

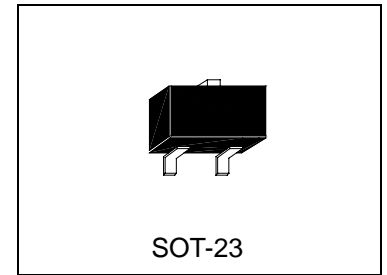


HMBZ5221B

thru

HMBZ5257B

ZENER DIODES



Thermal Characteristics

Characteristics	Symbol	Max	Unit
Total Device Dissipation FR-5 Board $T_A=25^\circ\text{C}$, Derate above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Total Device Dissipation Alumina Substrate** $T_A=25^\circ\text{C}$, Derate above 25°C	P_D	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Junction and Storage Temperature	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

*FR-5 - 1.0x0.75x0.062 in. **Alumina - 0.4x0.3x0.024 in. 99.5% alumina.

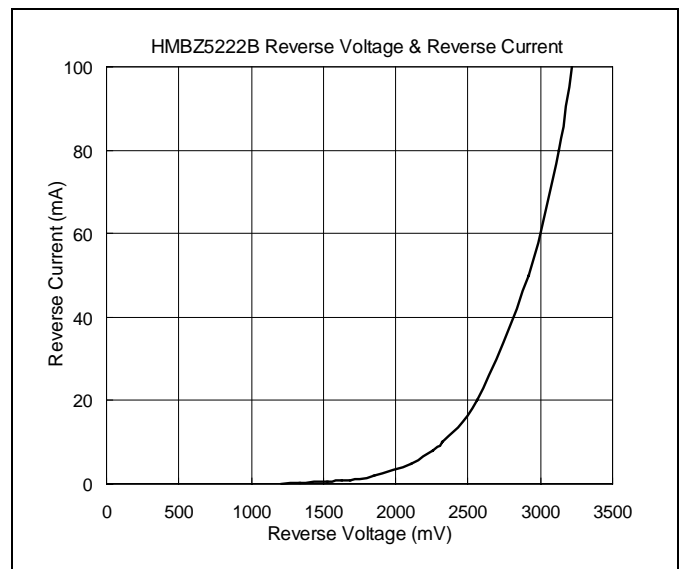
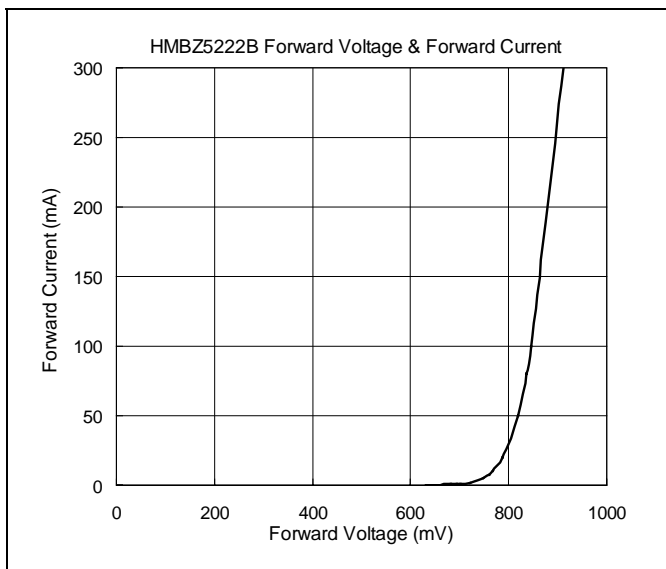
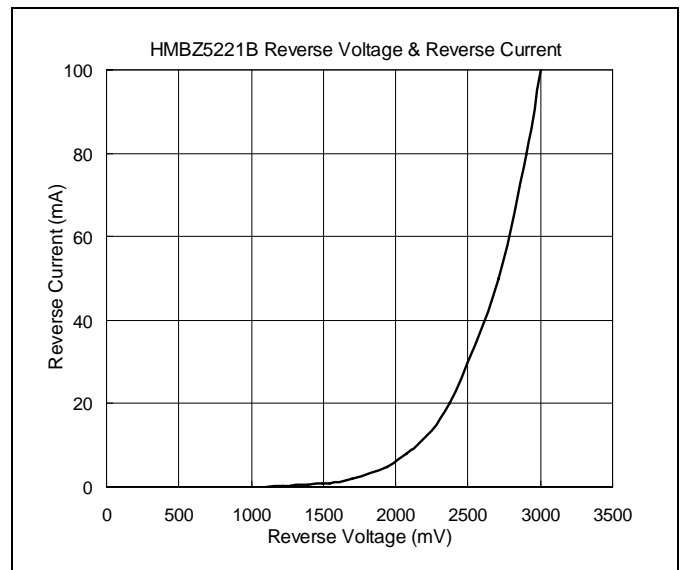
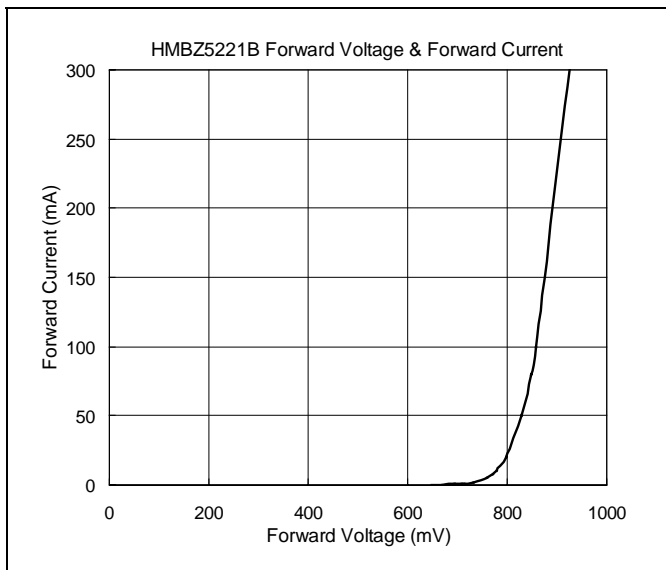
Electrical Characteristic ($V_F=0.9\text{V}$ Max. @ $I_F=10\text{mA}$ for all types.)

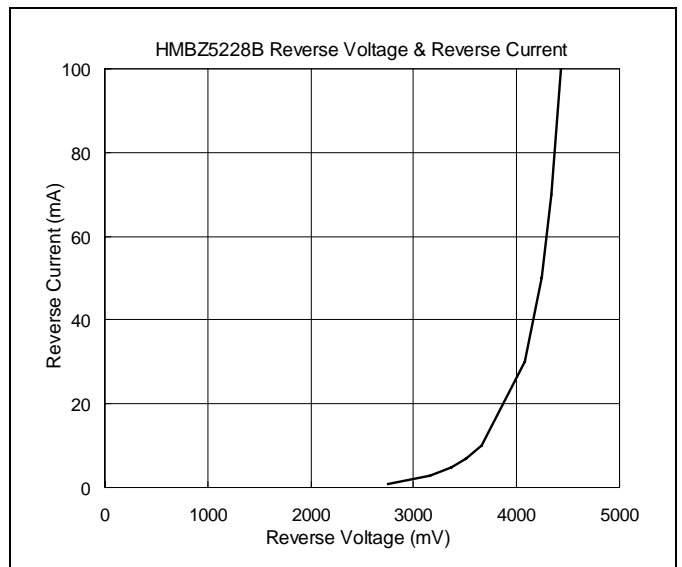
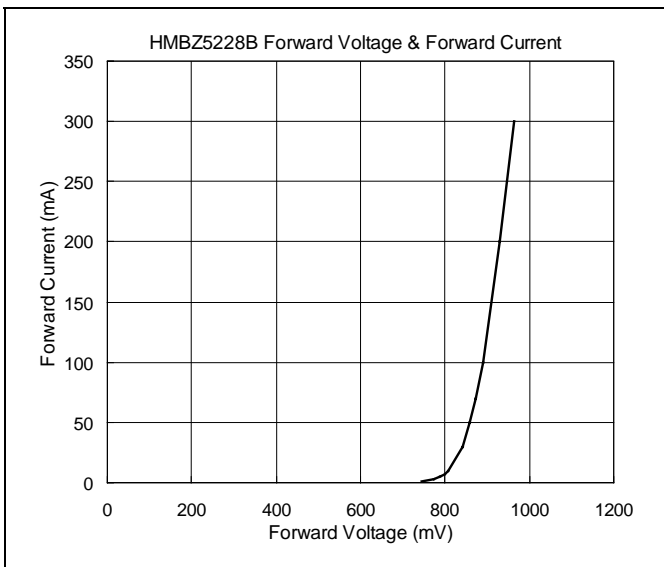
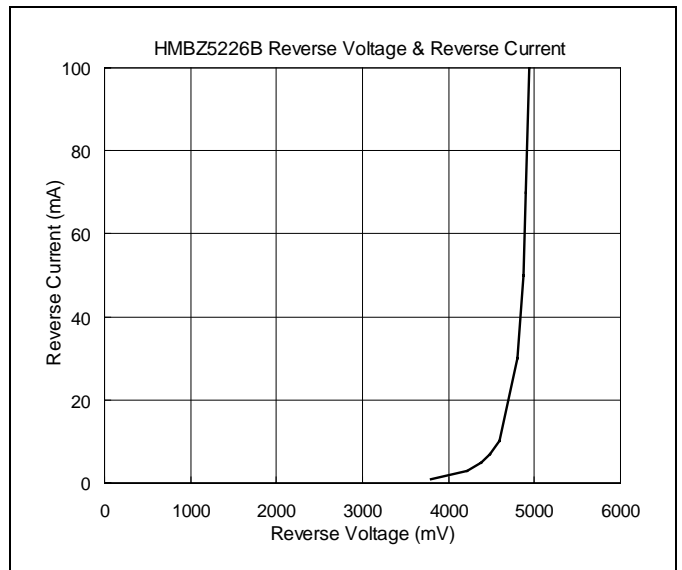
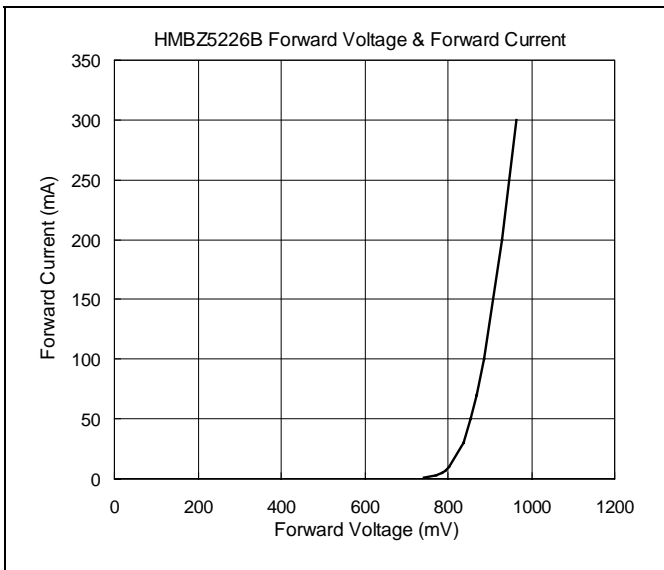
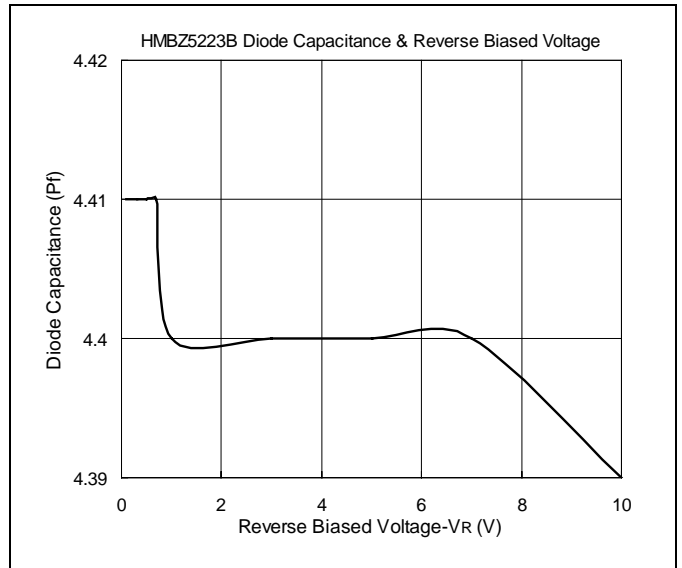
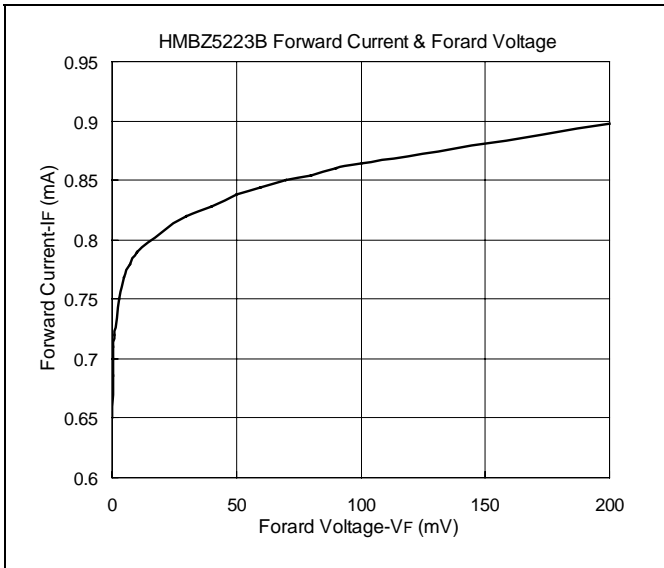
Device	Marking Code	Test Current $I_{ZT}(\text{mA})$	Zener Voltage $V_Z(\text{V})$	Z_{ZK} $I_Z=0.25\text{mA}$ $\Omega\text{Max.}$	Z_{ZT} $I_Z=I_{ZT}$ $\Omega\text{Max.}$	Max. Reverse Current	
						$I_R(\mu\text{A})$	@ $V_R(\text{V})$
HMBZ5221B	18A	20	2.4 $\pm 5\%$	1200	30	100	1.0
HMBZ5222B	18B	20	2.5 $\pm 5\%$	1250	30	100	1.0
HMBZ5223B	18C	20	2.7 $\pm 5\%$	1300	30	75	1.0
HMBZ5225B	18E	20	3.0 $\pm 5\%$	1600	29	50	1.0
HMBZ5226B	8A	20	3.3 $\pm 5\%$	1600	28	25	1.0
HMBZ5227B	8B	20	3.6 $\pm 5\%$	1700	24	15	1.0
HMBZ5228B	8C	20	3.9 $\pm 5\%$	1900	23	10	1.0
HMBZ5229B	8D	20	4.3 $\pm 5\%$	2000	22	5.0	1.0
HMBZ5230B	8E	20	4.7 $\pm 5\%$	1900	19	5.0	2.0
HMBZ5231B	8F	20	5.1 $\pm 5\%$	1600	17	5.0	2.0
HMBZ5232B	8G	20	5.6 $\pm 5\%$	1600	11	5.0	3.0
HMBZ5233B	8H	20	6.0 $\pm 5\%$	1600	7.0	5.0	3.5
HMBZ5234B	8J	20	6.2 $\pm 5\%$	1000	7.0	5.0	4.0
HMBZ5235B	8K	20	6.8 $\pm 5\%$	750	5.0	3.0	5.0
HMBZ5236B	8L	20	7.5 $\pm 5\%$	500	6.0	3.0	6.0
HMBZ5237B	8M	20	8.2 $\pm 5\%$	500	8.0	3.0	6.5
HMBZ5238B	8N	20	8.7 $\pm 5\%$	600	8.0	3.0	6.5
HMBZ5239B	8P	20	9.1 $\pm 5\%$	600	10	3.0	7.0
HMBZ5240B	8Q	20	10 $\pm 5\%$	600	17	3.0	8.0
HMBZ5241B	8R	20	11 $\pm 5\%$	600	22	2.0	8.4
HMBZ5242B	8S	20	12 $\pm 5\%$	600	30	1.0	9.1
HMBZ5243B	8T	9.5	13 $\pm 5\%$	600	13	0.5	9.9
HMBZ5244B	8U	9.0	14 $\pm 5\%$	600	15	0.1	10

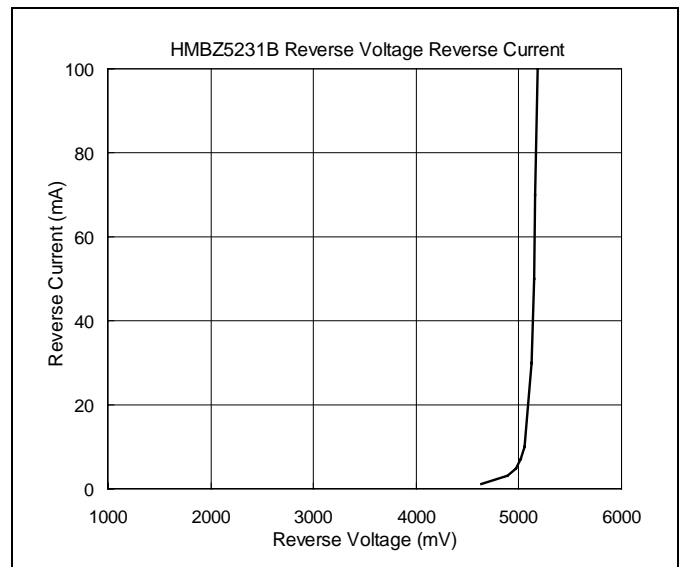
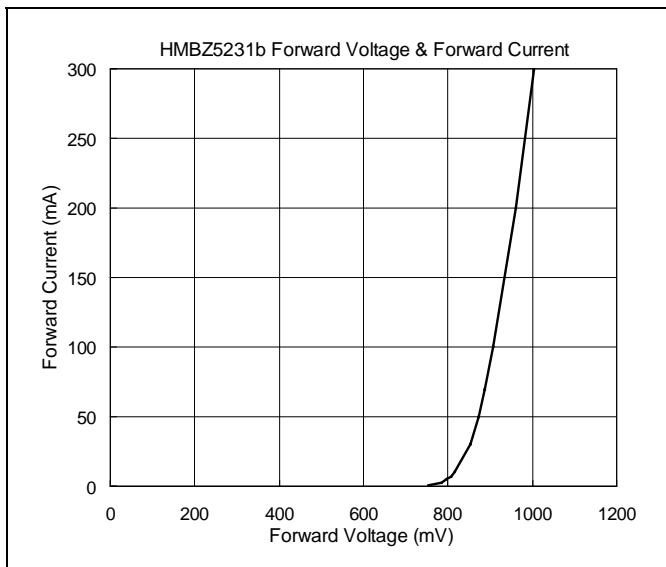
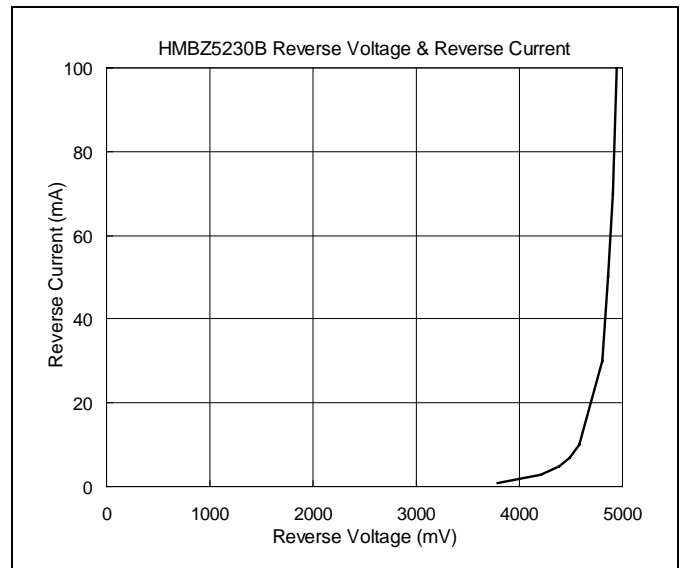
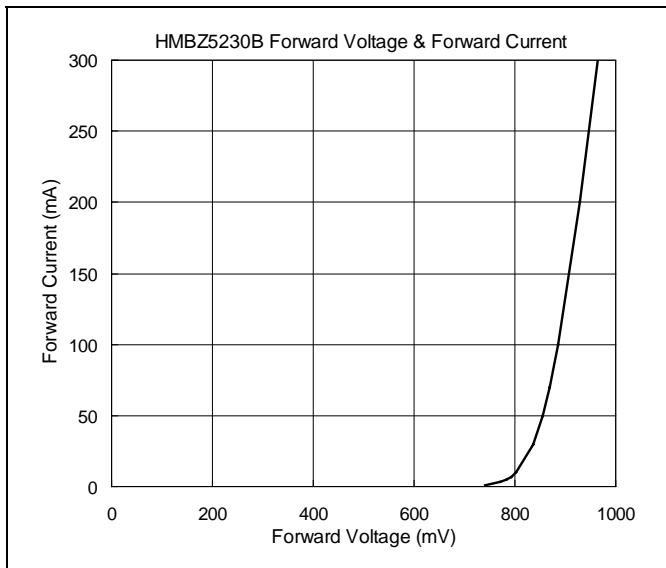
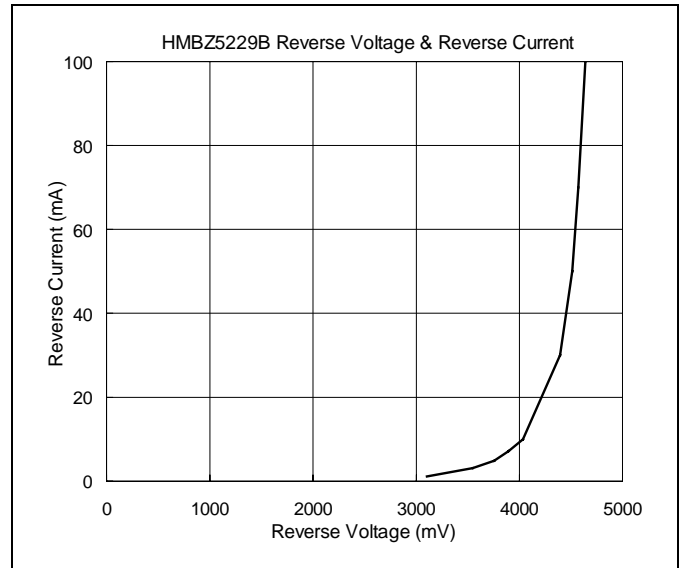
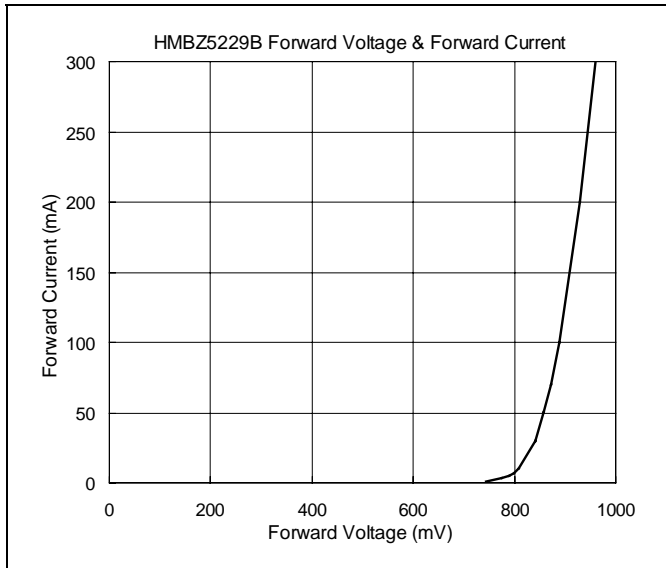


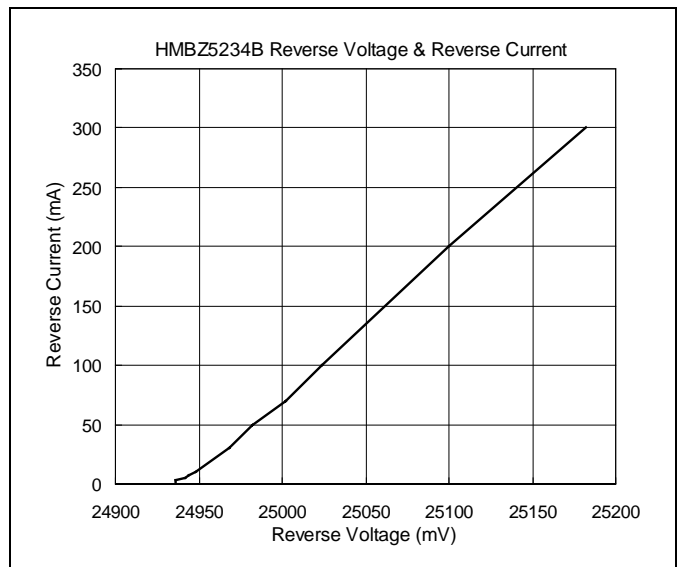
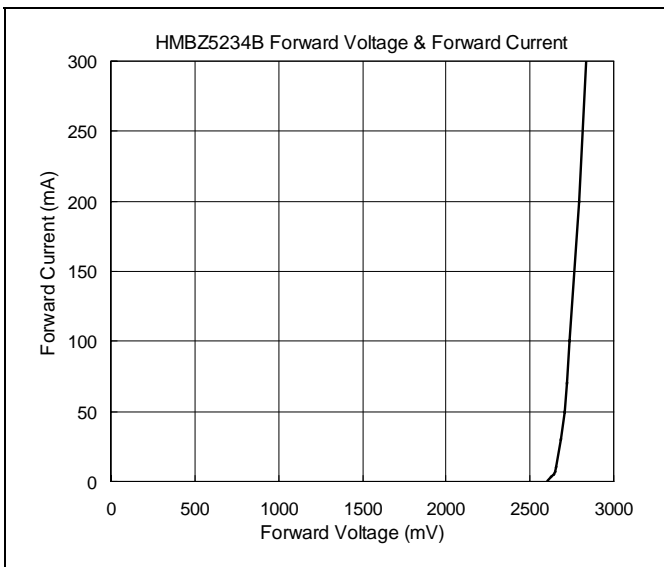
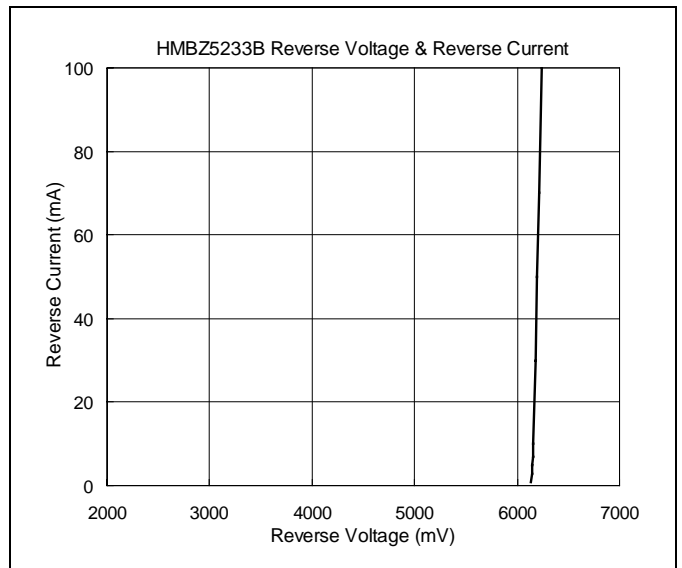
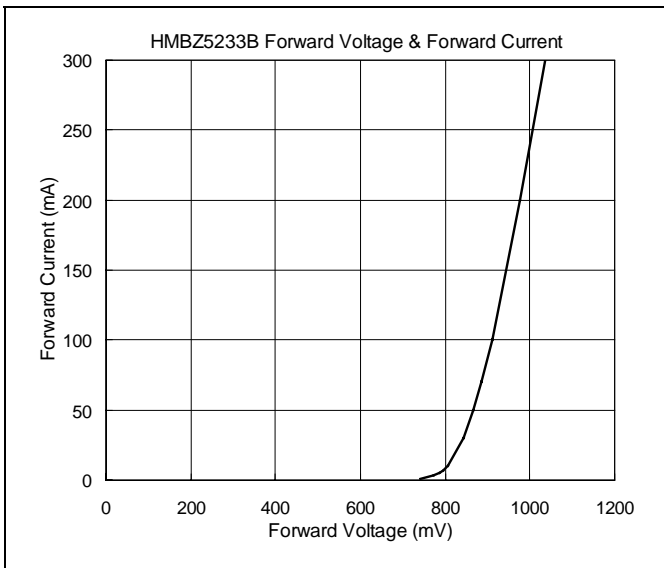
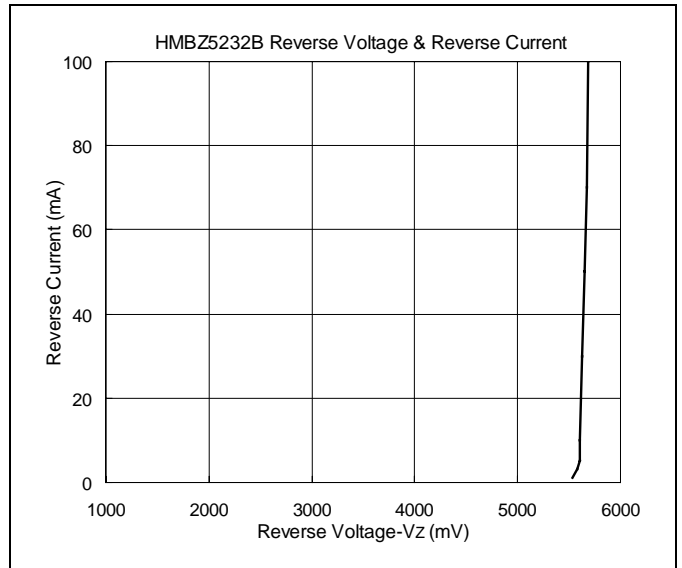
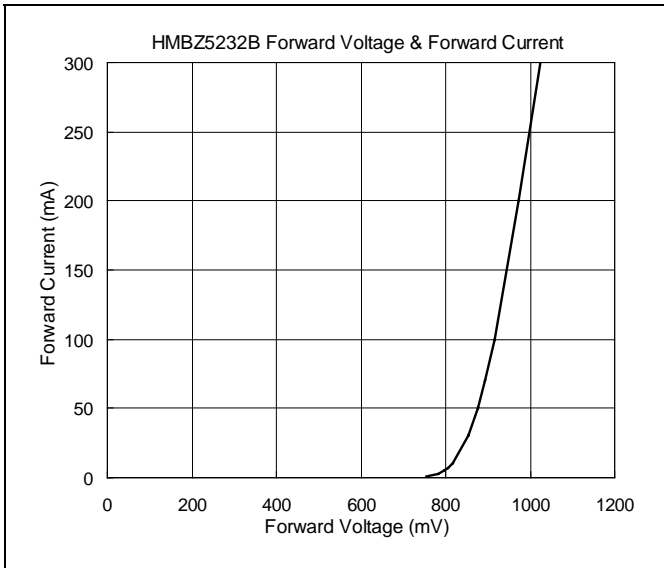
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HMBZ5246B	8W	7.8	16 ±5%	600	17	0.1	12
HMBZ5247B	8X	7.4	17 ±5%	600	19	0.1	13
HMBZ5248B	8Y	7.0	18 ±5%	600	21	0.1	14
HMBZ5249B	8Z	6.6	19 ±5%	600	23	0.1	14
HMBZ5250B	81A	6.2	20 ±5%	600	25	0.1	15
HMBZ5251B	81B	5.6	22 ±5%	600	29	0.1	17
HMBZ5252B	81C	5.2	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

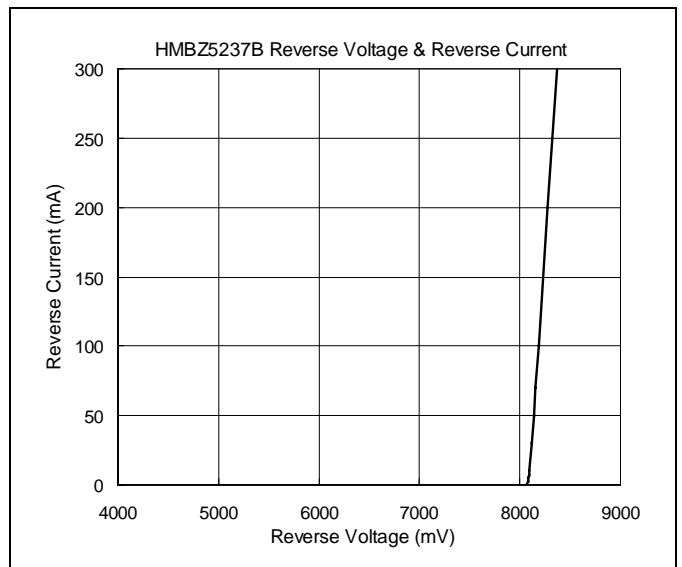
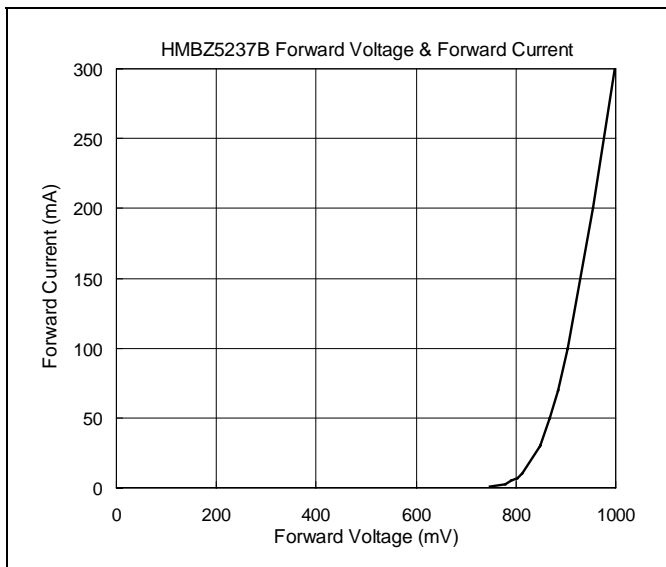
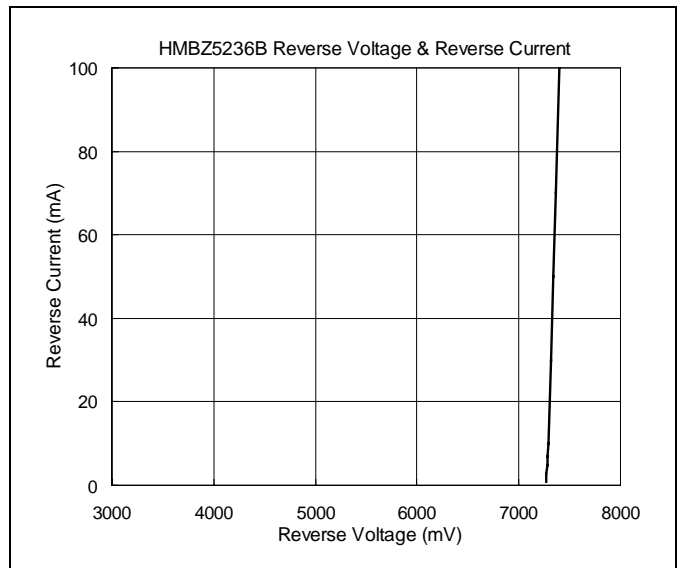
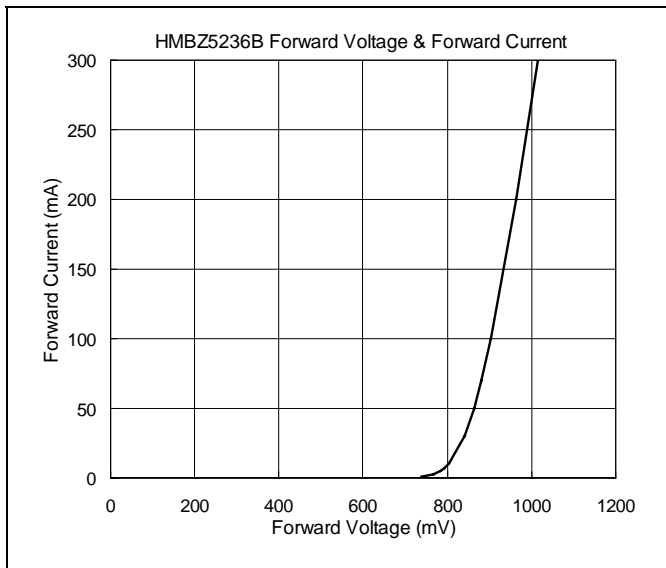
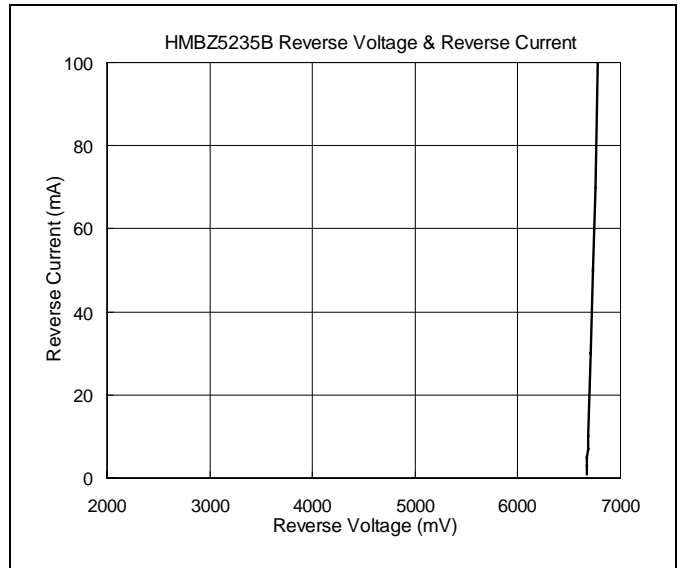
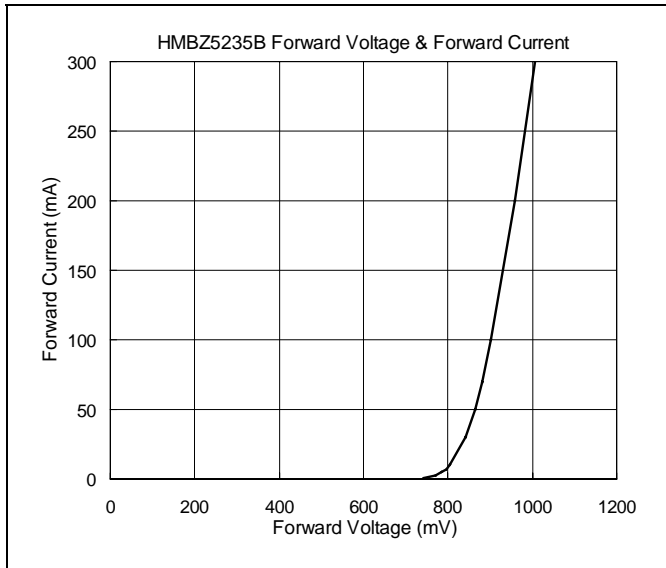
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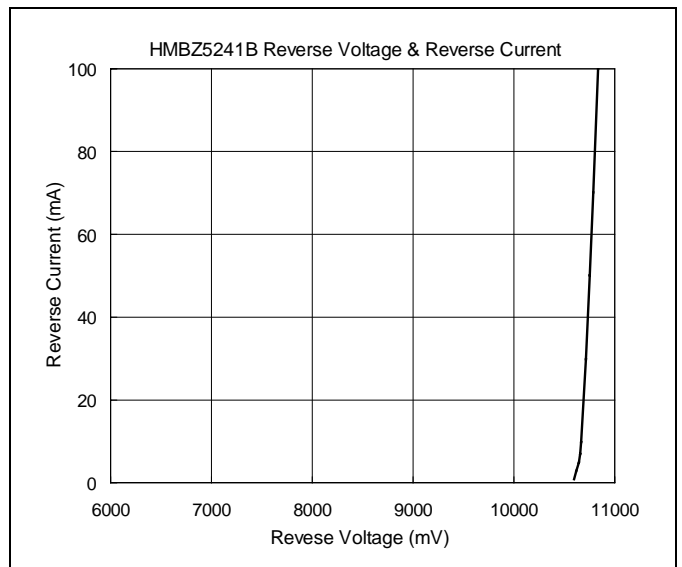
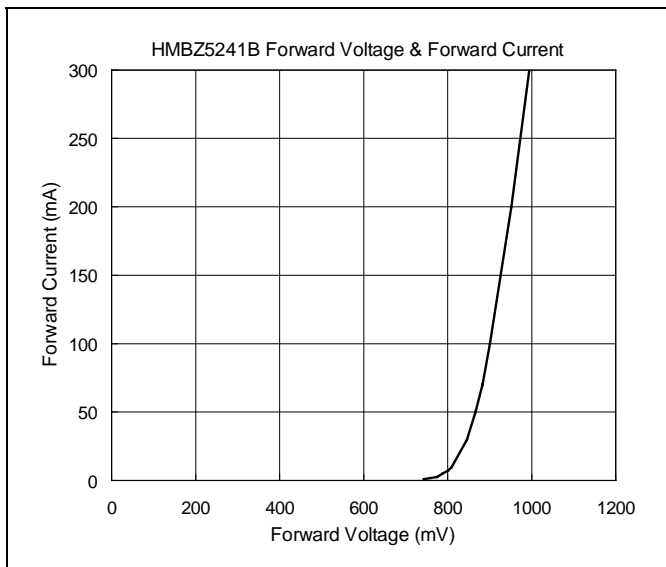
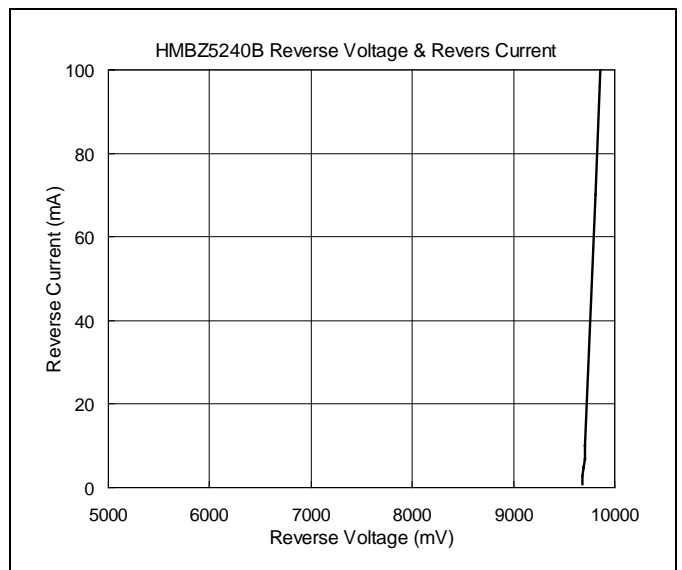
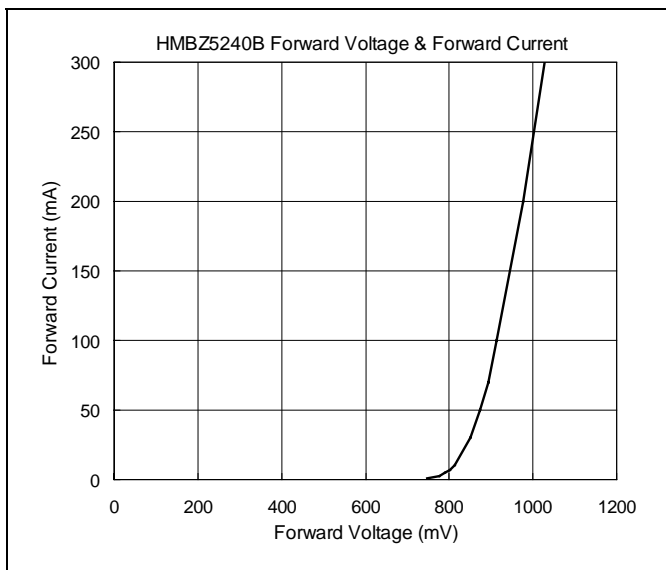
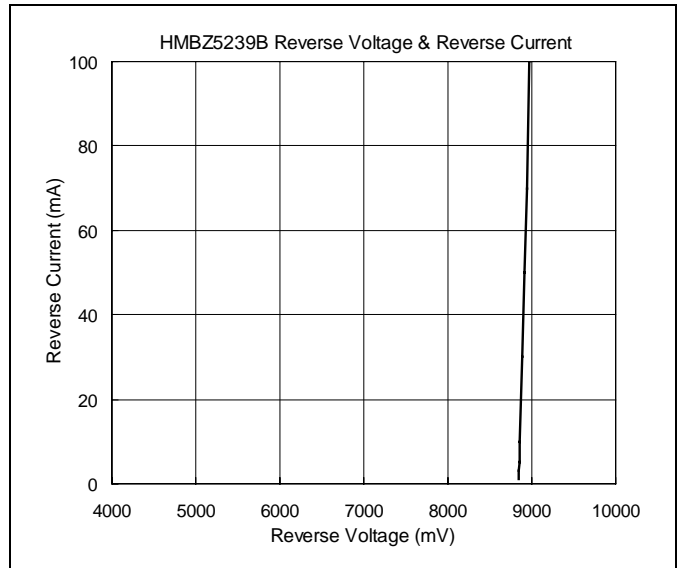
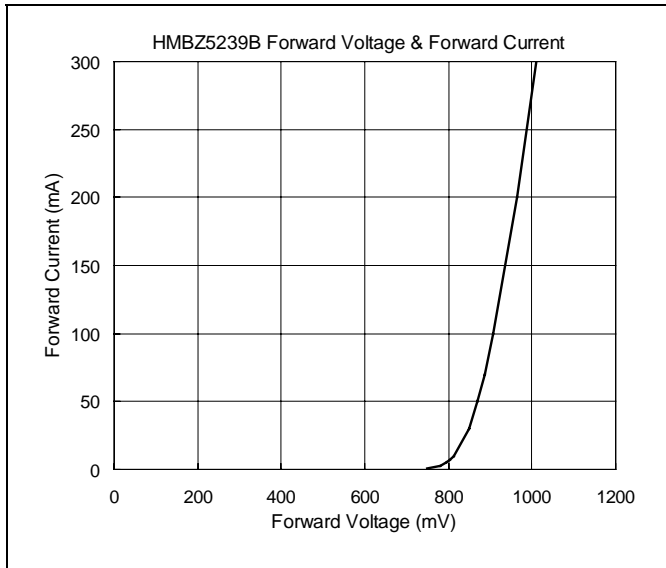


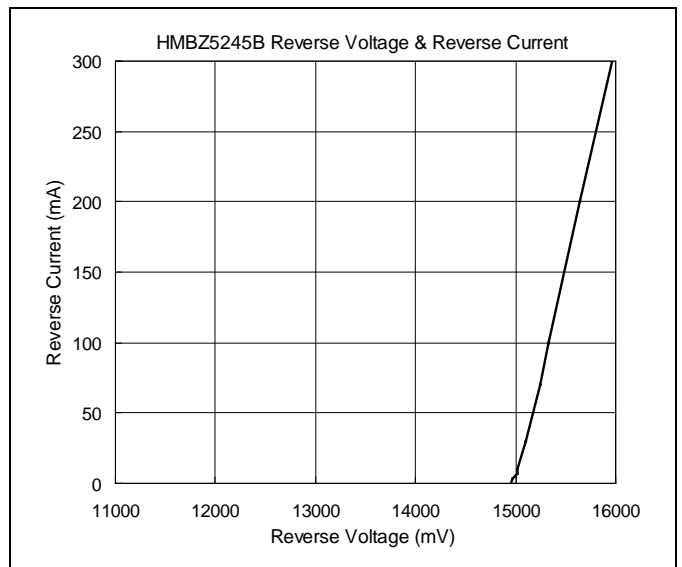
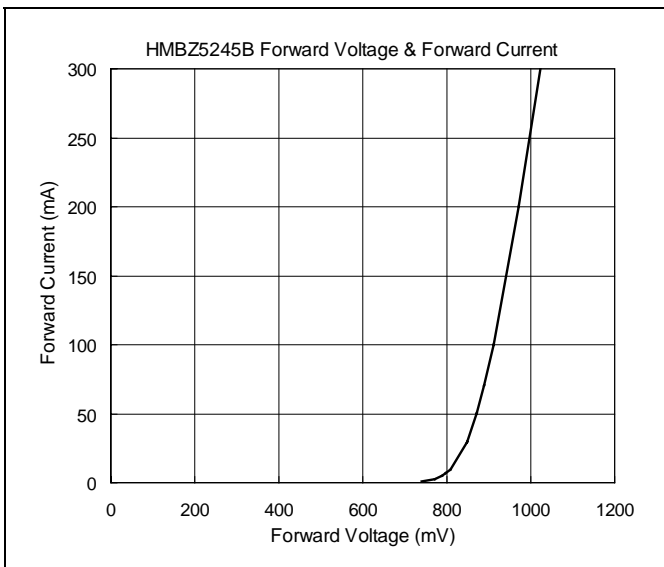
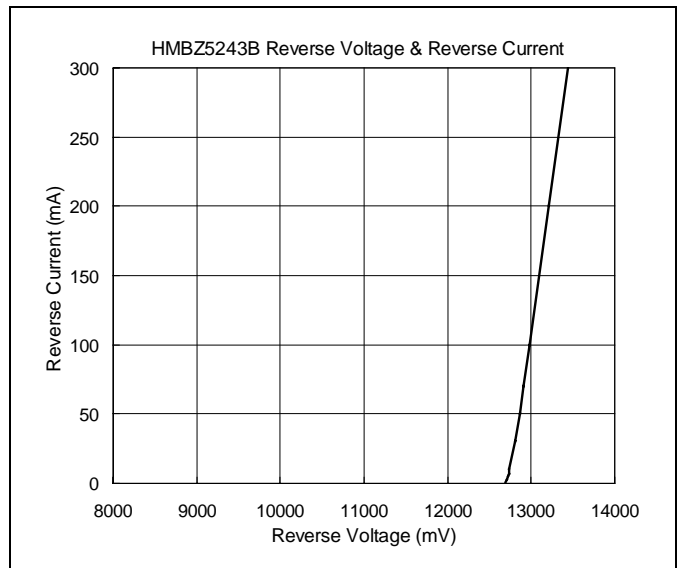
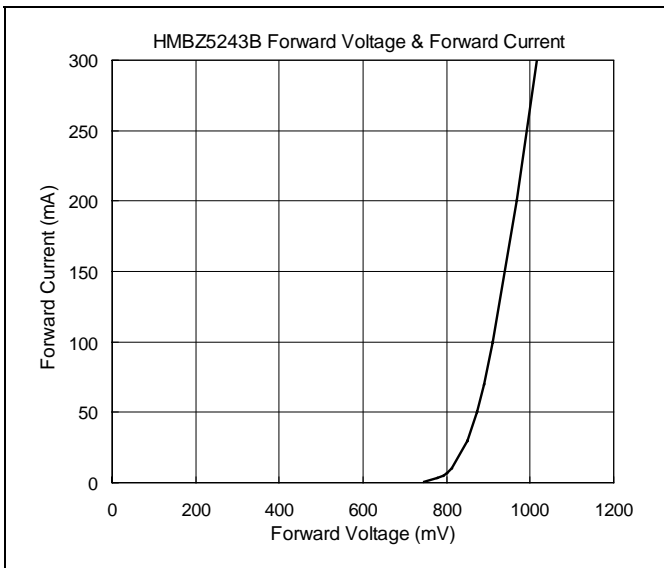
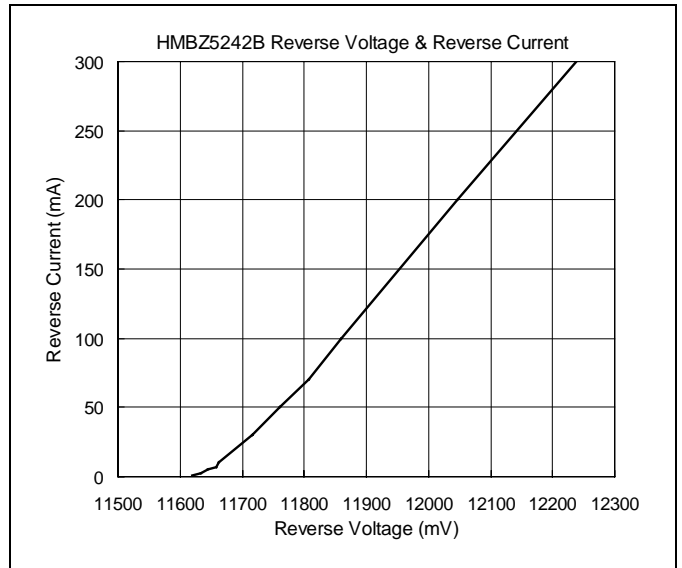
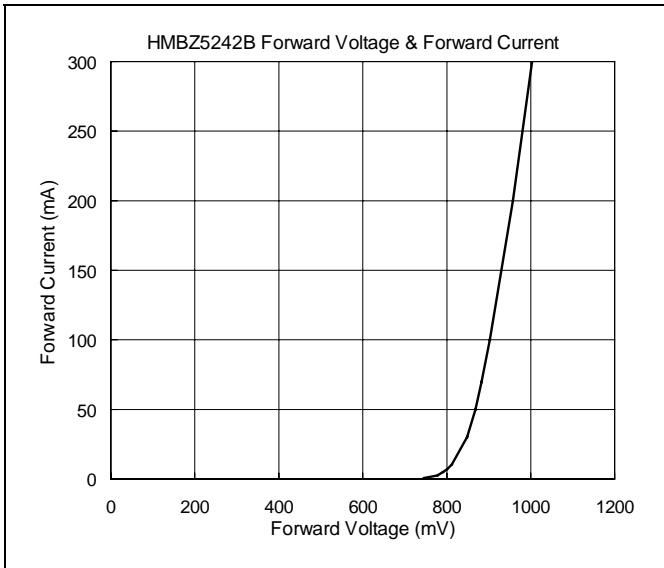


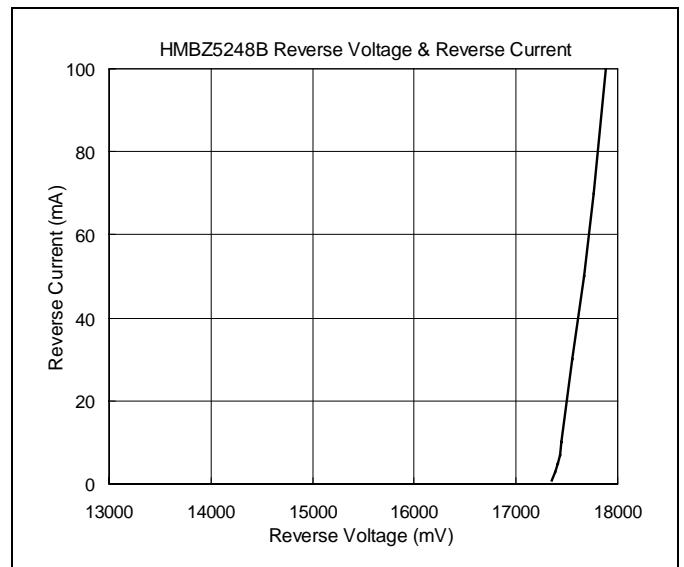
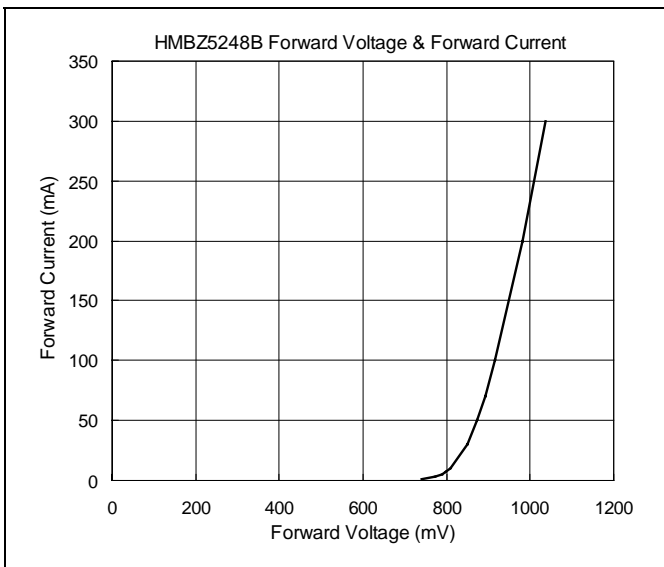
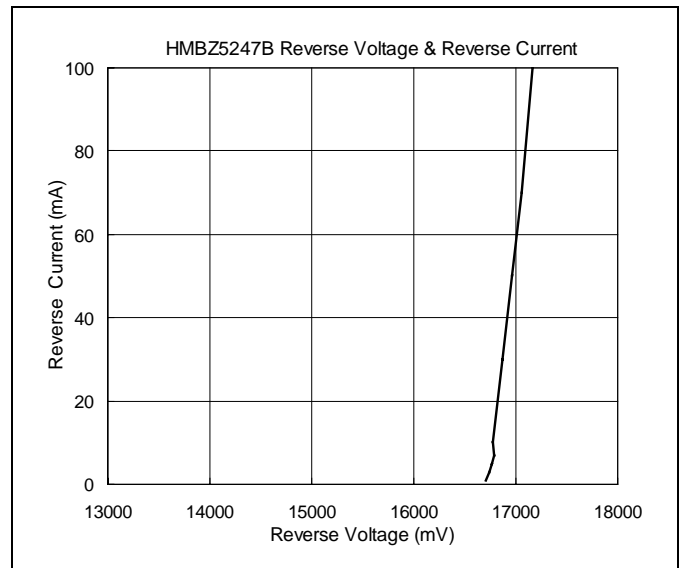
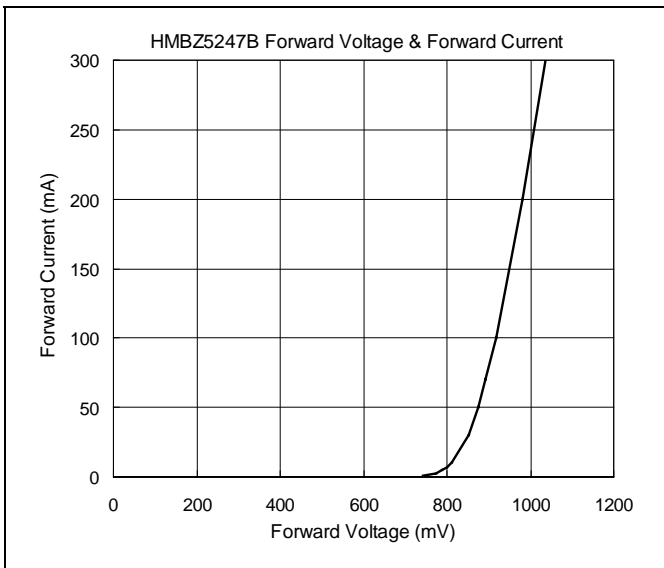
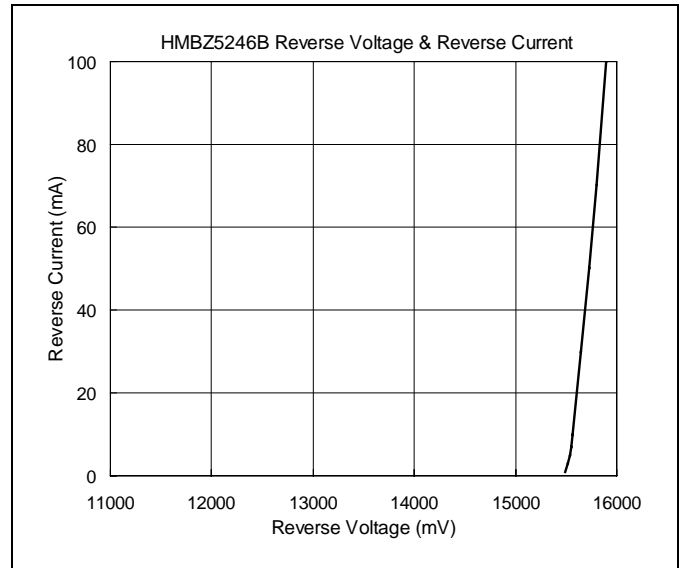
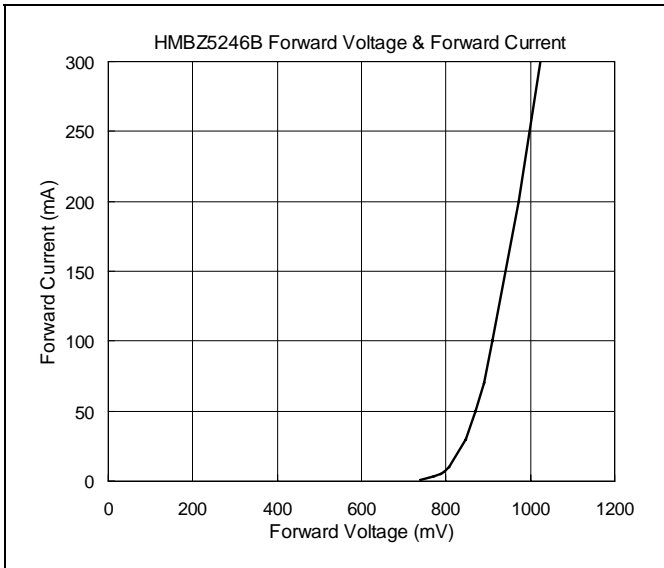


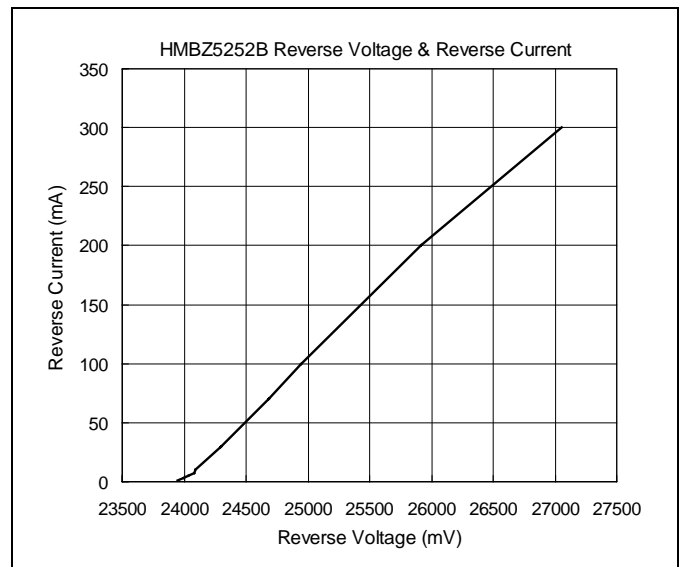
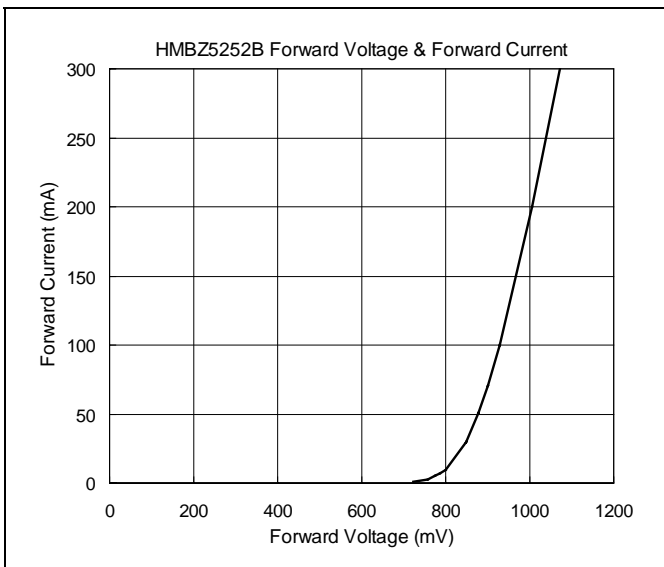
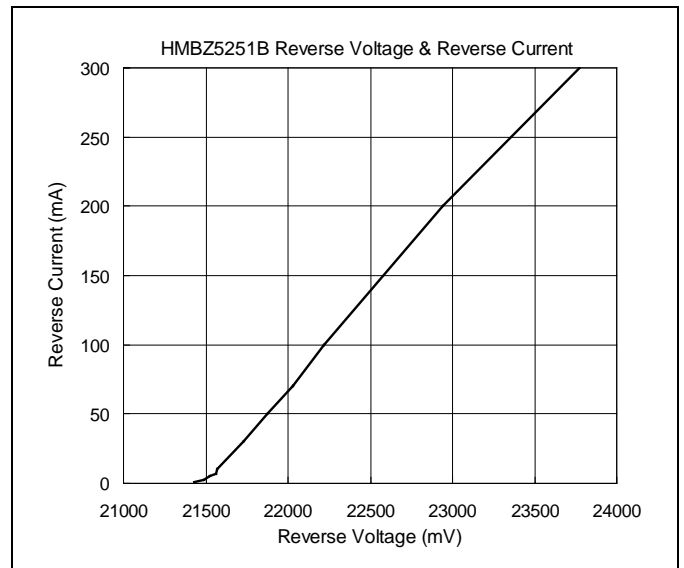
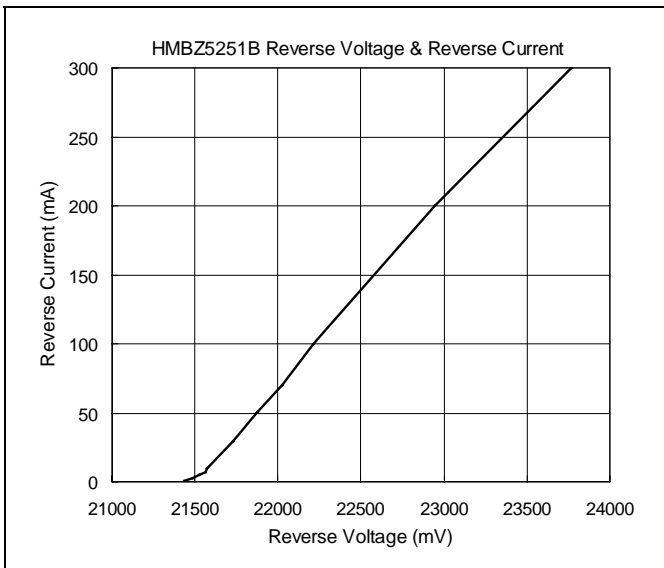
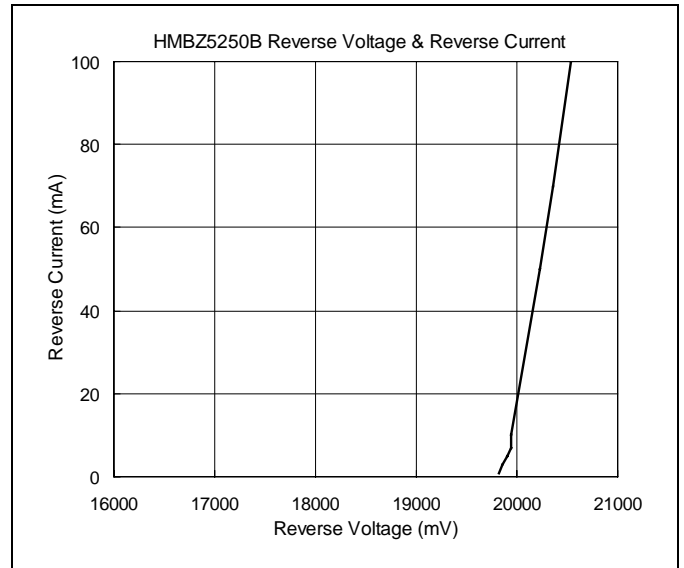
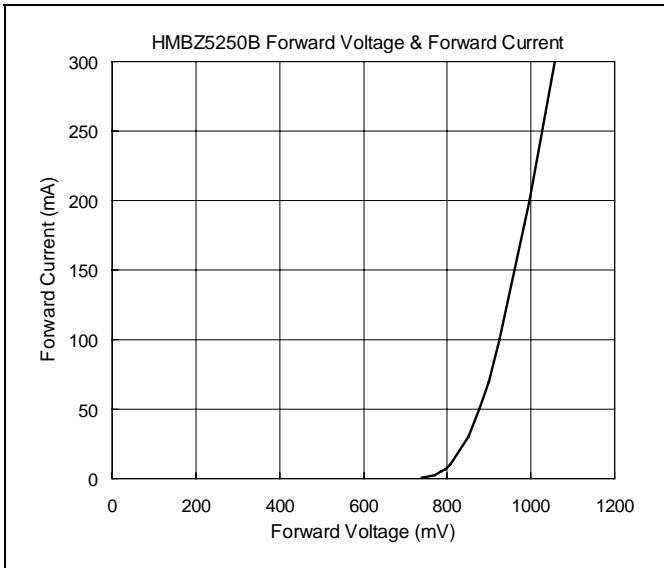


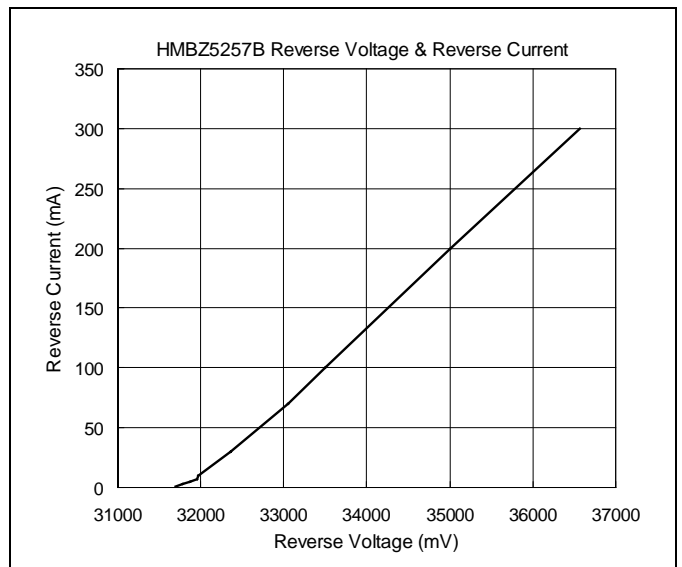
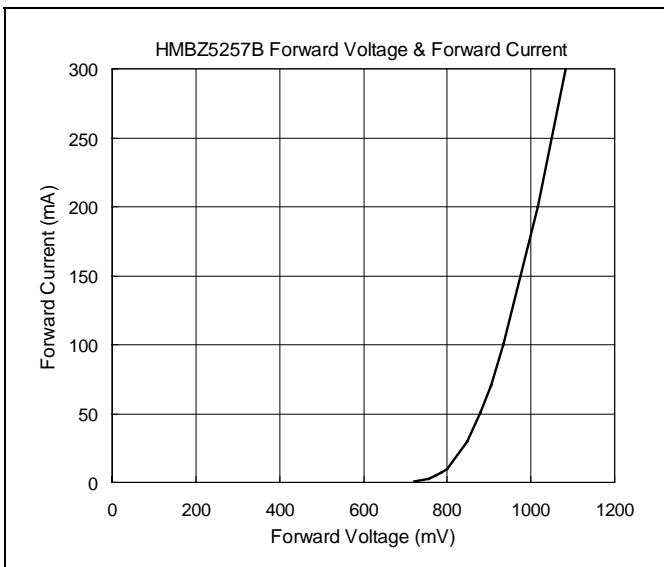
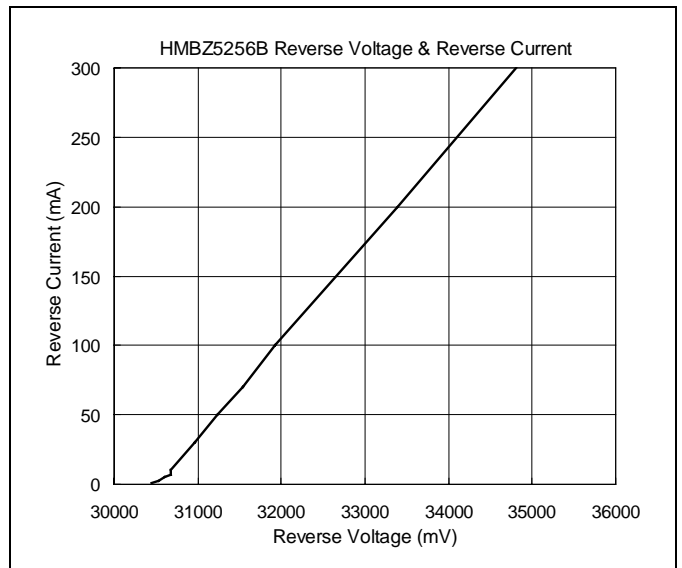
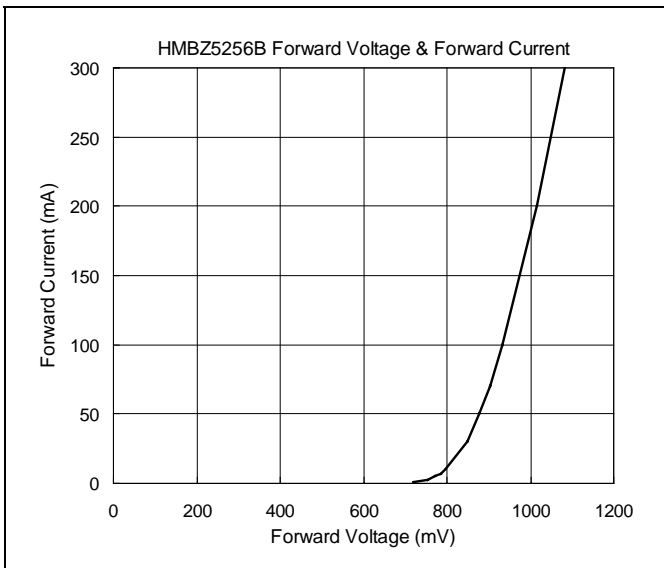
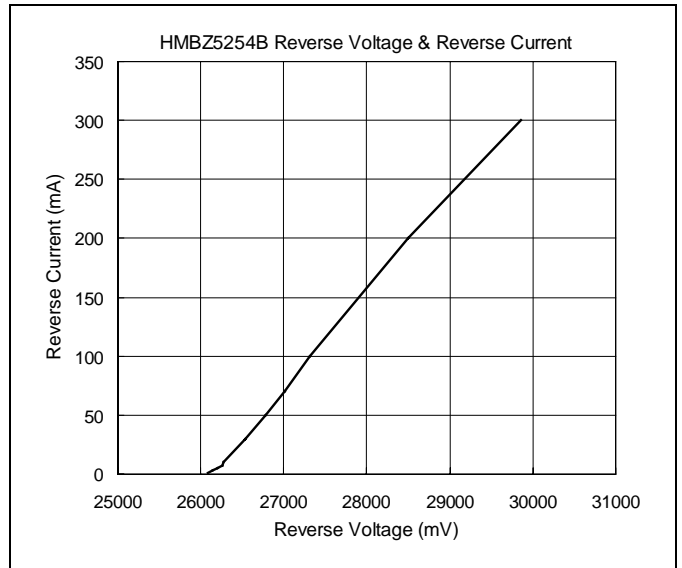
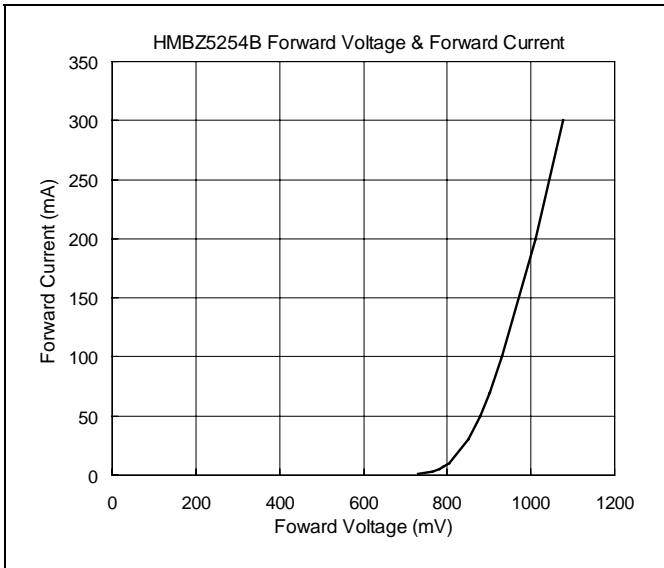














SOT-23 Dimension

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

Marking:

Marking Code
(See Page1)

Pb Free Mark
Pb-Free: "●" (Note)
Normal: None

Diagram:

Note: Pb-free product can distinguish by the green label or the extra description on the right side of the label.

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

Material:

- Lead solder plating: Sn60/Pb40 (Normal), Sn/3.0Ag/0.5Cu or Pure-Tin (Pb-free)
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

DIM	Min.	Max.
A	2.80	3.04
B	1.20	1.60
C	0.89	1.30
D	0.30	0.50
G	1.70	2.30
H	0.013	0.10
J	0.085	0.177
K	0.32	0.67
L	0.85	1.15
S	2.10	2.75
V	0.25	0.65

*: Typical, Unit: mm

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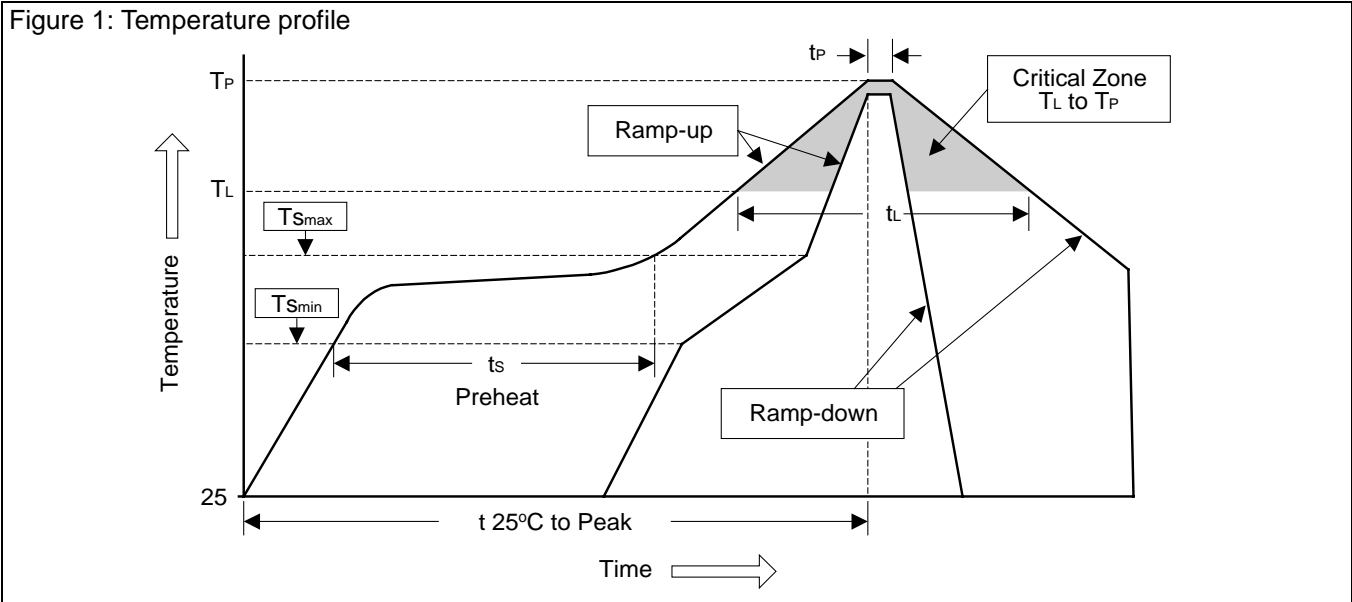
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Tel: 886-2-25212056 Fax: 886-2-25632712, 25368454
- **Factory 1:** No. 38, Kuang Fu S. Rd., Fu-Kou Hsin-Chu Industrial Park Hsin-Chu Taiwan. R.O.C
Tel: 886-3-5983621~5 Fax: 886-3-5982931



Soldering Methods for HSMC's Products

1. Storage environment: Temperature=10°C~35°C Humidity=65%±15%
2. Reflow soldering of surface-mount devices



Profile Feature	Sn-Pb Eutectic Assembly	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	$<3^{\circ}\text{C}/\text{sec}$	$<3^{\circ}\text{C}/\text{sec}$
Preheat		
- Temperature Min (T_{Smin})	100°C	150°C
- Temperature Max (T_{Smax})	150°C	200°C
- Time (min to max) (t_s)	60~120 sec	60~180 sec
T_{Smax} to T_L		
- Ramp-up Rate	$<3^{\circ}\text{C}/\text{sec}$	$<3^{\circ}\text{C}/\text{sec}$
Time maintained above:		
- Temperature (T_L)	183°C	217°C
- Time (t_L)	60~150 sec	60~150 sec
Peak Temperature (T_P)	240°C +0/-5°C	260°C +0/-5°C
Time within 5°C of actual Peak Temperature (t_p)	10~30 sec	20~40 sec
Ramp-down Rate	$<6^{\circ}\text{C}/\text{sec}$	$<6^{\circ}\text{C}/\text{sec}$
Time 25°C to Peak Temperature	<6 minutes	<8 minutes

3. Flow (wave) soldering (solder dipping)

Products	Peak temperature	Dipping time
Pb devices.	245°C ±5°C	5sec ±1sec
Pb-Free devices.	260°C +0/-5°C	5sec ±1sec