

Variable Capacitance Diode

Description

The 1T368A is a variable capacitance diode designed for electronic tuning of wide-band CATV tuners using a super miniature package.

Features

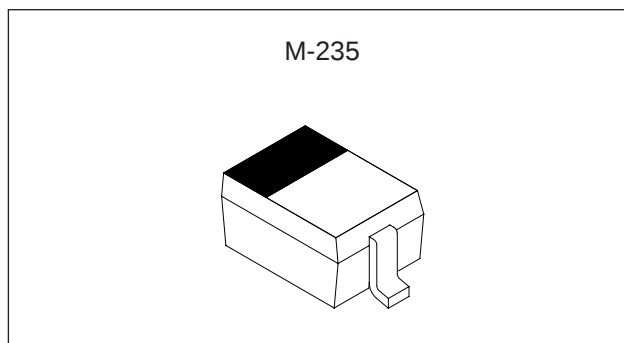
- Super miniature package
- Low series resistance: 0.75Ω Max. ($f = 470\text{MHz}$)
- Large capacitance ratio: 11.5 Typ. (C_2/C_{25})
- Small leakage current: 10nA Max. ($V_R = 28\text{V}$)
- Capacitance deviation in a matching group: within 2%

Applications

Electronic tuning of wide-band CATV tuners

Structure

Silicon epitaxial planar type diode



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 $+150$	$^\circ\text{C}$

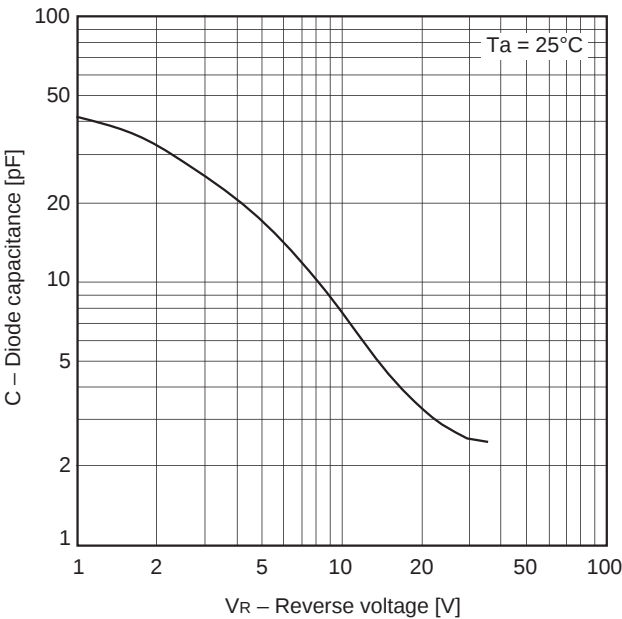
Electrical Characteristics

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

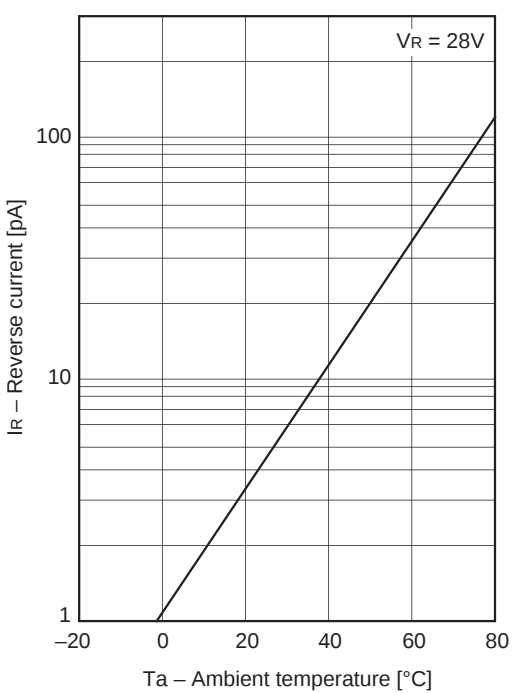
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse voltage	V_R	$I_R = 1\mu\text{A}$	34.0			V
Reverse current	I_R	$V_R = 28\text{V}$			10.0	nA
Diode capacitance	C_2	$V_R = 2\text{V}, f = 1\text{MHz}$	29.54		33.54	pF
	C_{25}	$V_R = 25\text{V}, f = 1\text{MHz}$	2.64		2.94	pF
Capacitance ratio	C_2/C_{25}		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	$V_R = 2$ to $25\text{V}, f = 1\text{MHz}$			2.0	%

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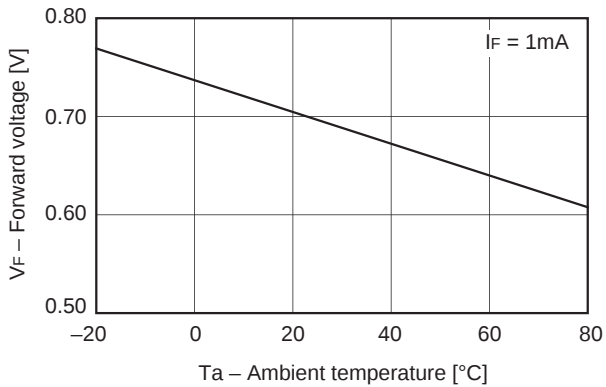
Diode capacitance vs. Reverse voltage



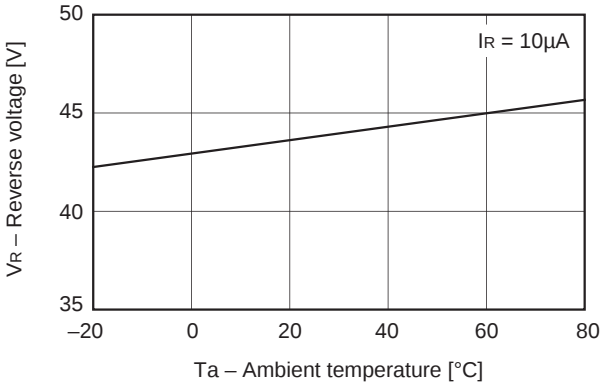
Reverse current vs. Ambient temperature



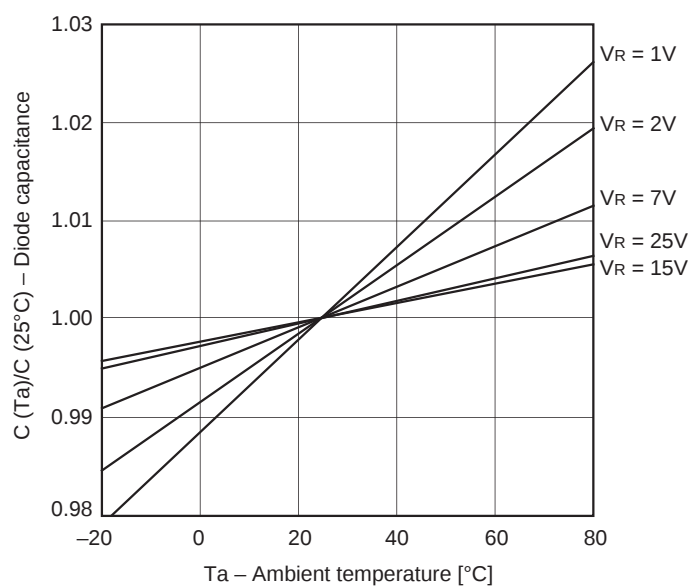
Forward voltage vs. Ambient temperature



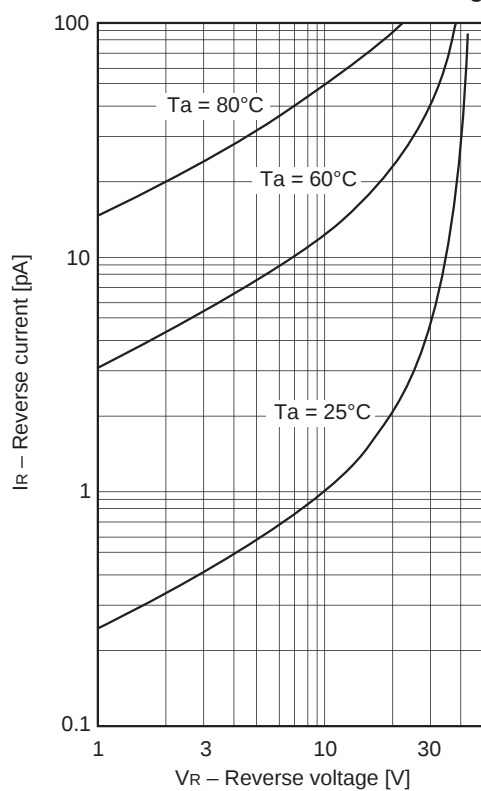
Reverse voltage vs. Ambient temperature



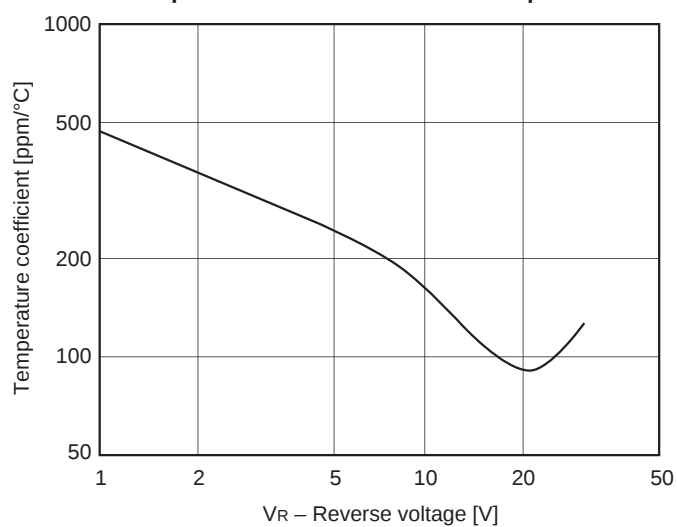
Diode capacitance vs. Ambient temperature



Reverse current vs. Reverse voltage



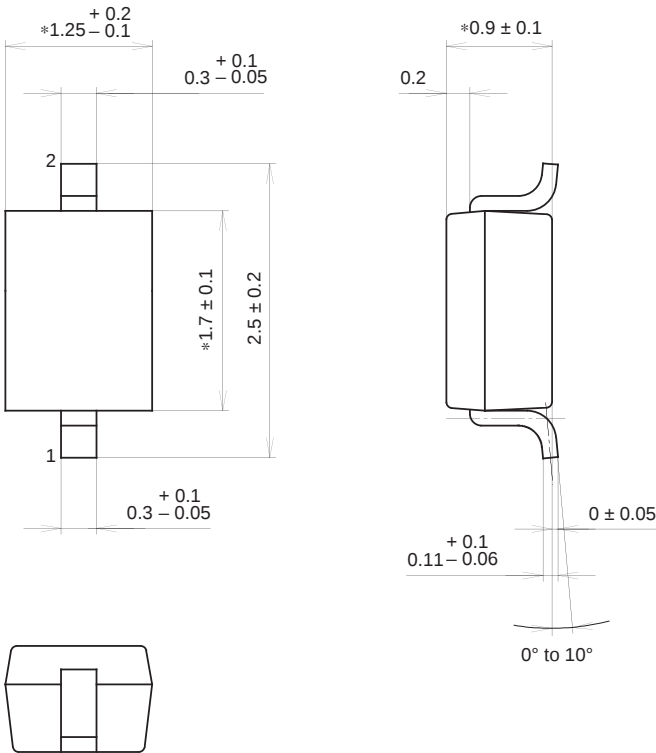
Temperature coefficient of diode capacitance



Package Outline

Unit: mm

M-235

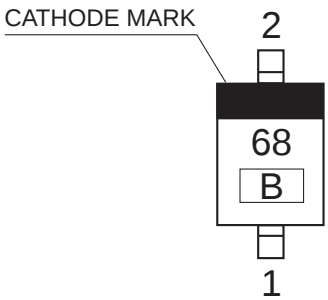


NOTE: Dimension "*" does not include mold protrusion.

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.)