

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

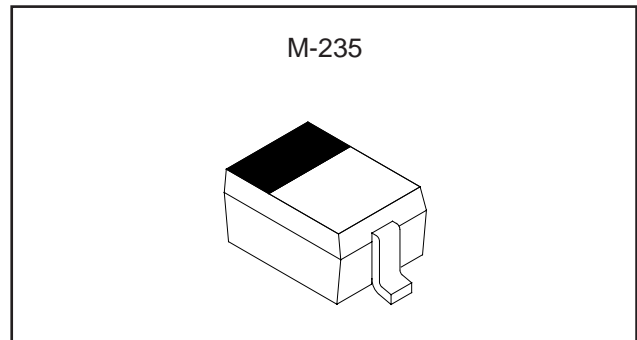
- Super miniature package
- Low series resistance 0.85 Ω Max. (f=470 MHz)
- Large capacitance ratio 12.5 Typ. (C_2/C_{25})
1.03 Min. (C_{25}/C_{28})
- Small leakage current 10 nA Max. ($V_R=28$ V)
- Capacitance deviation within 2 %

Applications

Electronic tuning of VHF band and wide-band CATV tuners

Structure

Silicon epitaxial planar type diode



Absolute Maximum Ratings ($T_a=25$ °C)

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

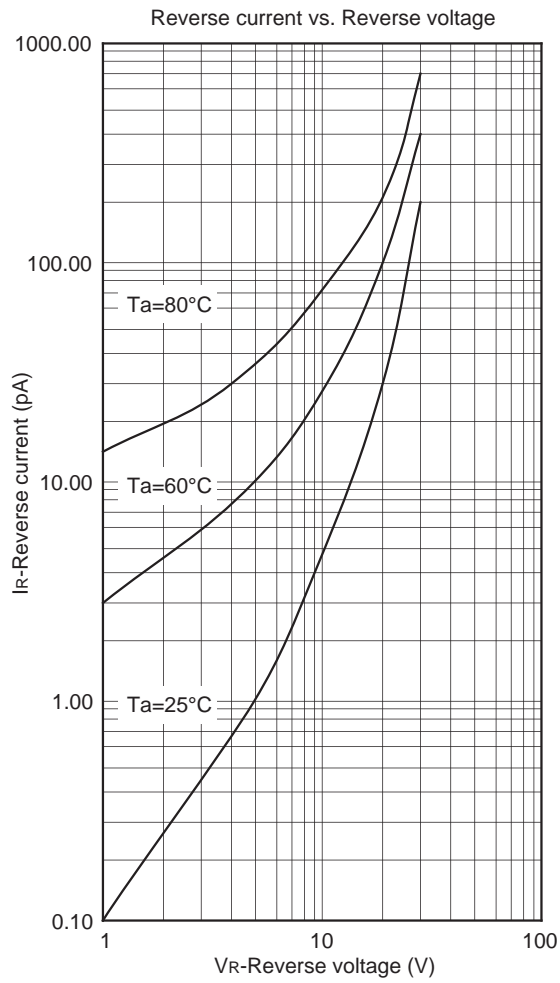
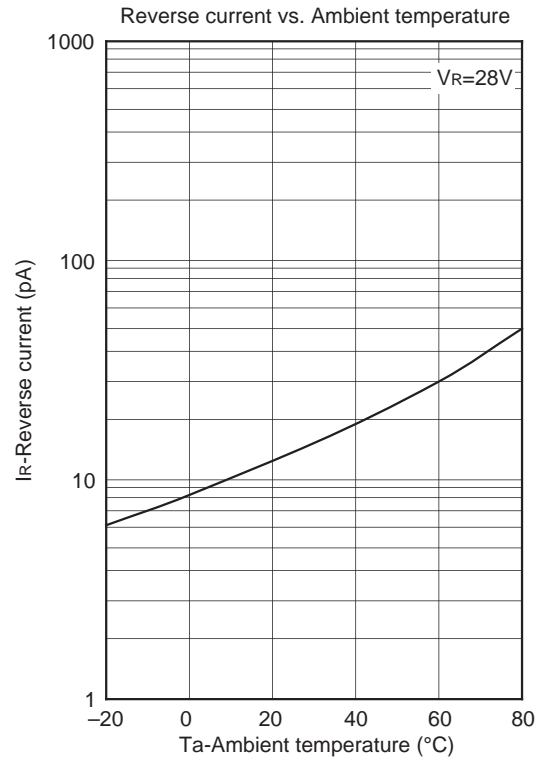
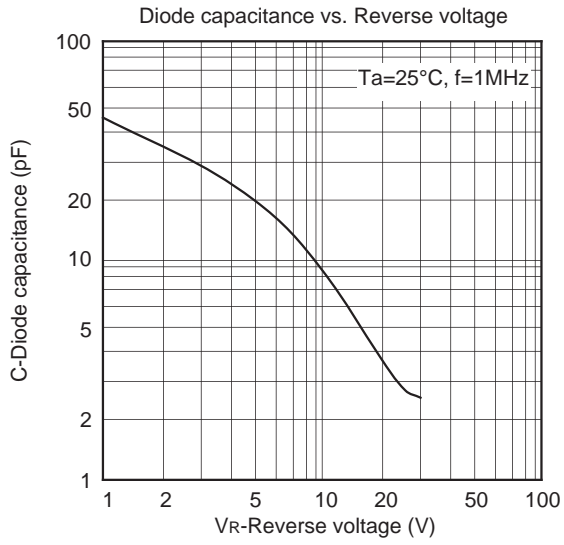
Electrical Characteristics

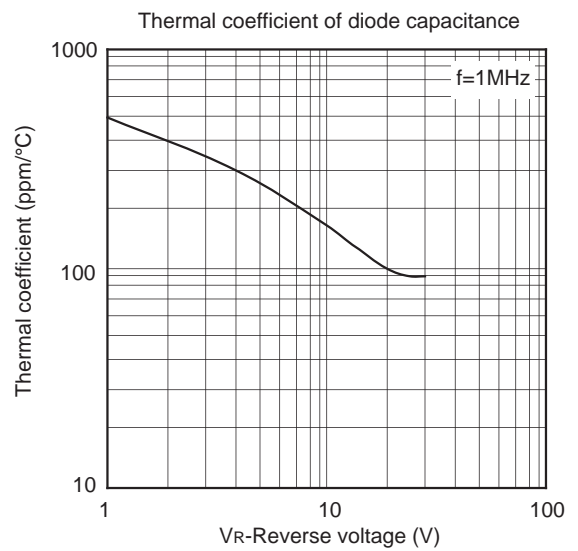
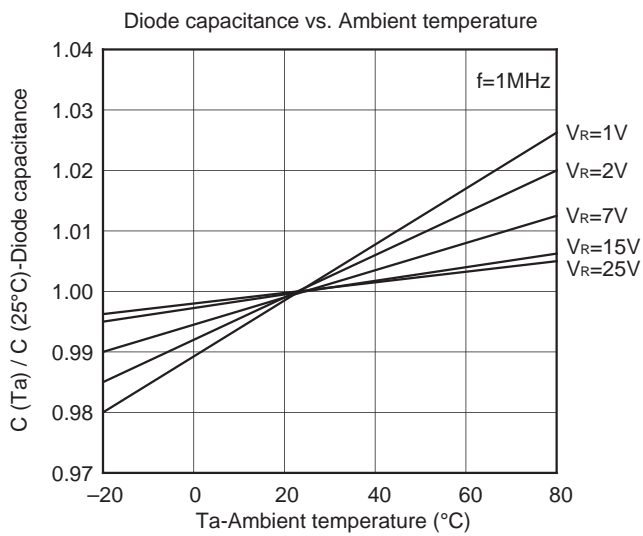
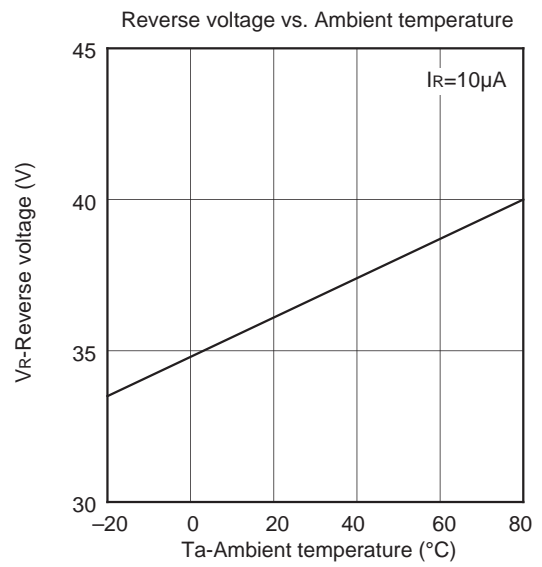
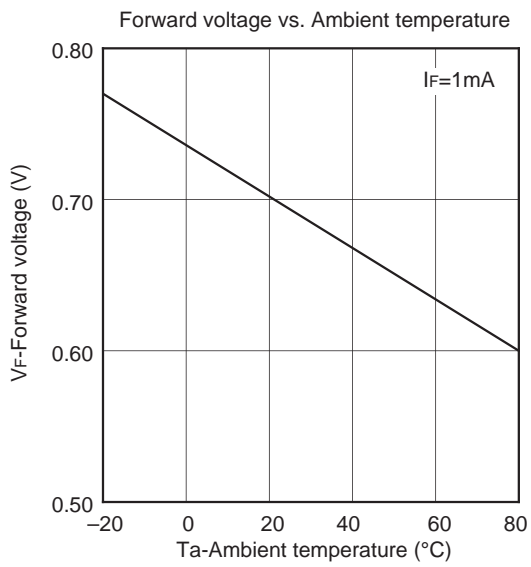
($T_a=25$ °C)

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.

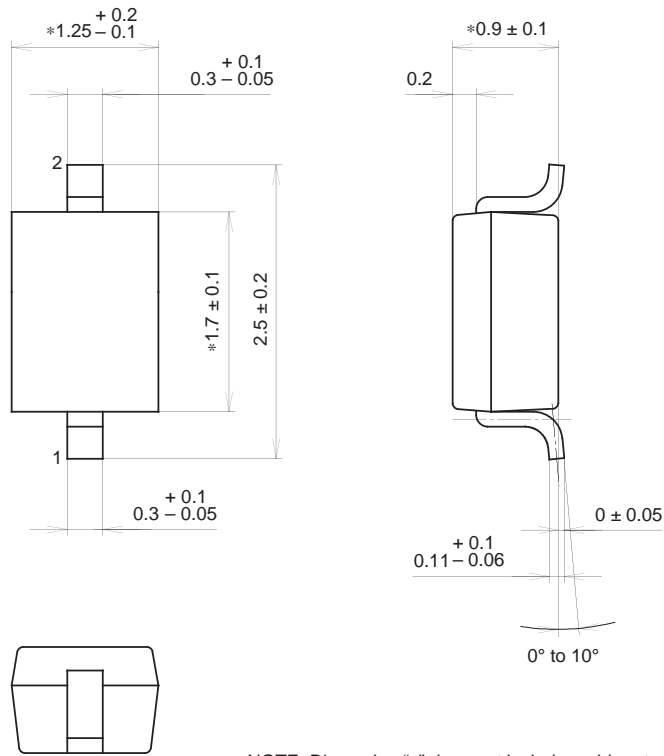
Sony reserves the right to change products and specifications without prior notice. This information does not convey any license by any implication or otherwise under any patents or other right. Application circuits shown, if any, are typical examples illustrating the operation of the devices. Sony cannot assume responsibility for any problems arising out of the use of these circuits.





Package Outline Unit : mm

M-235

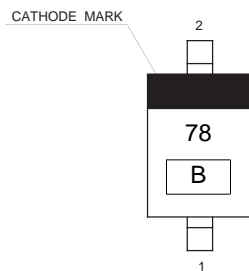


NOTE: Dimension "*" does not include mold protrusion.

SONY CODE	M-235
EIAJ CODE	_____
JEDEC CODE	_____

PACKAGE WEIGHT	0.1g
----------------	------

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.)