SONY

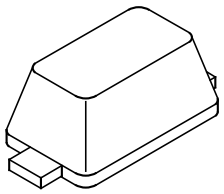
1T408

Variable Capacitance Diode

Description

The 1T408 is a variable capacitance diode designed for electronic tuning of wide-band CATV tuners using a super-small-miniature flat package (SSVC).

M-290



Features

- Super-small-miniature flat package
- Small series resistance 0.75Ω Max. (f = 470MHz)
- Large capacitance ratio 11.7 Typ. (C_2/C_{25})
  18.0 Typ. (C_1/C_{28})
- Small leakage current 10nA Max. (V_R = 28V)
- Capacitance deviation in a matching group: within 2%

Applications

Electronic tuning of wide-band CATV tuners

Structure

Silicon epitaxial planar-type diode

Absolute Maximum Ratings (Ta = 25°C)

• Reverse voltage	V_R	34	V
• Operating temperature	Topr	–20 to +75	°C
• Storage temperature	Tstg	–65 to +150	°C

Electrical Characteristics

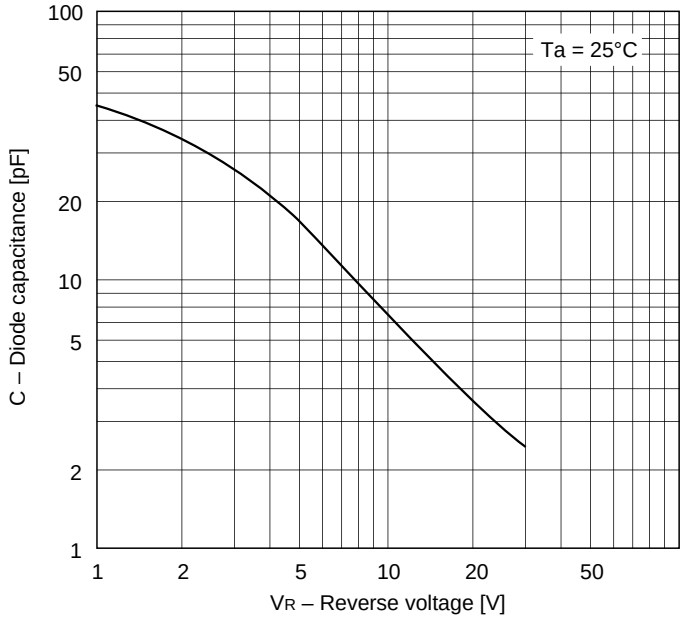
(Ta = 25°C)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse current	I_R	V_R = 28V			10	nA
Diode capacitance	C_2	V_R = 2V, f = 1MHz	29.46		35.46	pF
	C_{25}	V_R = 25V, f = 1MHz	2.49		2.89	pF
Capacitance ratio	C_2/C_{25}		11.0	11.7		
	C_{25}/C_{28}		1.03			
Series resistance	rs	C_D = 14pF, f = 470MHz			0.75	Ω
Capacitance deviation in a matching group	ΔC	V_R = 2 to 25V, f = 1MHz			2	%

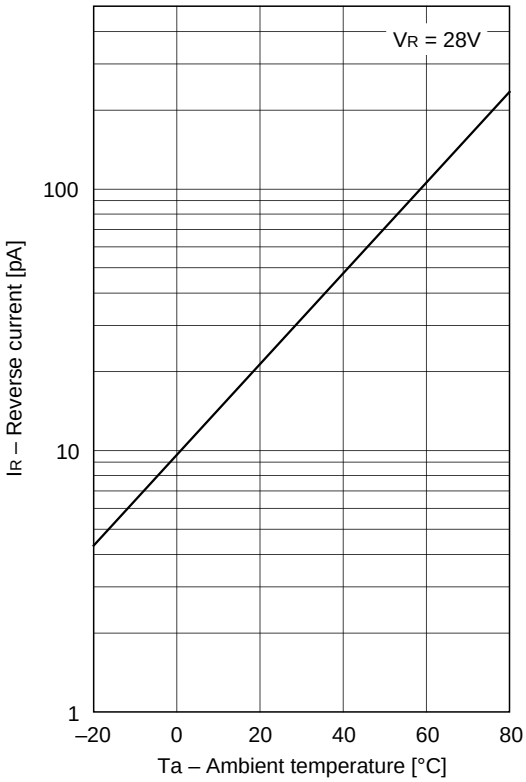
E97522-PS

Example of Representative Characteristics

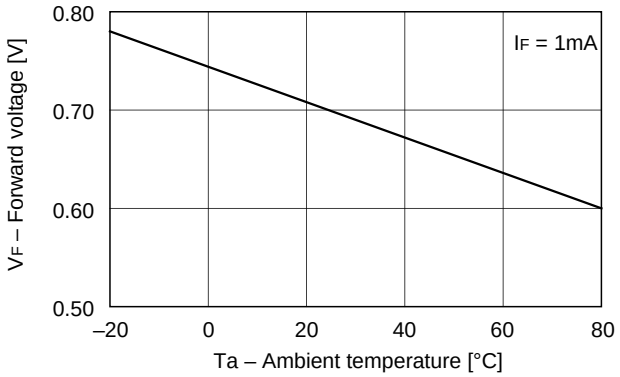
Diode capacitance vs. Reverse voltage



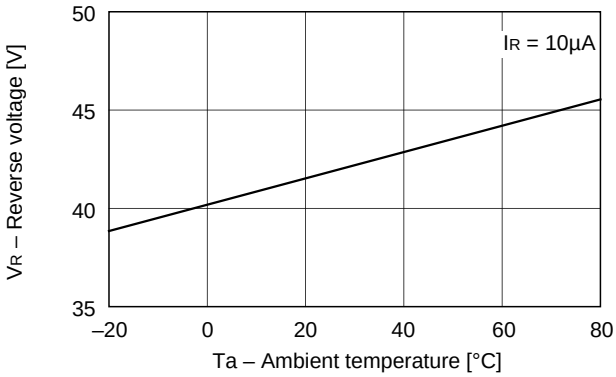
Reverse current vs. Ambient temperature



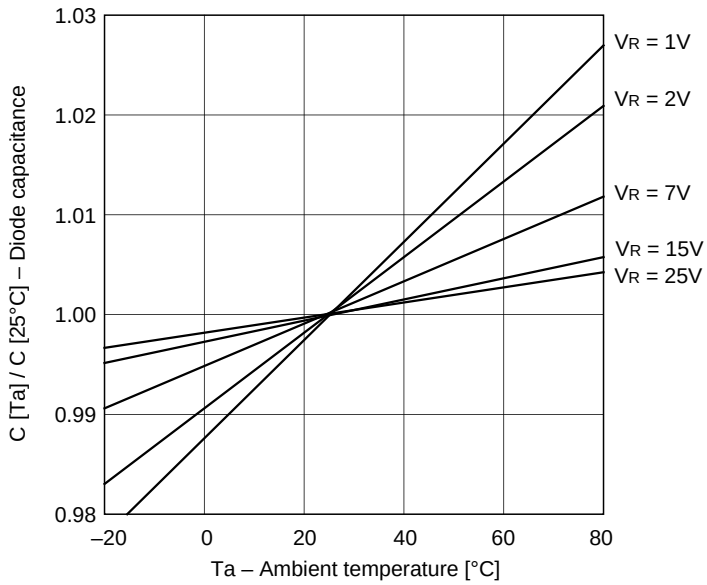
Forward voltage vs. Ambient temperature



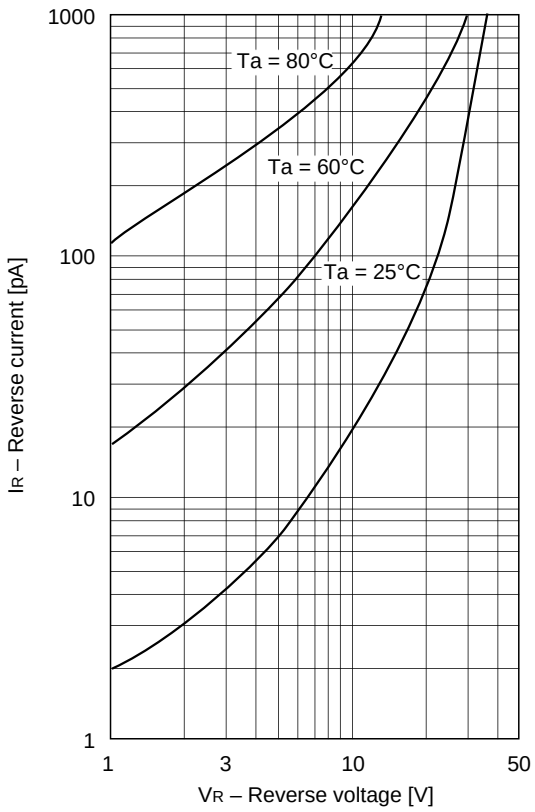
Reverse voltage vs. Ambient temperature



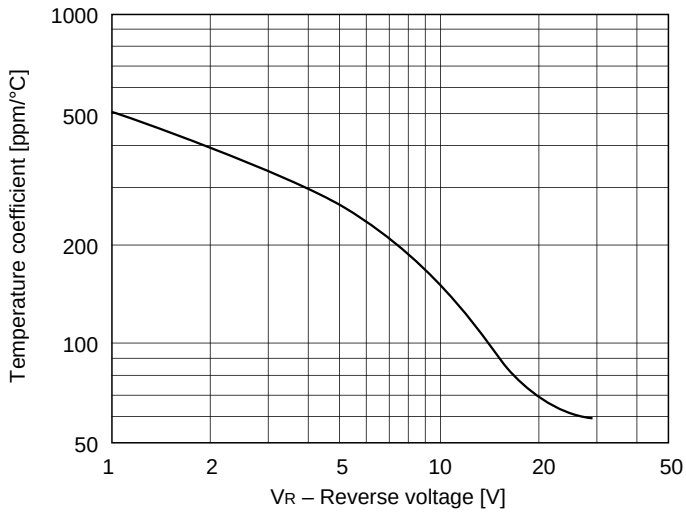
Diode capacitance vs. Ambient temperature



Reverse current vs. Reverse voltage

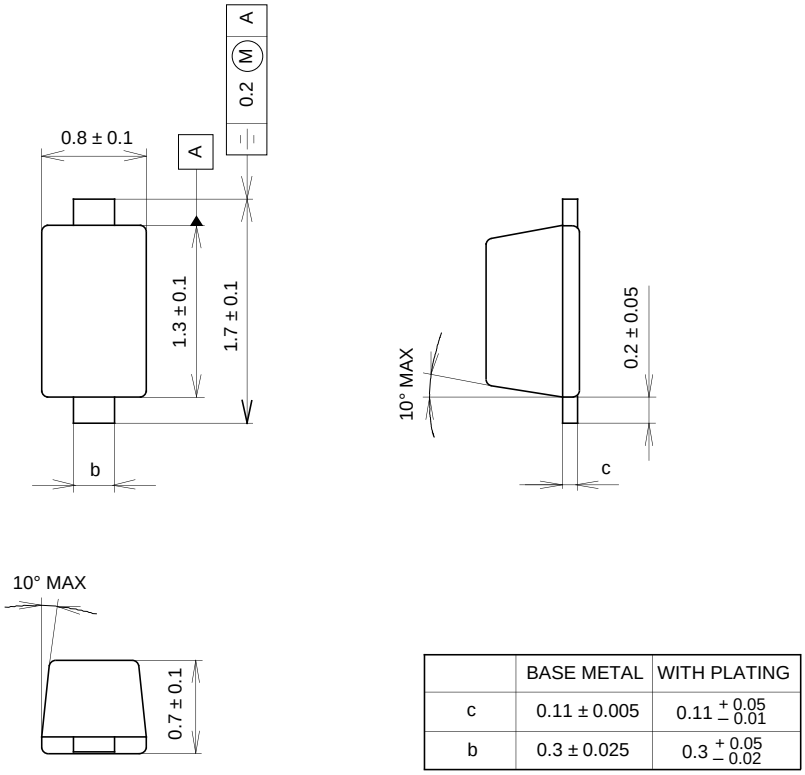


Temperature coefficient of diode capacitance



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