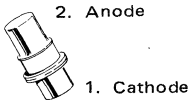
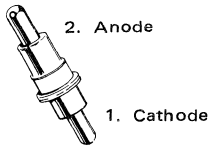
1N5150A (SILICON)
1N5153A
1N5155A

Silicon high-frequency step-recovery power varactor devices optimized for critical multiplier applications requiring tight control of junction capacitance and power dissipation.



CASE 46

1N5155A



CASE 47

1N5150A
1N5153A

MAXIMUM RATINGS

Rating	Symbol	1N5150A	1N5153A	1N5155A	Unit
Reverse Voltage	V_R	80	75	35	Vdc
Forward Current	I_F	1000	250	200	mAdc
RF Power Input	P_{in}	40	15	7.0	Watts
Total Device Dissipation @ T_C = 25°C	P_D	29.2	11.7	8.75	Watts
Derate above 25°C		167	66.7	50	mW/°C
Operating and Storage Junction Temperature Range	T_J, T_{stg}	← -65 to +200 →			°C

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristics		Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage (I_R = 10 μAdc)	1N5150A	BV_R	80	-	-	Vdc
	1N5153A		75	-	-	
	1N5155A		35	-	-	
Reverse Current		I_R				μAdc
(V_R = 70 Vdc)	1N5150A		-	-	2.0	
(V_R = 70 Vdc, T_A = 150°C)	1N5150A		-	-	100	
(V_R = 60 Vdc)	1N5153A		-	-	1.0	
(V_R = 60 Vdc, T_A = 150°C)	1N5153A		-	-	100	
(V_R = 26 Vdc)	1N5155A		-	-	1.0	
(V_R = 26 Vdc, T_A = 150°C)	1N5155A		-	-	100	
Series Resistance (V_R = 6.0 Vdc, f = self-resonant frequency)		R_S				Ohms
	1N5150A		-	0.25	-	
	1N5153A		-	0.5	-	
	1N5155A		-	0.9	-	
Series Inductance		L_S				nH
	1N5150A		-	1.5	-	
	1N5153A		-	1.7	-	
	1N5155A		-	0.9	-	
Diode Capacitance (C_J + C_C)		C_T				pF
(V_R = 6.0 Vdc, f = 1.0 MHz)	1N5150A		10.8	-	13.2	
	1N5153A		5.8	-	7.0	
	1N5155A		1.71	-	2.09	
Figure of Merit		Q				-
(V_R = 6.0 Vdc, f = 50 MHz)	1N5150A		-	800	-	
	1N5153A		-	1100	-	
	1N5155A		-	1700	-	
Thermal Resistance		θ_{JC}				°C/W
	1N5150A		-	-	6.0	
	1N5153A		-	-	15	
	1N5155A		-	-	20	

FUNCTIONAL TEST

1N5150A

RF Power Output	P_{in} = 37 W, f_{in} = 500 MHz,	P_{out}	25.1	-	-	Watts
Doubling Efficiency	f_{out} = 1.0 GHz	η	68	-	-	%

1N5153A

RF Power Output	P_{in} = 12 W, f_{in} = 1.0 GHz,	P_{out}	7.2	-	-	Watts
Doubling Efficiency	f_{out} = 2.0 GHz	η	60	-	-	%

1N5155A

RF Power Output	P_{in} = 5.0 W, f_{in} = 2.0 GHz,	P_{out}	2.0	-	-	Watts
Tripling Efficiency	f_{out} = 6.0 GHz	η	40	-	-	%

For typical curves and test circuits, see the following data sheets: 1N5149-1N5150, 1N5153, and 1N5155.