SONY

1T417

Variable Capacitance Diode

Description

The 1T417 is a variable capacitance diode designed for electronic tuning of BS/CS tuners using a super-small-miniature flat package (SSVC).

Features

- Super-small-miniature flat package
- Low series resistance: 1.5 Ω Max. (f=470 MHz)
- Large capacitance ratio: 15.5 Typ. (C_1/C_{25})
- Small leakage current: 10 nA Max. (V_R=25 V)
- Capacitance deviation in a matching group: within 6 %

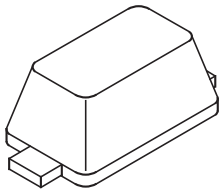
Applications

Electronic tuning of BS/CS tuners

Structure

Silicon epitaxial planar type diode

M-290



Absolute Maximum Ratings (Ta=25 °C)

• Reverse voltage	V_R	30	V
• Peak reverse voltage	V_{RM}	35	V
		(RL ≥ 10 kΩ)	
• Operating temperature	Topr	–20 to +75	°C
• Storage temperature	Tstg	–65 to +150	°C

Electrical Characteristics (Ta=25 °C)

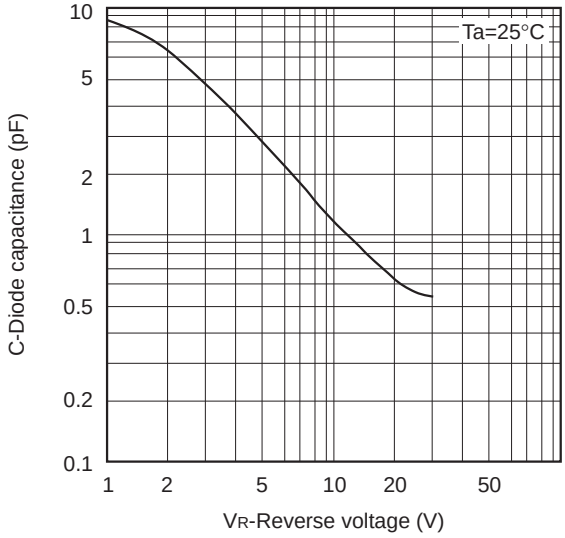
Item	Symbol	Conditions	Min.	Typ.	Max.	Unit
Reverse current	I_R	V_R=25 V			10	nA
Reverse voltage	V_R	I_R=1 µA	30			V
Diode capacitance	C_1	V_R=1 V, f=1 MHz	7.8	8.6	9.4	pF
	C_{25}	V_R=25 V, f=1 MHz	0.5		0.6	pF
Capacitance ratio	C_1/C_{25}		13.0	15.5		
Series resistance	rs	V_R=5 V, f=470 MHz		1.30	1.50	Ω
Capacitance deviation in a matching group	ΔC	V_R=1 to 25 V, f=1 MHz			6.0	%

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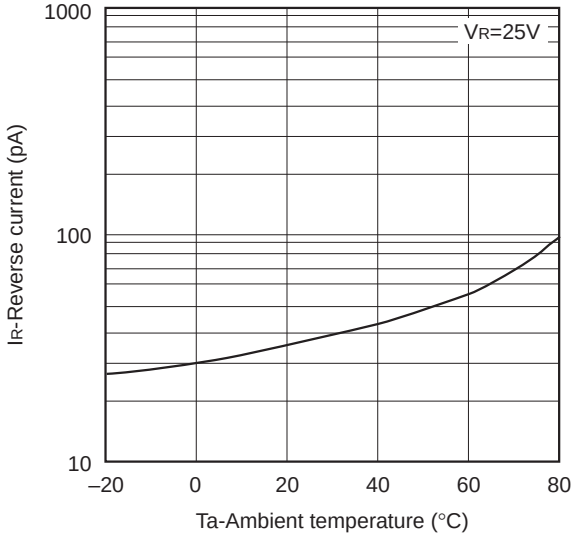
E98905-TE

Example of Representative Characteristics

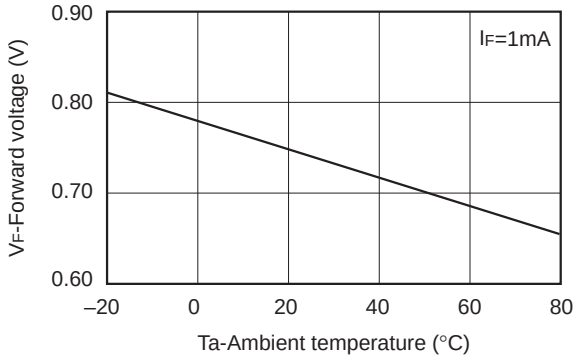
Diode capacitance vs. Reverse voltage



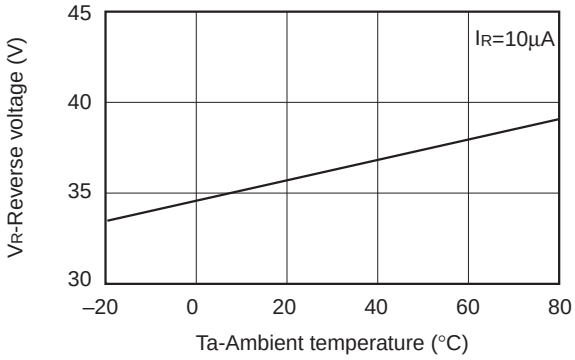
Reverse current vs. Ambient temperature



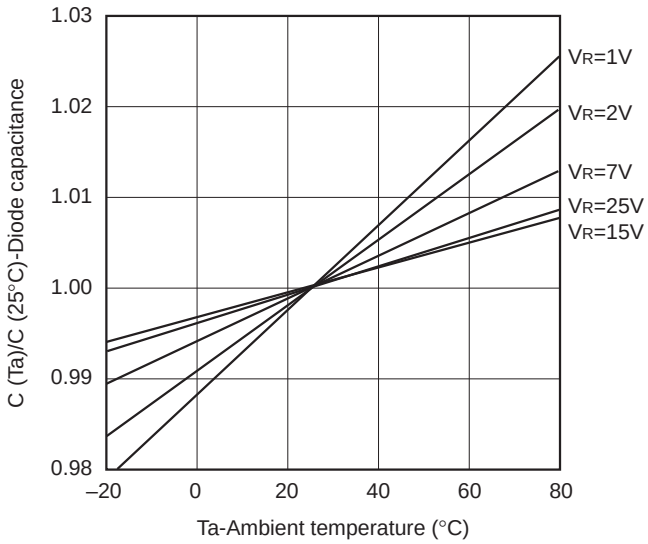
Forward voltage vs. Ambient temperature



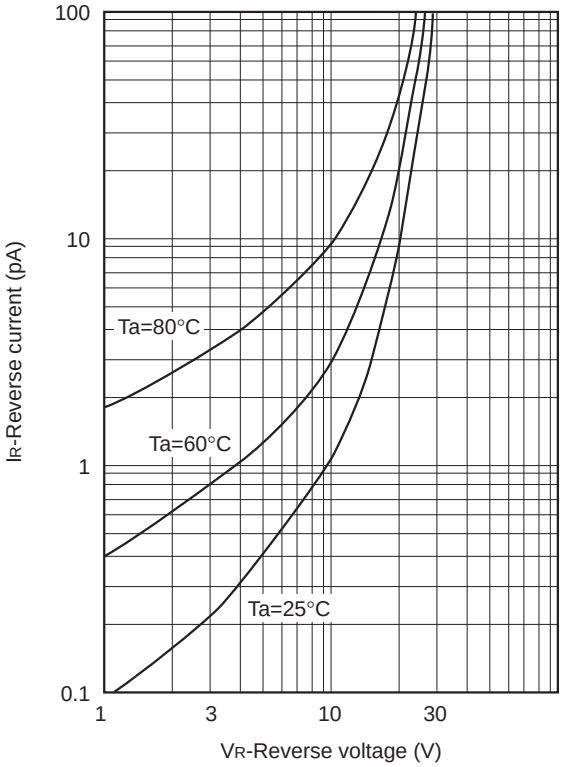
Reverse voltage vs. Ambient temperature



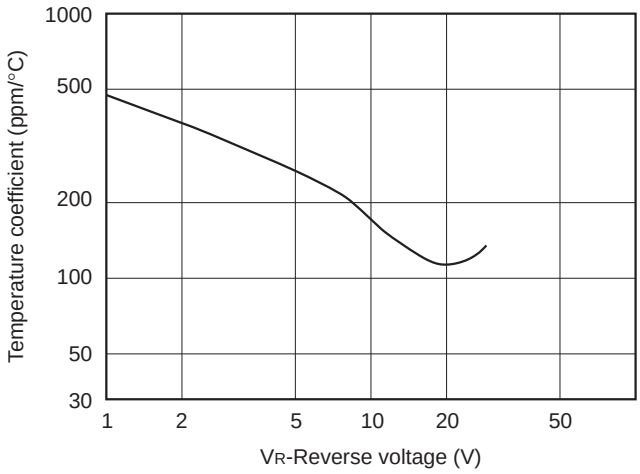
Diode capacitance vs. Ambient temperature



Reverse current vs. Reverse voltage

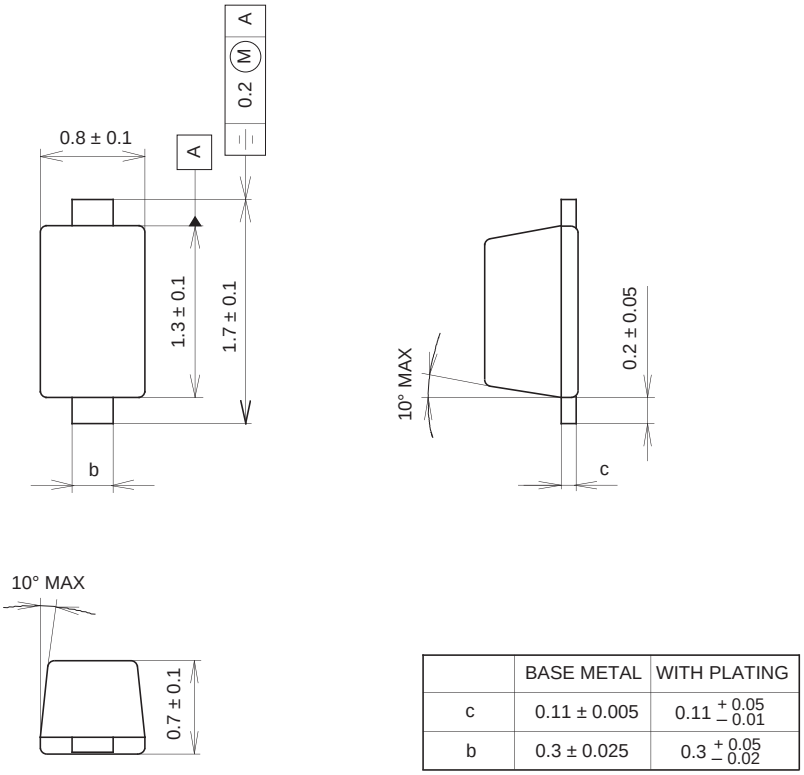


Temperature coefficient of diode capacitance



Package Outline Unit : mm

M-290

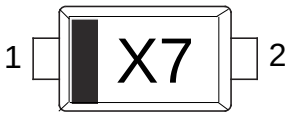


	BASE METAL	WITH PLATING
c	0.11 ± 0.005	$0.11^{+0.05}_{-0.01}$
b	0.3 ± 0.025	$0.3^{+0.05}_{-0.02}$

SONY CODE	M-290
EIAJ CODE	————
JEDEC CODE	————

PACKAGE MATERIAL	EPOXY RESIN
LEAD TREATMENT	SOLDER PLATING
LEAD MATERIAL	COPPER
PACKAGE WEIGHT	0.002g

Mark



1 : Cathode
2 : Anode