

**SONY.****1T33/1T33A****Silicon Variable Capacitance Diode***T-07-19***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<sub>s</sub>/C<sub>sd</sub>)
- Small leakage current 10 nA Max. (VR = 28V)
- 1T33(A)-T7, 1T33(A)-T8 is for taping.

**Structure**

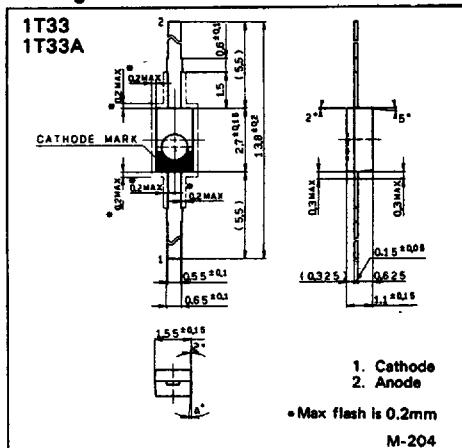
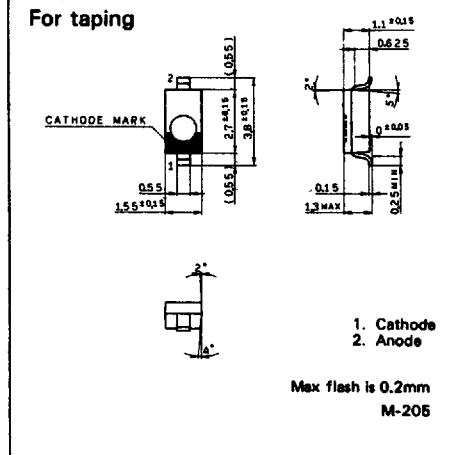
Silicon epitaxial planar type diode

**Application**

Electric tuning for TV or CATV

**Package Outline**

Unit: mm

**For taping****Absolute Maximum Ratings (Ta = 25°C)**

• Reverse voltage	VR	30	V
• Peak reverse voltage	VRM	35	V (RL ≥ 10 kΩ)
• Operating temperature	Topr	85	°C
• Storage temperature	Tstg	-30 to +120	°C

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1T33/1T33A

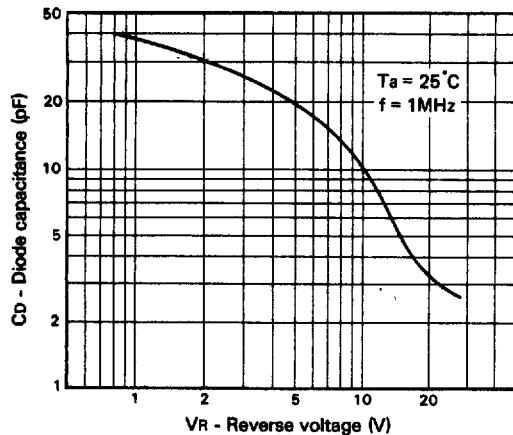
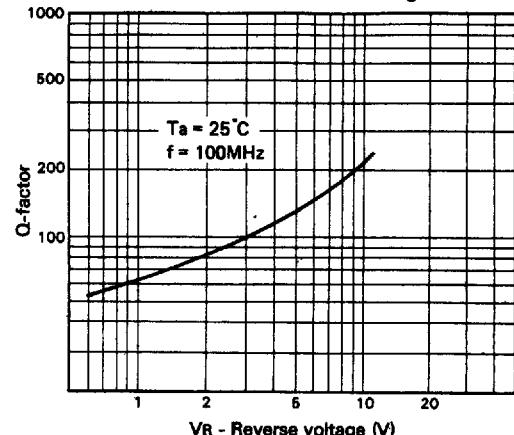
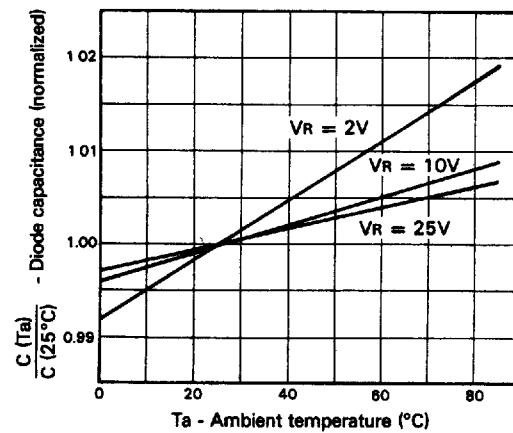
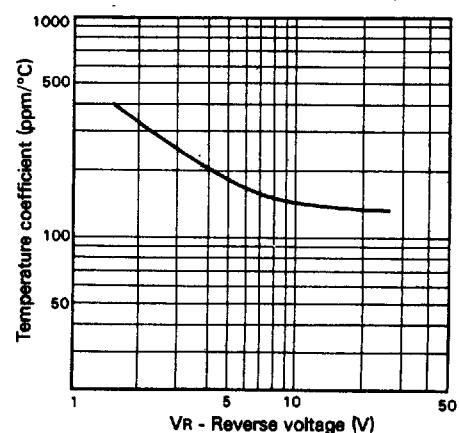
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**Electrical Characteristics**

Ta = 25°C

Item	Symbol	Condition	Min.	Typ.	Max.	Unit
Reverse current	IR	VR = 28V			10	nA
Diode capacitance	C <sub>2</sub>	VR = 2V, f = 1 MHz	27.19		32.03	pF
	C <sub>25</sub>	VR = 25V, f = 1 MHz	2.71		3.04	pF
Serial resistance	r <sub>s</sub>	CD = 14pF, f = 470 MHz		0.7	0.8	Ω
Maximum-capacitance deviation in the same ranking*	ΔC	VR = 2 to 25V, f = 1 MHz			3 (1T33) 2 (1T33A)	%

\*Note) Applied only to tuning.

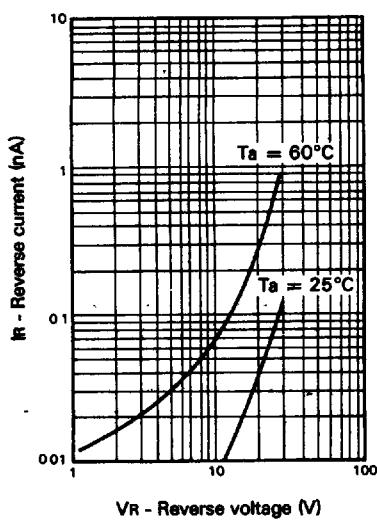
**Diode capacitance vs. Reverse voltage****Q-factor vs. Reverse voltage****Diode capacitance vs. Ambient temperature****Temperature coefficient of the diode capacitance**

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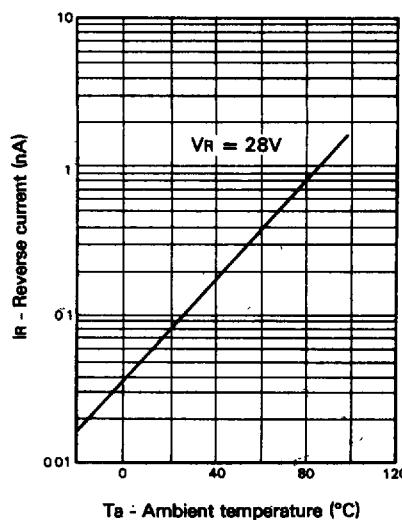
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Reverse current vs. Reverse voltage



Reverse current vs. Ambient temperature



Reverse breakdown voltage vs. Ambient temperature

