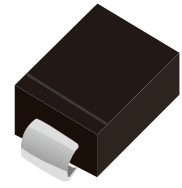
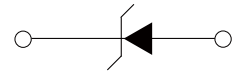


FEATURES

- | Glass passivated chip
- | Built-in strain relief
- | Low leakage
- | High peak reverse power dissipation
- | Low reverse leakage
- | For use in stabilizing and clipping with high power rating
- | Meet AEC-Q101 Requirements



DO-214AA(SMB)



Schematic Symbol

MECHANICAL DATA

- | Case : Molded plastic body
- | Polarity : Polarity symbol marking on body
- | Mounting Position : Any

APPROVALS

| | |
|-------------|------------------------------------|
| RoHS | Compliance with 2011/65/EU |
| HF | Compliance with IEC61249-2-21:2003 |

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

| Parameter | Symbo | Value | Unit |
|--|----------------|-------------|--------------------|
| DC Power dissipation at $T_L = 75^{\circ}\text{C}^{(1)}$ | P_D | 3.0 | W |
| Maximum forward voltage at $I_F=200\text{mA}$ | V_F | 1.2 | V |
| Junction temperature range | T_J, T_{STG} | -55 to +150 | $^{\circ}\text{C}$ |
| Storage temperature range | T_J, T_{STG} | -55 to +150 | $^{\circ}\text{C}$ |

Note:

 (1) T_L =Lead temperature at 3/8" (9.5mm)from body

ELECTRICAL CHARACTERISTICS

| Part Number | Device Marking Code | Nominal Zener Voltage @I _T | | | I _{ZT} (mA) | Maximum Zener Impedance | | | Maximum Reverse Leakage Current | | Maximum DC Zener Current |
|-------------|---------------------|---------------------------------------|-------------------------|-------------------------|----------------------|---|---|----------------------|------------------------------------|--------------------|--------------------------|
| | | V _{Z AVE.} (V) | V _{Z MIN.} (V) | V _{Z MAX.} (V) | | Z _{ZT MAX.} (Ω) @I _{ZT} | Z _{ZK MAX.} (Ω) @I _{ZK} | I _{ZK} (mA) | I _R (μA)@V _R | V _R (V) | |
| SMB3Z3.3AQ | 3H0Q | 3.3 | 3.14 | 3.47 | 227.3 | 10.0 | 500.0 | 1.00 | 100.0 | 1.0 | 817.0 |
| SMB3Z3.6AQ | 3H1Q | 3.6 | 3.42 | 3.78 | 208.3 | 9.0 | 500.0 | 1.00 | 100.0 | 1.0 | 749.0 |
| SMB3Z3.9AQ | 3H2Q | 3.9 | 3.71 | 4.10 | 192.0 | 4.5 | 400.0 | 1.00 | 100.0 | 1.0 | 691.0 |
| SMB3Z4.3AQ | 3H3Q | 4.3 | 4.09 | 4.52 | 174.0 | 4.5 | 400.0 | 1.00 | 50.0 | 1.0 | 627.0 |
| SMB3Z4.7AQ | 3H4Q | 4.7 | 4.47 | 4.94 | 160.0 | 4.0 | 500.0 | 1.00 | 50.0 | 1.0 | 573.0 |
| SMB3Z5.1AQ | 3H5Q | 5.1 | 4.85 | 5.36 | 147.0 | 3.5 | 550.0 | 1.00 | 10.0 | 1.0 | 528.0 |
| SMB3Z5.6AQ | 3H6Q | 5.6 | 5.32 | 5.88 | 134.0 | 2.5 | 600.0 | 1.00 | 10.0 | 2.0 | 481.0 |
| SMB3Z6.2AQ | 3A0Q | 6.2 | 5.89 | 6.51 | 121.0 | 1.5 | 700.0 | 1.00 | 10.0 | 3.0 | 435.0 |
| SMB3Z6.8AQ | 3A1Q | 6.8 | 6.46 | 7.14 | 110.0 | 2.0 | 700.0 | 1.00 | 10.0 | 4.0 | 393.0 |
| SMB3Z7.5AQ | 3A2Q | 7.5 | 7.13 | 7.88 | 100.0 | 2.0 | 700.0 | 0.50 | 10.0 | 5.0 | 360.0 |
| SMB3Z8.2AQ | 3A3Q | 8.2 | 7.79 | 8.61 | 91.0 | 2.3 | 700.0 | 0.50 | 10.0 | 6.0 | 330.0 |
| SMB3Z9.1AQ | 3A4Q | 9.1 | 8.65 | 9.56 | 82.0 | 2.5 | 700.0 | 0.50 | 10.0 | 7.0 | 297.0 |
| SMB3Z10AQ | 3A5Q | 10.0 | 9.50 | 10.50 | 75.0 | 3.5 | 700.0 | 0.25 | 10.0 | 7.6 | 270.0 |
| SMB3Z11AQ | 3A6Q | 11.0 | 10.45 | 11.55 | 68.0 | 4.0 | 700.0 | 0.25 | 0.5 | 8.4 | 225.0 |
| SMB3Z12AQ | 3A7Q | 12.0 | 11.40 | 12.60 | 63.0 | 4.5 | 700.0 | 0.25 | 0.5 | 9.1 | 246.0 |
| SMB3Z13AQ | 3A8Q | 13.0 | 12.35 | 13.65 | 58.0 | 4.5 | 700.0 | 0.25 | 0.5 | 9.9 | 208.0 |
| SMB3Z14AQ | 3A9Q | 14.0 | 13.30 | 14.70 | 53.0 | 5.0 | 700.0 | 0.25 | 0.5 | 10.6 | 193.0 |
| SMB3Z15AQ | 3B0Q | 15.0 | 14.25 | 15.75 | 50.0 | 5.5 | 700.0 | 0.25 | 0.5 | 11.4 | 180.0 |
| SMB3Z16AQ | 3B1Q | 16.0 | 15.20 | 16.80 | 47.0 | 5.5 | 700.0 | 0.25 | 0.5 | 12.2 | 169.0 |
| SMB3Z17AQ | 3B2Q | 17.0 | 16.15 | 17.85 | 44.0 | 6.0 | 750.0 | 0.25 | 0.5 | 13.0 | 159.0 |
| SMB3Z18AQ | 3B3Q | 18.0 | 17.10 | 18.90 | 42.0 | 6.0 | 750.0 | 0.25 | 0.5 | 13.7 | 150.0 |
| SMB3Z19AQ | 3B4Q | 19.0 | 18.05 | 19.95 | 40.0 | 7.0 | 750.0 | 0.25 | 0.5 | 14.4 | 142.0 |
| SMB3Z20AQ | 3B5Q | 20.0 | 19.00 | 21.00 | 37.0 | 7.0 | 750.0 | 0.25 | 0.5 | 15.2 | 135.0 |
| SMB3Z22AQ | 3B6Q | 22.0 | 20.90 | 23.10 | 34.0 | 8.0 | 750.0 | 0.25 | 0.5 | 16.7 | 123.0 |
| SMB3Z24AQ | 3B7Q | 24.0 | 22.80 | 25.20 | 31.0 | 9.0 | 750.0 | 0.25 | 0.5 | 18.2 | 112.0 |
| SMB3Z27AQ | 3B8Q | 27.0 | 25.65 | 28.35 | 28.0 | 10.0 | 750.0 | 0.25 | 0.5 | 20.6 | 100.0 |
| SMB3Z30AQ | 3B9Q | 30.0 | 28.50 | 31.50 | 25.0 | 16.0 | 1000.0 | 0.25 | 0.5 | 22.5 | 90.0 |
| SMB3Z33AQ | 3C0Q | 33.0 | 31.35 | 34.65 | 23.0 | 20.0 | 1000.0 | 0.25 | 0.5 | 25.1 | 82.0 |
| SMB3Z36AQ | 3C1Q | 36.0 | 34.20 | 37.80 | 21.0 | 22.0 | 1000.0 | 0.25 | 0.5 | 27.4 | 75.0 |
| SMB3Z39AQ | 3C2Q | 39.0 | 37.05 | 40.95 | 19.0 | 28.0 | 1000.0 | 0.25 | 0.5 | 29.7 | 69.0 |

| Part Number | Device Marking Code | Nominal Zener Voltage @I _T | | | I _{ZT} (mA) | Maximum Zener Impedance | | | Maximum Reverse Leakage Current | | Maximum DC Zener Current |
|-------------|---------------------|---------------------------------------|-------------------------|-------------------------|----------------------|--|--|----------------------|------------------------------------|--------------------|--------------------------|
| | | V _{Z.AVE.} (V) | V _{Z.MIN.} (V) | V _{Z.MAX.} (V) | | Z _{ZT.MAX.} (Ω) @I _{ZT} | Z _{ZK.MAX.} (Ω) @I _{ZK} | I _{ZK} (mA) | I _R (uA)@V _R | V _R (V) | |
| SMB3Z43AQ | 3C3Q | 43.0 | 40.85 | 45.15 | 17.0 | 33.0 | 1500.0 | 0.25 | 0.5 | 32.7 | 63.0 |
| SMB3Z47AQ | 3C4Q | 47.0 | 44.65 | 49.35 | 16.0 | 38.0 | 1500.0 | 0.25 | 0.5 | 35.6 | 57.0 |
| SMB3Z51AQ | 3C5Q | 51.0 | 48.45 | 53.55 | 15.0 | 45.0 | 1500.0 | 0.25 | 0.5 | 38.8 | 53.0 |
| SMB3Z56AQ | 3C6Q | 56.0 | 53.20 | 58.80 | 13.0 | 50.0 | 2000.0 | 0.25 | 0.5 | 42.6 | 48.0 |
| SMB3Z62AQ | 3C7Q | 62.0 | 58.90 | 65.10 | 12.0 | 55.0 | 2000.0 | 0.25 | 0.5 | 47.1 | 44.0 |
| SMB3Z68AQ | 3C8Q | 68.0 | 64.60 | 71.40 | 11.0 | 70.0 | 2000.0 | 0.25 | 0.5 | 51.7 | 40.0 |
| SMB3Z75AQ | 3C9Q | 75.0 | 71.25 | 78.75 | 10.0 | 85.0 | 2000.0 | 0.25 | 0.5 | 56.0 | 36.0 |
| SMB3Z82AQ | 3F0Q | 82.0 | 77.90 | 86.10 | 9.1 | 95.0 | 3000.0 | 0.25 | 0.5 | 62.2 | 33.0 |
| SMB3Z91AQ | 3F1Q | 91.0 | 86.45 | 95.55 | 8.2 | 115.0 | 3000.0 | 0.25 | 0.5 | 69.2 | 30.0 |
| SMB3Z100AQ | 3F2Q | 100.0 | 95.00 | 105.00 | 7.5 | 160.0 | 3000.0 | 0.25 | 0.5 | 76.0 | 27.0 |
| SMB3Z110AQ | 3F3Q | 110.0 | 104.50 | 115.50 | 6.8 | 225.0 | 4000.0 | 0.25 | 0.5 | 83.6 | 25.0 |
| SMB3Z120AQ | 3F4Q | 120.0 | 114.00 | 126.00 | 6.3 | 300.0 | 4500.0 | 0.25 | 0.5 | 91.2 | 22.0 |
| SMB3Z130AQ | 3F5Q | 130.0 | 123.50 | 136.50 | 5.8 | 375.0 | 5000.0 | 0.25 | 0.5 | 98.8 | 21.0 |
| SMB3Z140AQ | 3F6Q | 140.0 | 133.00 | 147.00 | 5.3 | 475.0 | 5000.0 | 0.25 | 0.5 | 106.4 | 19.0 |
| SMB3Z150AQ | 3F7Q | 150.0 | 142.50 | 157.50 | 5.0 | 550.0 | 6000.0 | 0.25 | 0.5 | 114.0 | 18.0 |
| SMB3Z160AQ | 3F8Q | 160.0 | 152.00 | 168.00 | 4.7 | 625.0 | 6500.0 | 0.25 | 0.5 | 121.6 | 17.0 |
| SMB3Z170AQ | 3F9Q | 170.0 | 161.50 | 178.50 | 4.4 | 650.0 | 7000.0 | 0.25 | 0.5 | 130.4 | 16.0 |
| SMB3Z180AQ | 3G1Q | 180.0 | 171.00 | 189.00 | 4.2 | 700.0 | 7000.0 | 0.25 | 0.5 | 136.8 | 15.0 |
| SMB3Z190AQ | 3G2Q | 190.0 | 180.50 | 199.50 | 4.0 | 800.0 | 8000.0 | 0.25 | 0.5 | 144.8 | 14.0 |
| SMB3Z200AQ | 3G3Q | 200.0 | 190.00 | 210.00 | 3.7 | 875.0 | 8000.0 | 0.25 | 0.5 | 152.0 | 13.0 |
| SMB3Z210AQ | 3G4Q | 210.0 | 199.50 | 220.50 | 3.5 | 950.0 | 8300.0 | 0.25 | 0.5 | 169.0 | 12.3 |
| SMB3Z220AQ | 3G5Q | 220.0 | 209.00 | 231.00 | 3.3 | 1600.0 | 8500.0 | 0.25 | 0.5 | 178.0 | 11.6 |
| SMB3Z230AQ | 3G6Q | 230.0 | 218.50 | 241.50 | 3.1 | 2000.0 | 9000.0 | 0.25 | 0.5 | 186.0 | 10.9 |
| SMB3Z240AQ | 3G7Q | 240.0 | 228.00 | 252.00 | 2.9 | 2500.0 | 9000.0 | 0.25 | 0.5 | 195.0 | 10.2 |
| SMB3Z250AQ | 3G8Q | 250.0 | 237.50 | 262.50 | 2.7 | 3000.0 | 9500.0 | 0.25 | 0.5 | 205.0 | 9.5 |

CHARACTERISTIC CURVES

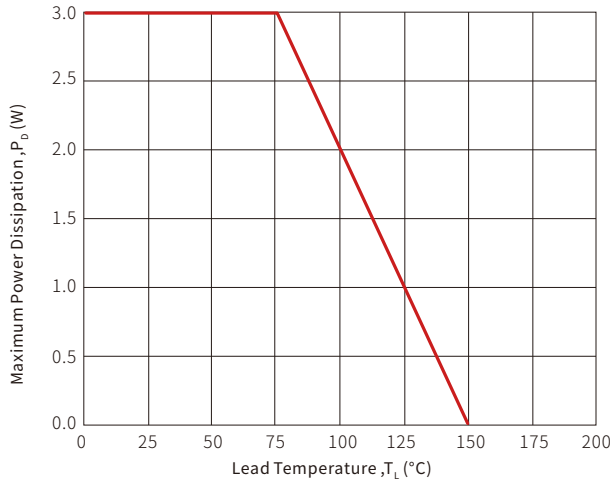
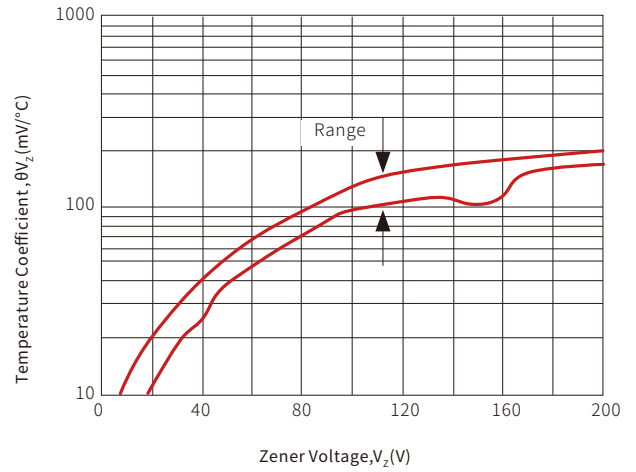
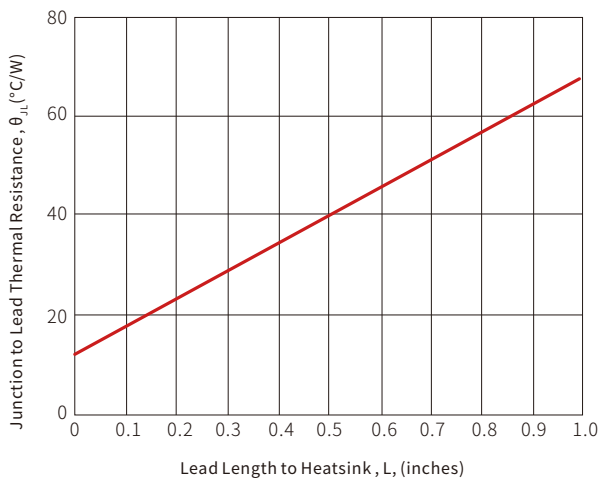
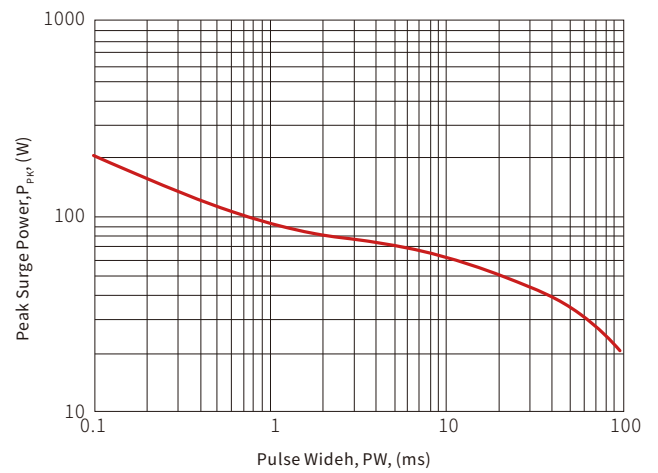
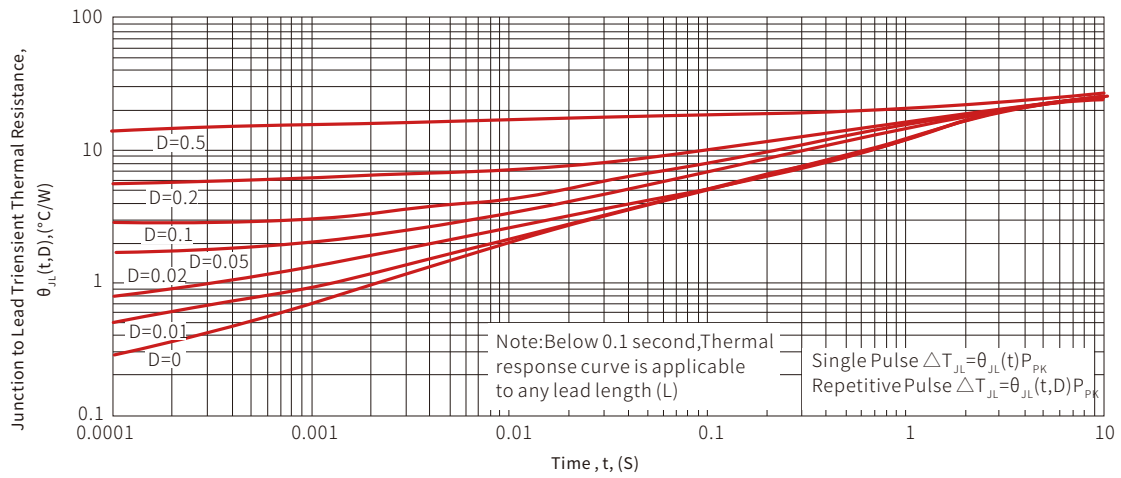
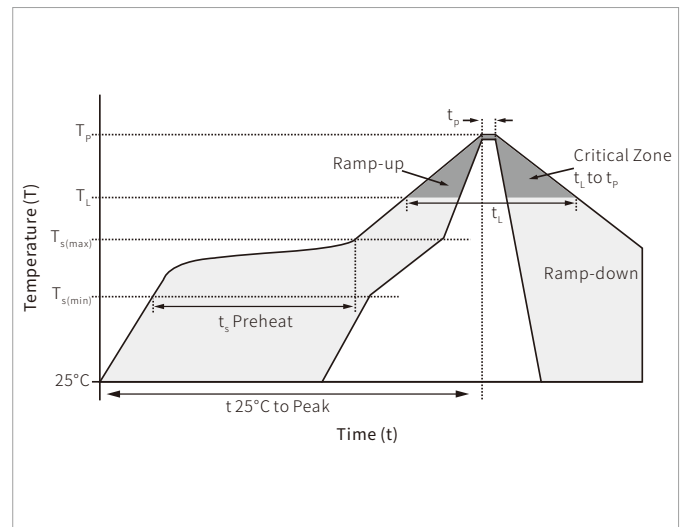
Fig.1-Power Temperature Derating Curve

Fig.2-Temperature Coefficients v.s. Zener Voltage

Fig.3-Typical Thermal Resistance v.s. Lead Length

Fig.4-Maximum Surge Power


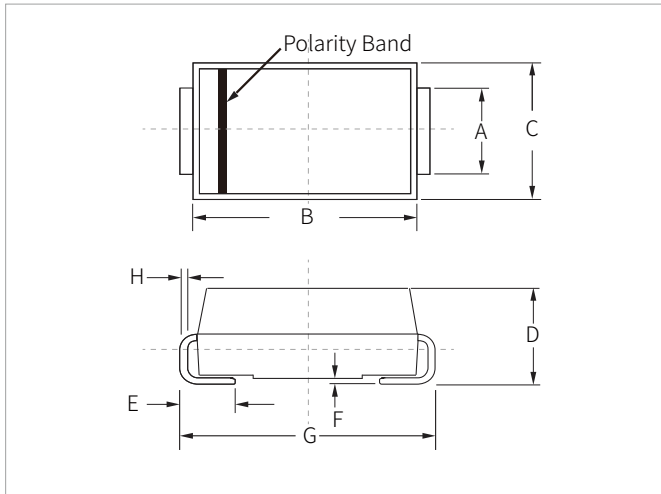
Fig.5-Typical Thermal Response L, Lead Length=3/8inch


SOLDERING PARAMETERS

| Reflow Condition | | Lead-free assembly |
|--|----------------------------------|--------------------|
| Pre Heat | Temperature Max ($T_{s(min)}$) | 150°C |
| | Temperature Max ($T_{s(max)}$) | 200°C |
| | Time (min to max) (t_s) | 60 – 180 secs |
| Average ramp up rate (Liquidus Temp (T_L) to peak) | | 3°C/second max |
| $T_{s(max)}$ to T_L - Ramp-up Rate | | 3°C/second max |
| Reflow | Temperature (T_L) (Liquidus) | 217°C |
| | Time (min to max) (t_L) | 60 – 150 seconds |
| Peak Temperature (T_p) | | 260°C |
| Time within 5°C of actual peak Temperature (t_p) | | 20 – 40 seconds |
| Ramp-down Rate | | 6°C/second max |
| Time 25°C to peak Temperature (T_p) | | 8 minutes max. |
| Do not exceed | | 260°C |

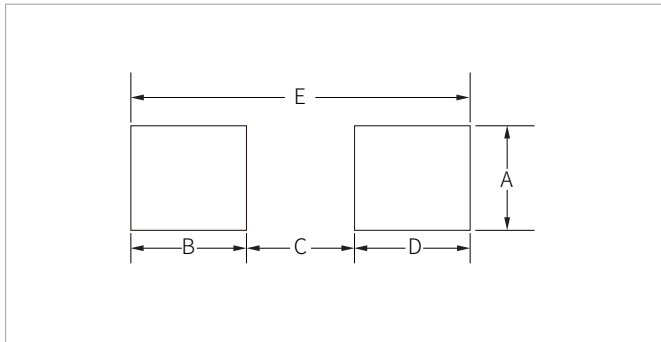


DO-214AA(SMB) PACKAGE INFORMATION



| Ref. | Millimeters | | Inches | |
|------|-------------|------|--------|-------|
| | Min. | Max. | Min. | Max. |
| A | 1.80 | 2.20 | 0.071 | 0.087 |
| B | 4.30 | 4.70 | 0.170 | 0.185 |
| C | 3.40 | 3.90 | 0.134 | 0.153 |
| D | 2.15 | 2.75 | 0.085 | 0.108 |
| E | 1.00 | 1.50 | 0.039 | 0.059 |
| F | 0.02 | 0.20 | 0.001 | 0.008 |
| G | 5.10 | 5.50 | 0.200 | 0.216 |
| H | 0.15 | 0.30 | 0.006 | 0.012 |

RECOMMENDED PAD LAYOUT DIMENSIONS



| Ref. | Millimeters | | Inches | |
|------|-------------|------|----------|-------|
| | Min. | Max. | Min. | Max. |
| A | 2.20 | - | 0.087 | - |
| B | 1.45 | - | 0.057 | - |
| C | - | 2.55 | - | 0.010 |
| D | 1.45 | - | 0.057 | - |
| E | 5.60REF | | 0.220REF | |

ORDERING INFORMATION

| Part Number | Component Package | QTY/Reel | Reel Size |
|-----------------------|-------------------|----------|-----------|
| SMB3Z3.3AQ-SMB3Z250AQ | DO-214AA(SMB) | 3000PCS | 13" |

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By QR Code

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