

Variable Capacitance Diode

Description

The 1T378A is a variable capacitance diode designed for electronic tuning of wide-band CATV tuners, and the super miniature package allows the tuner miniaturization.

High capacitance ratio (C_{25}/C_{28}) is improved to support guard band.

Features

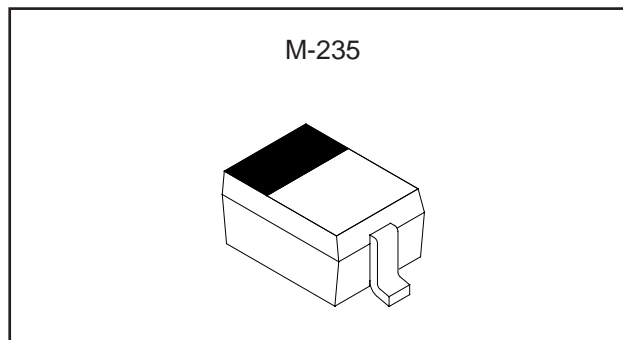
- Super miniature package
- Low series resistance 0.85 Ω Max. (f=470 MHz)
- Large capacitance ratio 12.5 Typ. (C_2/C_{25})
1.03 Min. (C_{25}/C_{28})
- Small leakage current 10 nA Max. ($V_R=28$ V)
- Capacitance deviation within 2 %

Applications

Electronic tuning of VHF band and wide-band CATV tuners

Structure

Silicon epitaxial planar type diode



Absolute Maximum Ratings (Ta=25 °C)

- | | | | |
|-------------------------|-----------|-------------|----|
| • Reverse voltage | V_R | 34 | V |
| • Operating temperature | T_{opr} | -20 to +75 | °C |
| • Storage temperature | T_{stg} | -65 to +150 | °C |

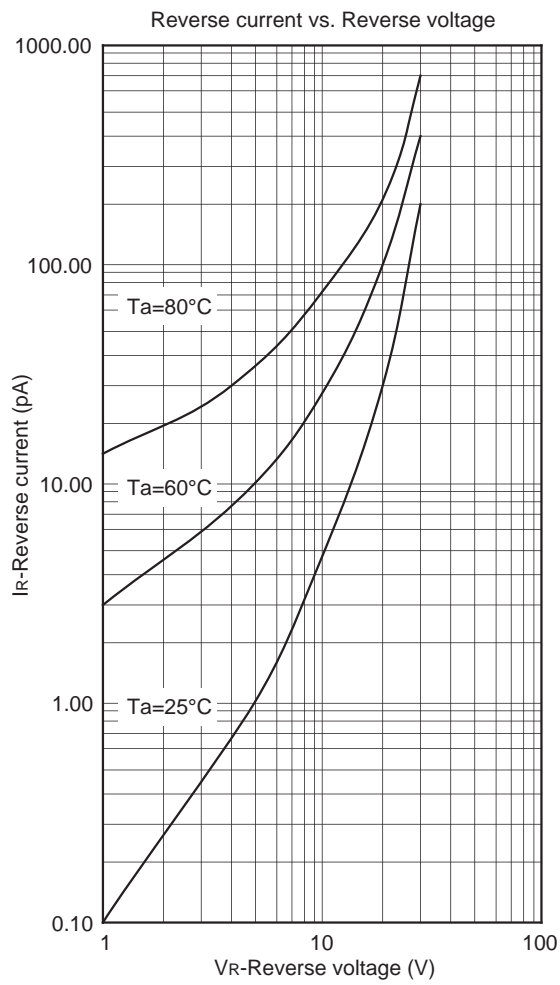
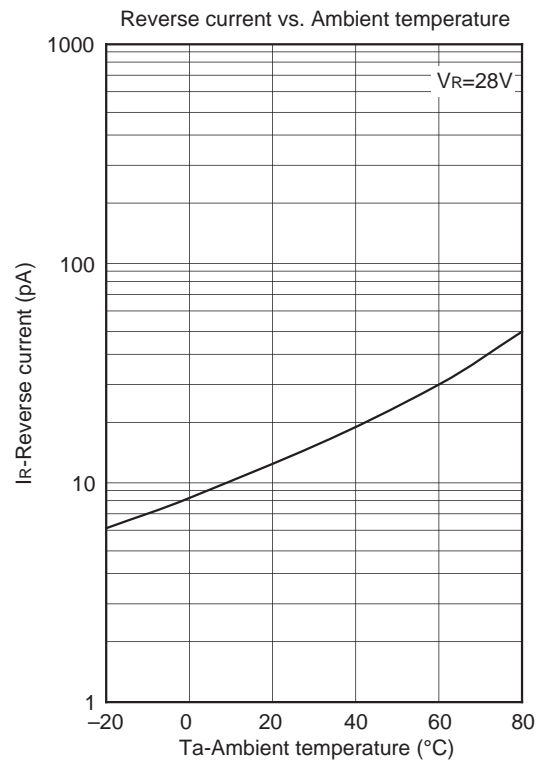
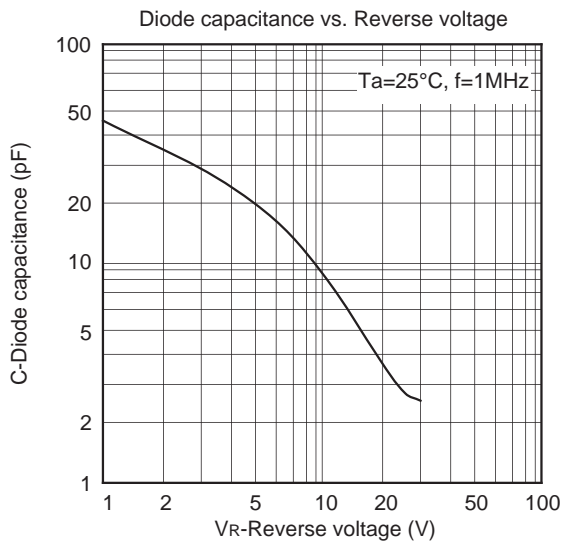
Electrical Characteristics

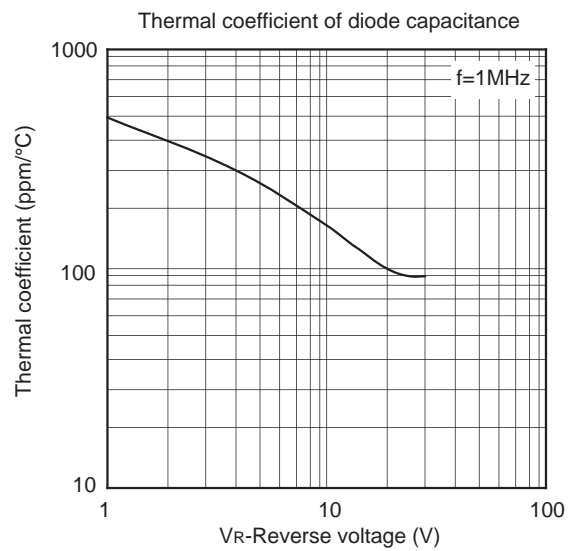
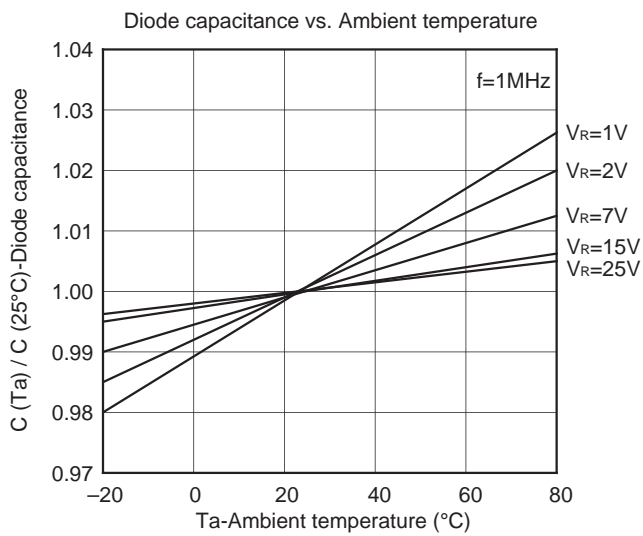
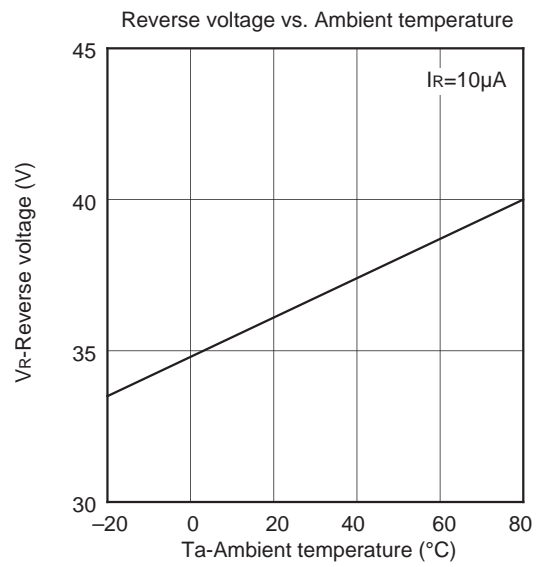
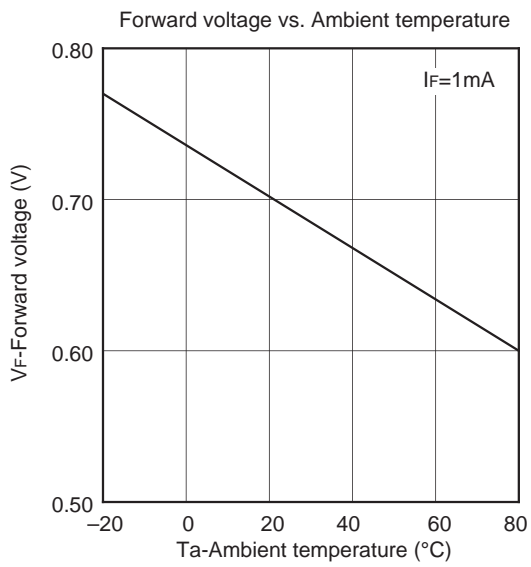
(Ta=25 °C)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse current	I_R	$V_R=28$ V			10	nA
Reverse voltage	V_R	$I_R=1$ μ A	34			V
Diode capacitance	C_2	$V_R=2$ V, f=1 MHz	33.0		39.0	pF
	C_{25}	$V_R=25$ V, f=1 MHz	2.57		3.00	pF
Capacitance ratio	C_2/C_{25}		12.0	12.5		
	C_{25}/C_{28}		1.03			
Series resistance	r_s	$C_D=14$ pF, f=470 MHz			0.85	Ω
Capacitance deviation in a matching group	ΔC	$V_R=2$ to 25 V, f=1 MHz			2	%

The continuous 20 pieces of ΔC are guaranteed.

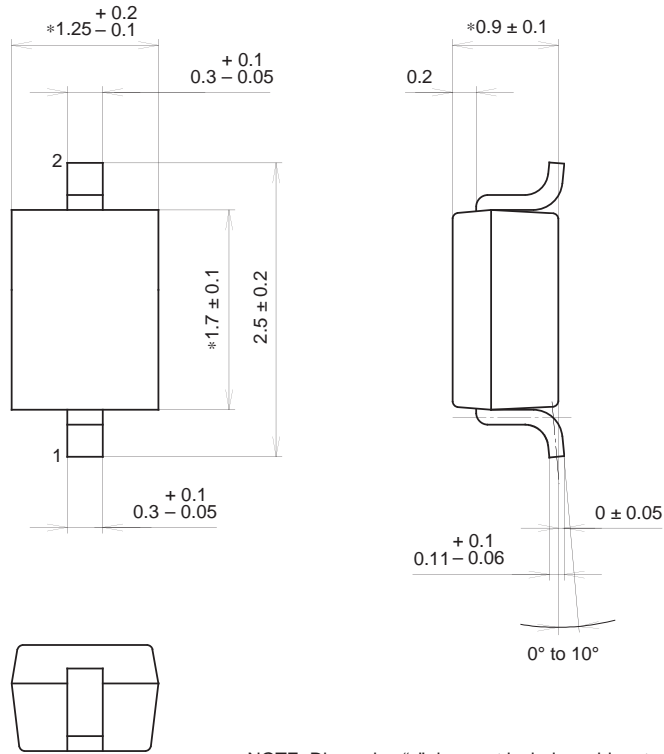
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Package Outline Unit : mm

M-235

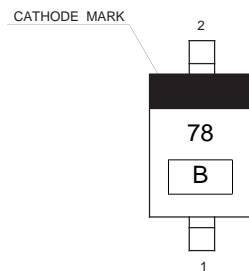


NOTE: Dimension "*" does not include mold protrusion.

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.)