

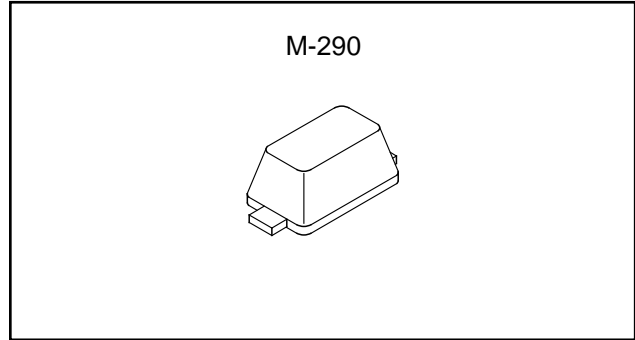
Variable Capacitance Diode

Description

The 1T407 is a variable capacitance diode designed for electronic tuning of wide-band CATV tuners using a super-small-miniature flat package (SSVC).

Features

- Super-small-miniature flat package
- Low series resistance: 1.1 Ω Max. (f=470 MHz)
- Large capacitance ratio: 15.5 Typ. (C<sub>2</sub>/C<sub>25</sub>)  
21.5 Min. (C<sub>1</sub>/C<sub>28</sub>)  
1.03 Min. (C<sub>25</sub>/C<sub>28</sub>)
- Small leakage current: 10 nA Max. (V<sub>R</sub>=28 V)
- Capacitance deviation in a matching group:  
within 2 %



Absolute Maximum Ratings (Ta=25 °C)

- Reverse voltage V<sub>R</sub> 34 V
- Operating temperature T<sub>opr</sub> -20 to +75 °C
- Storage temperature T<sub>stg</sub> -65 to +150 °C

Applications

Electronic tuning of wide-band CATV tuners

Structure

Silicon epitaxial planar type diode

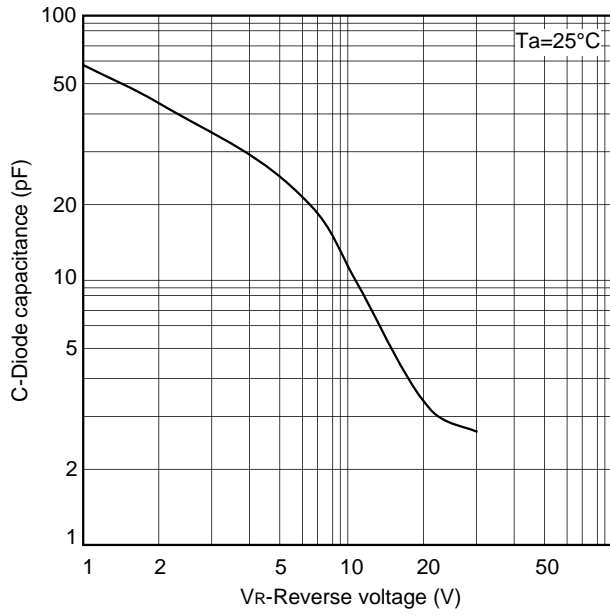
Electrical Characteristics

(Ta=25 °C)

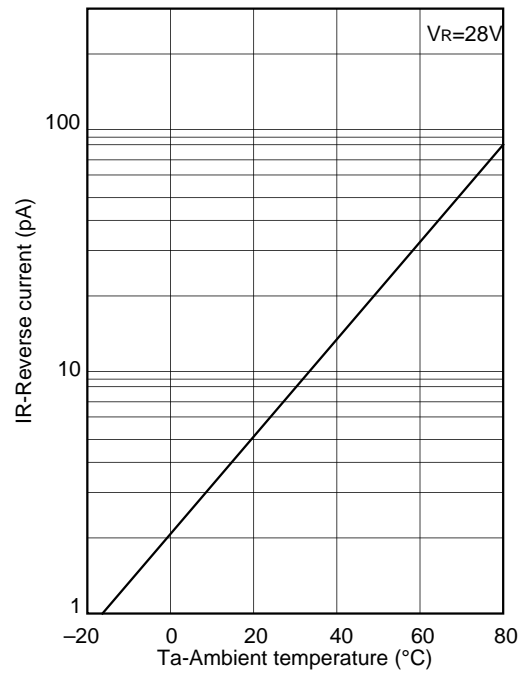
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse current	I <sub>R</sub>	V <sub>R</sub> =28 V			10	nA
Reverse voltage	V <sub>R</sub>	I <sub>R</sub> =1 μA	34			V
Diode capacitance	C <sub>2</sub>	V <sub>R</sub> =2 V, f=1 MHz	42.86		50.96	pF
	C <sub>25</sub>	V <sub>R</sub> =25 V, f=1 MHz	2.56		2.99	pF
Capacitance ratio	C <sub>2</sub> /C <sub>25</sub>		14.5	15.5		
	C <sub>1</sub> /C <sub>28</sub>		21.5			
	C <sub>25</sub> /C <sub>28</sub>		1.03			
Series resistance	r <sub>s</sub>	C <sub>D</sub> =14 pF, f=470 MHz			1.1	Ω
Capacitance deviation in a matching group	ΔC	V <sub>R</sub> =1 to 28 V, f= MHz			2	%

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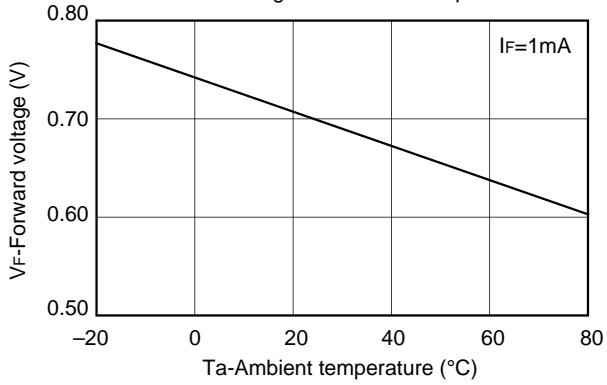
Diode capacitance vs. Reverse voltage



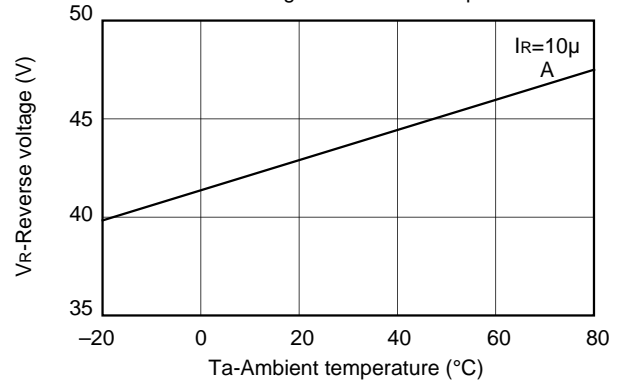
Reverse current vs. Ambient temperature

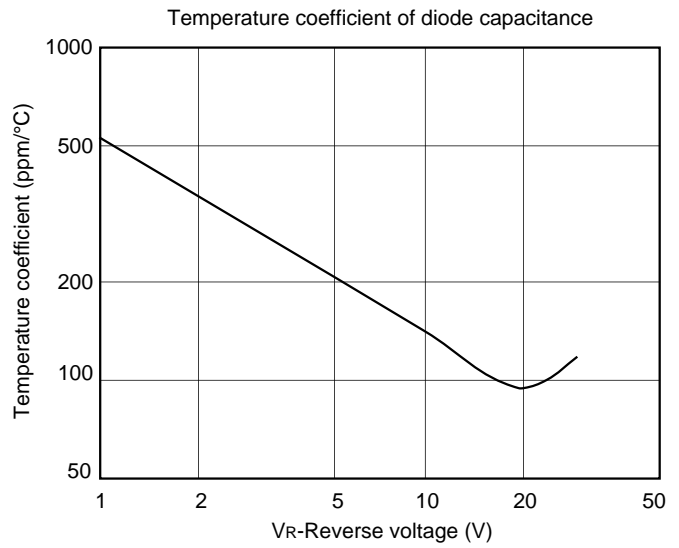
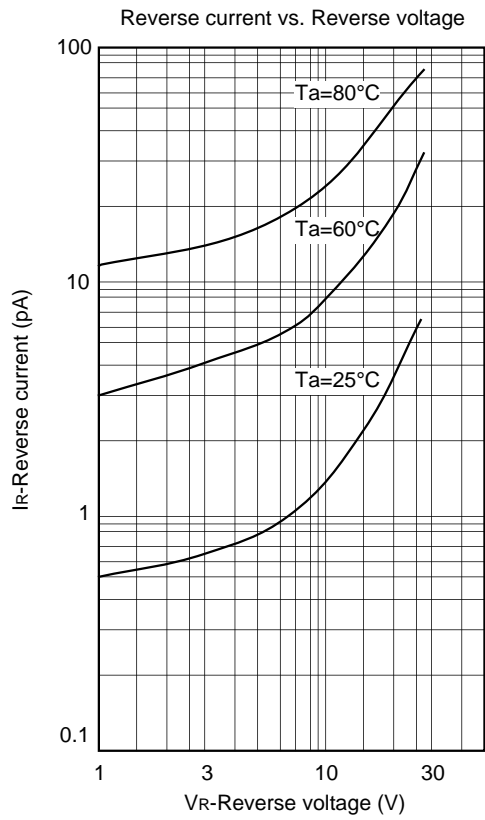
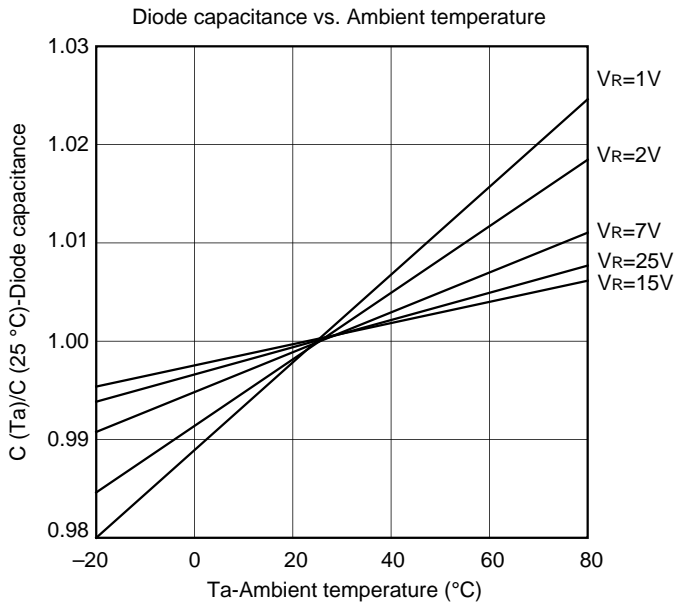


Forward voltage vs. Ambient temperature



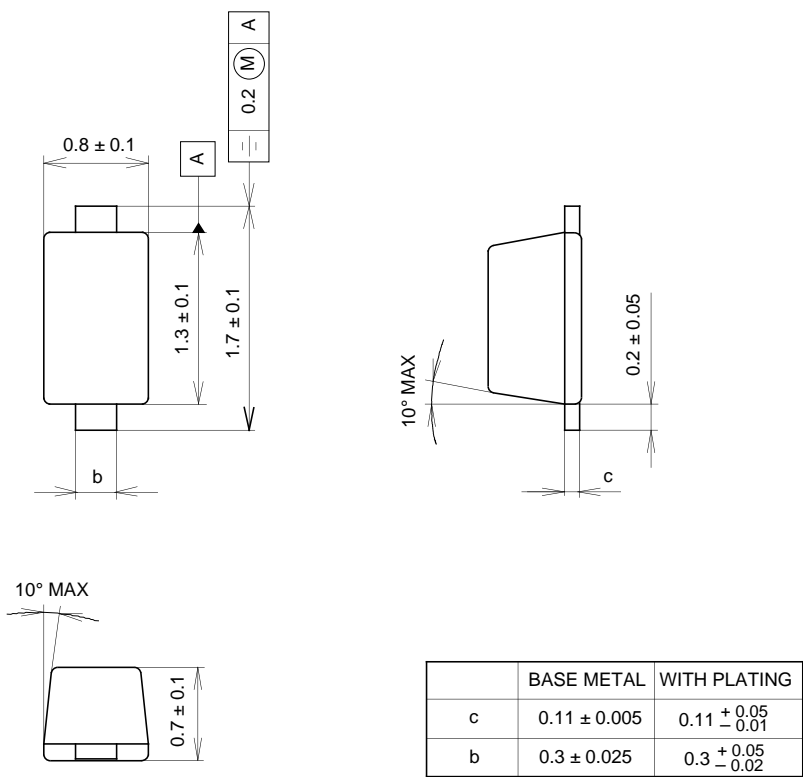
Reverse voltage vs. Ambient temperature





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

