

## Variable Capacitance Diode

### Description

The 1T410 is a variable capacitance diode designed for electronic tuning of BS/CS tuners using a super-small-miniature flat package (SSVC).

### Features

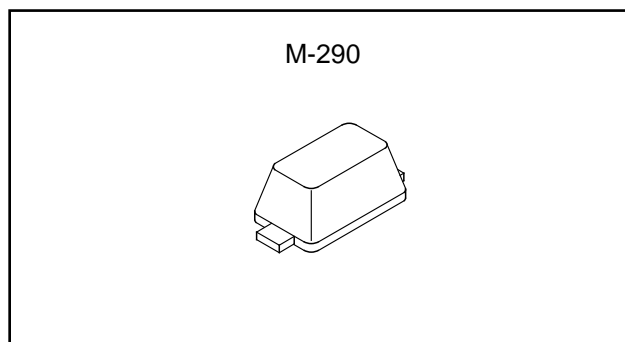
- Super-small-miniature flat package
- Low series resistance: 1.5  $\Omega$  Max. (f=470 MHz)
- Large capacitance ratio: 12.0 Typ. (C<sub>1</sub>/C<sub>25</sub>)
- Small leakage current: 10 nA Max. (V<sub>R</sub>=25 V)
- Capacitance deviation in a matching group:  
within 6 %

### Applications

Electronic tuning of BS/CS tuners

### Structure

Silicon epitaxial planar type diode



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

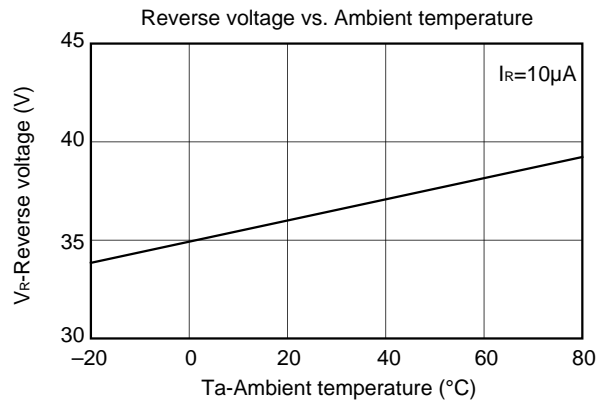
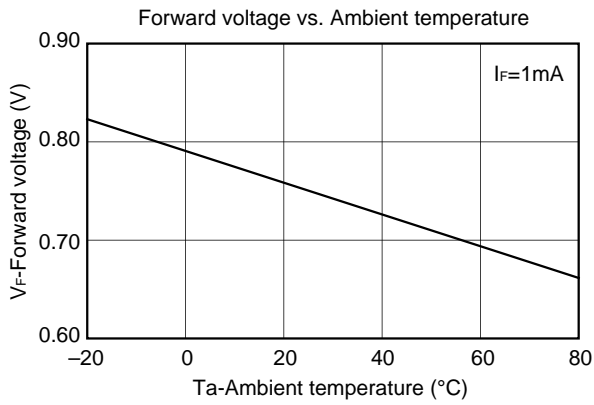
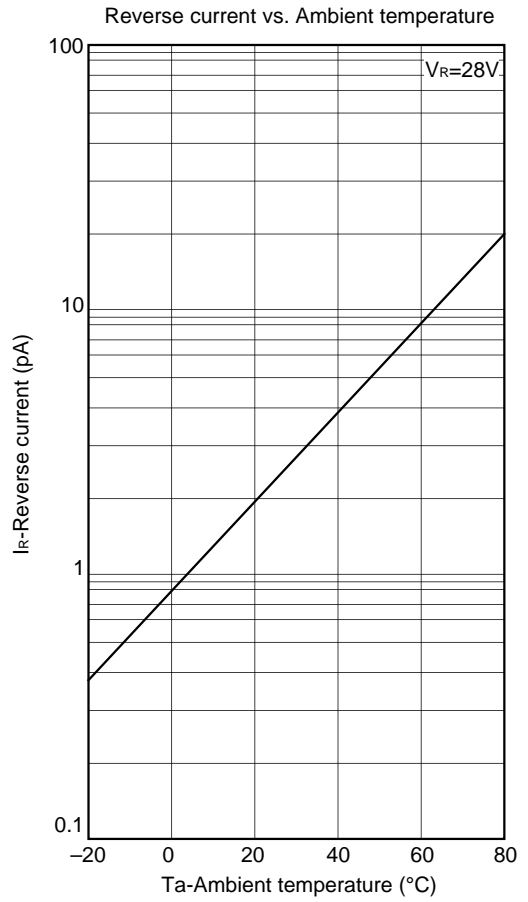
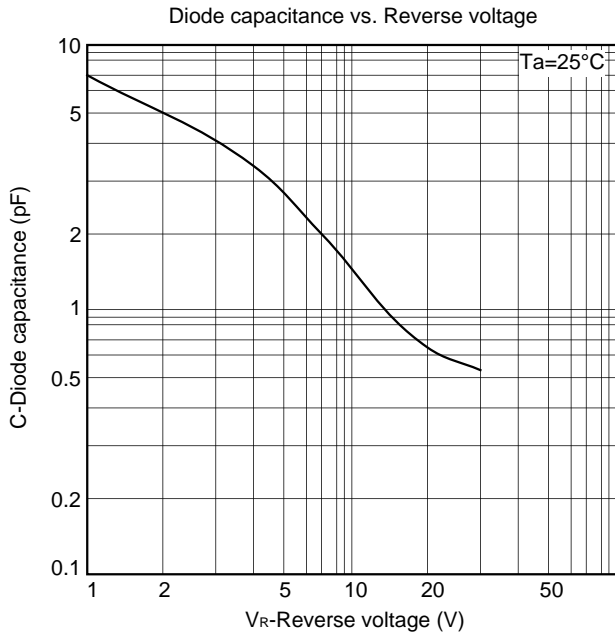
- |                         |                  |             |                                   |
|-------------------------|------------------|-------------|-----------------------------------|
| • Reverse voltage       | V <sub>R</sub>   | 30          | V                                 |
| • Peak 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                                |

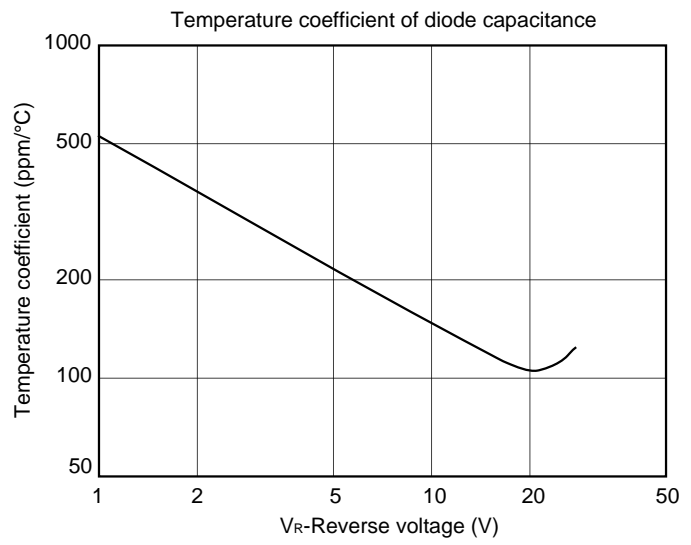
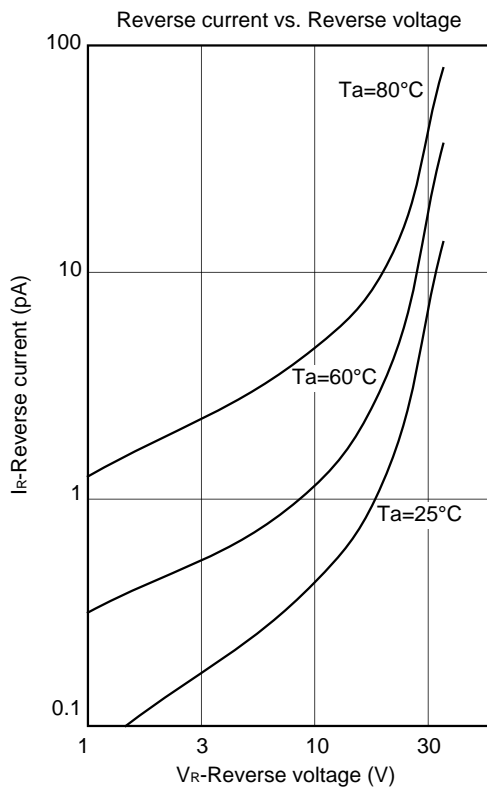
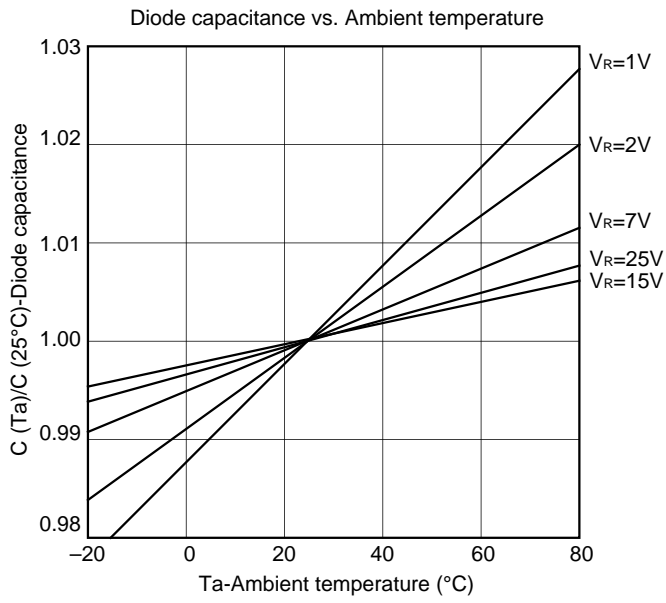
### Electrical Characteristics

(Ta=25 °C)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse current	I <sub>R</sub>	V <sub>R</sub> =25 V			10	nA
Reverse voltage	V <sub>R</sub>	I <sub>R</sub> =1 $\mu$ A	30			v
Diode capacitance	C <sub>1</sub>	V <sub>R</sub> =1 V, f=1 MHz	5.96		7.16	pF
	C <sub>25</sub>	V <sub>R</sub> =25 V, f=1 MHz	0.46		0.60	pF
Capacitance ratio	C <sub>1</sub> /C <sub>25</sub>		10.0	12.0		
Series resistance	r <sub>s</sub>	V <sub>R</sub> =5 V, f=470 MHz		1.30	1.50	$\Omega$
Capacitance deviation in a matching group	$\Delta$ C	V <sub>R</sub> =1 to 25 V, f=1 MHz			6	%

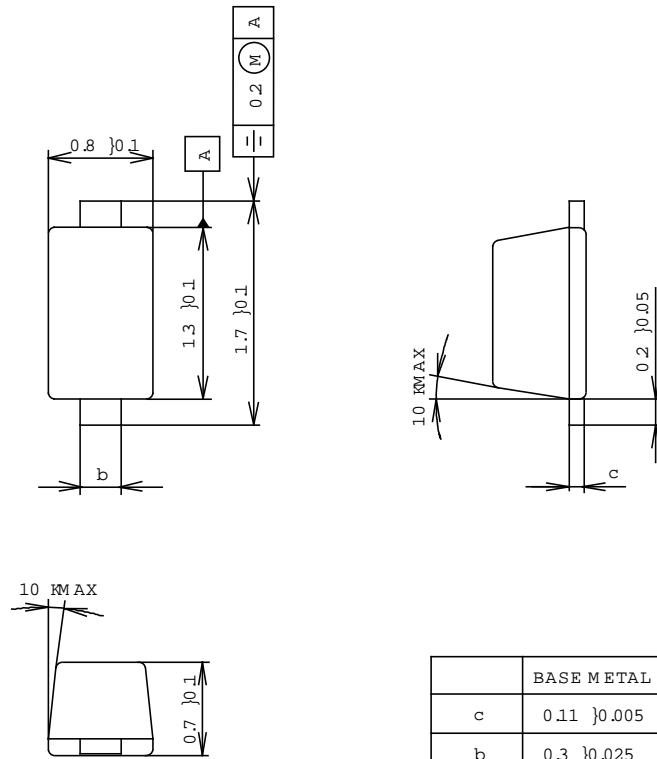
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Package Outline Unit : mm

M-290

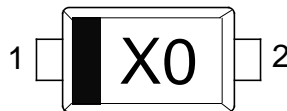


	BASE METAL	WITH PLATING
c	0.11 $\pm 0.005$	0.11 $\begin{matrix} 0.05 \\ 0.01 \end{matrix}$
b	0.3 $\pm 0.025$	0.3 $\begin{matrix} 0.05 \\ 0.02 \end{matrix}$

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