

Variable Capacitance Diode

Description

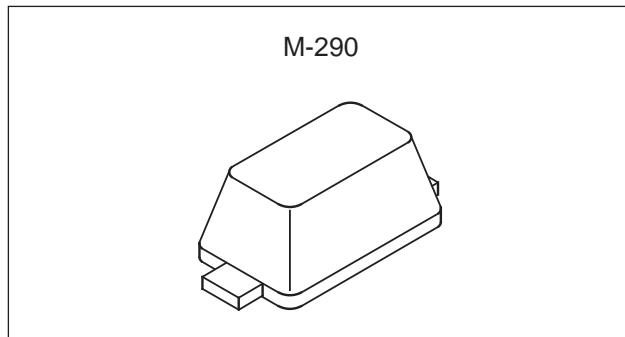
The 1T404A is a variable capacitance diode designed for electronic tuning of wide-band CATV tuners using a super-small-miniature flat package (SSVC).

Features

- Super-small-miniature flat package
- Low series resistance 0.75Ω Max. ($f = 470\text{MHz}$)
- Large capacitance ratio 11.5 Typ. (C_2/C_{25})
- Small leakage current 10nA Max. ($V_R = 28\text{V}$)
- Capacitance deviation in a matching group within 2%

Applications

Electronic tuning of wide-band CATV tuners



Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

• Reverse voltage	V_R	34	V
• Operating temperature	T_{opr}	-20 to +75	$^\circ\text{C}$
• Storage temperature	T_{stg}	-65 to +150	$^\circ\text{C}$

Structure

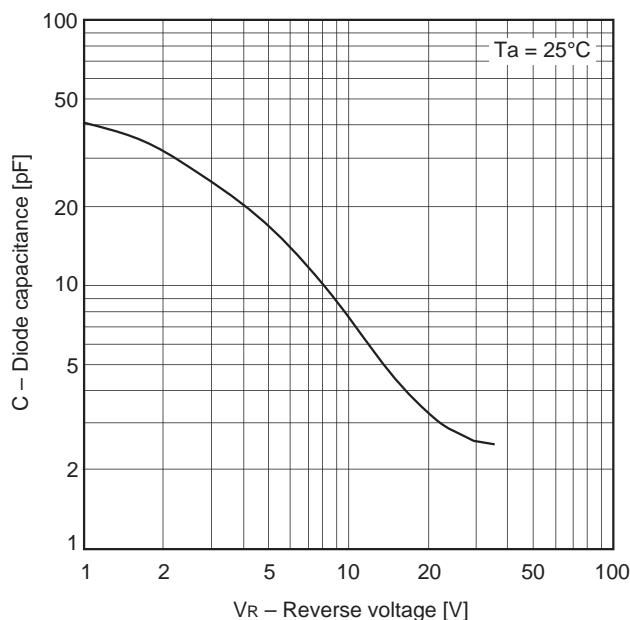
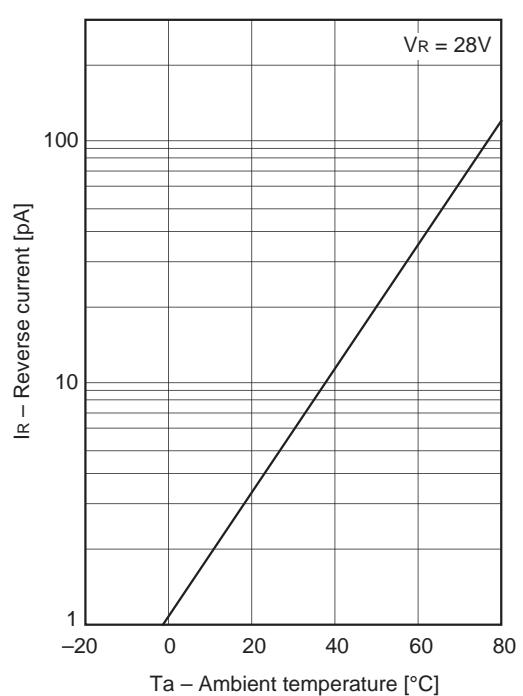
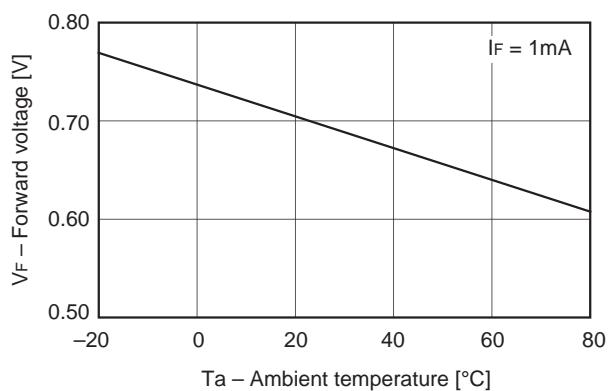
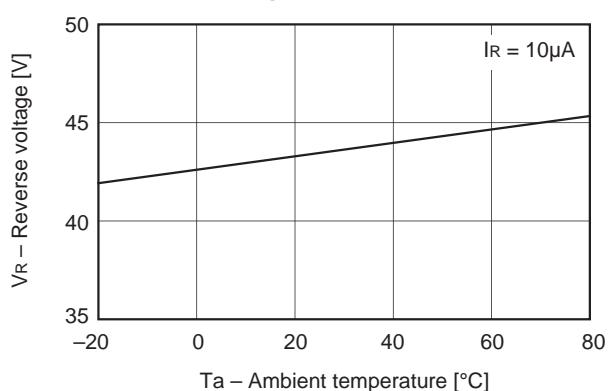
Silicon epitaxial planar type diode

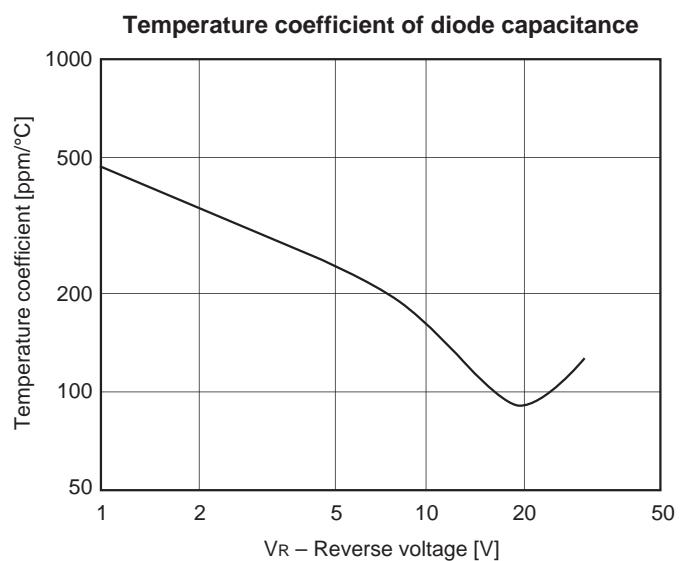
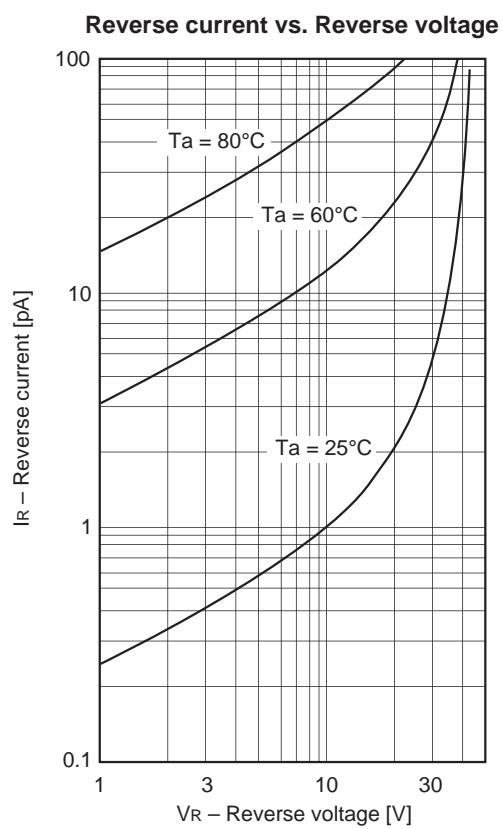
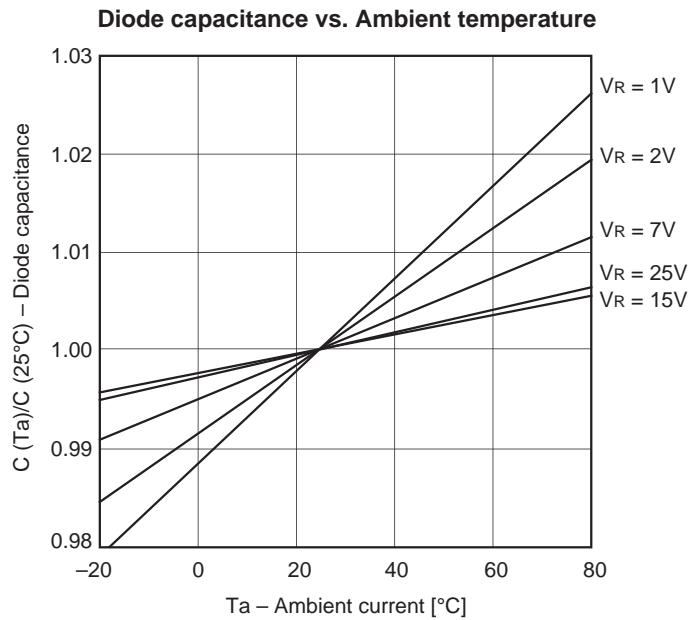
Electrical Characteristics

($T_a = 25^\circ\text{C}$)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse voltage	V_R	$I_R = 1\mu\text{A}$	34.0			V
Reverse current	I_R	$V_R = 28\text{V}$			10.0	nA
Diode capacitance	C_2	$V_R = 2\text{V}, f = 1\text{MHz}$	29.5		33.5	pF
	C_{25}	$V_R = 25\text{V}, f = 1\text{MHz}$	2.60		2.90	pF
Capacitance ratio	C_2/C_{25}		11.0	11.5		
	C_{25}/C_{28}		1.03			
Series resistance	r_s	$C_D = 14\text{pF}, f = 470\text{MHz}$			0.75	Ω
Capacitance deviation in a matching group	ΔC	$V_R = 2 \text{ to } 25\text{V}, f = 1\text{MHz}$			2.0	%

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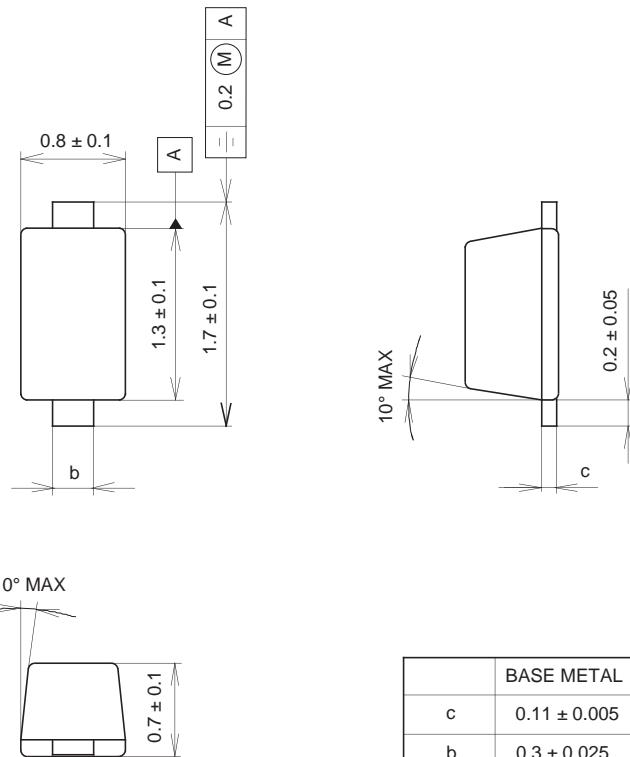
Diode capacitance vs. Reverse voltage**Reverse current vs. Ambient temperature****Forward voltage vs. Ambient temperature****Reverse voltage vs. Ambient temperature**



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

Marking