SONY

1T33/1T33A

Silicon Variable Capacitance Diode

Description

The 1T33/1T33A is a variable capacitance diode designed for use in electric tuning for CATV tuner which make their packages more compact so as to match tuner minituarization easily, keeping excellent characteristics of former 1T31 type.

Features

- Compact package
- Low serial resistance 0.8 Ω Typ. (f = 470 MHz)
- Large capacitance ratio 10 Min. (C_2/C_{25})
- Small leakage current 10 nA Max. (V_R = 28V)
- 1T33(A)-T7, 1T33(A)-T8 is for taping.

Structure

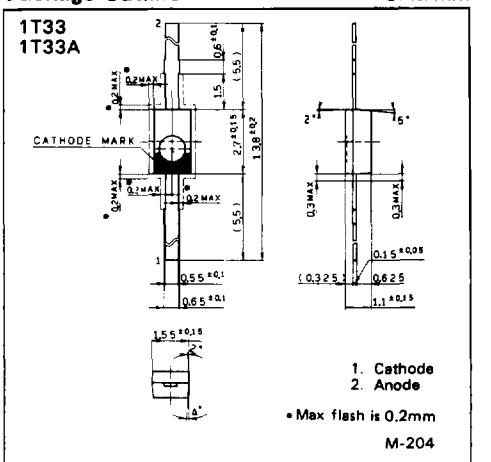
Silicon epitaxial planar type diode

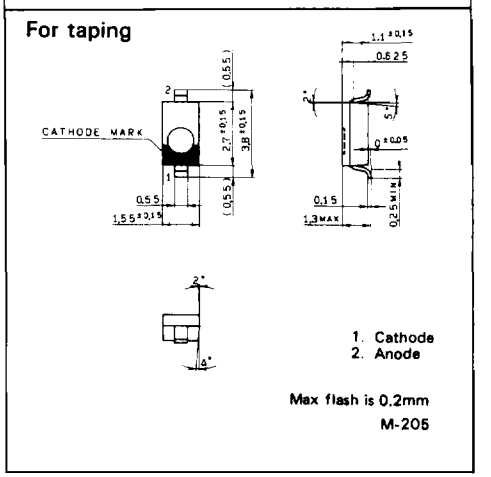
Application

Electric tuning for TV or CATV

Package Outline

Unit: mm





Absolute Maximum Ratings (Ta = 25°C)

• Reverse voltage	V_R	30	V	
• Peak reverse voltage	V_{RM}	35	V	($R_L \geqq 10\,k\Omega$)
• Operating temperature	Topr	85	°C	
• Storage temperature	Tstg	−30 to +120	°C	

71019-TO

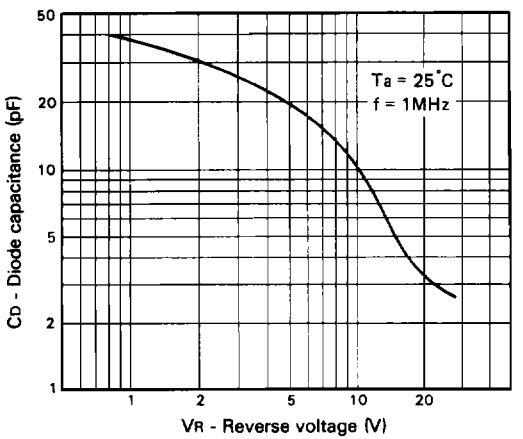
Electrical Characteristics

Ta = 25°C

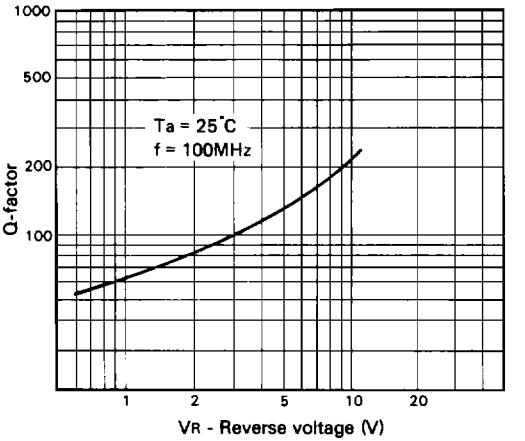
Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse current	I_R	V_R = 28V			10	nA
Diode capacitance	C_2	V_R = 2V, f = 1 MHz	27.19		32.03	pF
	C_{25}	V_R = 25V, f = 1 MHz	2.71		3.04	pF
Serial resistance	rs	C_D = 14pF, f = 470 MHz		0.7	0.8	Ω
Maximum-capacitance deviation in the same ranking*	ΔC	V_R = 2 to 25V, f = 1 MHz			3 (1T33) 2 (1T33A)	%

***Note)** Applied only to tuning.

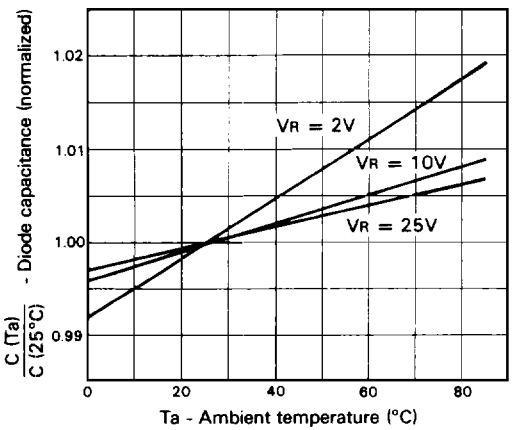
Diode capacitance vs. Reverse voltage



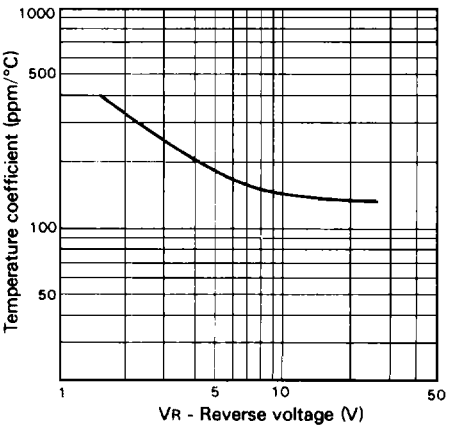
Q-factor vs. Reverse voltage



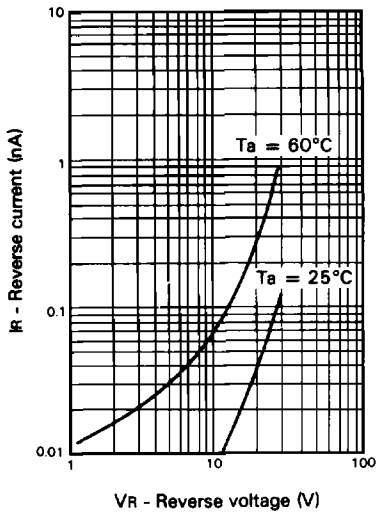
Diode capacitance vs. Ambient temperature



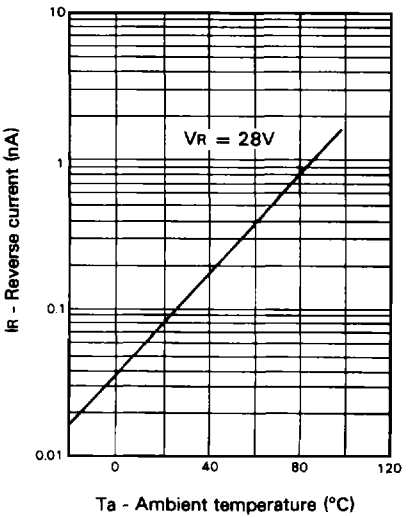
Temperature coefficient of the diode capacitance



Reverse current vs. Reverse voltage



Reverse current vs. Ambient temperature



Reverse breakdown voltage vs. Ambient temperature