

150V HiRel Silicon PIN Diode

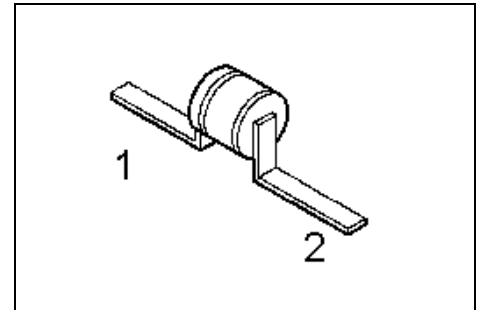
BXY43-T1(ES)

Features

- Current controlled RF resistor for RF attenuators and switches
- High reverse voltage
- Hermetically sealed microwave package

Product validation

- **ESA Space Qualified**
 ESCC Detail Spec. No.: 5513/030
 Type Variant No. 02



Description

ESD: Electrostatic discharge sensitive device, observe handling precautions!

Table 1 Product information

Type	Comment	Pin Configuration
BXY43-T1(ES)	For flight use	
BXY43-T1(P) ¹	Not for flight use ¹	

¹ (P) parts have the same fit, form and function as (ES) parts, no screening acc. to Chart F3 in ESCC Generic Specification No. 5010

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Description 1

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Maximum ratings

1 Maximum ratings

Table 2 Maximum ratings

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Reverse Voltage	V_R	-	-	150	V	
Forward Current	I_F	-	-	400	mA	
Power Dissipation ¹	P_{tot}	-	-	500	mW	$T_c = 87.5\text{ °C}$
Operating temperature	T_{op}	-55	-	150	°C	
Storage temperature	T_{stg}	-65	-	175	°C	
Junction temperature	T_j	-	-	150	°C	

¹ For $T_c > 87.5\text{ °C}$ derating is required.

Thermal characteristics

2 Thermal characteristics

Table 3 Thermal characteristics

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Thermal resistance, junction -case	$R_{th,jc}$	-	-	125	K/W	
Soldering temperature	T_{sol}	-	-	235	°C	Duration 5 seconds maximum and the same terminal shall not be resoldered until 5 minutes have elapsed.

Electrical characteristics

3 Electrical characteristics

at $T_A=25^\circ\text{C}$, unless otherwise specified

Table 4 Static characteristics

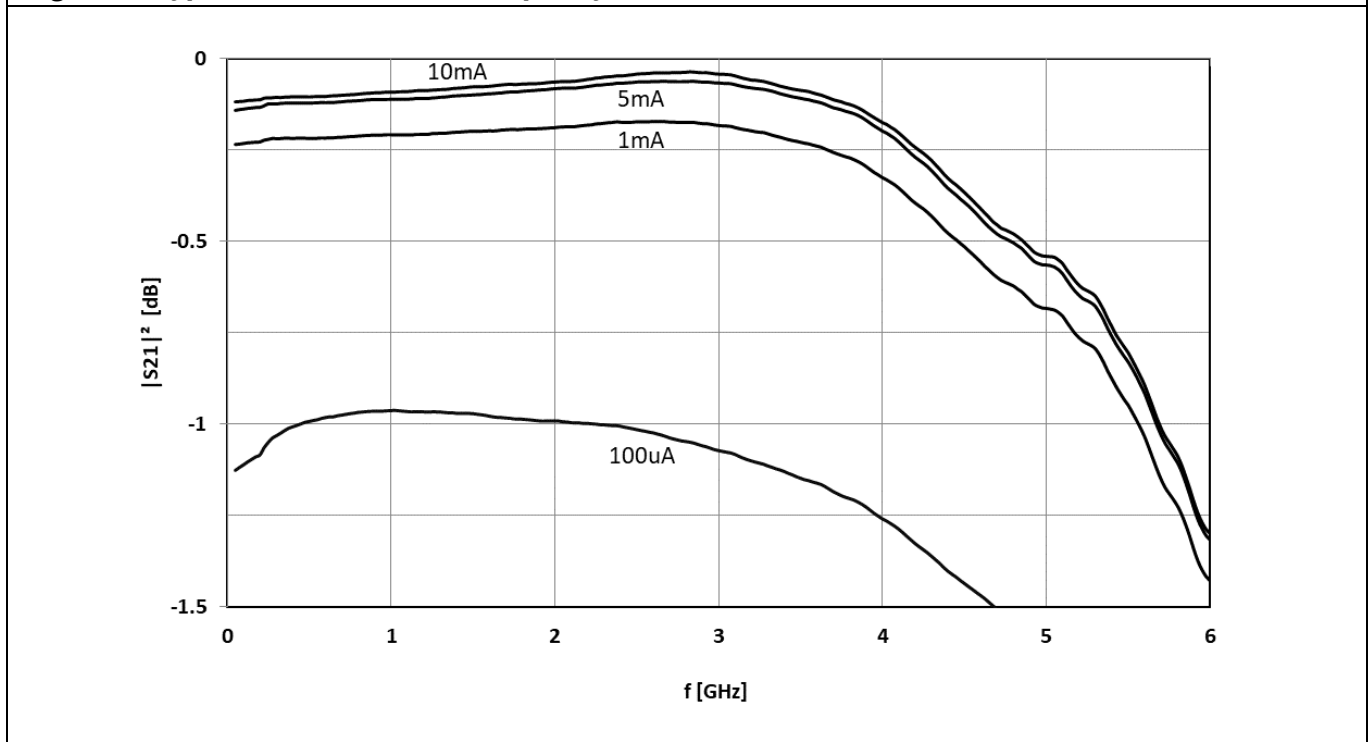
Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Reverse Current 1	I_{R1}	-	-	100	nA	$V_{R1}= 150\text{V}$
Reverse Current 2	I_{R2}	-	-	10	nA	$V_{R2}= 100\text{V}$
Forward Voltage	V_F	-	0.97	1	V	$I_F= 100\text{mA}$

Table 5 Dynamic characteristics

Parameter	Symbol	Values			Unit	Note / Test Condition
		Min.	Typ.	Max.		
Total Capacitance	C_T	-	0.3	0.45	pF	$V_R= 50\text{V}, f= 1.0\text{MHz}$
Forward Resistance 1	R_{F1}	-	55	70	Ω	$f= 100\text{MHz}, I_{F1}= 20\mu\text{A}$
Forward Resistance 2	R_{F2}	-	2.2	3.0	Ω	$f= 100\text{MHz}, I_{F2}= 1\text{mA}$
Forward Resistance 3	R_{F3}	-	0.9	1.5	Ω	$f= 100\text{MHz}, I_{F1}= 10\text{mA}$
Minority Carrier Lifetime	τ_L	250	650	-	ns	$I_F= 10\text{mA}, I_R= 6\text{mA}$

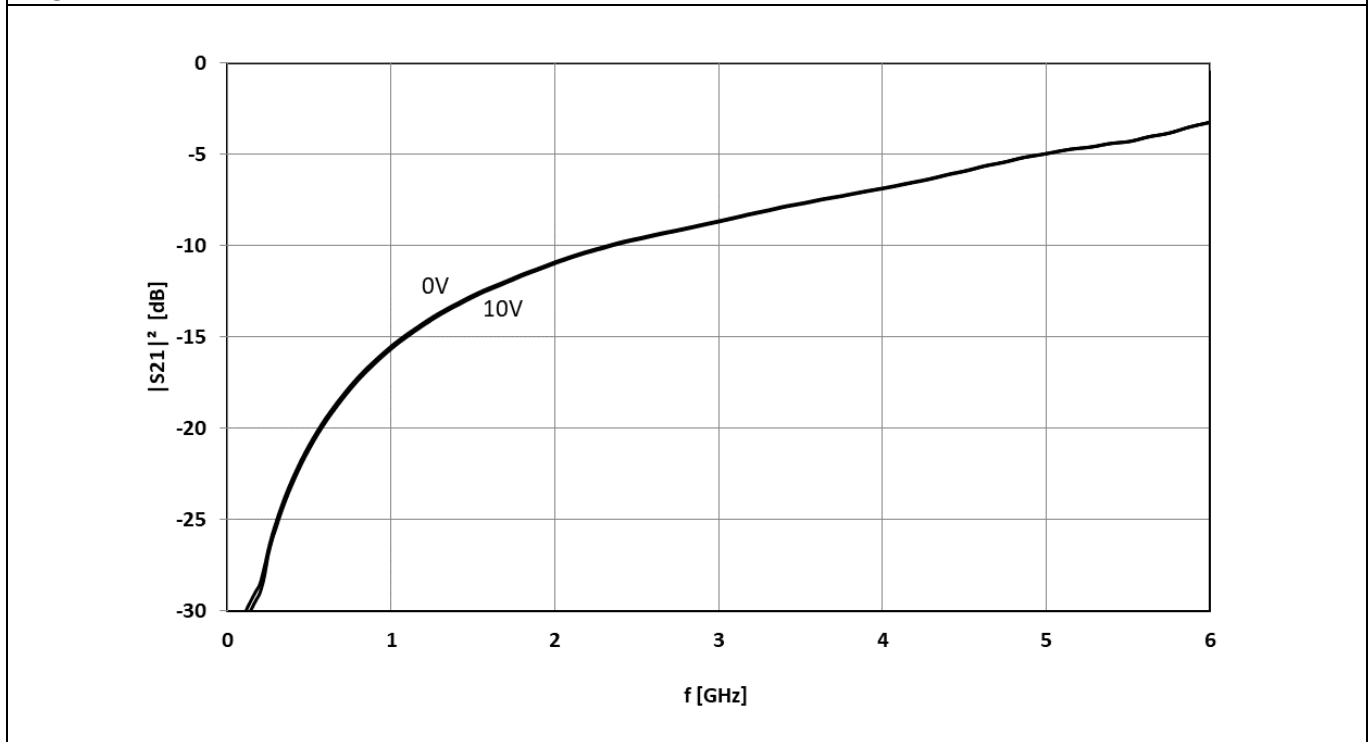
4 Electrical performance in test fixture

Diagram 1: Typical insertion loss vs. frequency



$T_C = 25^\circ\text{C}$; parameter: I_F

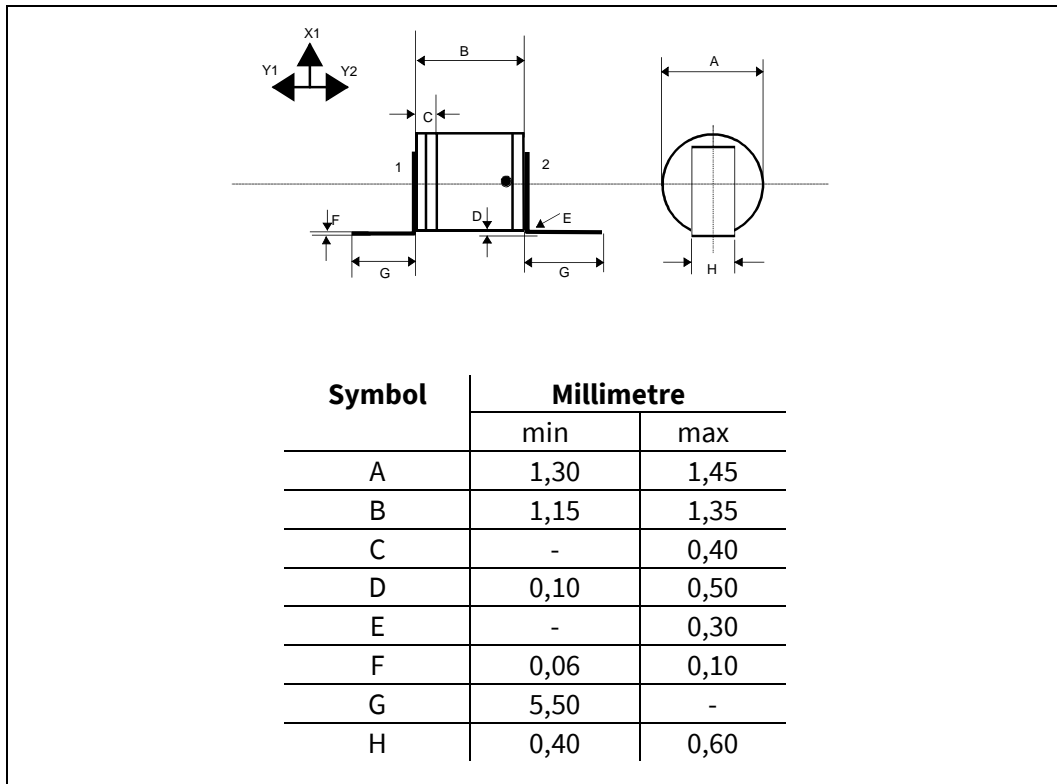
Diagram 2: Typical isolation vs. frequency



$T_C = 25^\circ\text{C}$; parameter: V_R

Note: The curves shown in this chapter have been generated using typical devices but shall not be understood as a guarantee that all devices have identical characteristic curves

5 Package outlines



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