

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

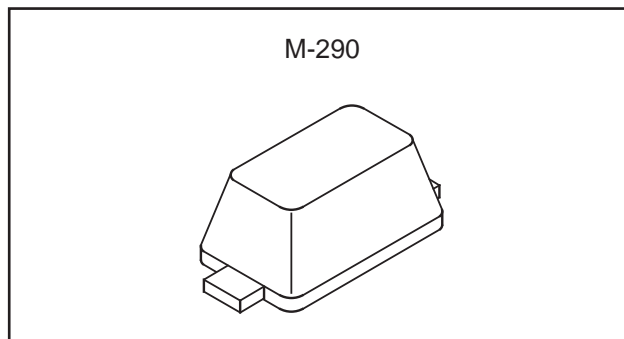
- Super-small-miniature flat package
- Low series resistance: 0.4 Ω Max. (f=470 MHz)
- Large capacitance ratio: 2.5 Typ. (C_2/C_{10})
- Small leakage current: 3 nA Max. ($V_R=15$ V)

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)

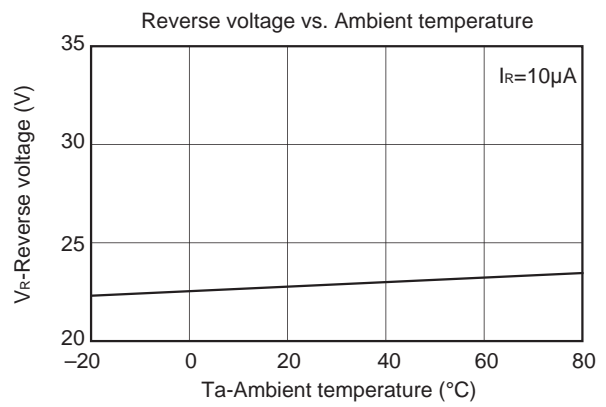
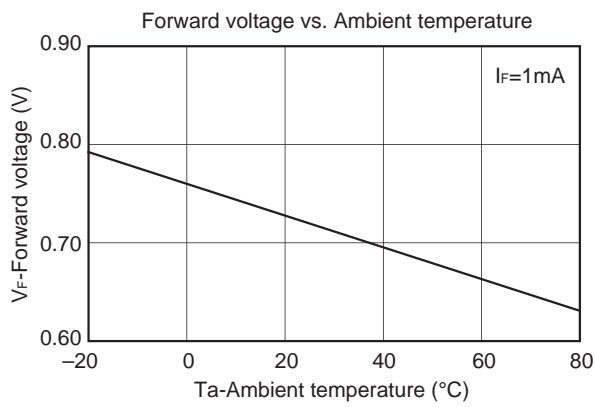
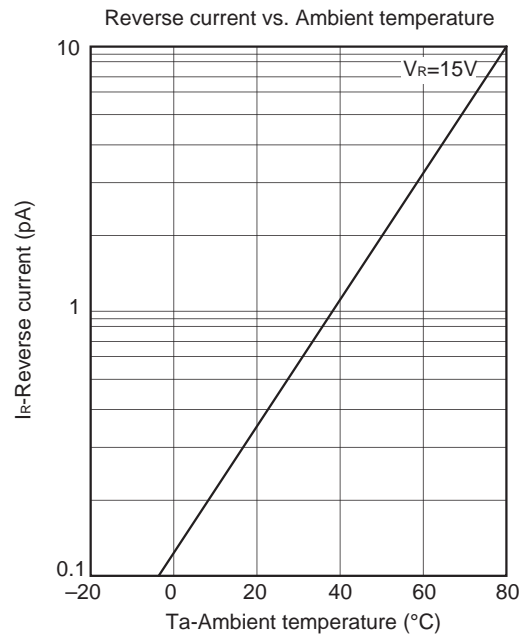
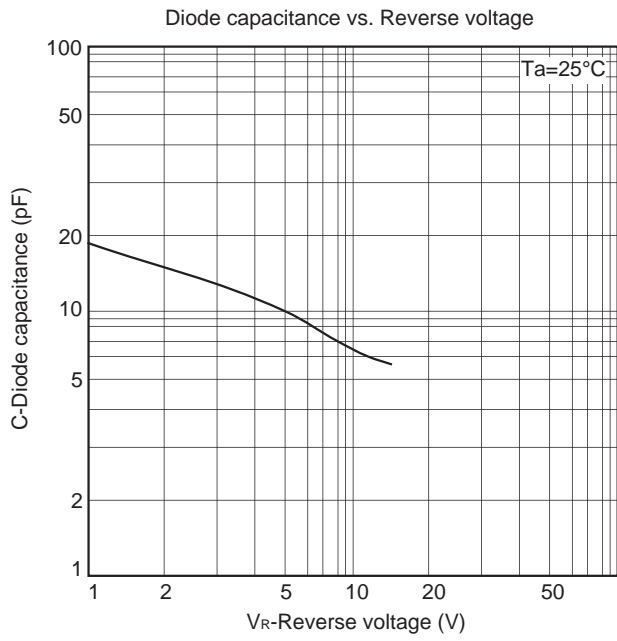
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|-------------------------|-----------|-------------|----|
| • Reverse voltage | V_R | 15 | V |
| • Operating temperature | T_{opr} | -35 to +85 | °C |
| • Storage temperature | T_{stg} | -65 to +150 | °C |

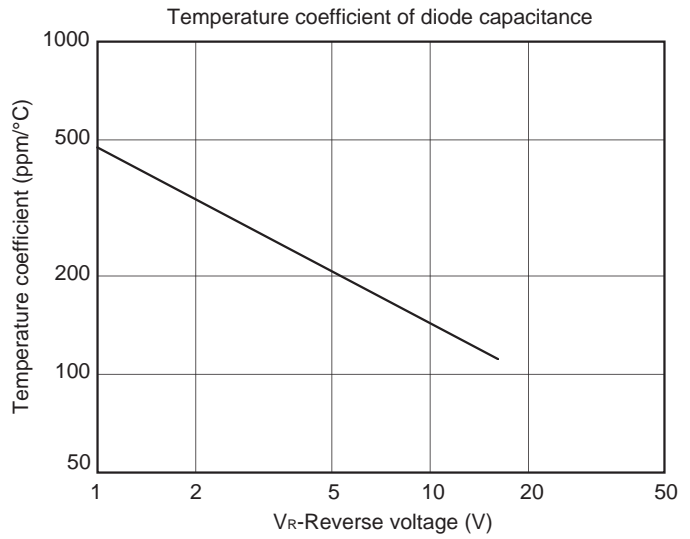
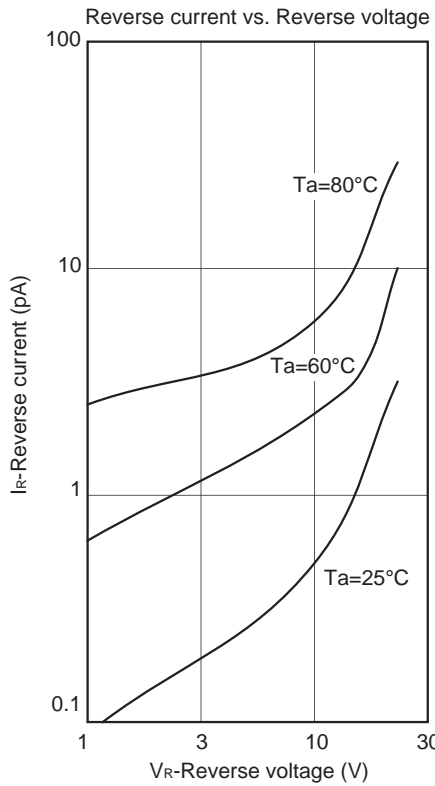
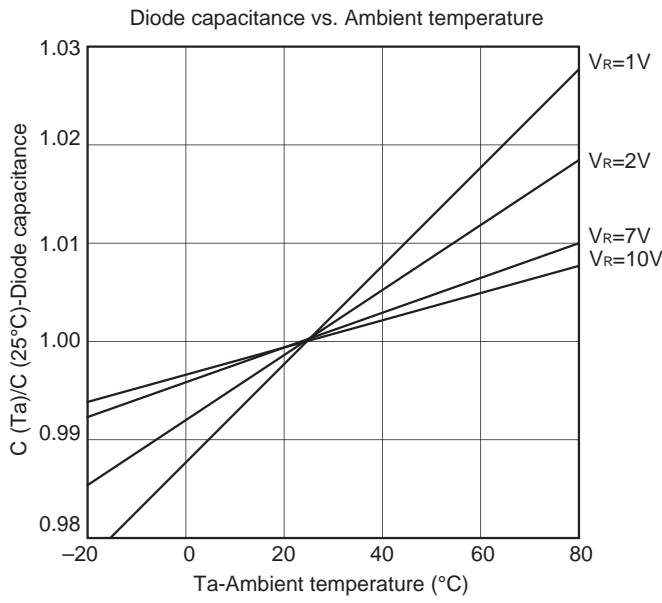
Electrical Characteristics

(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	Ω

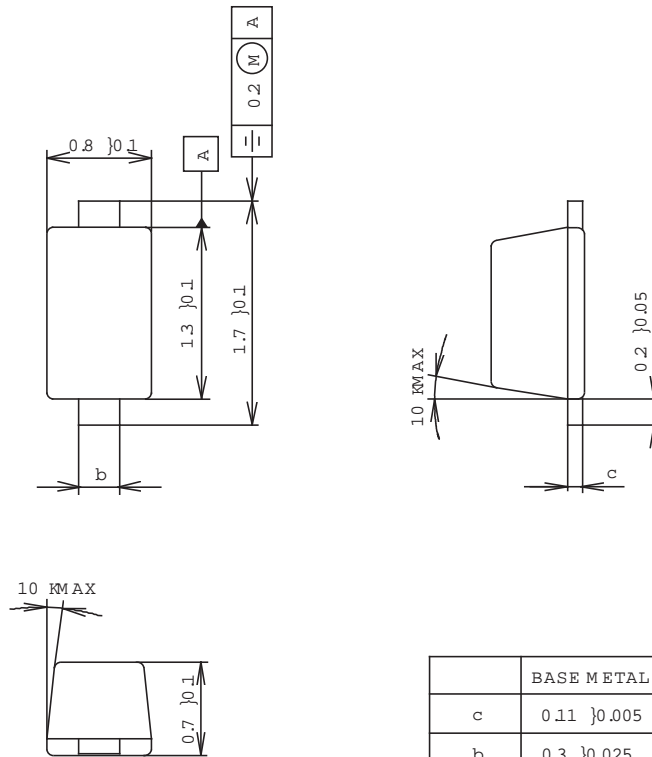
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Package Outline Unit : mm

M-290

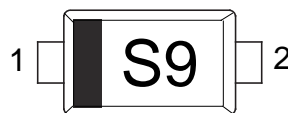


	BASE METAL	WITH PLATING
c	0.11 ±0.005	0.11 {0.05 0.01
b	0.3 ±0.025	0.3 {0.05 0.02

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