

## Variable Capacitance Diode

### Description

The 1T409 is a variable capacitance diode designed for UHF-band VCO using a super-small-miniature flat package (SSVC).

### Features

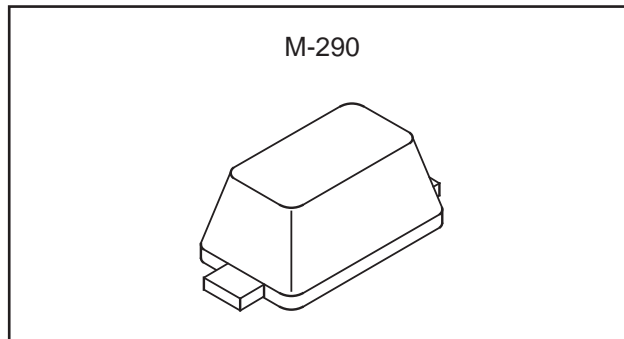
- Super-small-miniature flat package
- Low series resistance: 0.4  $\Omega$  Max. (f=470 MHz)
- Large capacitance ratio: 2.5 Typ. ( $C_2/C_{10}$ )
- Small leakage current: 3 nA Max. ( $V_R=15$  V)

### Applications

- UHF-band VCO
- Local oscillator for cordless telephone
- Local oscillator for cellular equipment

### Structure

Silicon epitaxial planar type diode



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

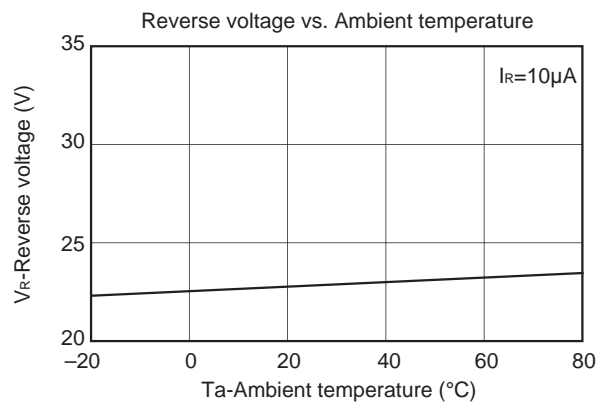
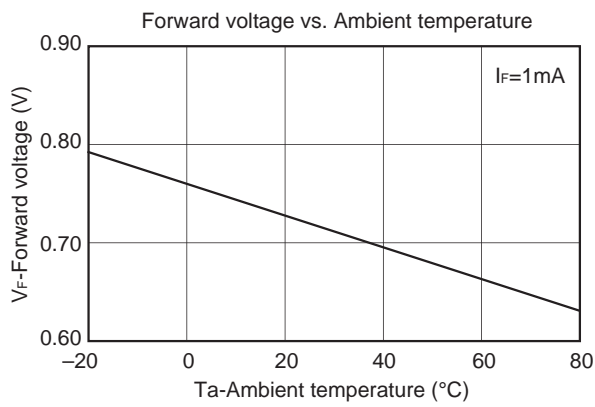
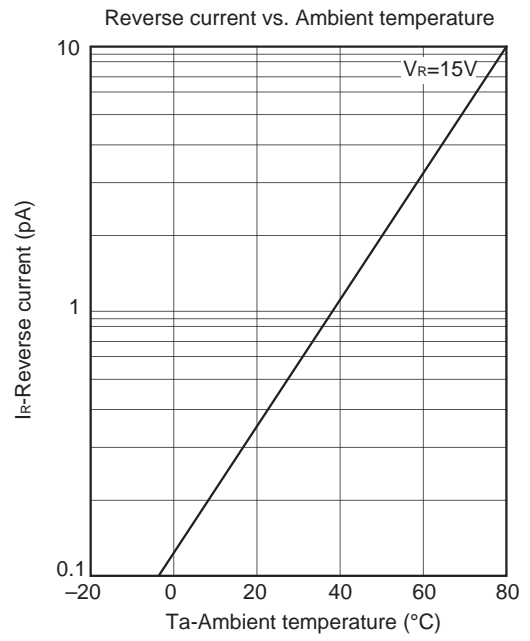
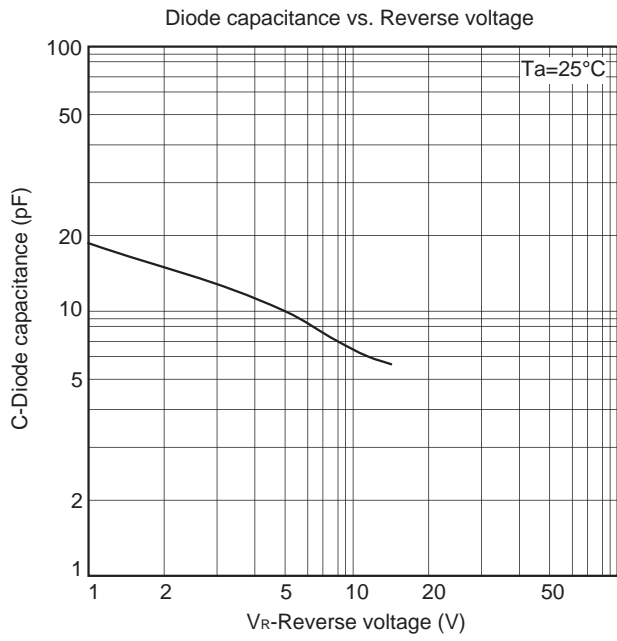
- |                         |           |             |    |
|-------------------------|-----------|-------------|----|
| • Reverse voltage       | $V_R$     | 15          | V  |
| • Operating temperature | $T_{opr}$ | -35 to +85  | °C |
| • Storage temperature   | $T_{stg}$ | -65 to +150 | °C |

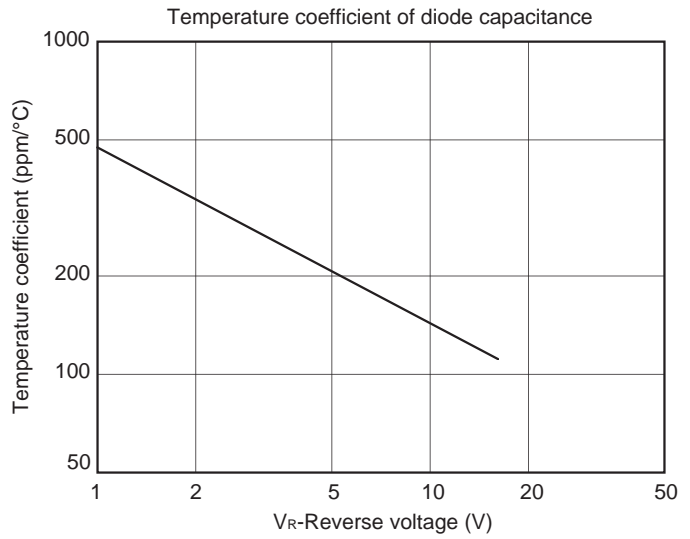
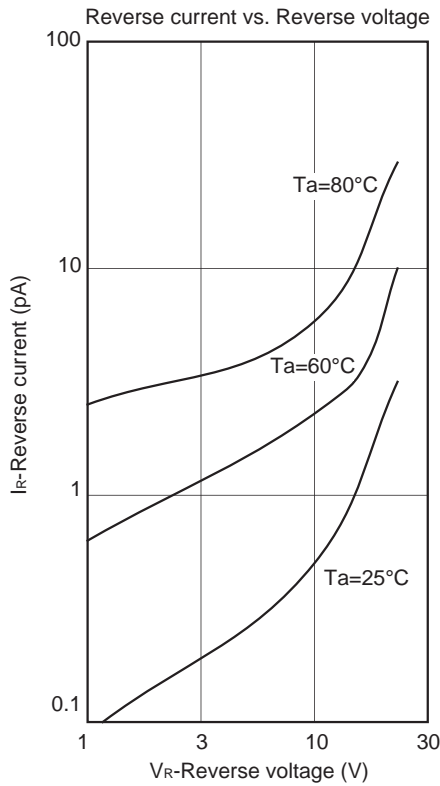
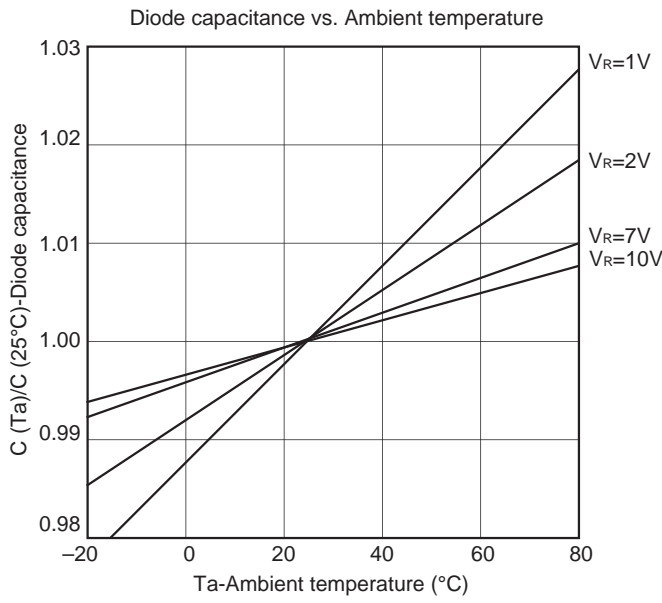
### Electrical Characteristics

(Ta=25 °C)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse current	$I_R$	$V_R=15$ V			3	nA
Diode capacitance	$C_2$	$V_R=2$ V, f=1 MHz	14.26		15.96	pF
	$C_{10}$	$V_R=10$ V, f=1 MHz	5.46		6.46	pF
Capacitance ratio	$C_2/C_{10}$		2.2	2.5		
Series resistance	$r_s$	$V_R=5$ V, f=470 MHz		0.3	0.4	$\Omega$

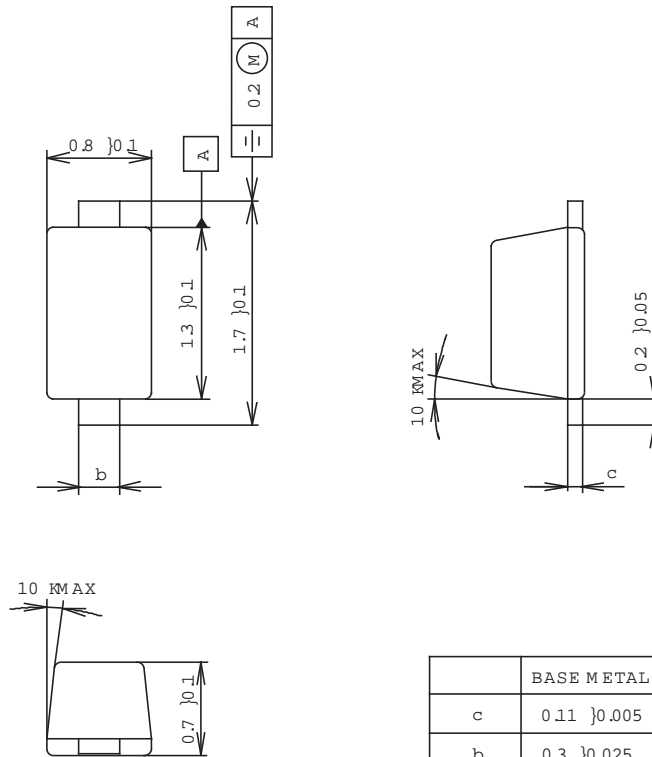
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Package Outline Unit : mm

M-290

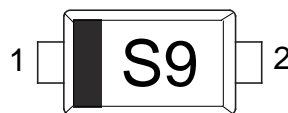


	BASE METAL	WITH PLATING
c	0.11 ±0.005	0.11 {0.05 0.01}
b	0.3 ±0.025	0.3 {0.05 0.02}

SONY CODE	M-290
EIAJ CODE	—
JEDEC CODE	—

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

Mark



1 : Cathode  
2 : Anode