

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

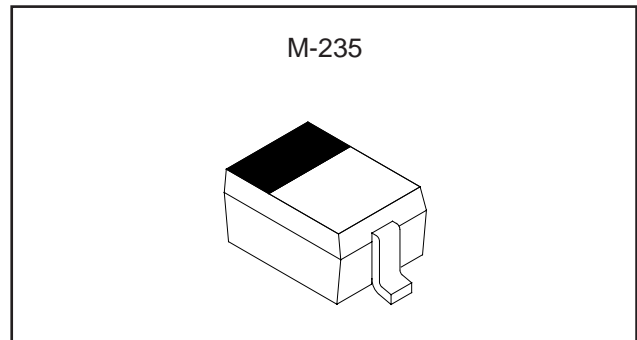
- Super miniature package
- Low series resistance 0.85  $\Omega$  Max. (f=470 MHz)
- Large capacitance ratio 12.5 Typ. ( $C_2/C_{25}$ )  
1.03 Min. ( $C_{25}/C_{28}$ )
- Small leakage current 10 nA Max. ( $V_R=28$  V)
- Capacitance deviation within 2 %

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

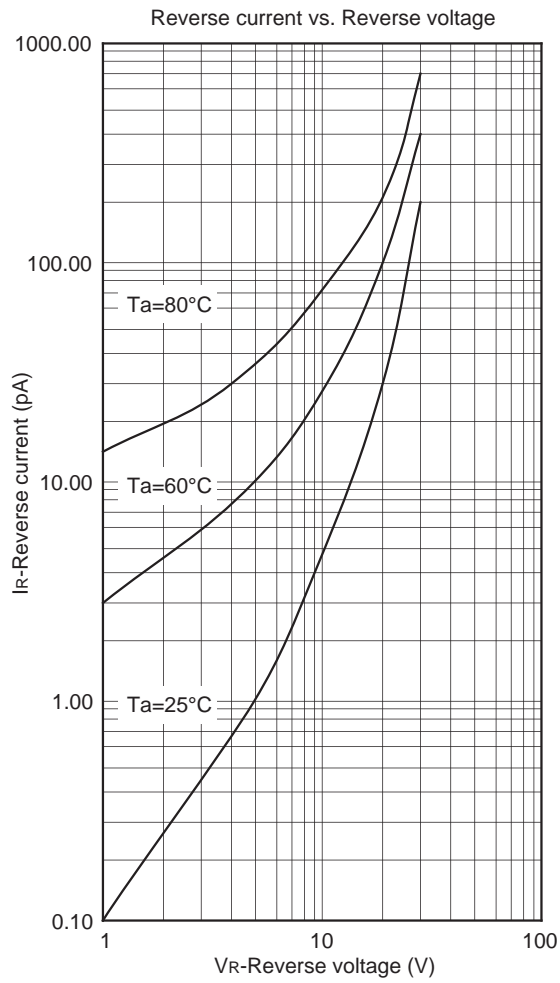
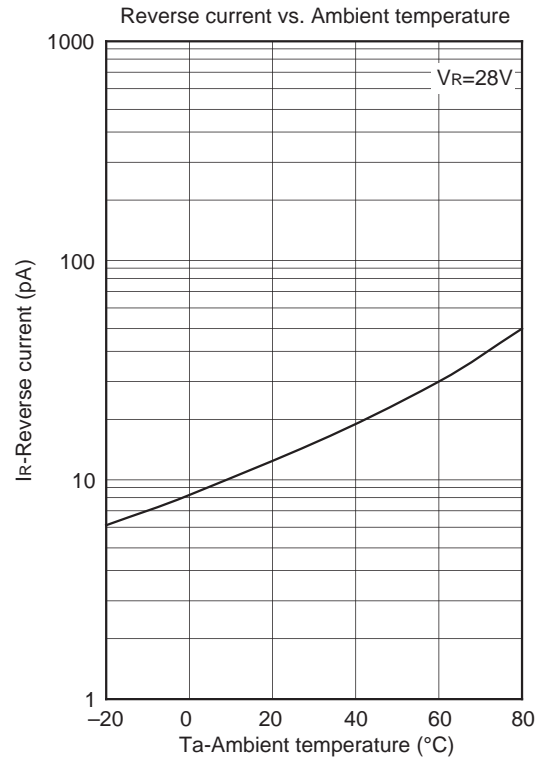
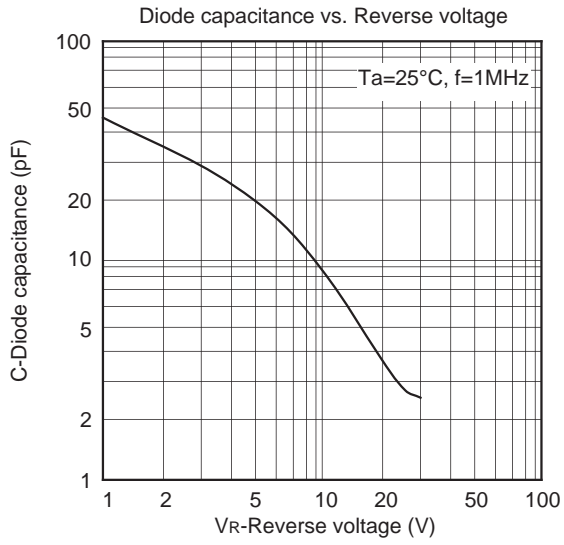
Electrical Characteristics

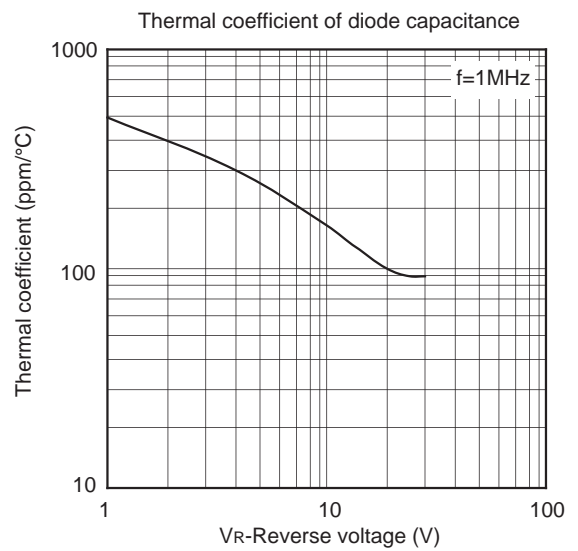
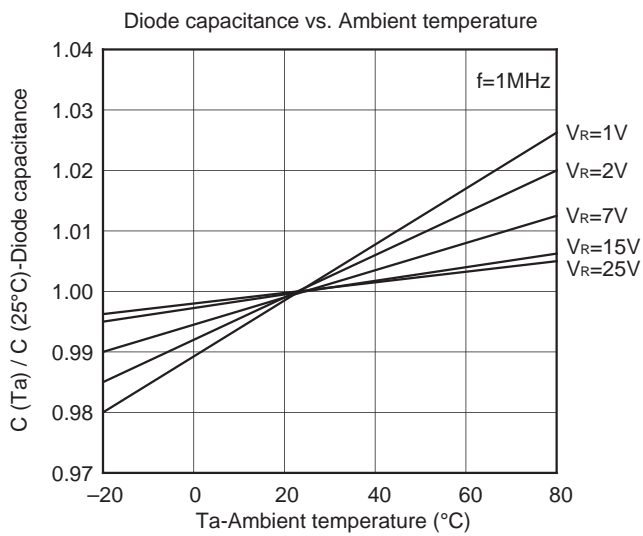
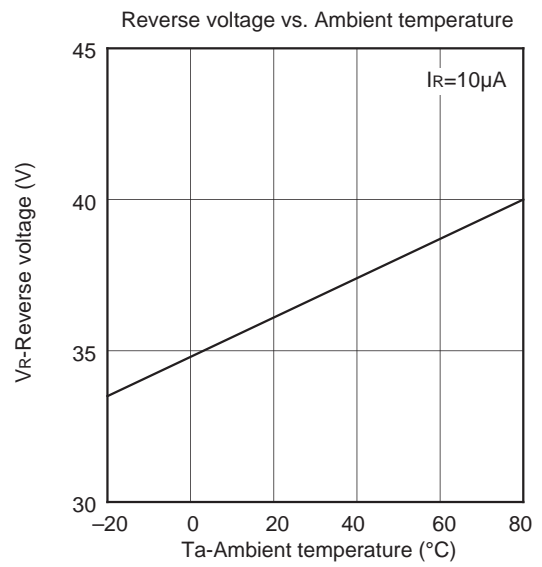
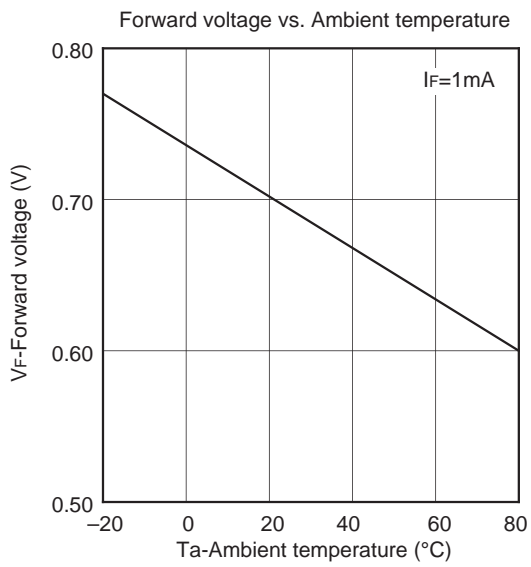
( $T_a=25$  °C)

Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse current	$I_R$	$V_R=28$ V			10	nA
Reverse voltage	$V_R$	$I_R=1$ $\mu$ 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	$\Omega$
Capacitance deviation in a matching group	$\Delta C$	$V_R=2$ to 25 V, f=1 MHz			2	%

The continuous 20 pieces of  $\Delta C$  are guaranteed.

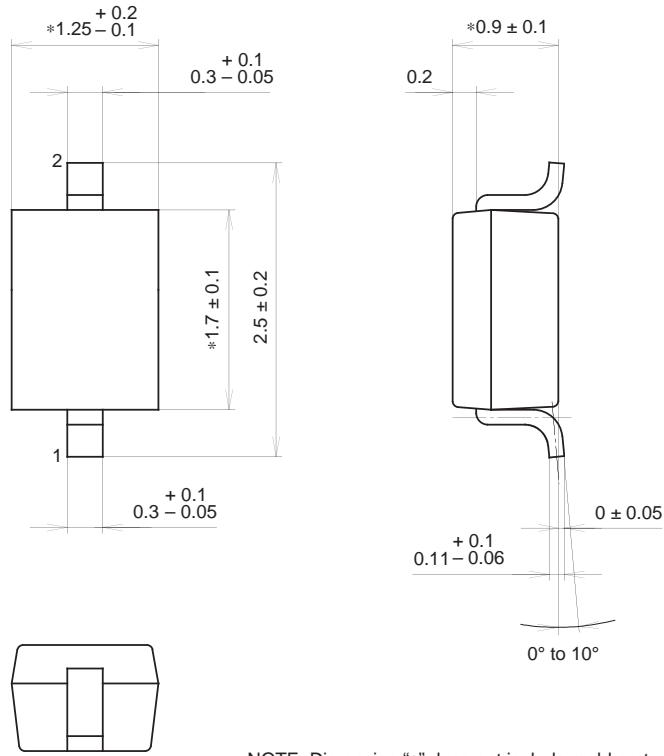
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Package Outline Unit : mm

M-235

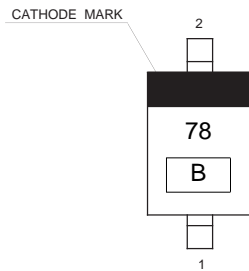


NOTE: Dimension "\*" does not include mold protrusion.

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.)



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