

**SONY**

**1T399**

**Variable Capacitance Diode**

**Description**

The 1T399 is a variable capacitance diode designed for the electronic tuning of wide-band CATV tuners, and it has a super miniature package.

**Features**

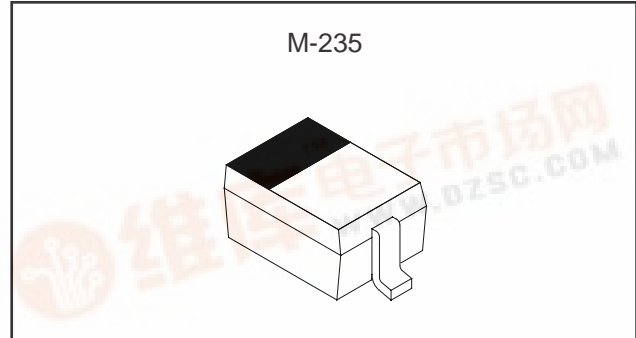
- Super miniature package
- Small series resistance 0.75 Ω Max. (f=470 MHz)
- Large capacitance ratio 11.7 Typ. (C<sub>2</sub>/C<sub>25</sub>)  
18.0 Typ. (C<sub>1</sub>/C<sub>28</sub>)
- Small leak current 10 nA Max. (V<sub>R</sub>=28 V)
- Capacitance deviation in a matching group:  
within 2 %

**Applications**

Electronic tuning of wide-band CATV tuners

**Structure**

Silicon epitaxial planar-type diode



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

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

**Electrical Characteristics**

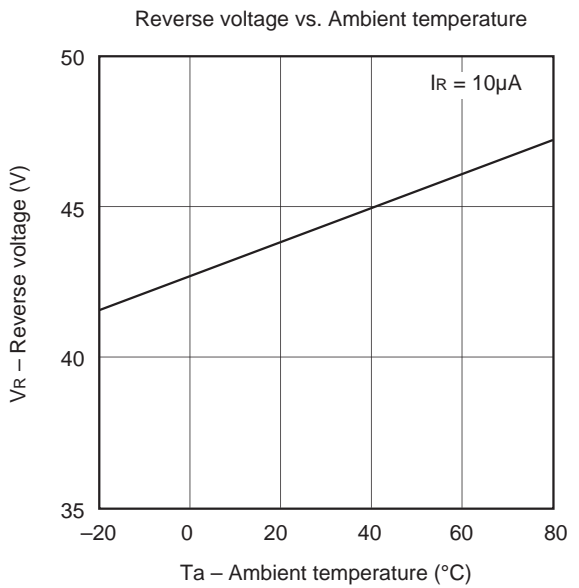
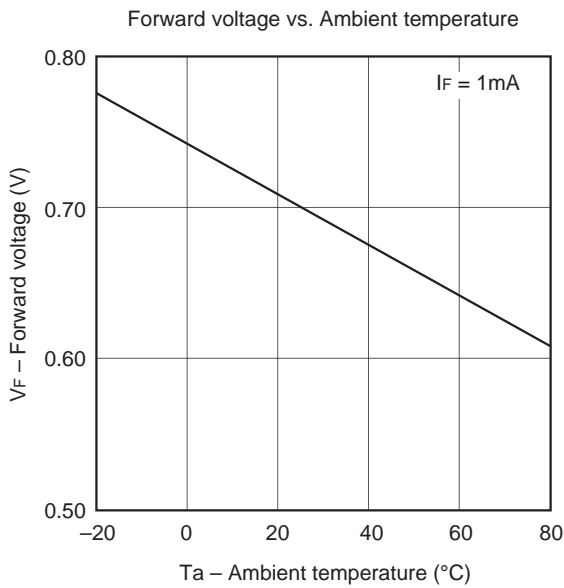
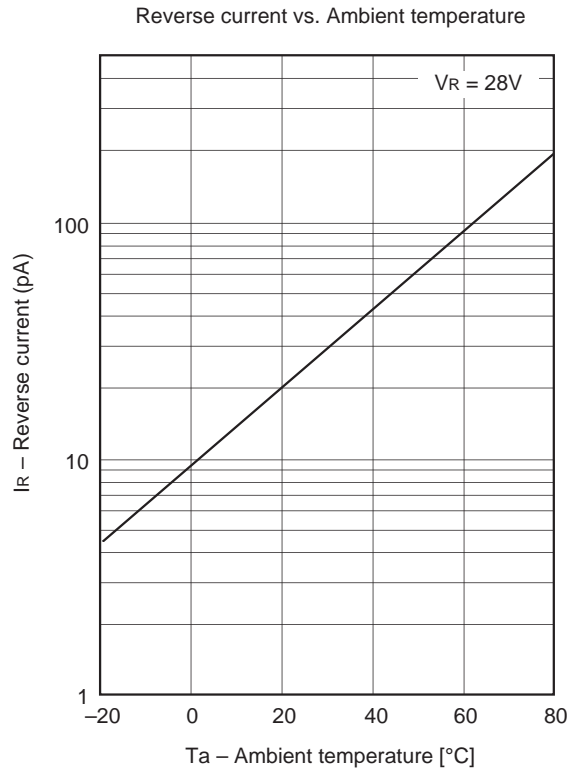
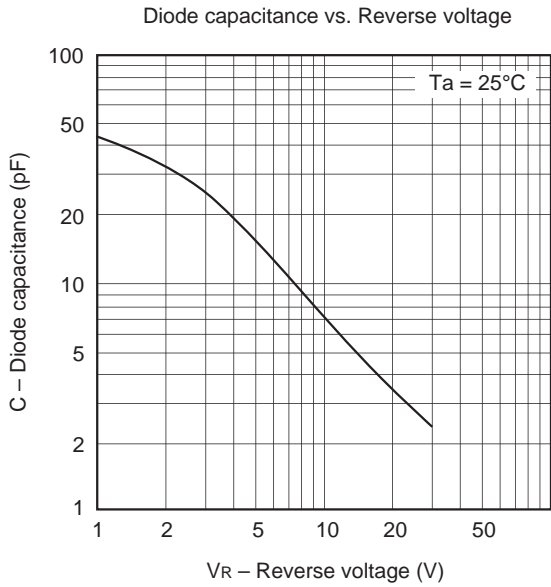
(Ta=25 °C)

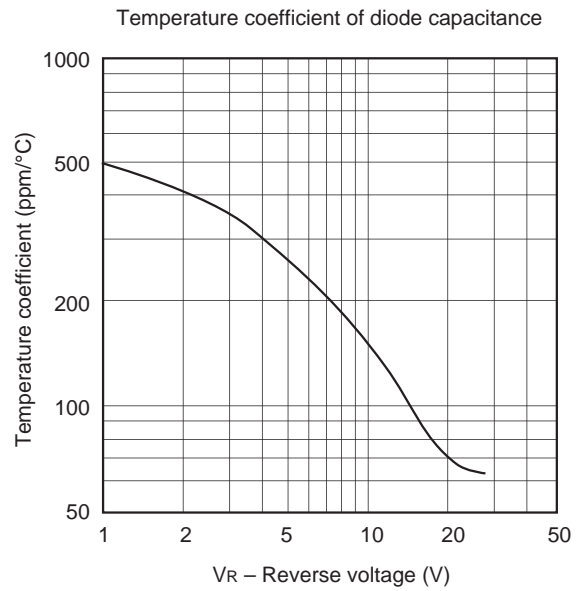
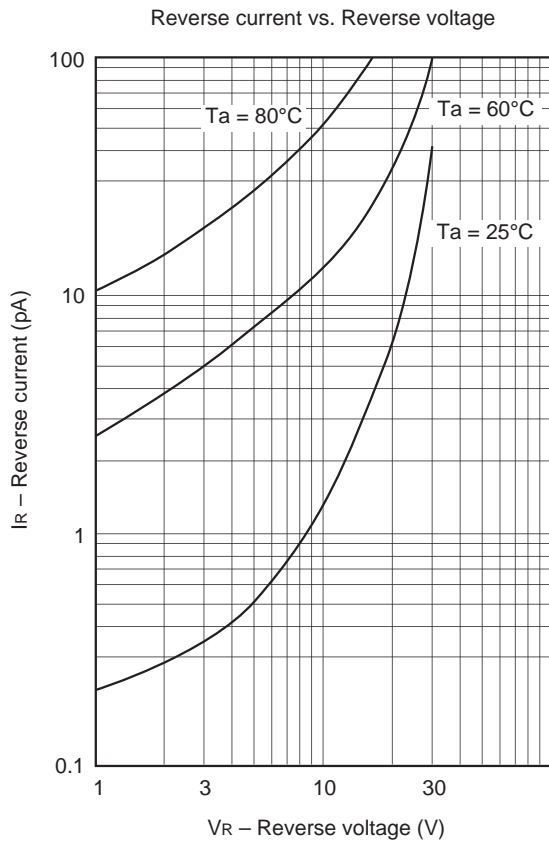
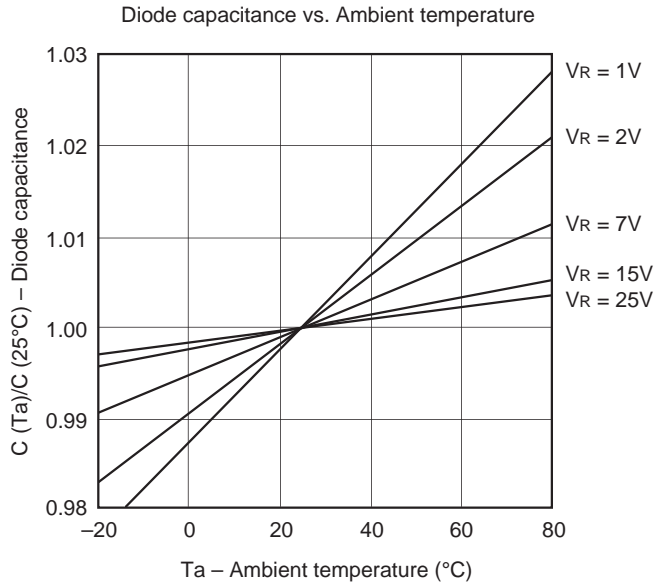
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse current	I <sub>R</sub>	V <sub>R</sub> =28 V			10	nA
Diode capacitance	C <sub>2</sub>	V <sub>R</sub> =2 V, f=1 MHz	29.50		35.50	pF
	C <sub>25</sub>	V <sub>R</sub> =25 V, f=1 MHz	2.53		2.93	pF
Capacitance ratio	C <sub>2</sub> /C <sub>25</sub>		11.0	11.7		
	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			0.75	Ω
Capacitance deviation in a matching group	ΔC	V <sub>R</sub> =2 to 25 V, f=1 MHz			2	%

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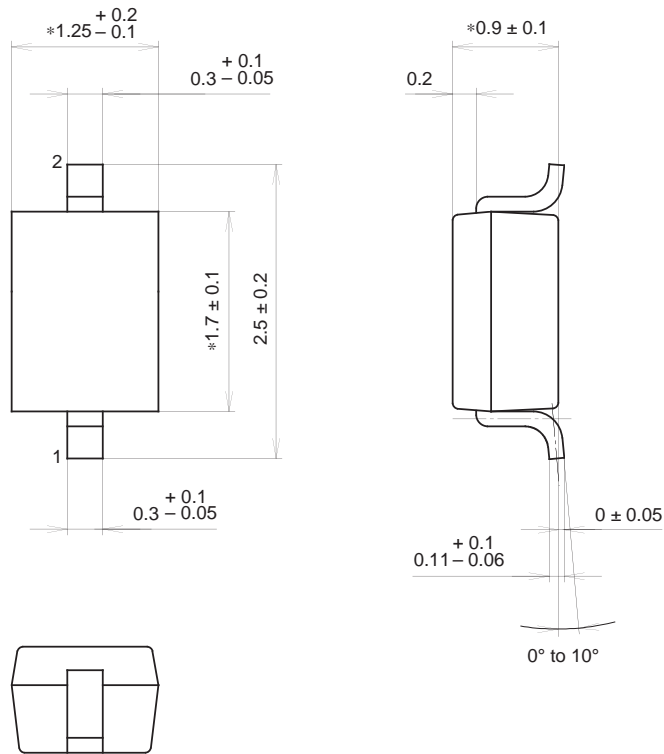
Example of Representative Characteristics





Package Outline Unit : mm

M-235

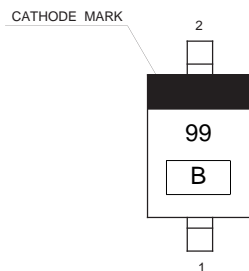


NOTE: Dimension "\*" does not include mold protrusion.

SONY CODE	M-235
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE WEIGHT	0.1g
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Marking



Notes

- 1) B: Lot No. (Year and Month of manufacture)  
 Year; Last one digit  
 Month; A, B, C (for Oct. to Dec.)  
 1 to 9 (for Jan. to Sept.)