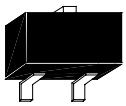
HMBZ5221B
thru
HMBZ5257B ZENER DIODES



SOT-23

Thermal Characteristics

Characteristics	Symbol	Max	Unit
Total Device Dissipation FR-5 Board TA=25°C, Derate above 25°C	PD	225 1.8	mW mW/°C
Total Device Dissipation Alumina Substrate**TA=25°C, Derate above 25°C	PD	300 2.4	mW mW/°C
Thermal Resistance Junction to Ambient	RθJA	417	°C/W
Junction and Storage Temperature	Tj, Tstg	-55 to +150	°C

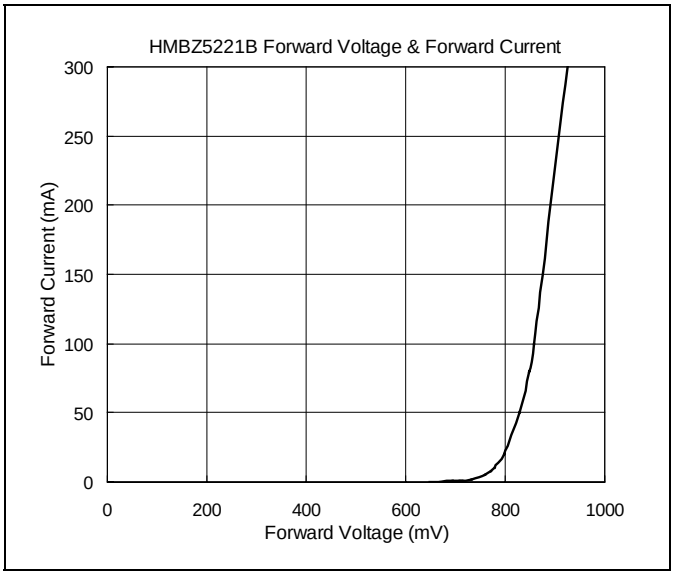
*FR-5 - 1.0×0.75×0.062 in. **Alumina - 0.4×0.3×0.024 in. 99.5% alumina.

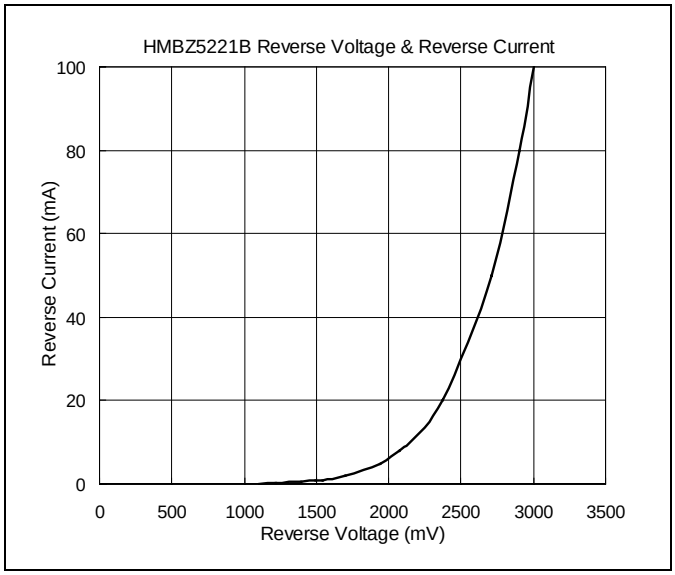
Electrical Characteristic (VF=0.9V Max @IF=10mA for all types.)

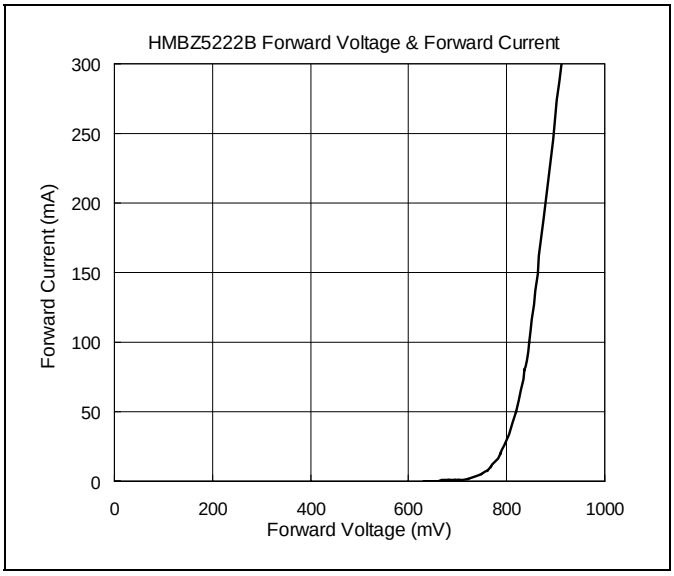
Device	Marking Code	Test Current IZT(mA)	Zener Voltage VZ(V)	ZZK IZ=0.25mA ΩMax	ZZT IZ=IZT ΩMax	Max. Reverse Current IR(uA)	@VR(V)
HMBZ52221B	18A	20	2.4 ±5%	1200	30	100	1.0
HMBZ5222B	18B	20	2.5 ±5%	1250	30	100	1.0
HMBZ5223B	18C	20	2.7 ±5%	1300	30	75	1.0
HMBZ5225B	18E	20	3.0 ±5%	1600	29	50	1.0
HMBZ5226B	8A	20	3.3 ±5%	1600	28	25	1.0
HMBZ5227B	8B	20	3.6 ±5%	1700	24	15	1.0
HMBZ5228B	8C	20	3.9 ±5%	1900	23	10	1.0
HMBZ5229B	8D	20	4.3 ±5%	2000	22	5.0	1.0
HMBZ5230B	8E	20	4.7 ±5%	1900	19	5.0	2.0
HMBZ5231B	8F	20	5.1 ±5%	1600	17	5.0	2.0
HMBZ5232B	8G	20	5.6 ±5%	1600	11	5.0	3.0
HMBZ5233B	8H	20	6.0 ±5%	1600	7.0	5.0	3.5
HMBZ5234B	8J	20	6.2 ±5%	1000	7.0	5.0	4.0
HMBZ5235B	8K	20	6.8 ±5%	750	5.0	3.0	5.0
HMBZ5236B	8L	20	7.5 ±5%	500	6.0	3.0	6.0
HMBZ5237B	8M	20	8.2 ±5%	500	8.0	3.0	6.5
HMBZ5238B	8N	20	8.7 ±5%	600	8.0	3.0	6.5
HMBZ5239B	8P	20	9.1 ±5%	600	10	3.0	7.0
HMBZ5240B	8Q	20	10 ±5%	600	17	3.0	8.0
HMBZ5241B	8R	20	11 ±5%	600	22	2.0	8.4
HMBZ5242B	8S	20	12 ±5%	600	30	1.0	9.1
HMBZ5243B	8T	9.5	13 ±5%	600	13	0.5	9.9
HMBZ5244B	8U	9.0	14 ±5%	600	15	0.1	10

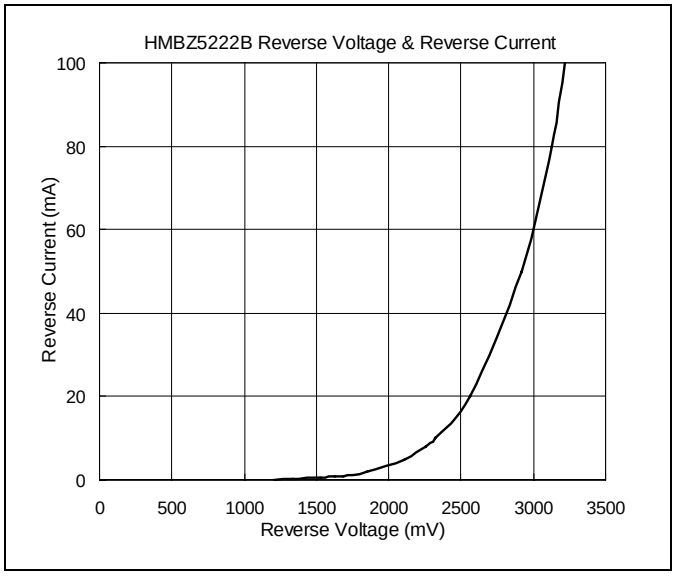
HMBZ5245B	8V	8.5	15 ±5%	600	16	0.1	11
HMBZ5246B	8W	7.8	16 ±5%	600	17	0.1	12
HMBZ5247B	8X	7.4	17 ±5%	600	19	0.1	13
HMBZ5248B	8Y	7.0	18 ±5%	600	21	0.1	14
HMBZ5249B	8Z	6.6	19 ±5%	600	23	0.1	14
HMBZ5250B	81A	6.2	20 ±5%	600	25	0.1	15
HMBZ5251B	81B	5.6	22 ±5%	600	29	0.1	17
HMBZ5252B	81C	5.2	24 ±5%	600	33	0.1	18
HMBZ5253B	81D	5.0	25 ±5%	600	35	0.1	19
HMBZ5254B	81E	4.6	27 ±5%	600	41	0.1	21
HMBZ5255B	81F	4.5	28 ±5%	600	44	0.1	21
HMBZ5256B	81G	4.2	30 ±5%	600	49	0.1	23
HMBZ5257B	81H	3.8	33 ±5%	700	58	0.1	25

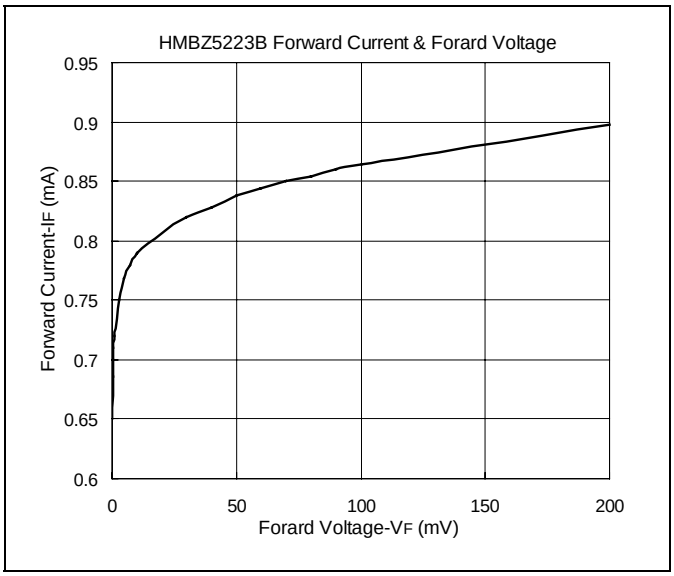
Characteristics Curve

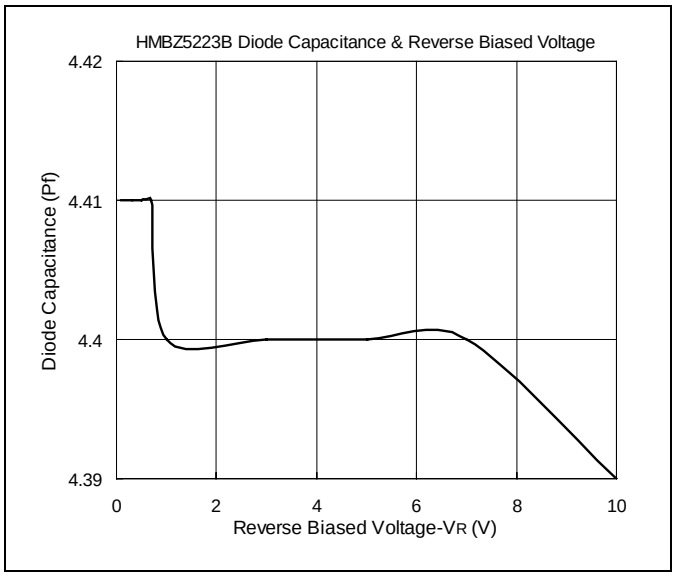


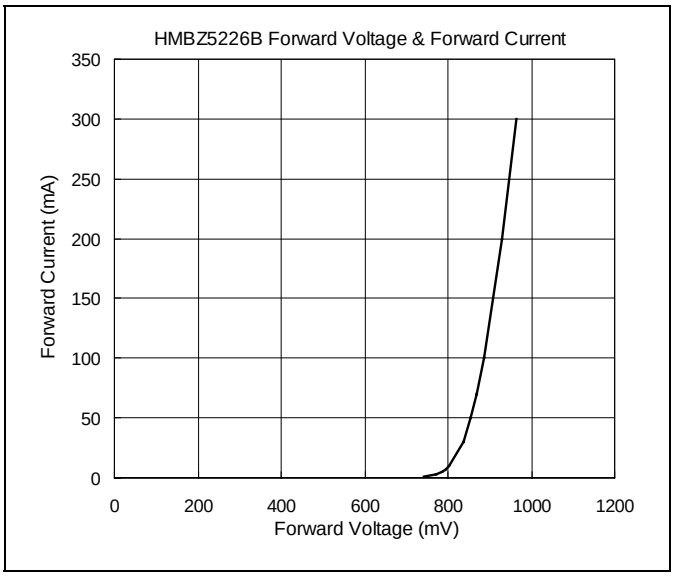


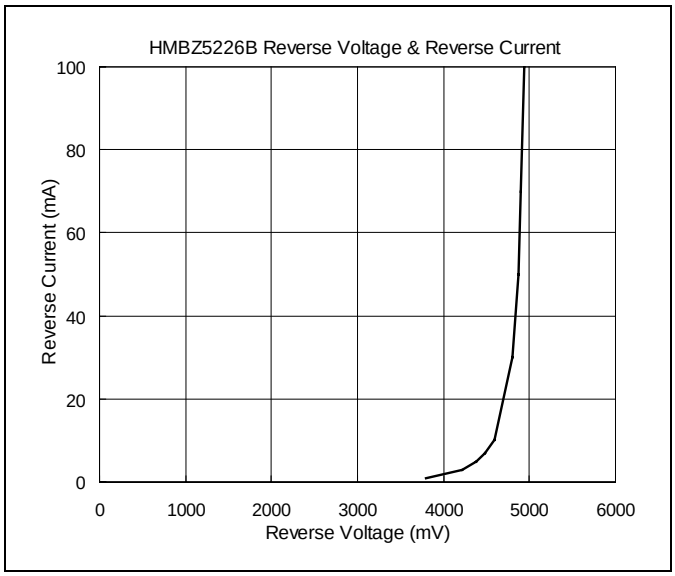


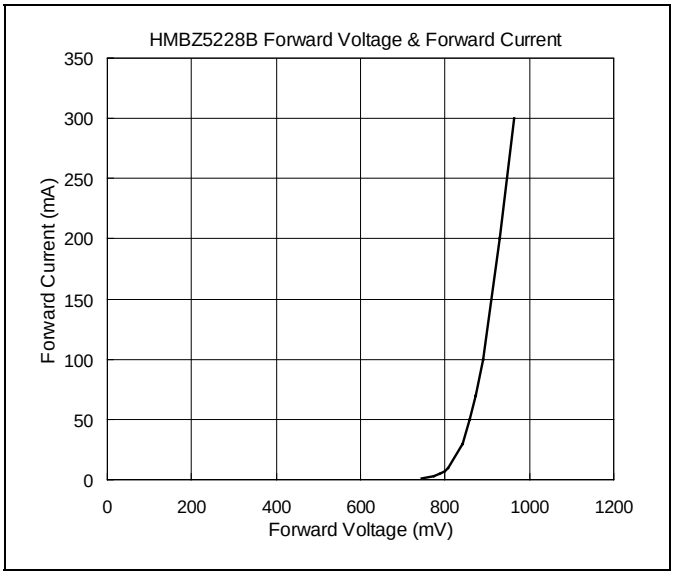


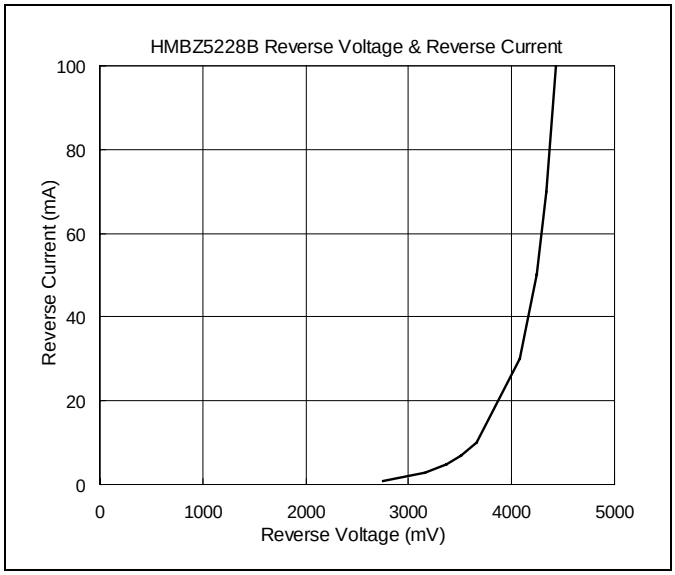

HMBZ5223B Forward Current & Forard Voltage
Forward Current-IF (mA)
0.95
0.9
0.85
0.8
0.75
0.7
0.65
0.6
0
50
100
150
200
Forard Voltage-VF (mV)

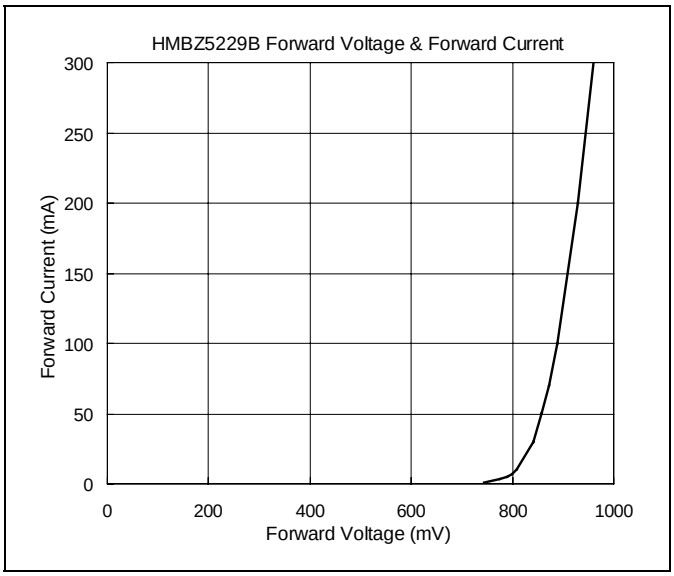

HMBZ5223B Diode Capacitance & Reverse Biased Voltage
Diode Capacitance (Pf)
4.42
4.41
4.4
4.39
0
2
4
6
8
10
Reverse Biased Voltage-VR (V)

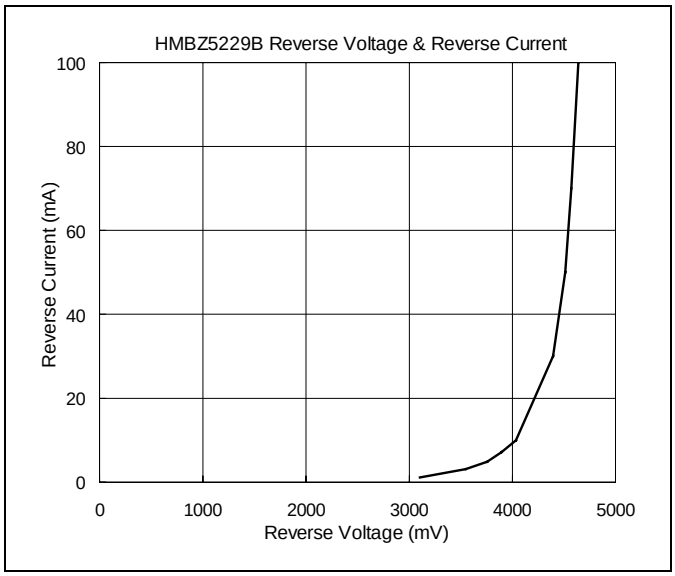

HMBZ5226B Forward Voltage & Forward Current
Forward Current (mA)
350
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

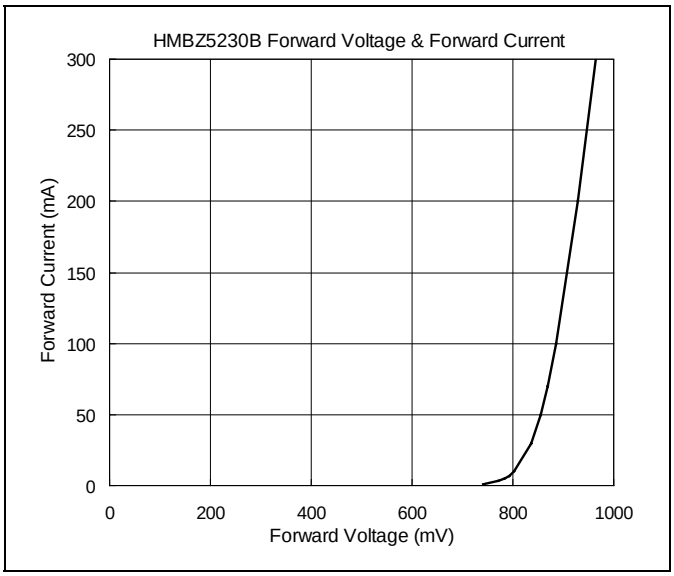

HMBZ5226B Reverse Voltage & Reverse Current
Reverse Current (mA)
100
80
60
40
20
0
0
1000
2000
3000
4000
5000
6000
Reverse Voltage (mV)

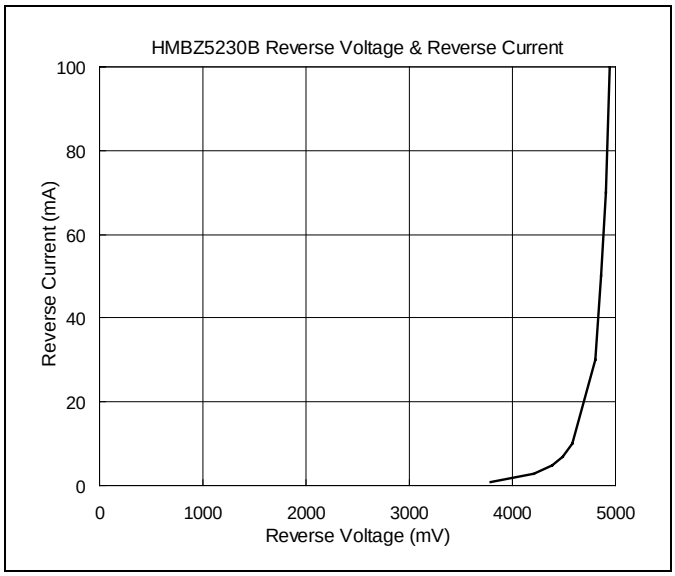

HMBZ5228B Forward Voltage & Forward Current
Forward Current (mA)
350
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

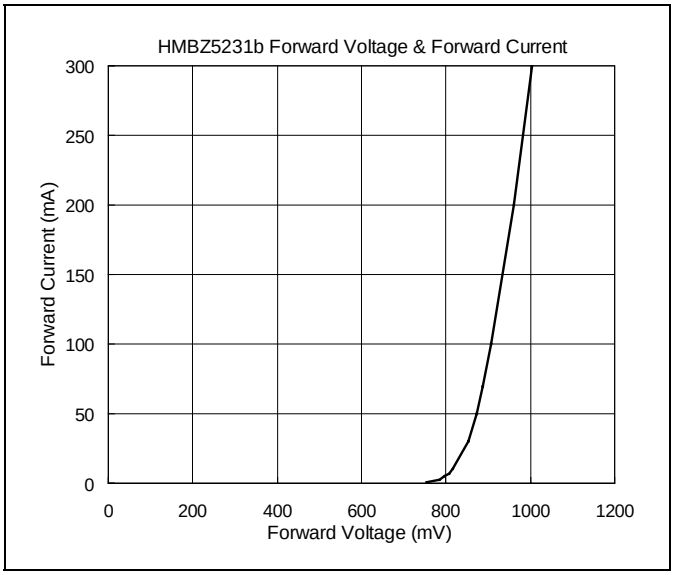

HMBZ5228B Reverse Voltage & Reverse Current
Reverse Current (mA)
100
80
60
40
20
0
0
1000
2000
3000
4000
5000
Reverse Voltage (mV)

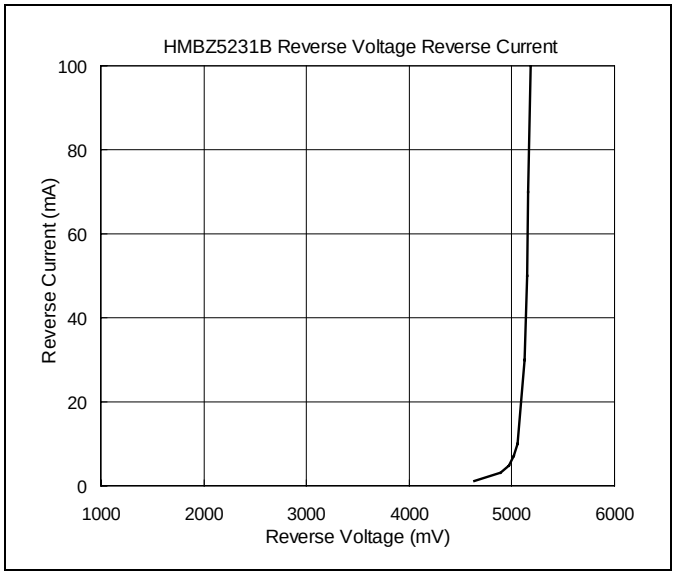

HMBZ5229B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
Forward Voltage (mV)

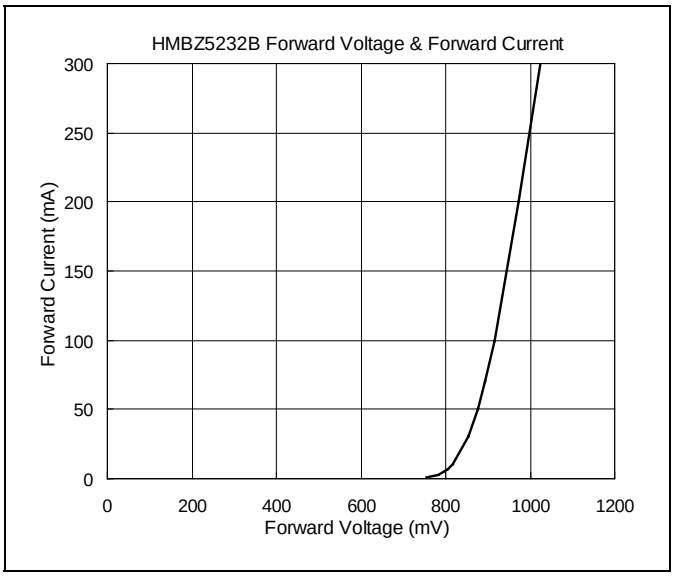

HMBZ5229B Reverse Voltage & Reverse Current
Reverse Current (mA)
100
80
60
40
20
0
0
1000
2000
3000
4000
5000
Reverse Voltage (mV)

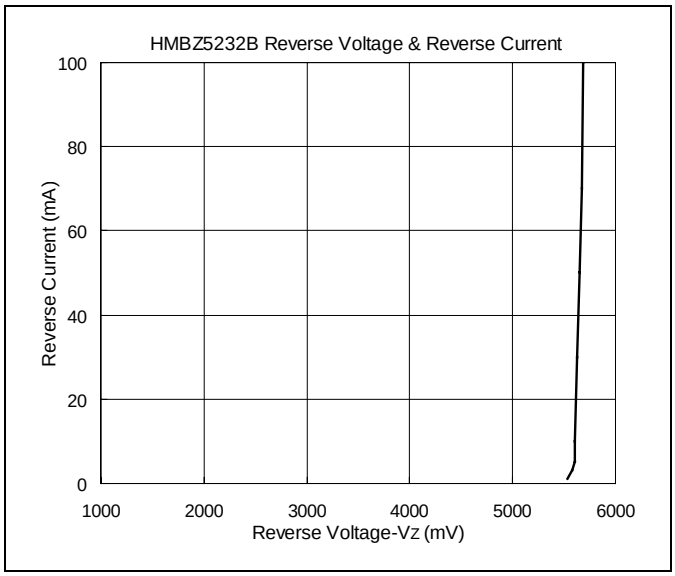

HMBZ5230B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
Forward Voltage (mV)

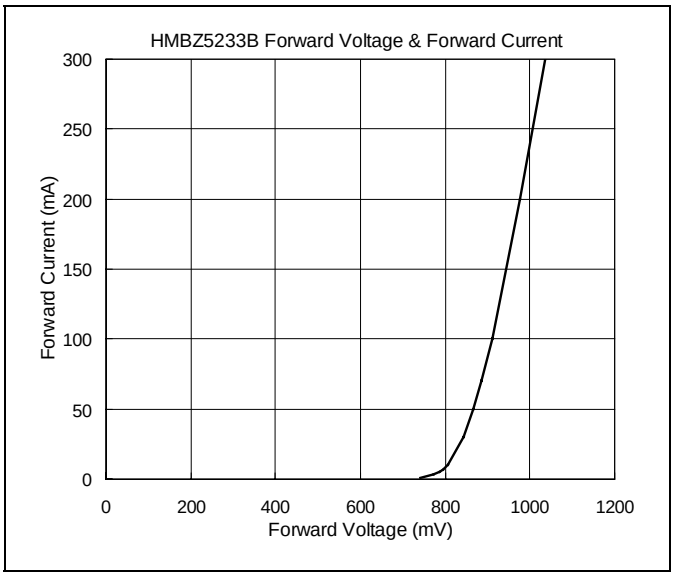

HMBZ5230B Reverse Voltage & Reverse Current
Reverse Current (mA)
100
80
60
40
20
0
0
1000
2000
3000
4000
5000
Reverse Voltage (mV)

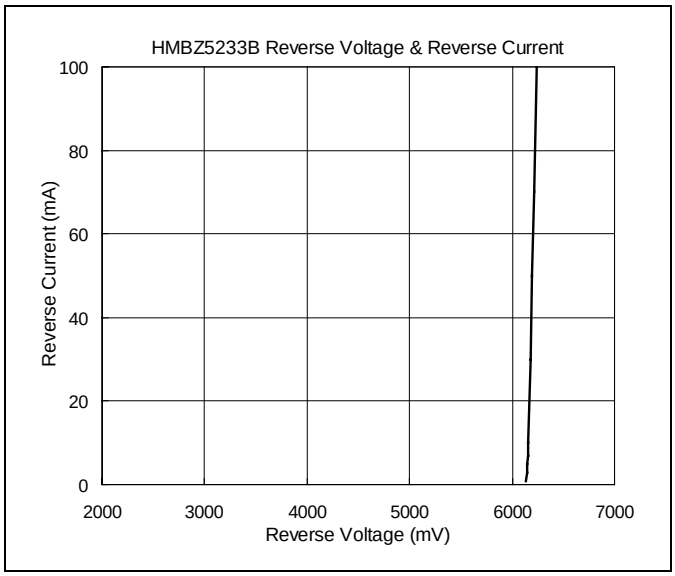

HMBZ5231b Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

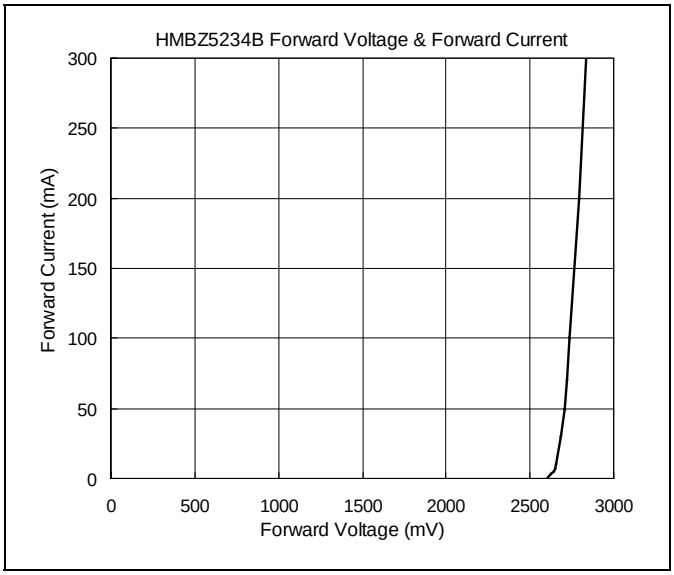

HMBZ5231B Reverse Voltage Reverse Current
Reverse Current (mA)
100
80
60
40
20
0
1000
2000
3000
4000
5000
6000
Reverse Voltage (mV)

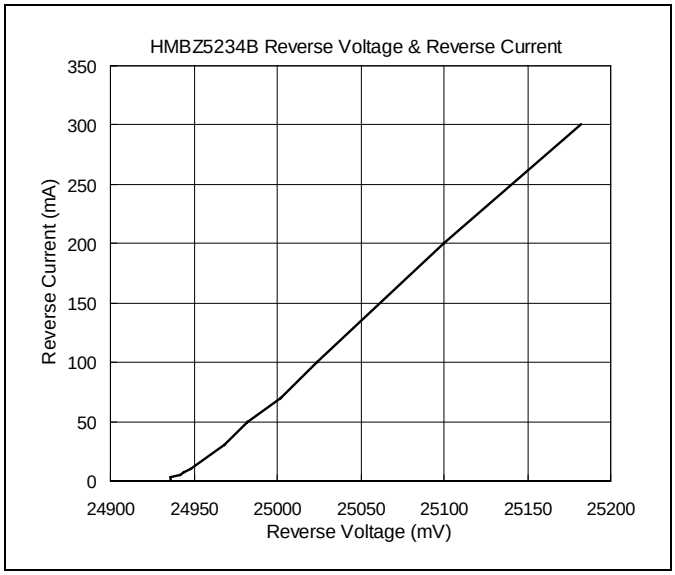

HMBZ5232B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

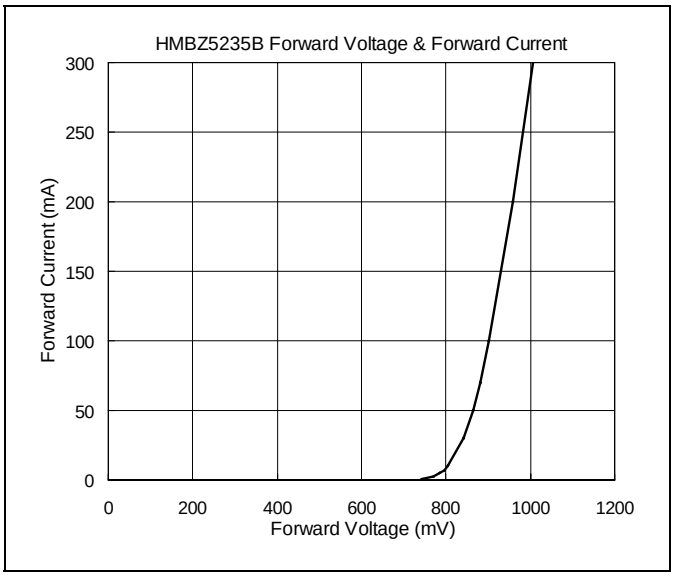

HMBZ5232B Reverse Voltage & Reverse Current
Reverse Current (mA)
100
80
60
40
20
0
1000
2000
3000
4000
5000
6000
Reverse Voltage-Vz (mV)

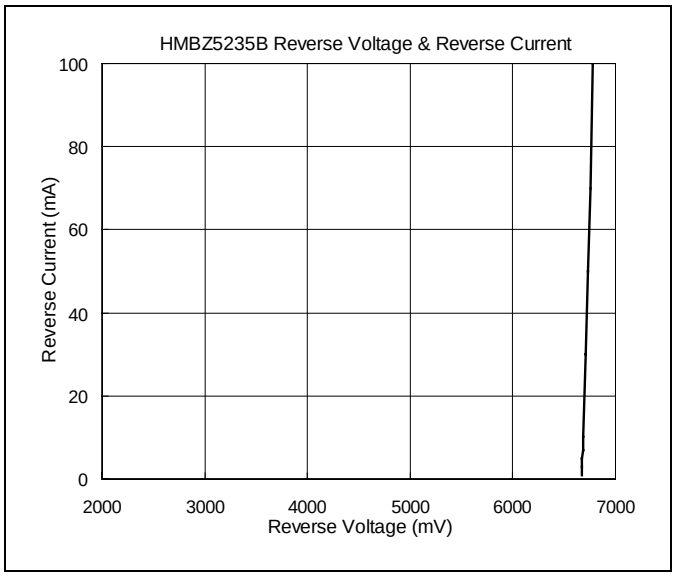

HMBZ5233B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

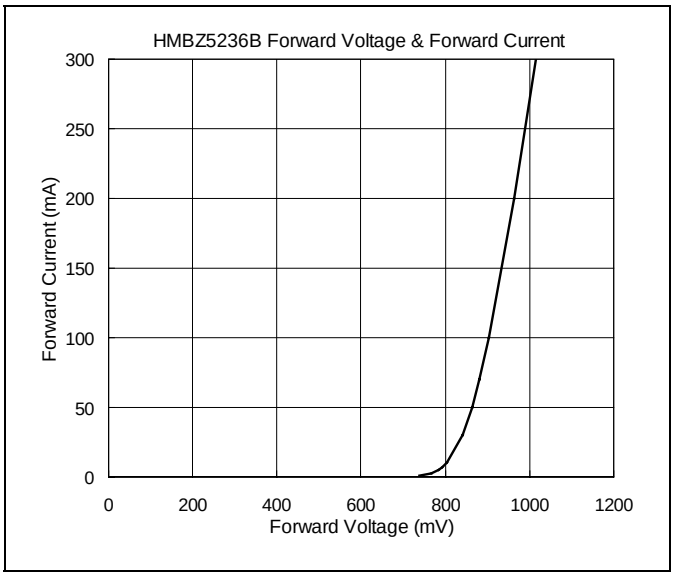

HMBZ5233B Reverse Voltage & Reverse Current
Reverse Current (mA)
100
80
60
40
20
0
2000
3000
4000
5000
6000
7000
Reverse Voltage (mV)

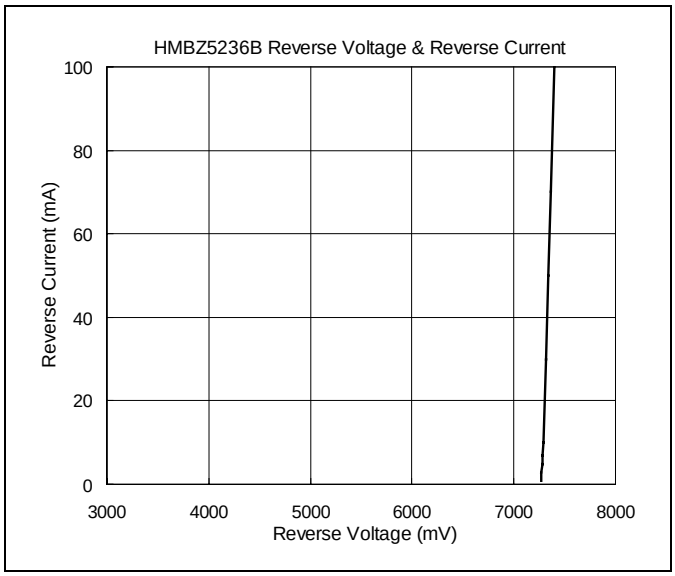

HMBZ5234B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
500
1000
1500
2000
2500
3000
Forward Voltage (mV)

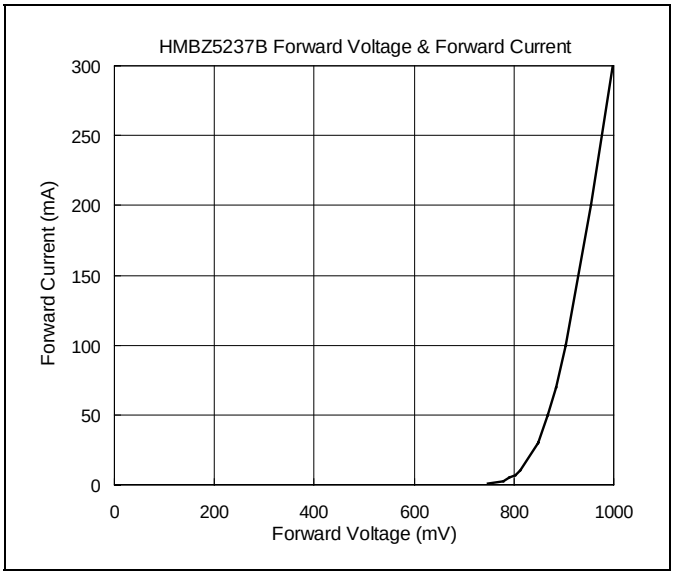

HMBZ5234B Reverse Voltage & Reverse Current
Reverse Current (mA)
350
300
250
200
150
100
50
0
24900
24950
25000
25050
25100
25150
25200
Reverse Voltage (mV)

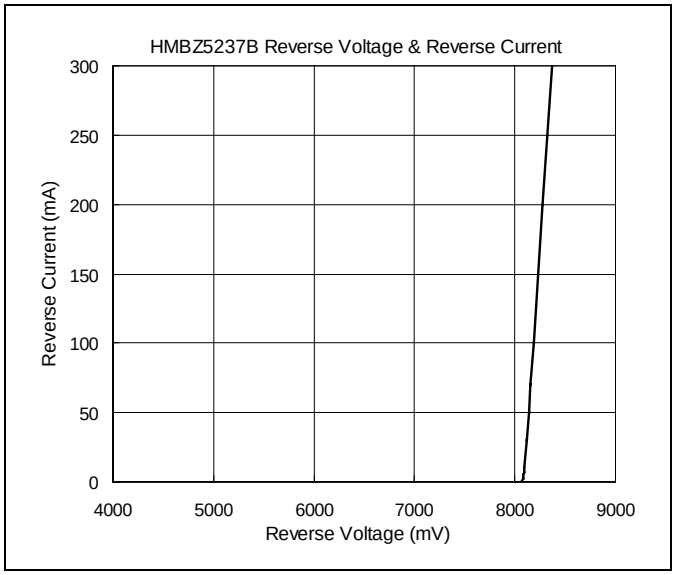

HMBZ5235B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

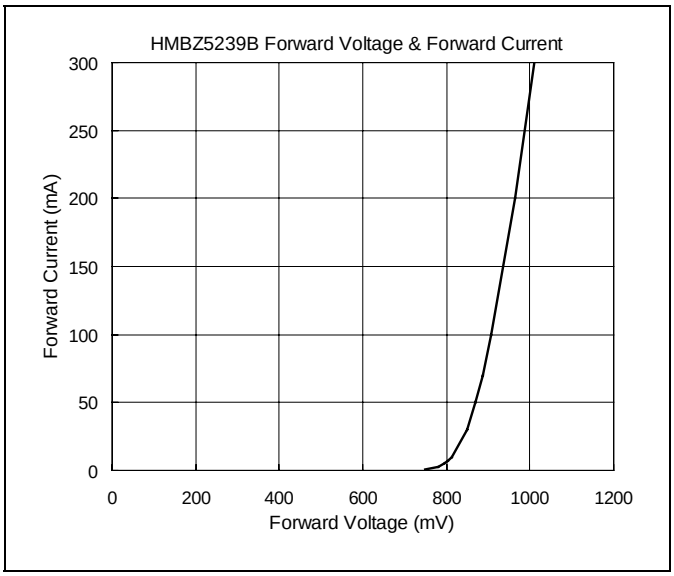

HMBZ5235B Reverse Voltage & Reverse Current
Reverse Current (mA)
100
80
60
40
20
0
2000
3000
4000
5000
6000
7000
Reverse Voltage (mV)

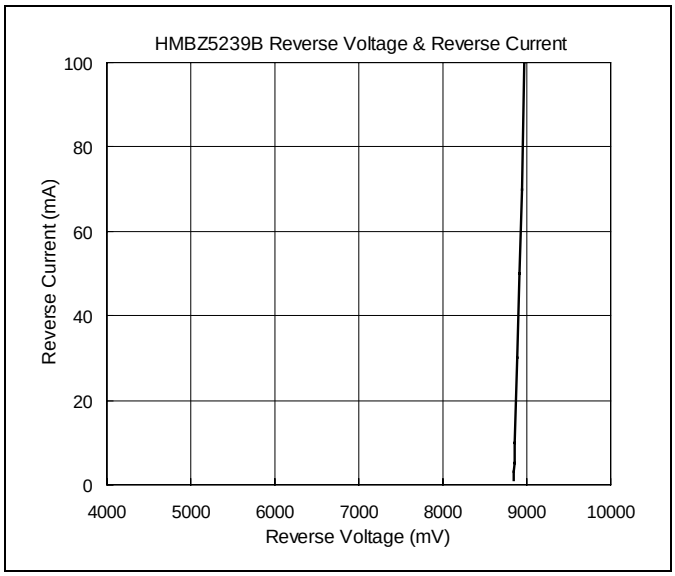

HMBZ5236B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

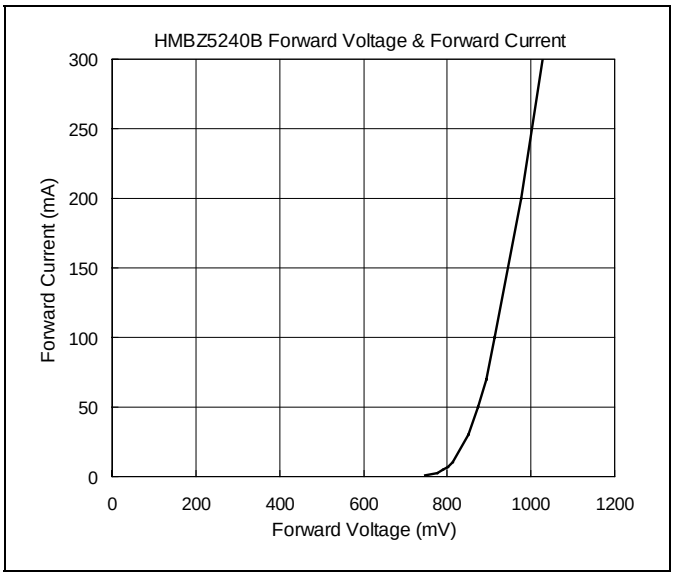

HMBZ5236B Reverse Voltage & Reverse Current
Reverse Current (mA)
100
80
60
40
20
0
3000
4000
5000
6000
7000
8000
Reverse Voltage (mV)

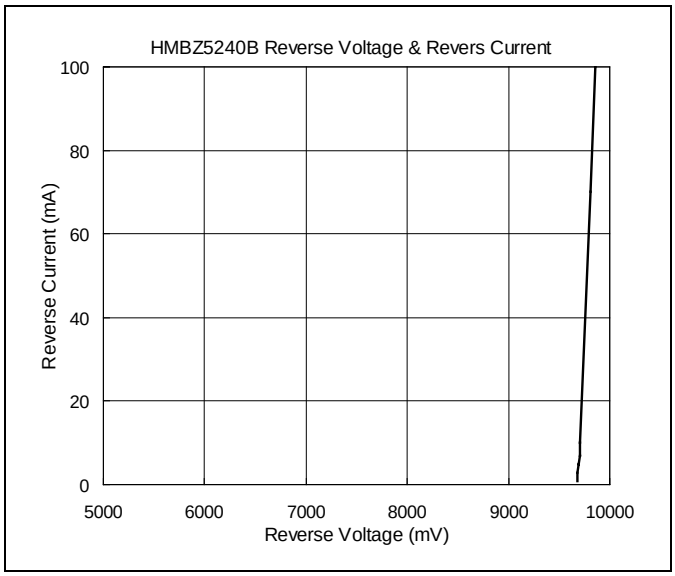

HMBZ5237B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
Forward Voltage (mV)

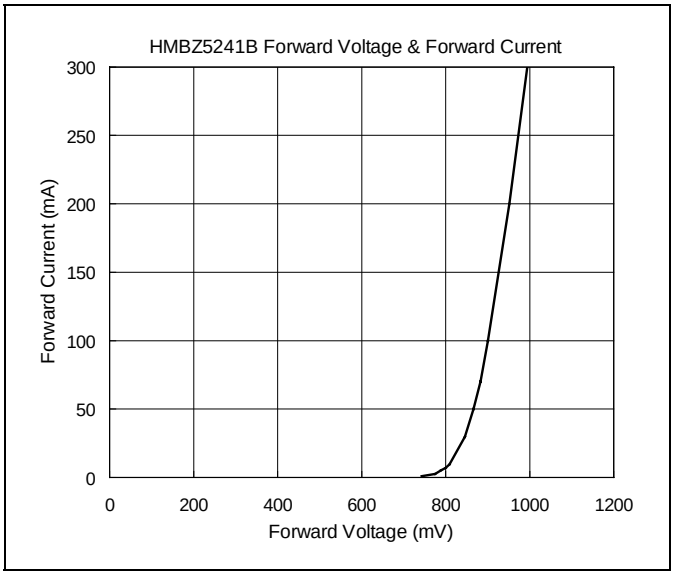

HMBZ5237B Reverse Voltage & Reverse Current
Reverse Current (mA)
300
250
200
150
100
50
0
4000
5000
6000
7000
8000
9000
Reverse Voltage (mV)

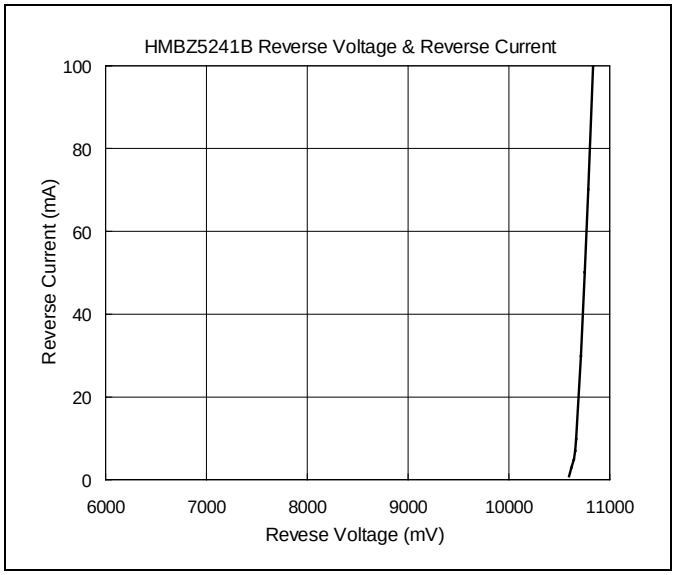

HMBZ5239B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

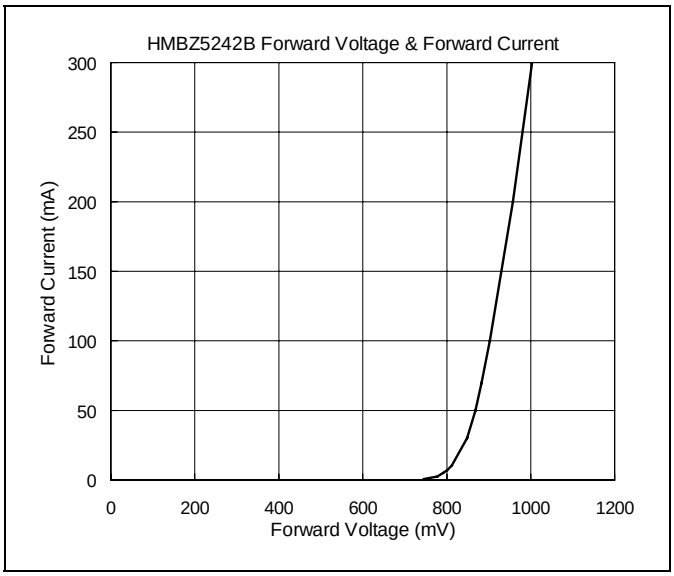

HMBZ5239B Reverse Voltage & Reverse Current
Reverse Current (mA)
100
80
60
40
20
0
4000
5000
6000
7000
8000
9000
10000
Reverse Voltage (mV)

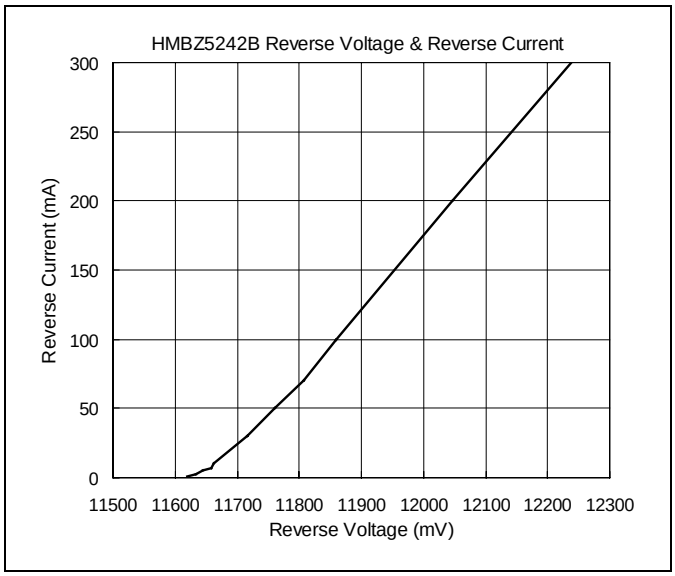

HMBZ5240B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

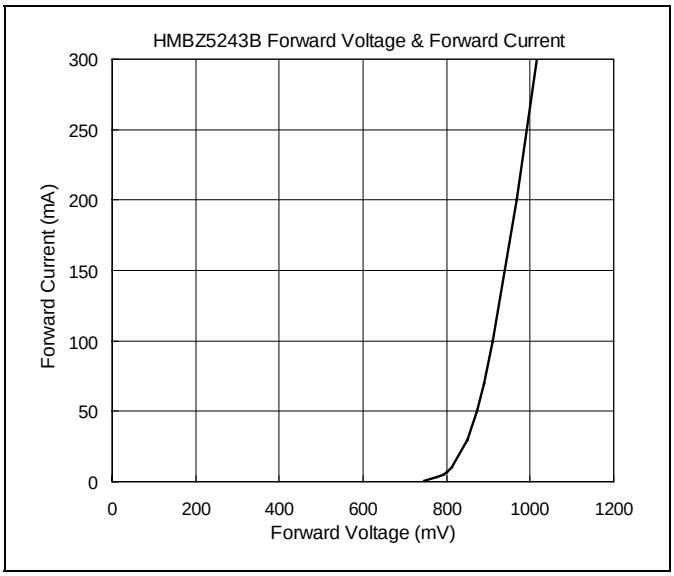

HMBZ5240B Reverse Voltage & Revers Current
Reverse Current (mA)
100
80
60
40
20
0
5000
6000
7000
8000
9000
10000
Reverse Voltage (mV)

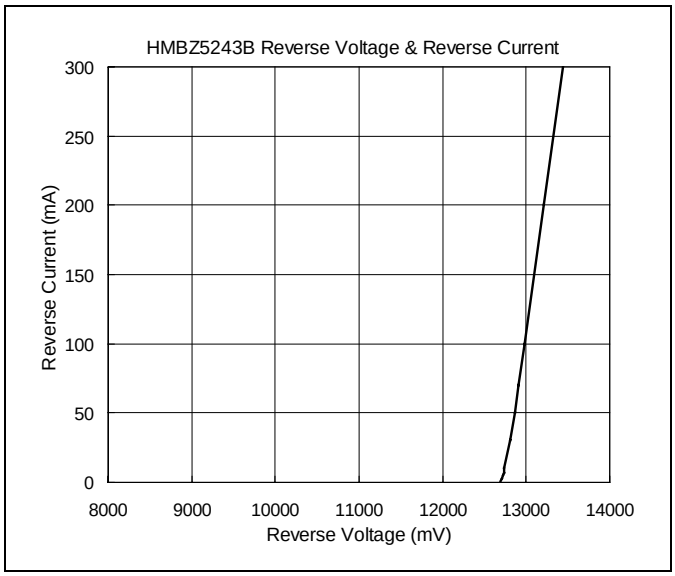

HMBZ5241B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

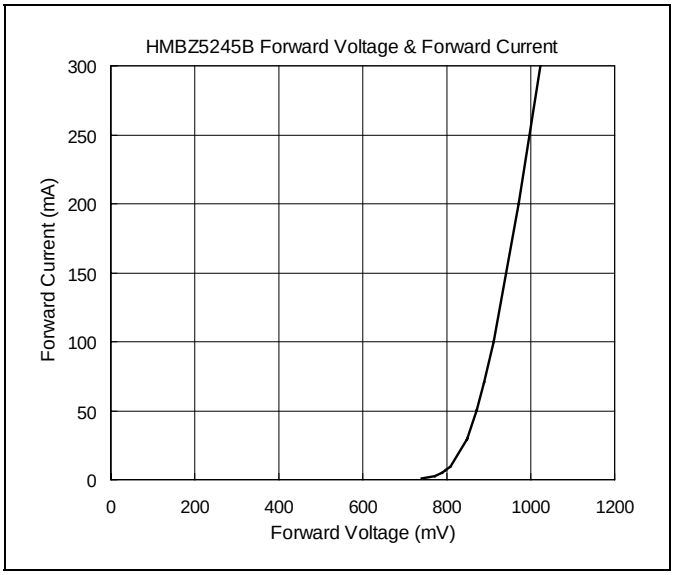

HMBZ5241B Reverse Voltage & Reverse Current
Reverse Current (mA)
100
80
60
40
20
0
6000
7000
8000
9000
10000
11000
Revese Voltage (mV)

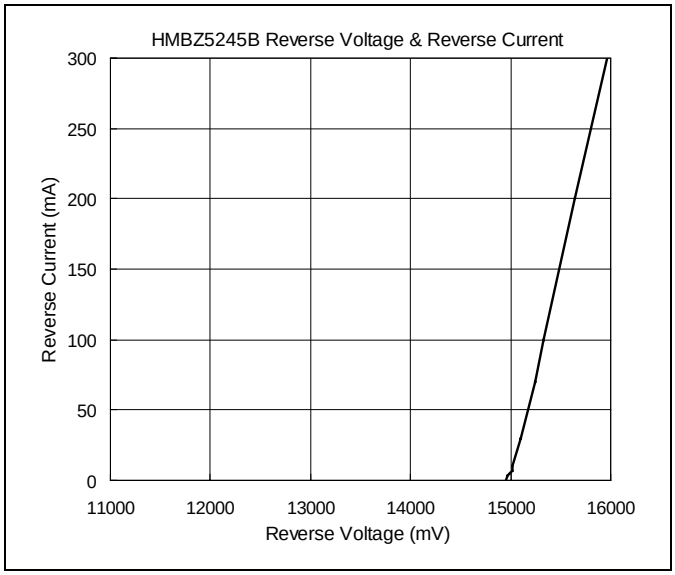

HMBZ5242B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

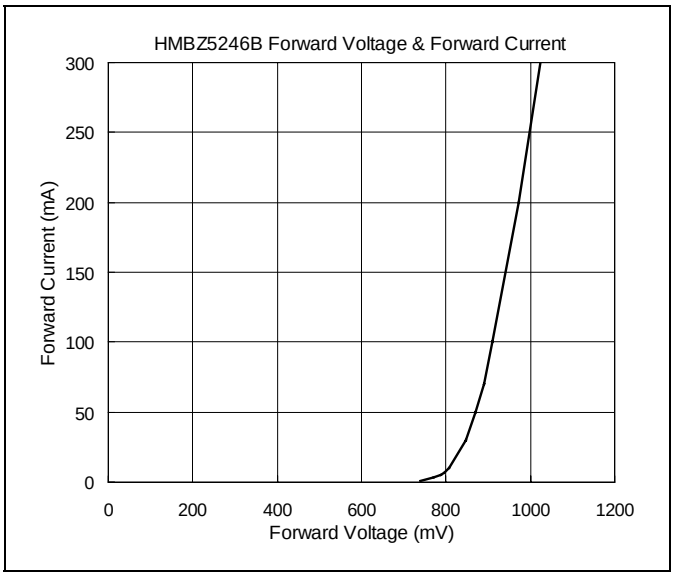

HMBZ5242B Reverse Voltage & Reverse Current
Reverse Current (mA)
300
250
200
150
100
50
0
11500
11600
11700
11800
11900
12000
12100
12200
12300
Reverse Voltage (mV)

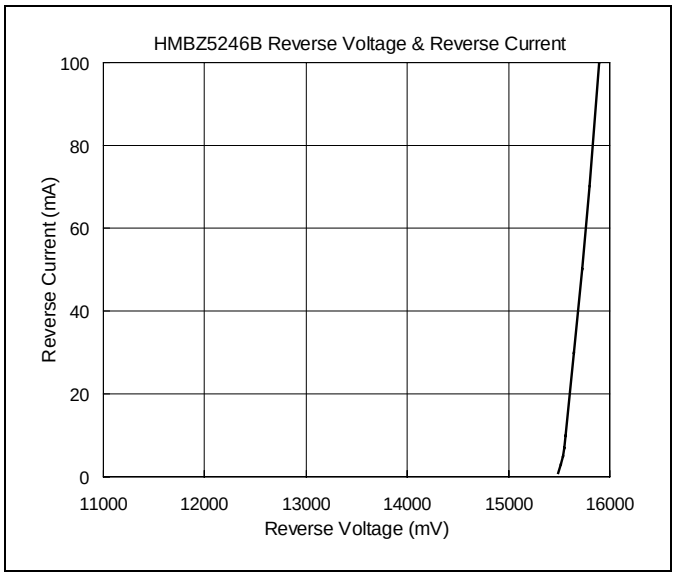

HMBZ5243B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

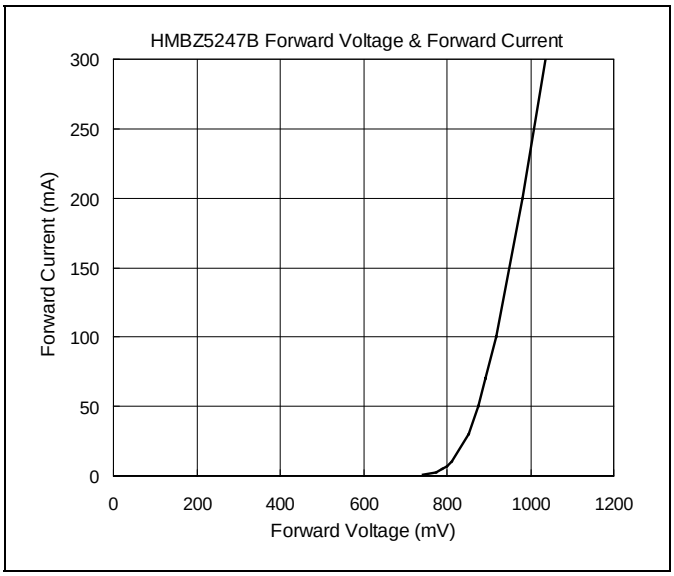

HMBZ5243B Reverse Voltage & Reverse Current
Reverse Current (mA)
300
250
200
150
100
50
0
8000
9000
10000
11000
12000
13000
14000
Reverse Voltage (mV)

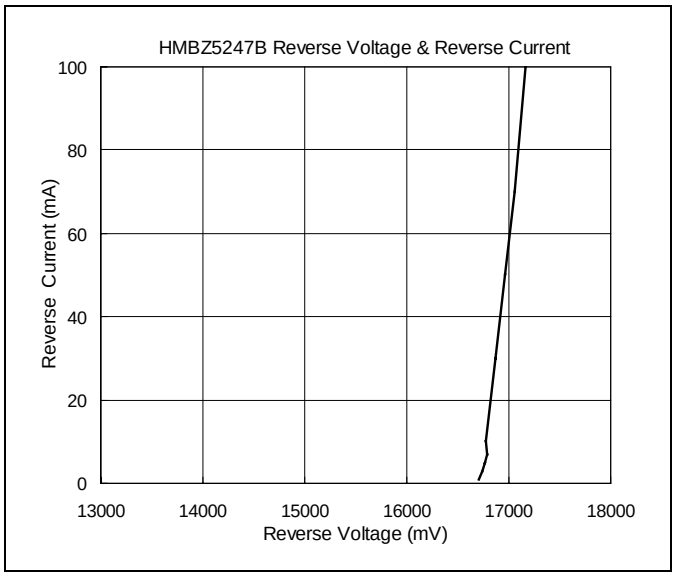

HMBZ5245B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

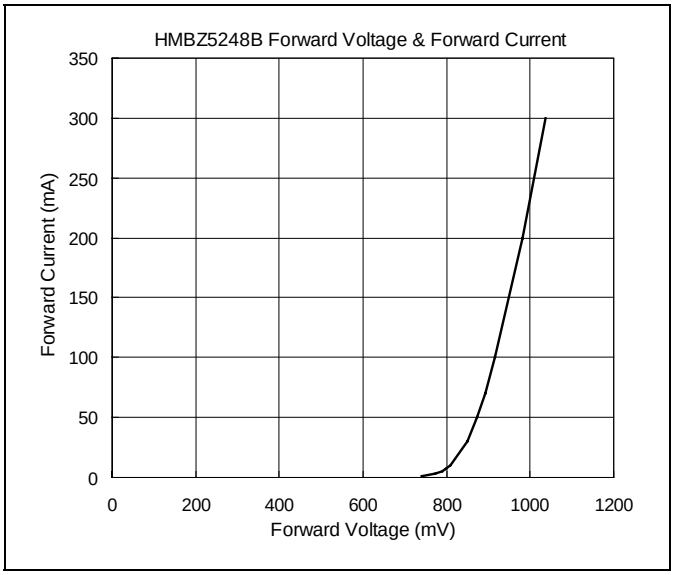

HMBZ5245B Reverse Voltage & Reverse Current
Reverse Current (mA)
300
250
200
150
100
50
0
11000
12000
13000
14000
15000
16000
Reverse Voltage (mV)

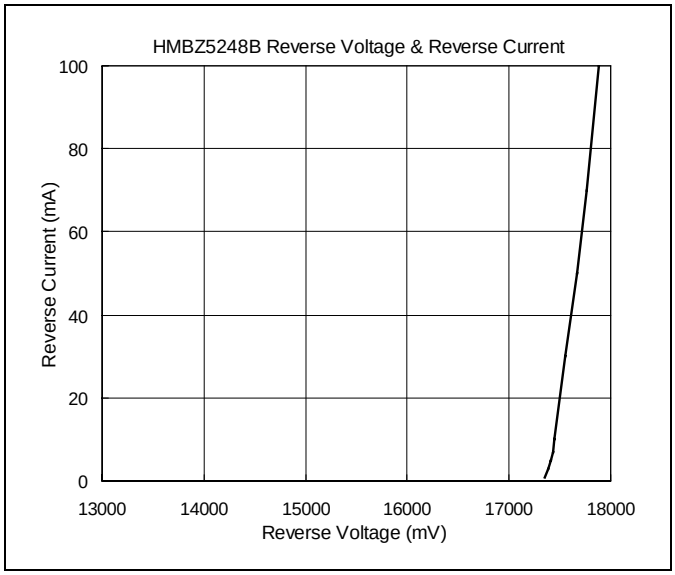

HMBZ5246B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

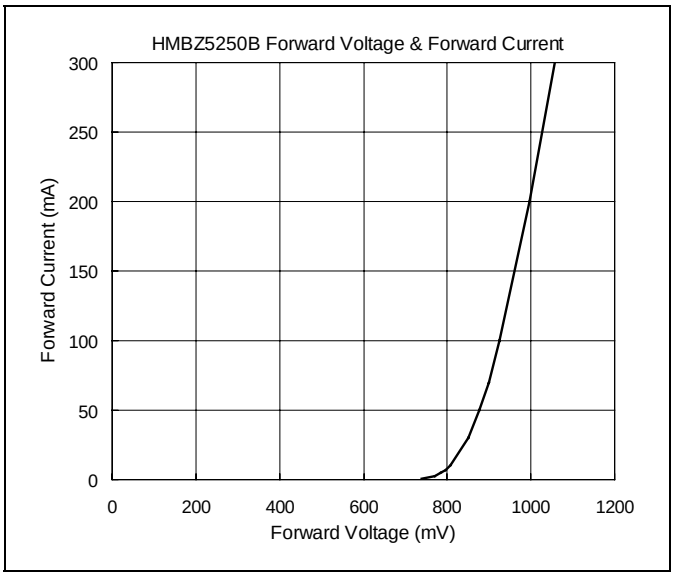

HMBZ5246B Reverse Voltage & Reverse Current
Reverse Current (mA)
100
80
60
40
20
0
11000
12000
13000
14000
15000
16000
Reverse Voltage (mV)

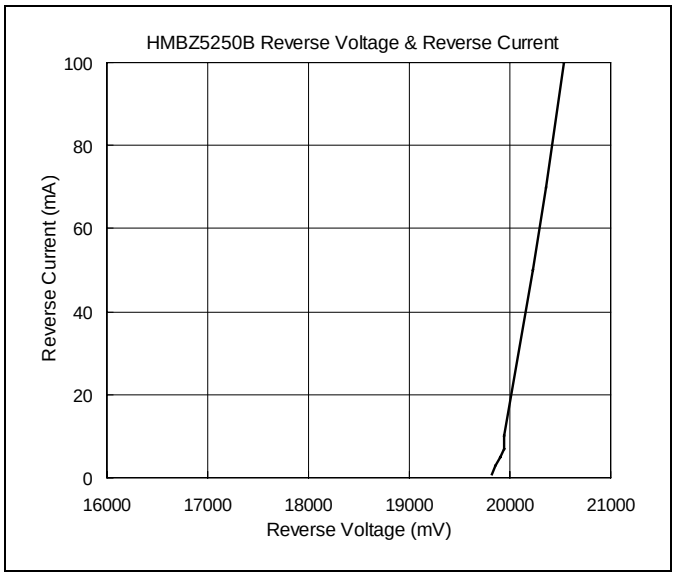

HMBZ5247B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

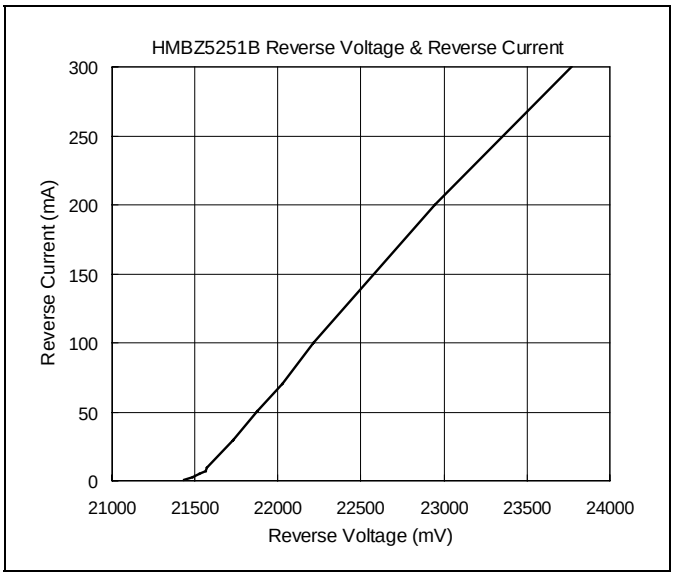

HMBZ5247B Reverse Voltage & Reverse Current
Reverse Current (mA)
100
80
60
40
20
0
13000
14000
15000
16000
17000
18000
Reverse Voltage (mV)

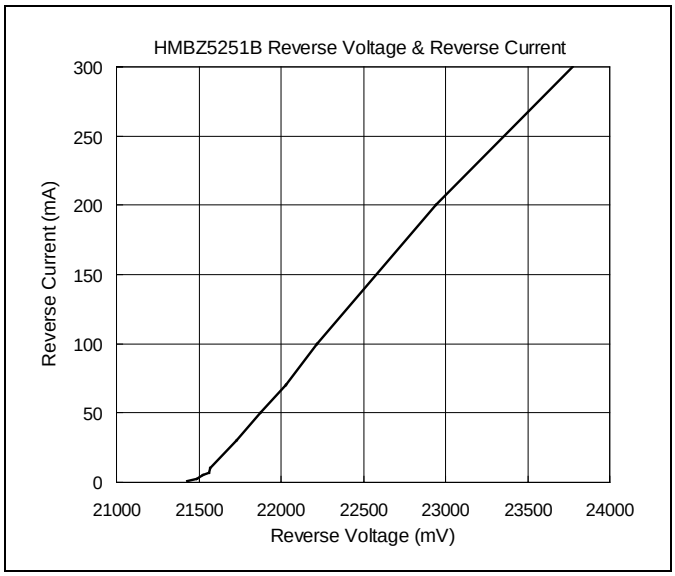

HMBZ5248B Forward Voltage & Forward Current
Forward Current (mA)
350
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

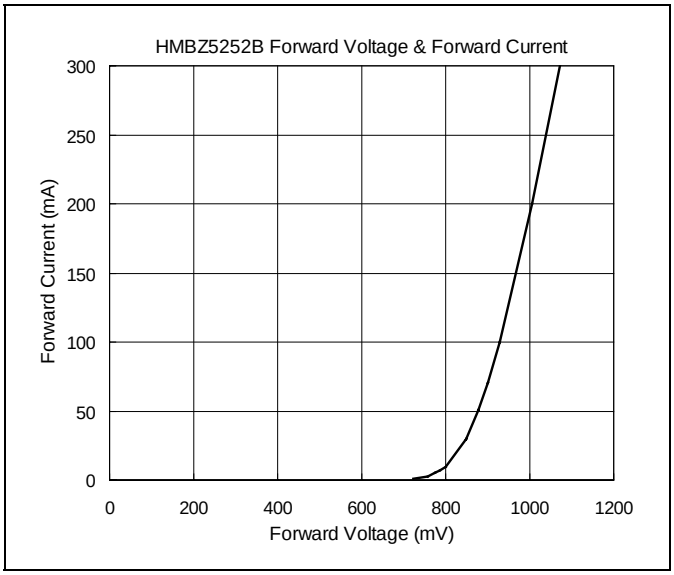

HMBZ5248B Reverse Voltage & Reverse Current
Reverse Current (mA)
100
80
60
40
20
0
13000
14000
15000
16000
17000
18000
Reverse Voltage (mV)

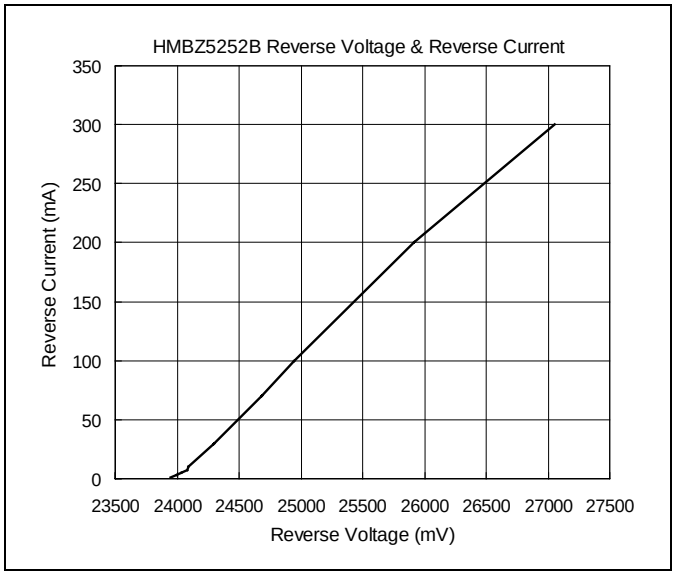

HMBZ5250B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

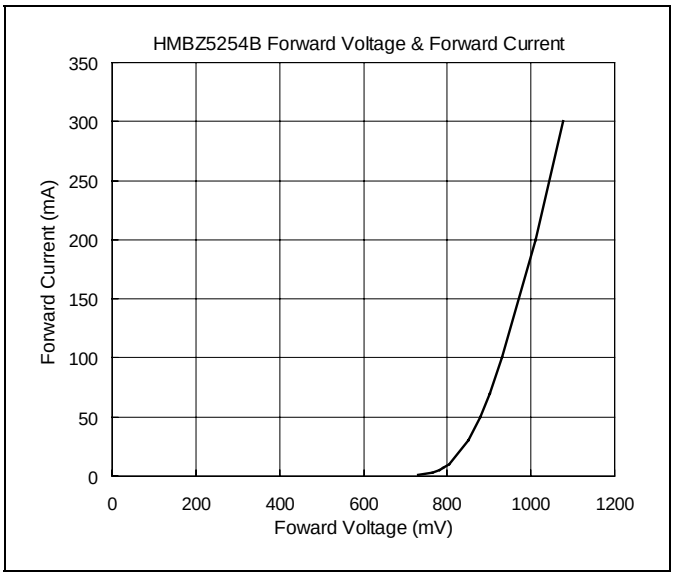

HMBZ5250B Reverse Voltage & Reverse Current
Reverse Current (mA)
100
80
60
40
20
0
16000
17000
18000
19000
20000
21000
Reverse Voltage (mV)

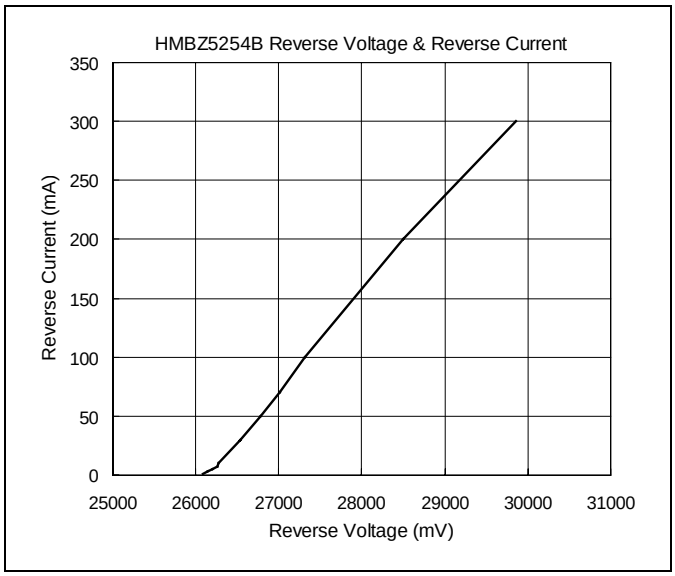

HMBZ5251B Reverse Voltage & Reverse Current
Reverse Current (mA)
300
250
200
150
100
50
0
21000
21500
22000
22500
23000
23500
24000
Reverse Voltage (mV)

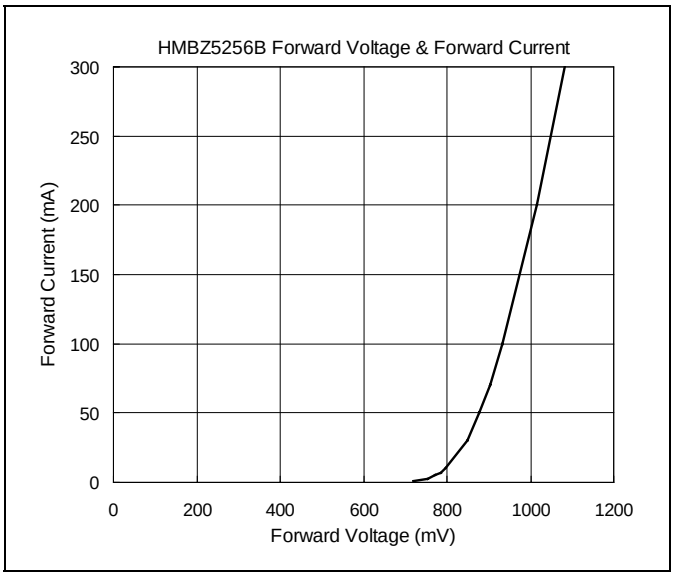

HMBZ5251B Reverse Voltage & Reverse Current
Reverse Current (mA)
300
250
200
150
100
50
0
21000
21500
22000
22500
23000
23500
24000
Reverse Voltage (mV)

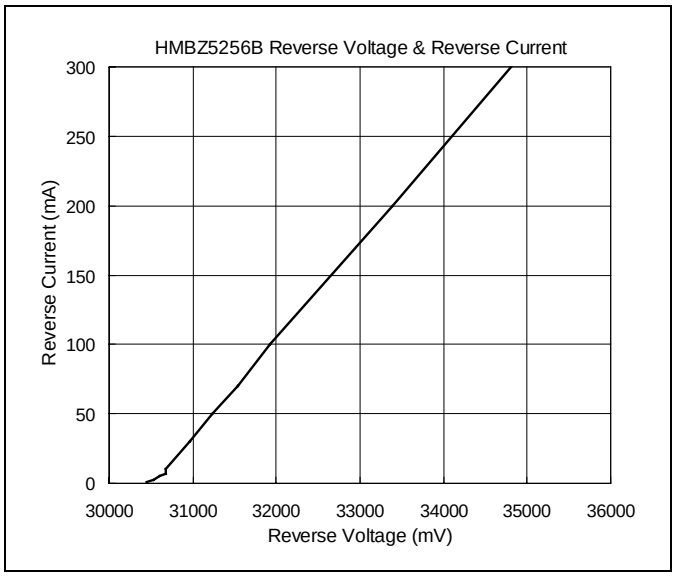

HMBZ5252B Forward Voltage & Forward Current
Forward Current (mA)
300
250
200
150
100
50
0
0
200
400
600
800
1000
1200
Forward Voltage (mV)

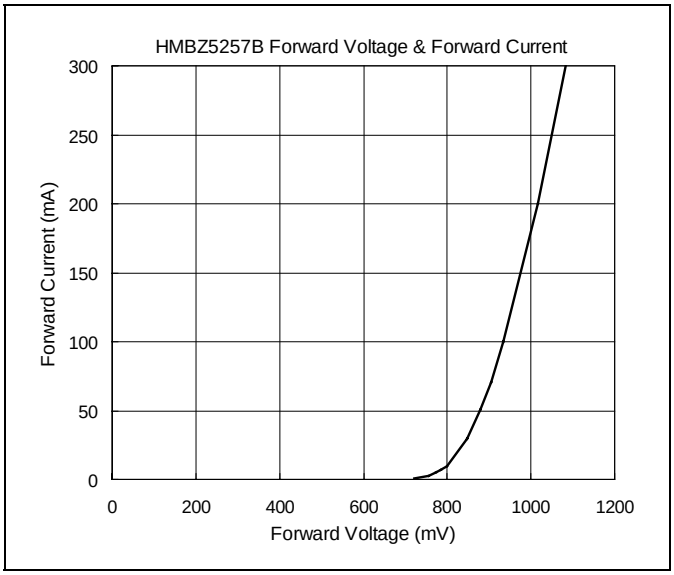

HMBZ5252B Reverse Voltage & Reverse Current
Reverse Current (mA)
350
300
250
200
150
100
50
0
23500
24000
24500
25000
25500
26000
26500
27000
27500
Reverse Voltage (mV)

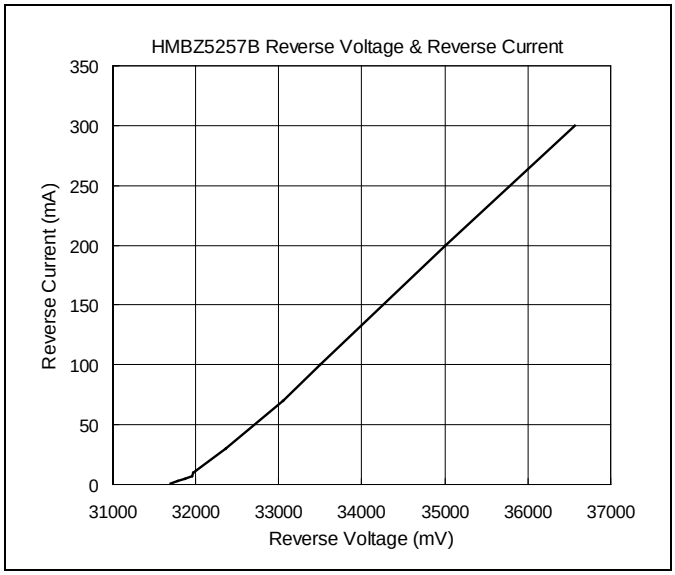

HMBZ5254B Forward Voltage & Forward Current
Forward Current (mA)
0
50
100
150
200
250
300
350
0
200
400
600
800
1000
1200
Foward Voltage (mV)


HMBZ5254B Reverse Voltage & Reverse Current
Reverse Current (mA)
0
50
100
150
200
250
300
350
25000
26000
27000
28000
29000
30000
31000
Reverse Voltage (mV)


HMBZ5256B Forward Voltage & Forward Current
Forward Current (mA)
0
50
100
150
200
250
300
0
200
400
600
800
1000
1200
Forward Voltage (mV)


HMBZ5256B Reverse Voltage & Reverse Current
Reverse Current (mA)
0
50
100
150
200
250
300
30000
31000
32000
33000
34000
35000
36000
Reverse Voltage (mV)


HMBZ5257B Forward Voltage & Forward Current
Forward Current (mA)
0
50
100
150
200
250
300
0
200
400
600
800
1000
1200
Forward Voltage (mV)


HMBZ5257B Reverse Voltage & Reverse Current
Reverse Current (mA)
0
50
100
150
200
250
300
350
31000
32000
33000
34000
35000
36000
37000
Reverse Voltage (mV)

SOT-23 Dimension

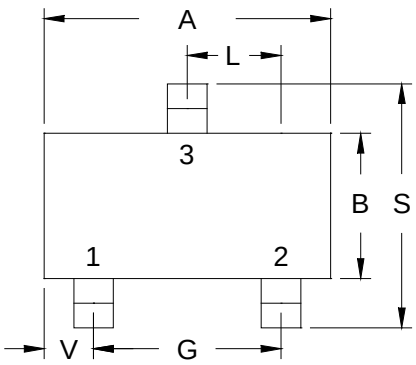
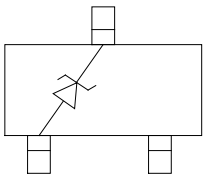
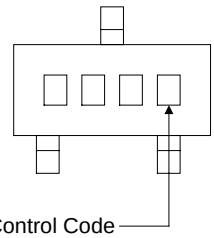


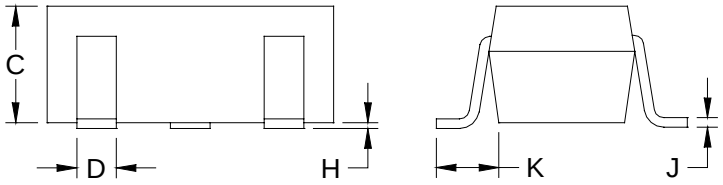
Diagram:



Marking:



3-Lead SOT-23 Plastic Surface Mounted Package
HSMC Package Code: N



Style: Pin 1.Anode 2.NC 3.Cathode

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.1102	0.1204	2.80	3.04	J	0.0034	0.0070	0.085	0.177
B	0.0472	0.0630	1.20	1.60	K	0.0128	0.0266	0.32	0.67
C	0.0335	0.0512	0.89	1.30	L	0.0335	0.0453	0.85	1.15
D	0.0118	0.0197	0.30	0.50	S	0.0830	0.1083	2.10	2.75
G	0.0669	0.0910	1.70	2.30	V	0.0098	0.0256	0.25	0.65
H	0.0005	0.0040	0.013	0.10					

Notes: 1.Dimension and tolerance based on our Spec. dated Sep. 07,1997.
2.Controlling dimension: millimeters.
3.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
4.If there is any question with packing specification or packing method, please contact your local HSMC sales office.

Material:

- Lead: 42 Alloy; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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