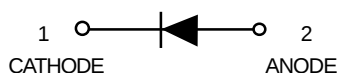


Silicon Variable Capacitance Diode

- For UHF and TV/TR tuners
- Large capacitance ratio, low series resistance



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CASE 477- 02, STYLE 1
SOD- 323

MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Diode Reverse Voltage	V_R	30	V
Peak reverse voltage ($R \geq 5k\Omega$)	V_{RM}	35	V
Forward Current	I_F	20	mA
Operating temperature range	T_{op}	- 55 ~ + 125	°C
Storage temperature	T_{stg}	- 55 ... + 150	°C

THERMAL RESISTANCE

Parameter	Symbol	Value	Unit
Junction - ambient	R_{thJA}	≤ 450	K/W

DC CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse current	I_R				nA
$V_R = 30 \text{ V}, T_A = 25 \text{ }^\circ\text{C}$		—	—	10	
$V_R = 30 \text{ V}, T_A = 85 \text{ }^\circ\text{C}$		—	—	200	

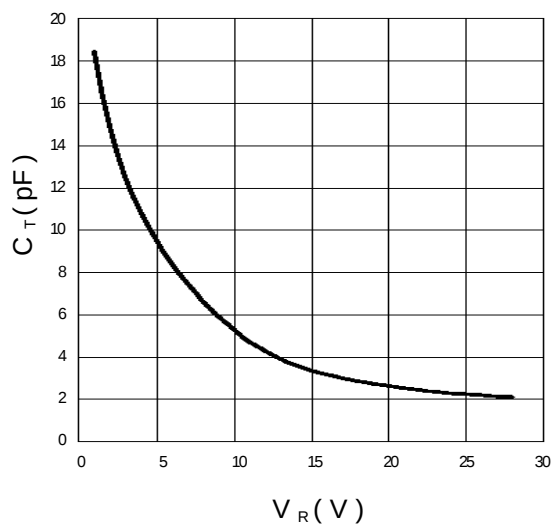
AC CHARACTERISTICS

Diode capacitance	C_T				pF
$V_R = 1 \text{ V}, f = 1 \text{ MHz}$		17.5	18.7	20	
$V_R = 2 \text{ V}, f = 1 \text{ MHz}$		14.01	15	16.1	
$V_R = 25 \text{ V}, f = 1 \text{ MHz}$		2.05	2.24	2.4	
$V_R = 28 \text{ V}, f = 1 \text{ MHz}$		1.9	2.1	2.3	
Capacitance ratio	C_{T2} / C_{T25}				—
$V_R = 2 \text{ V}, V_R = 25 \text{ V}, f = 1 \text{ MHz}$		6	6.7	7.5	
Capacitance ratio	C_{T1} / C_{T28}				—
$V_R = 1 \text{ V}, V_R = 28 \text{ V}, f = 1 \text{ MHz}$		8.2	8.9	9.8	
Capacitance matching	$\Delta C_T / C_T$				%
$V_R = 1 \dots 28 \text{ V}, f = 1 \text{ MHz}$		—	—	2.5	
Series resistance	r_s				Ω
$V_R = 3 \text{ V}, f = 470 \text{ MHz}$		—	0.55	0.65	
Series inductance	L_s				nH
		—	2	—	

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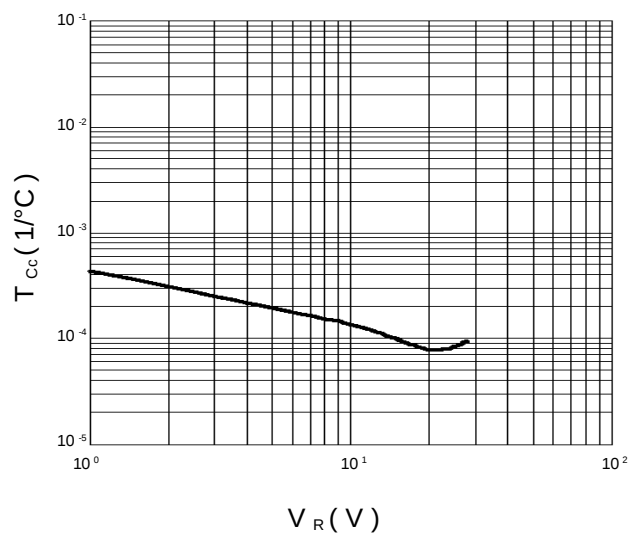
Diode capacitance

$$C_T = f(V_R) \quad f = 1\text{MHz}$$



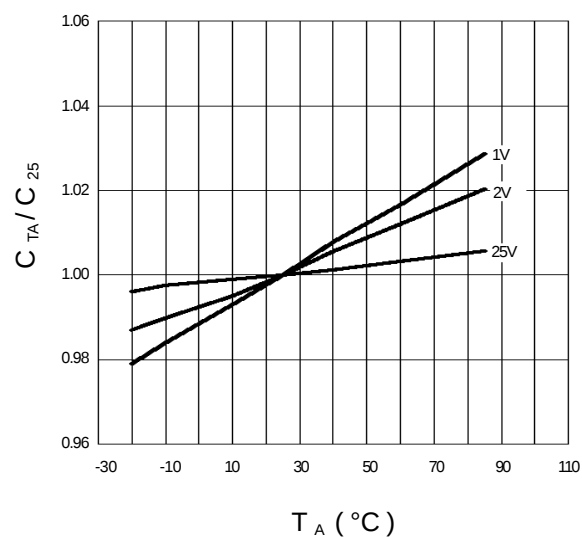
Temperature coefficient of the diode capacitance

$$T_{Cc} = f(V_R) \quad f = 1\text{MHz}$$



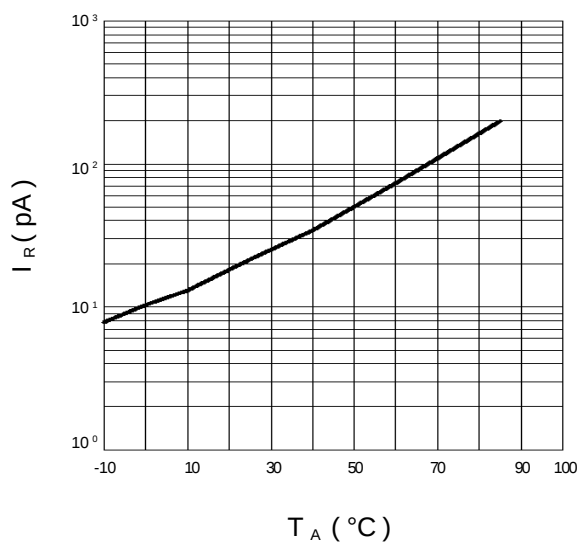
Normalized diode capacitance

$$C(T_A) / C(25^\circ\text{C}) = f(T_A), \quad f = 1\text{MHz}, \quad V_R = \text{Parameter}$$



Reverse current

$$I_R = f(T_A), \quad V_R = 28\text{V}$$



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Reverse current

$I_R = f(V_R), T_A = \text{Parameter}$

