

## Variable Capacitance Diode

### Description

The 1T402 is a variable capacitance diode designed for electronic tuning of UHF TV tuners using a super-small-miniature flat package (SSVC).

### Features

- Super-small-miniature flat package
- Low series resistance: 0.65  $\Omega$  Max. ( $f=470$  MHz)
- Large capacitance ratio: 6.5 Typ. ( $C_2/C_{25}$ )
- Small leakage current: 10 nA Max. ( $V_R=28$  V)
- Capacitance deviation in a matching group:  
within 2 %

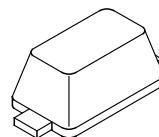
### Applications

Electronic tuning of TV and CATV tuners

### Structure

Silicon epitaxial planar type diode

M-290



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

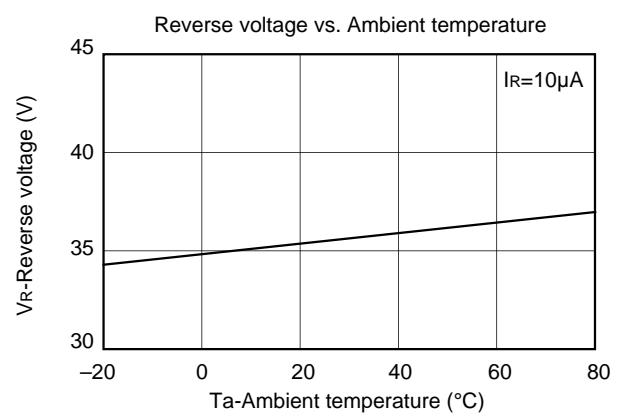
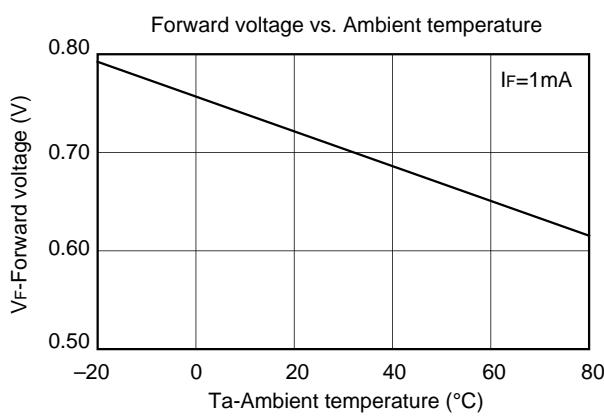
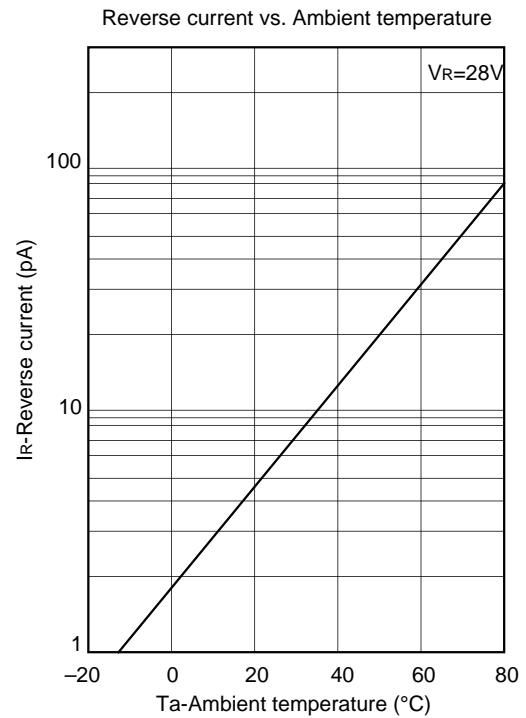
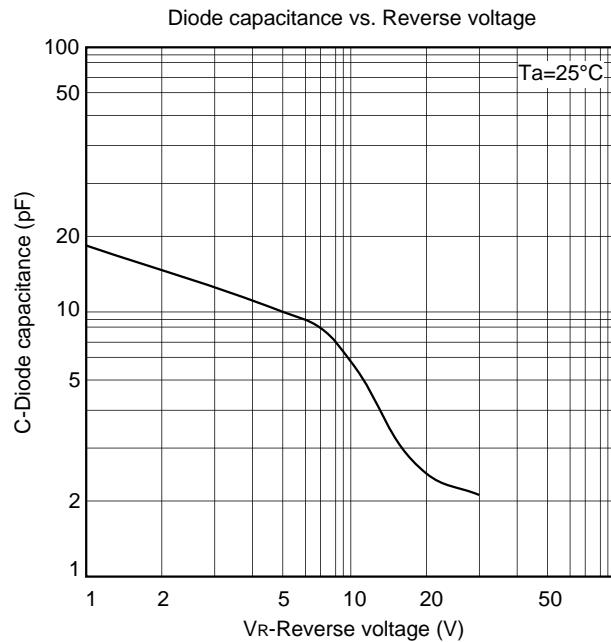
• Reverse voltage	$V_R$	30	V
• Peak reverse voltage	$V_{RM}$	35	V
		$(RL \geq 10$ k $\Omega$ )	
• Operating temperature	$Topr$	-20 to +75	°C
• Storage temperature	$T_{stg}$	-65 to +150	°C

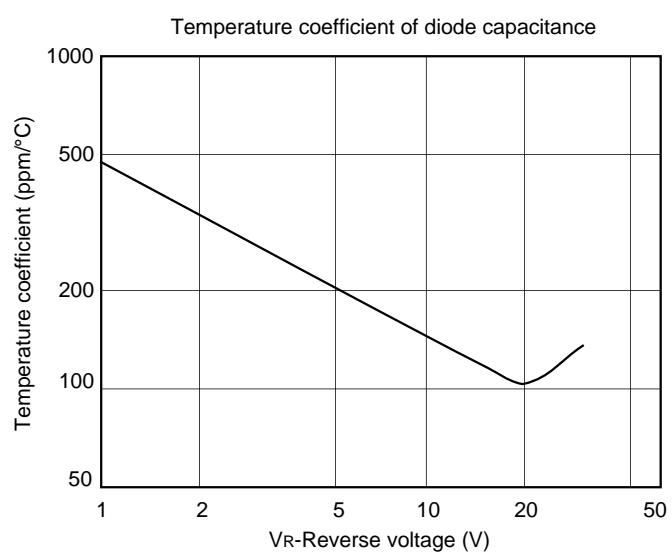
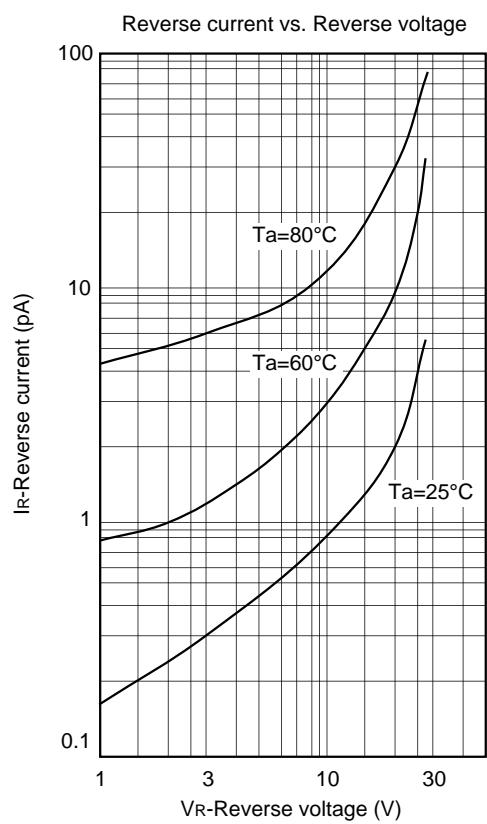
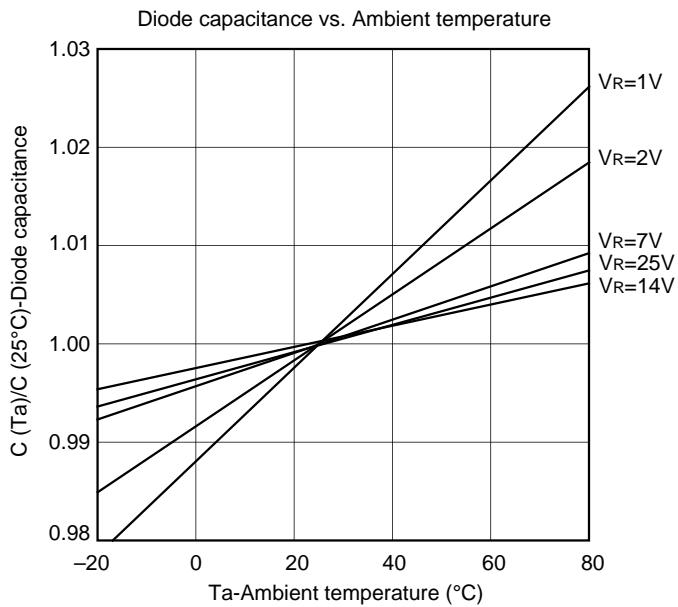
### Electrical Characteristics

( $T_a=25$  °C)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse current	$I_R$	$V_R=28$ V			10	nA
Diode capacitance	$C_2$	$V_R=2$ V, $f=1$ MHz	13.97		16.29	pF
	$C_{25}$	$V_R=25$ V, $f=1$ MHz	2.06		2.35	pF
Capacitance ratio	$C_2/C_{25}$			6.5		
Series resistance	$r_s$	$C_D=14$ pF, $f=470$ MHz		0.57	0.65	$\Omega$
Capacitance deviation in a matching group	$\Delta C$	$V_R=2$ to 25 V, $f=1$ MHz			2	%

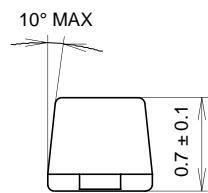
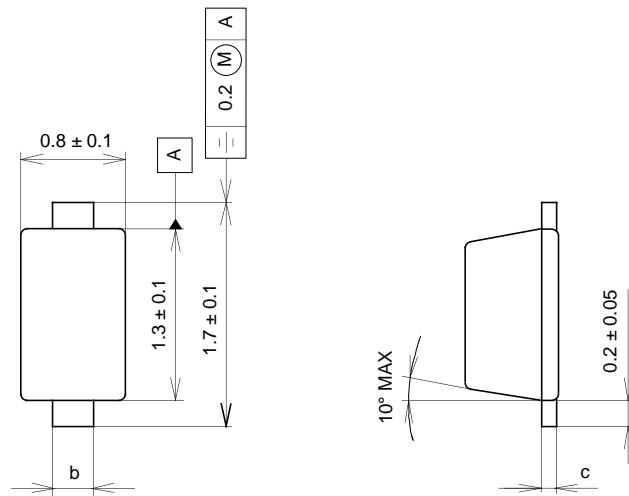
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**Package Outline** Unit : mm

M-290



	BASE METAL	WITH PLATING
c	$0.11 \pm 0.005$	$0.11^{+0.05}_{-0.01}$
b	$0.3 \pm 0.025$	$0.3^{+0.05}_{-0.02}$

SONY CODE	M-290
EIAJ CODE	_____
JEDEC CODE	_____

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

**Mark**