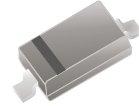


# AMMSZ5221B-HF Thru. AMMSZ5267B-HF

RoHS Device

Halogen Free

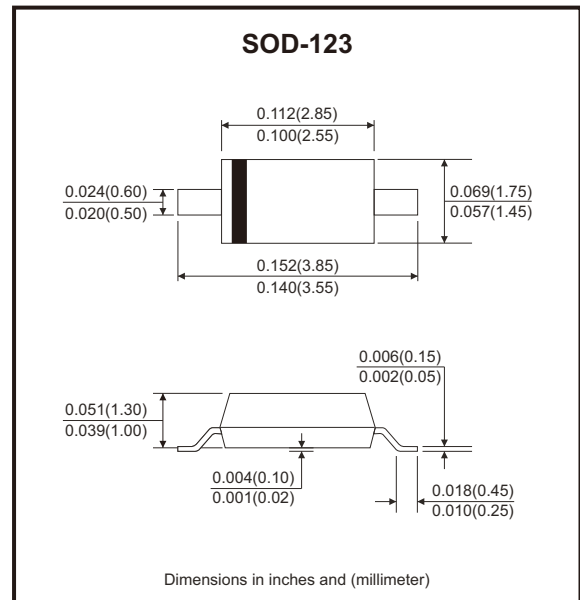


## Features

- Planar die construction.
- 500mW power dissipation.
- General purpose, medium current.
- Ideally suited for automated assembly processes.
- AEC-Q101 Qualified

## Mechanical data

- Case: Molded plastic, SOD-123



## Circuit Diagram



## Maximum Ratings (T<sub>A</sub>=25°C unless otherwise noted)

| Parameter                                   | Symbol           | Value       | Unit |
|---------------------------------------------|------------------|-------------|------|
| Forward voltage @ I <sub>F</sub> =10mA      | V <sub>F</sub>   | 0.9         | V    |
| Power dissipation                           | P <sub>D</sub>   | 500         | mW   |
| Thermal resistance, junction to ambient air | R <sub>θJA</sub> | 350         | °C/W |
| Junction temperature                        | T <sub>J</sub>   | 150         | °C   |
| Storage temperature range                   | T <sub>STG</sub> | -65 to +150 | °C   |

Note: 1. Device mounted on ceramic PCB; 7.6mm x 9.4mm x 0.87mm with pad areas 25mm<sup>2</sup>.  
2. Tested with pulses, T<sub>p</sub> ≤ 1.0ms.

## Electrical Characteristics (TA=25°C unless otherwise noted)

| Part Number   | Zener Voltage Range |        |        | Test Current | Maximum Zener Impedance |                 | Maximum Reverse Leakage Current |      | Marking Code |
|---------------|---------------------|--------|--------|--------------|-------------------------|-----------------|---------------------------------|------|--------------|
|               | Vz@ IzT             |        |        | IzT          | ZzT@ IzT                | Zzk@ IzK=0.25mA | IR @ VR                         |      |              |
|               | Nom(V)              | Min(V) | Max(V) | (mA)         | (Ω)                     | (Ω)             | (μA)                            | (V)  |              |
| AMMSZ5221B-HF | 2.4                 | 2.28   | 2.52   | 20           | 30                      | 1200            | 100                             | 1.0  | C1           |
| AMMSZ5223B-HF | 2.7                 | 2.57   | 2.84   | 20           | 30                      | 1300            | 75                              | 1.0  | C3           |
| AMMSZ5225B-HF | 3.0                 | 2.85   | 3.15   | 20           | 30                      | 1600            | 50                              | 1.0  | C5           |
| AMMSZ5226B-HF | 3.3                 | 3.14   | 3.47   | 20           | 28                      | 1600            | 25                              | 1.0  | G1           |
| AMMSZ5227B-HF | 3.6                 | 3.42   | 3.78   | 20           | 24                      | 1700            | 15                              | 1.0  | G2           |
| AMMSZ5228B-HF | 3.9                 | 3.71   | 4.10   | 20           | 23                      | 1900            | 10                              | 1.0  | G3           |
| AMMSZ5229B-HF | 4.3                 | 4.09   | 4.52   | 20           | 22                      | 2000            | 5.0                             | 1.0  | G4           |
| AMMSZ5230B-HF | 4.7                 | 4.47   | 4.94   | 20           | 19                      | 1900            | 5.0                             | 2.0  | G5           |
| AMMSZ5231B-HF | 5.1                 | 4.85   | 5.36   | 20           | 17                      | 1600            | 5.0                             | 2.0  | E1           |
| AMMSZ5232B-HF | 5.6                 | 5.32   | 5.88   | 20           | 11                      | 1600            | 5.0                             | 3.0  | E2           |
| AMMSZ5233B-HF | 6.0                 | 5.70   | 6.30   | 20           | 7                       | 1600            | 5.0                             | 3.5  | E3           |
| AMMSZ5234B-HF | 6.2                 | 5.89   | 6.51   | 20           | 7                       | 1000            | 5.0                             | 4.0  | E4           |
| AMMSZ5235B-HF | 6.8                 | 6.46   | 7.14   | 20           | 5                       | 750             | 3.0                             | 5.0  | E5           |
| AMMSZ5236B-HF | 7.5                 | 7.13   | 7.88   | 20           | 6                       | 500             | 3.0                             | 6.0  | F1           |
| AMMSZ5237B-HF | 8.2                 | 7.79   | 8.61   | 20           | 8                       | 500             | 3.0                             | 6.5  | F2           |
| AMMSZ5238B-HF | 8.7                 | 8.27   | 9.14   | 20           | 8                       | 600             | 3.0                             | 6.5  | F3           |
| AMMSZ5239B-HF | 9.1                 | 8.65   | 9.56   | 20           | 10                      | 600             | 3.0                             | 7.0  | F4           |
| AMMSZ5240B-HF | 10                  | 9.50   | 10.50  | 20           | 17                      | 600             | 3.0                             | 8.0  | F5           |
| AMMSZ5241B-HF | 11                  | 10.45  | 11.55  | 20           | 22                      | 600             | 2.0                             | 8.4  | H1           |
| AMMSZ5242B-HF | 12                  | 11.40  | 12.60  | 20           | 30                      | 600             | 1.0                             | 9.1  | H2           |
| AMMSZ5243B-HF | 13                  | 12.35  | 13.65  | 9.5          | 13                      | 600             | 0.5                             | 9.9  | H3           |
| AMMSZ5244B-HF | 14                  | 13.30  | 14.70  | 9.0          | 15                      | 600             | 0.1                             | 10.0 | H4           |
| AMMSZ5245B-HF | 15                  | 14.25  | 15.75  | 8.5          | 16                      | 600             | 0.1                             | 11   | H5           |
| AMMSZ5246B-HF | 16                  | 15.20  | 16.80  | 7.8          | 17                      | 600             | 0.1                             | 12   | J1           |
| AMMSZ5247B-HF | 17                  | 16.15  | 17.85  | 7.5          | 19                      | 600             | 0.1                             | 13   | J2           |
| AMMSZ5248B-HF | 18                  | 17.10  | 18.90  | 7.0          | 21                      | 600             | 0.1                             | 14   | J3           |
| AMMSZ5250B-HF | 20                  | 19.00  | 21.00  | 6.2          | 25                      | 600             | 0.1                             | 15   | J5           |
| AMMSZ5251B-HF | 22                  | 20.90  | 23.10  | 5.6          | 29                      | 600             | 0.1                             | 17   | K1           |
| AMMSZ5252B-HF | 24                  | 22.80  | 25.20  | 5.2          | 33                      | 600             | 0.1                             | 18   | K2           |
| AMMSZ5254B-HF | 27                  | 25.65  | 28.35  | 5.0          | 41                      | 600             | 0.1                             | 21   | K4           |

Company reserves the right to improve product design , functions and reliability without notice.

REV:A

## Electrical Characteristics (TA=25°C unless otherwise noted)

| Part Number   | Zener Voltage Range |        |        | Test Current | Maximum Zener Impedance |                 | Maximum Reverse Leakage Current |     | Marking Code |
|---------------|---------------------|--------|--------|--------------|-------------------------|-----------------|---------------------------------|-----|--------------|
|               | Vz@ IzT             |        |        | IzT          | ZzT@ IzT                | Zzk@ IzK=0.25mA | IR @ VR                         |     |              |
|               | Nom(V)              | Min(V) | Max(V) | (mA)         | (Ω)                     | (Ω)             | (μA)                            | (V) |              |
| AMMSZ5255B-HF | 28                  | 26.60  | 29.40  | 4.5          | 44                      | 600             | 0.1                             | 21  | K5           |
| AMMSZ5256B-HF | 30                  | 28.50  | 31.50  | 4.2          | 49                      | 600             | 0.1                             | 23  | M1           |
| AMMSZ5257B-HF | 33                  | 31.35  | 34.65  | 3.8          | 58                      | 700             | 0.1                             | 25  | M2           |
| AMMSZ5258B-HF | 36                  | 34.20  | 37.80  | 3.4          | 70                      | 700             | 0.1                             | 27  | M3           |
| AMMSZ5259B-HF | 39                  | 37.05  | 40.95  | 3.2          | 80                      | 800             | 0.1                             | 30  | M4           |
| AMMSZ5260B-HF | 43                  | 40.85  | 45.15  | 3.0          | 93                      | 900             | 0.1                             | 33  | M5           |
| AMMSZ5261B-HF | 47                  | 44.65  | 49.35  | 2.7          | 105                     | 1000            | 0.1                             | 36  | N1           |
| AMMSZ5262B-HF | 51                  | 48.45  | 53.55  | 2.5          | 125                     | 1100            | 0.1                             | 39  | N2           |
| AMMSZ5263B-HF | 56                  | 53.20  | 58.80  | 2.2          | 150                     | 1300            | 0.1                             | 43  | M8           |
| AMMSZ5265B-HF | 62                  | 58.90  | 65.10  | 2.0          | 185                     | 1400            | 0.1                             | 47  | N5           |
| AMMSZ5267B-HF | 75                  | 71.25  | 78.75  | 1.7          | 270                     | 1700            | 0.1                             | 56  | P2           |

## Rating and Characteristic Curves (AMMSZ5221B-HF Thru. AMMSZ5267B-HF)

Fig.1 - Power Dissipation vs Ambient Temperature

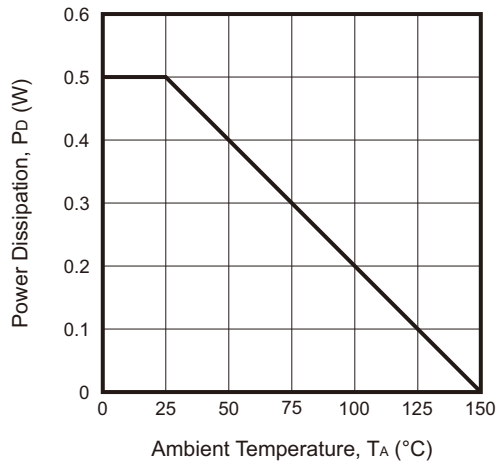


Fig.2 - Total Capacitance vs Nominal Zener Voltage

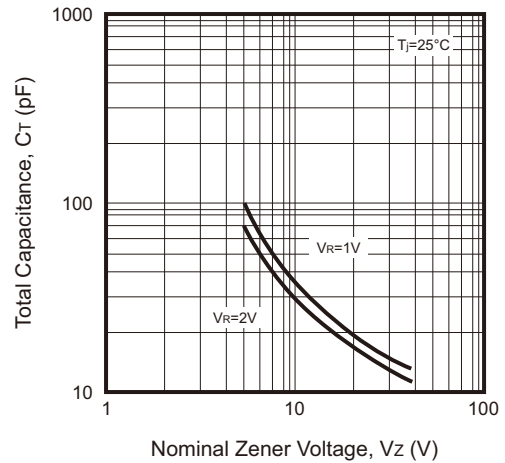


Fig.3 - Effect of Zener Voltage on Impedance

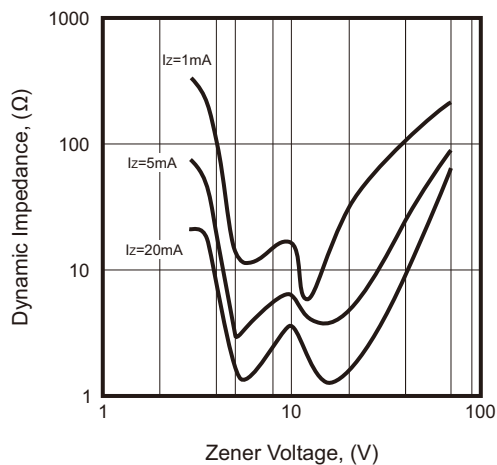


Fig.4 - Zener Breakdown Characteristics

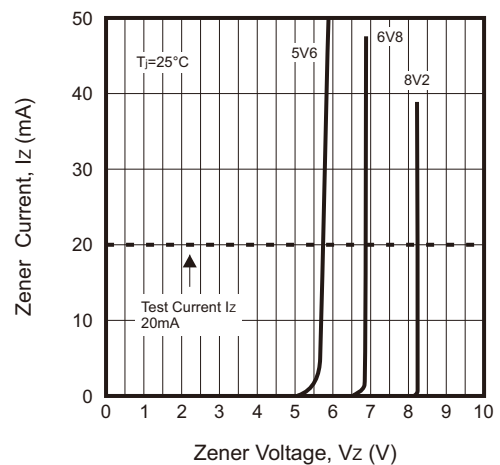


Fig.5 - Zener Breakdown Characteristics

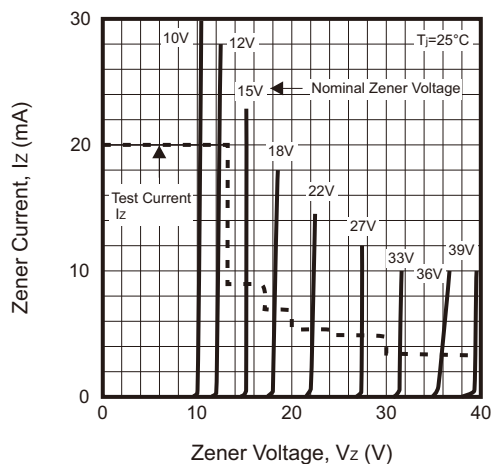
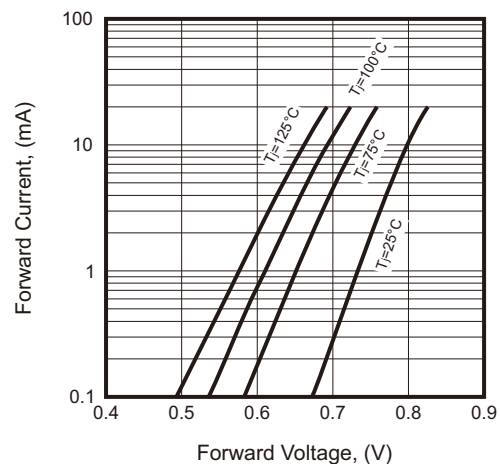
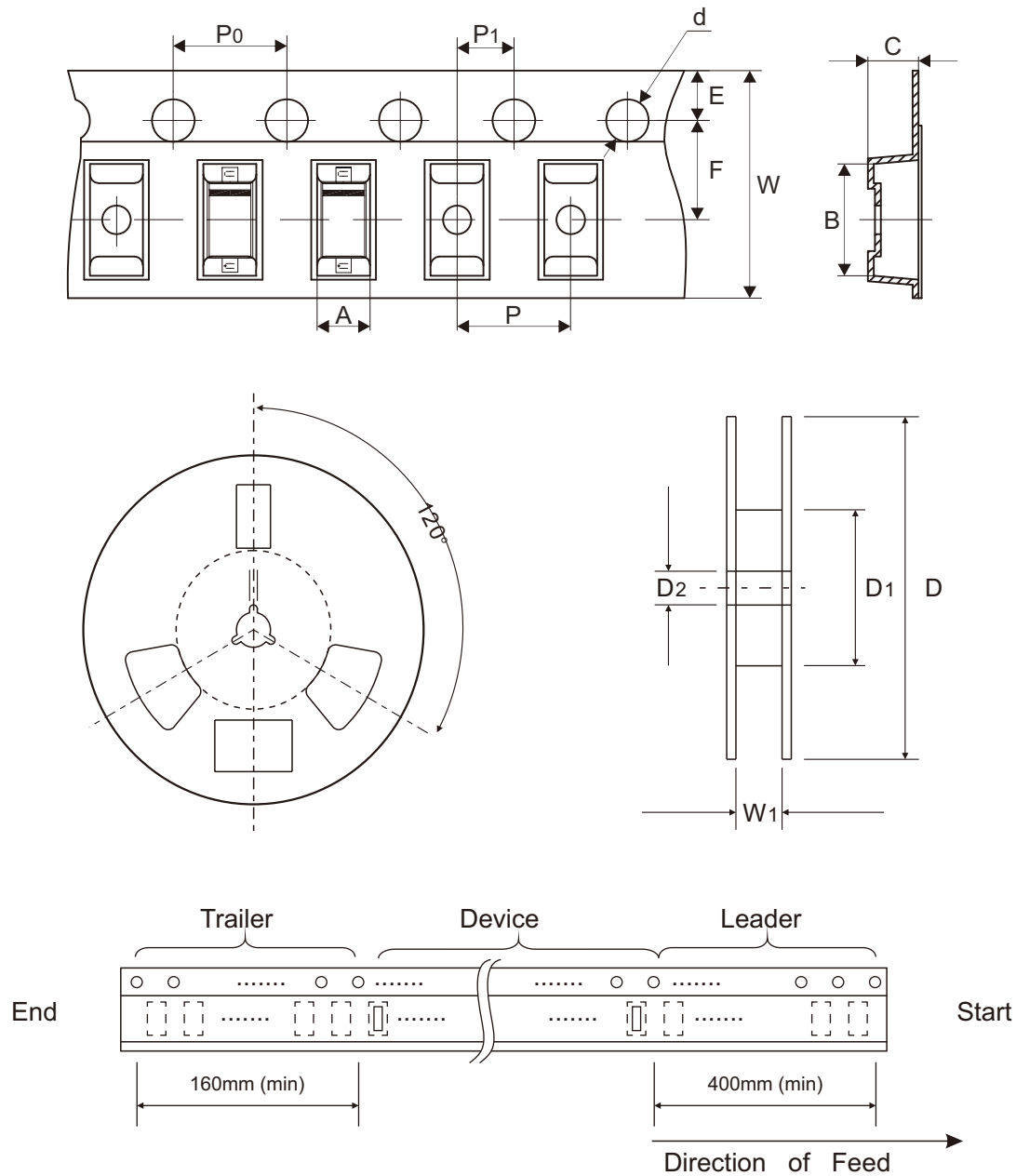


Fig.6 - Forward voltages vs Forward Currents That with Multiple Temperature Curves (Example Shown Below)



Reel Taping Specification



| SOD-123 | SYMBOL | A                 | B                 | C                 | d                 | D                 | D1                | D2                |
|---------|--------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|         | (mm)   | $1.85 \pm 0.10$   | $3.94 \pm 0.10$   | $1.57 \pm 0.10$   | $1.55 \pm 0.05$   | $178.00 \pm 1.00$ | $54.00 \pm 0.50$  | $13.00 \pm 0.50$  |
|         | (inch) | $0.073 \pm 0.004$ | $0.155 \pm 0.004$ | $0.062 \pm 0.004$ | $0.061 \pm 0.002$ | $7.008 \pm 0.039$ | $2.126 \pm 0.020$ | $0.512 \pm 0.020$ |

| SOD-123 | SYMBOL | E                 | F                 | P                 | P1                | P0                | W                       | W1                |
|---------|--------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------------|-------------------|
|         | (mm)   | $1.75 \pm 0.10$   | $3.50 \pm 0.05$   | $4.00 \pm 0.10$   | $2.00 \pm 0.05$   | $4.00 \pm 0.10$   | $8.00 + 0.30 - 0.10$    | $9.50 \pm 1.00$   |
|         | (inch) | $0.069 \pm 0.004$ | $0.138 \pm 0.002$ | $0.157 \pm 0.004$ | $0.079 \pm 0.002$ | $0.157 \pm 0.004$ | $0.315 + 0.012 - 0.004$ | $0.374 \pm 0.039$ |

Marking Code

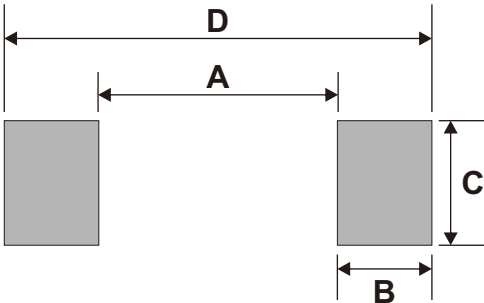
| Part Number                          | Marking Code |
|--------------------------------------|--------------|
| AMMSZ5221B-HF Thru.<br>AMMSZ5267B-HF | See Page 2~3 |



XX = Product type marking code  
= Cathode band

Suggested PAD Layout

| SIZE | SOD-123 |        |
|------|---------|--------|
|      | (mm)    | (inch) |
| A    | 2.36    | 0.093  |
| B    | 0.91    | 0.036  |
| C    | 1.22    | 0.048  |
| D    | 4.19    | 0.165  |



Note: 1.The pad layout is for reference purposes only.

Standard Packaging

| Case Type | REEL PACK       |                     |
|-----------|-----------------|---------------------|
|           | REEL<br>( pcs ) | Reel Size<br>(inch) |
| SOD-123   | 3,000           | 7                   |