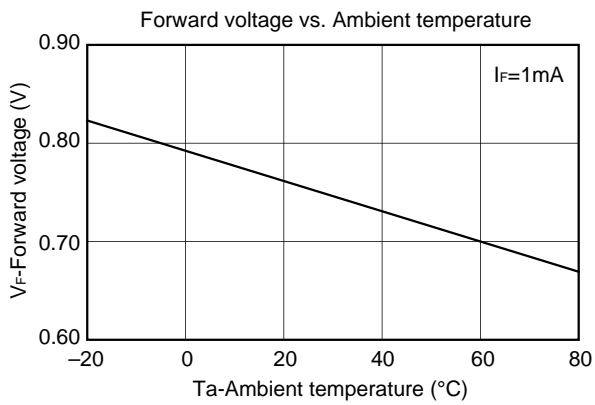
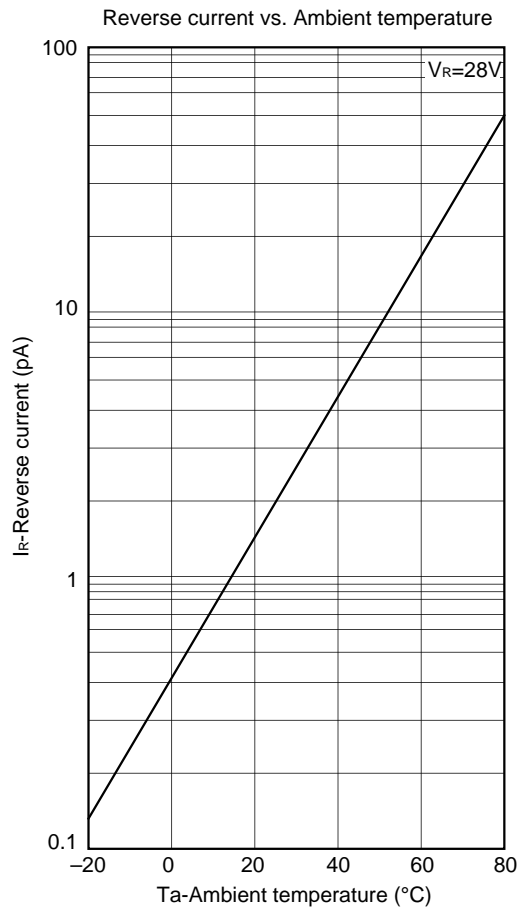
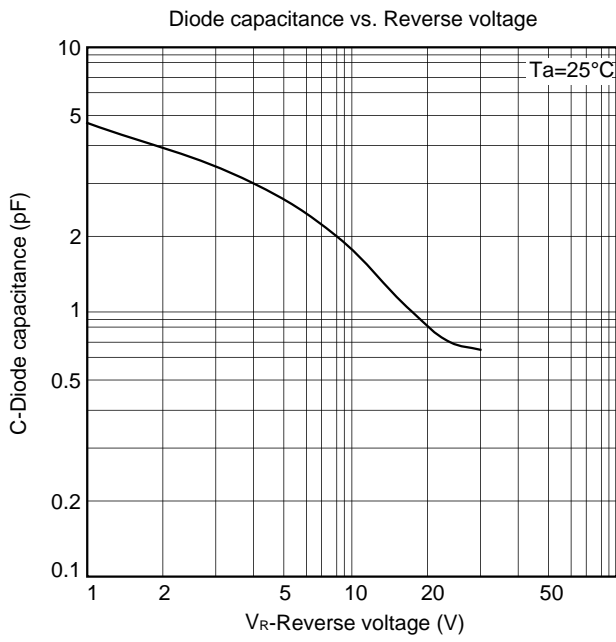
- Reverse voltage V<sub>R</sub> 30 V
- Peak reverse voltage V<sub>RM</sub> 35 V  
(R<sub>L</sub> ≥ 10 k $\Omega$ )
- Operating temperature T<sub>opr</sub> -20 to +75 °C
- Storage temperature T<sub>stg</sub> -65 to +150 °C

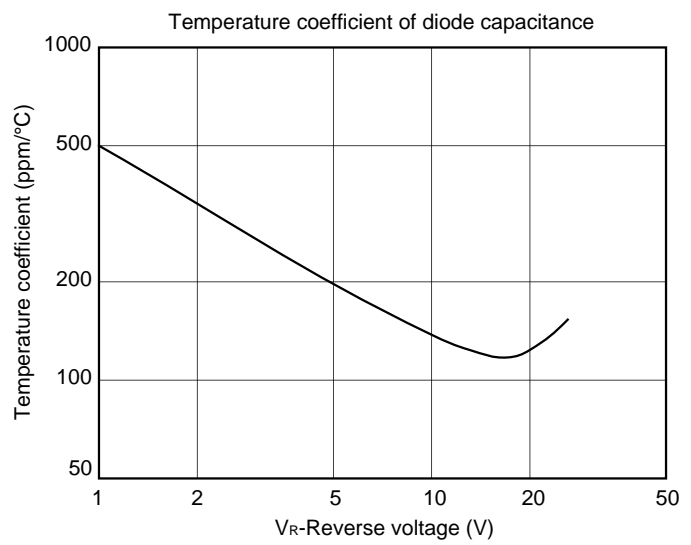
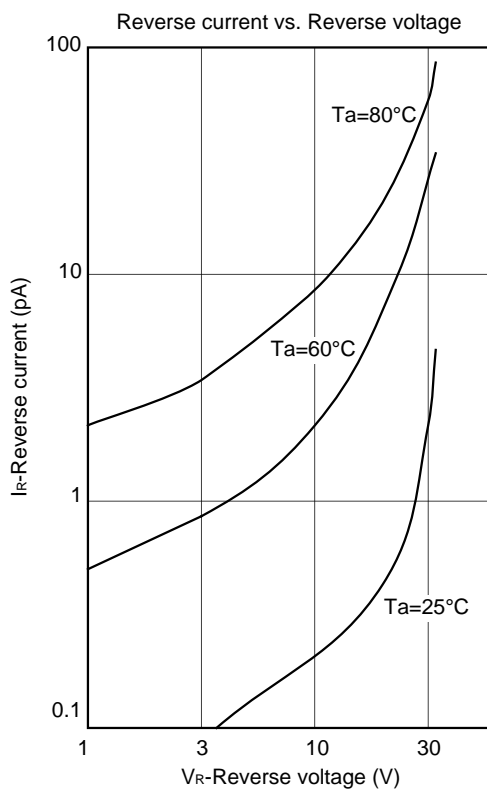
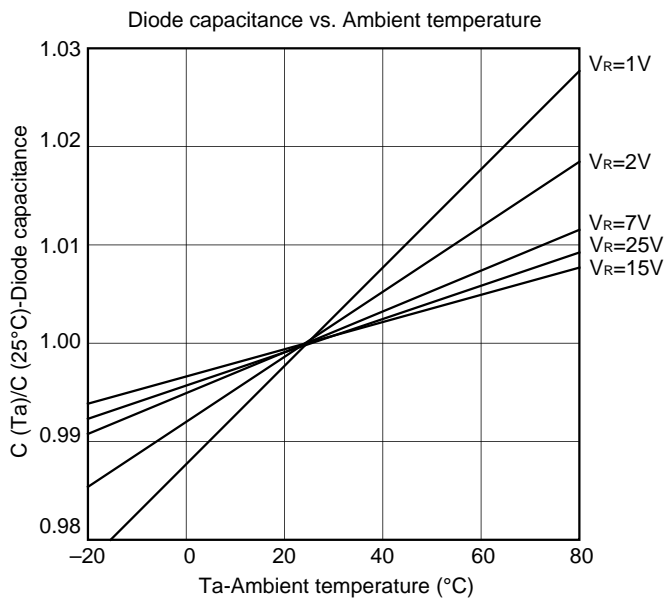
### Electrical Characteristics

(Ta=25 °C)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse current	I <sub>R</sub>	V <sub>R</sub> =28 V			10	nA
Diode capacitance	C <sub>2</sub>	V <sub>R</sub> =2 V, f=1 MHz	3.27		4.51	pF
	C <sub>25</sub>	V <sub>R</sub> =25 V, f=1 MHz	0.57		0.77	pF
Capacitance ratio	C <sub>2</sub> /C <sub>25</sub>		5.0	5.7		
Series resistance	r <sub>s</sub>	V <sub>R</sub> =1V, f=470 MHz		1.1	1.8	$\Omega$
Capacitance deviation in a matching group	$\Delta$ C	V <sub>R</sub> =2 to 25 V, f=1 MHz			5	%

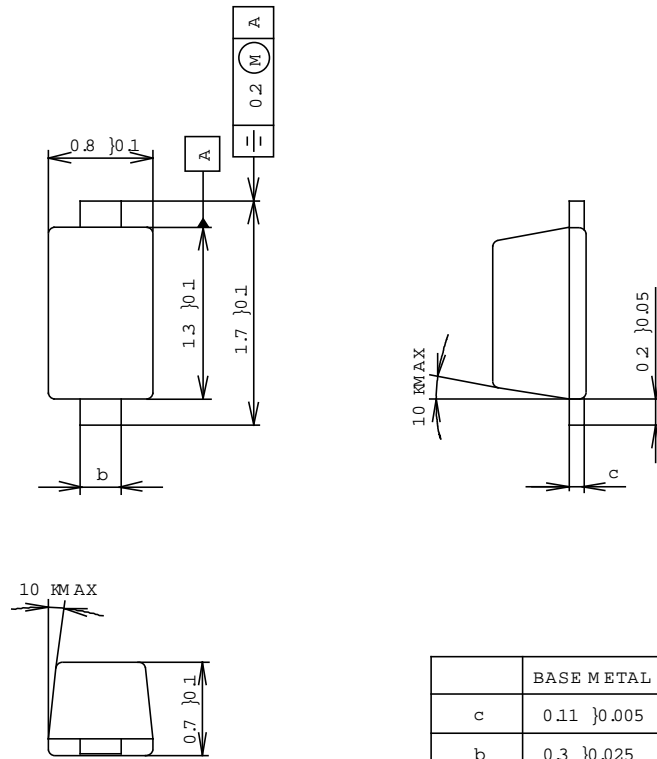
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Package Outline Unit : mm

M-290

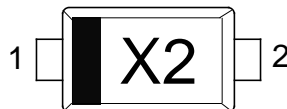


	BASE METAL	WITH PLATING
c	0.11 $\pm 0.005$	0.11 $\begin{matrix} 0.05 \\ 0.01 \end{matrix}$
b	0.3 $\pm 0.025$	0.3 $\begin{matrix} 0.05 \\ 0.02 \end{matrix}$

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