

## Variable Capacitance Diode

### Description

The 1T417 is a variable capacitance diode designed for electronic tuning of BS/CS tuners using a super-small-miniature flat package (SSVC).

### Features

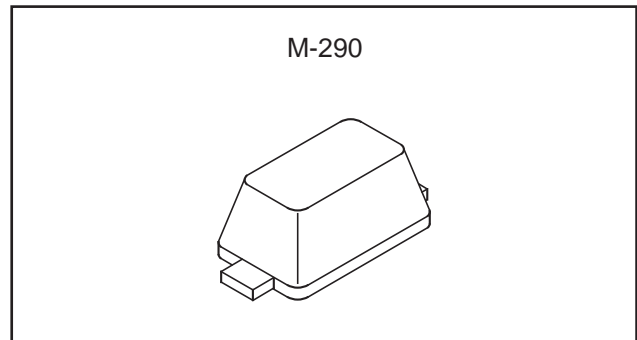
- Super-small-miniature flat package
- Low series resistance: 1.5  $\Omega$  Max. (f=470 MHz)
- Large capacitance ratio: 15.5 Typ. ( $C_1/C_{25}$ )
- Small leakage current: 10 nA Max. ( $V_R=25$  V)
- Capacitance deviation in a matching group:  
within 6 %

### Applications

Electronic tuning of BS/CS tuners

### Structure

Silicon epitaxial planar type diode



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

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

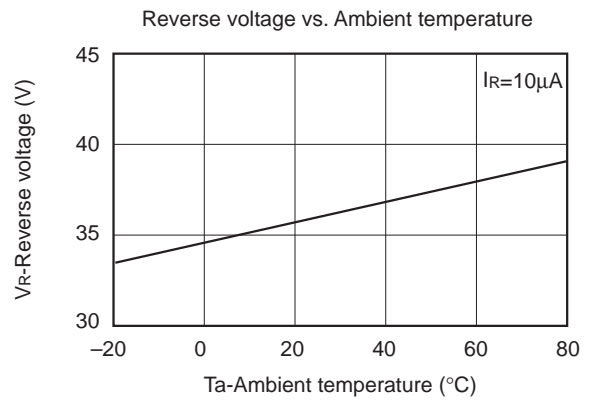
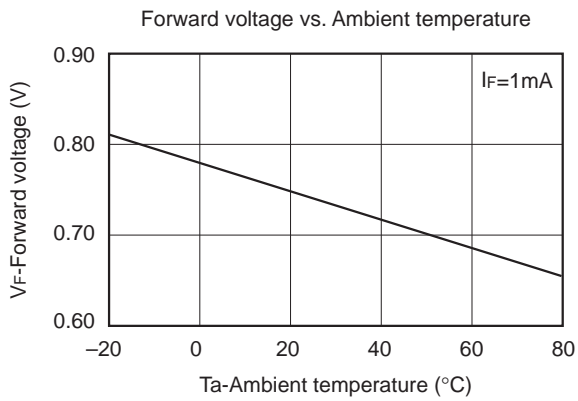
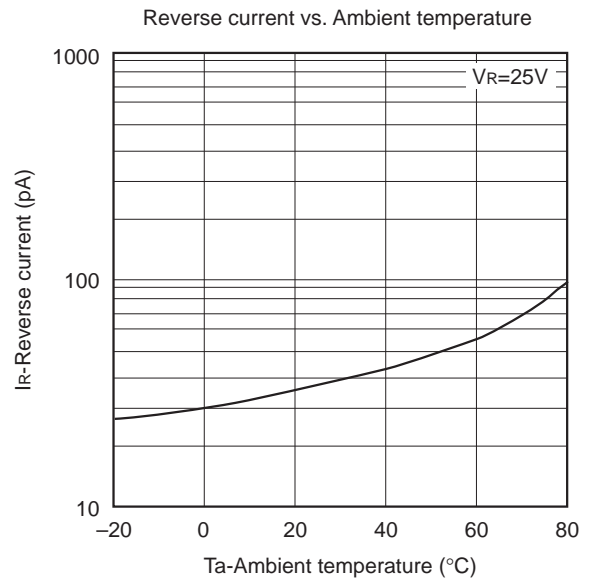
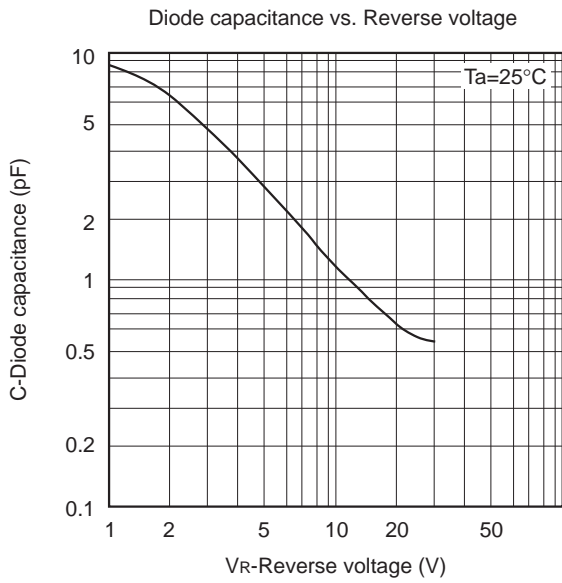
### Electrical Characteristics

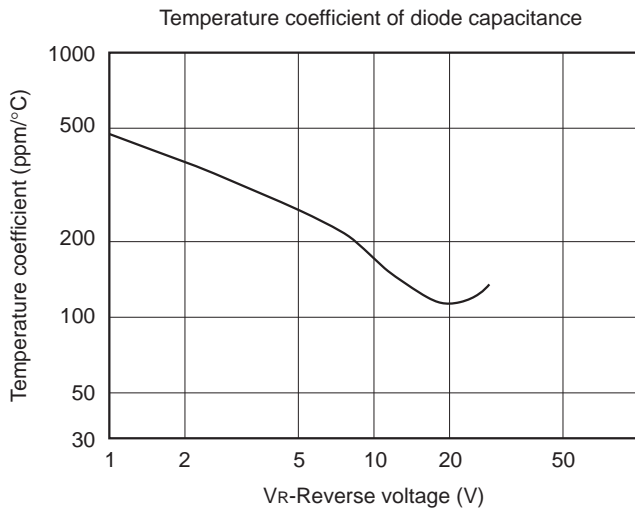
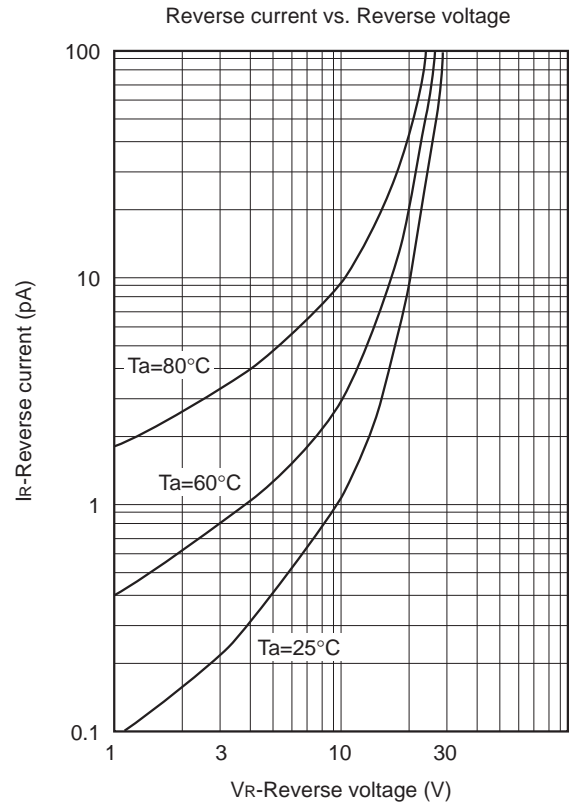
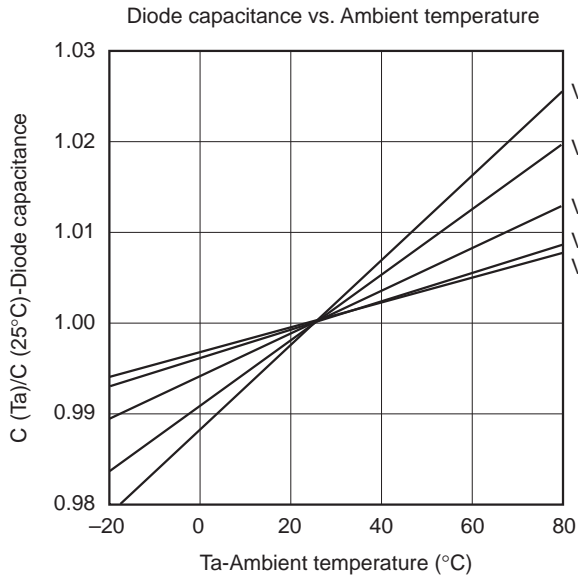
( $T_a=25$  °C)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse current	$I_R$	$V_R=25$ V			10	nA
Reverse voltage	$V_R$	$I_R=1$ $\mu$ A	30			V
Diode capacitance	$C_1$	$V_R=1$ V, f=1 MHz	7.8	8.6	9.4	pF
	$C_{25}$	$V_R=25$ V, f=1 MHz	0.5		0.6	pF
Capacitance ratio	$C_1/C_{25}$		13.0	15.5		
Series resistance	$r_s$	$V_R=5$ V, f=470 MHz		1.30	1.50	$\Omega$
Capacitance deviation in a matching group	$\Delta C$	$V_R=1$ to 25 V, f=1 MHz			6.0	%

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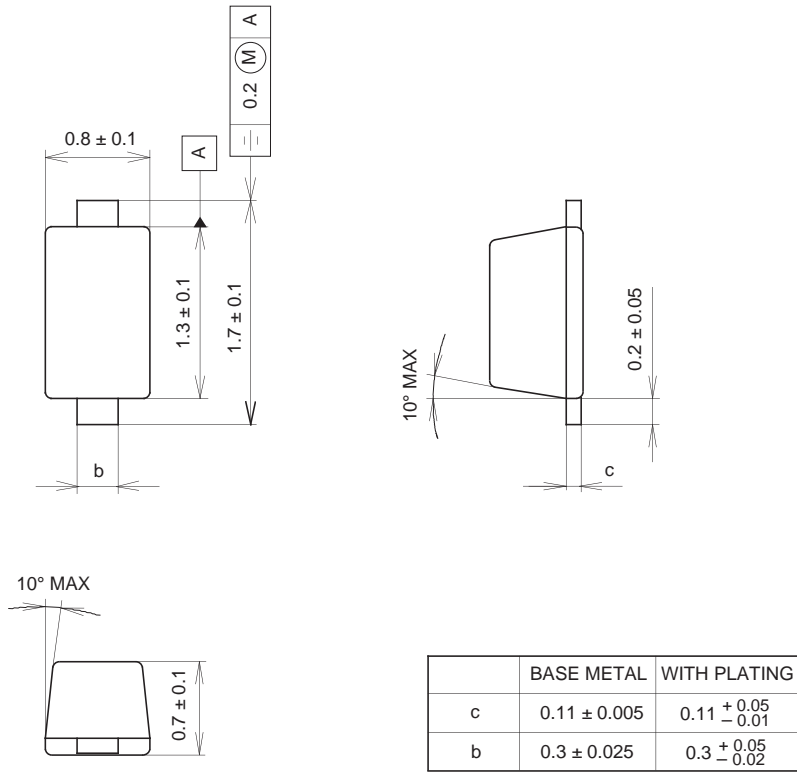
Example of Representative Characteristics





Package Outline Unit : mm

M-290



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