



5.0Amp. Surface Mount Schottky Barrier Diodes

SK520SB thru SK5100SB

Features

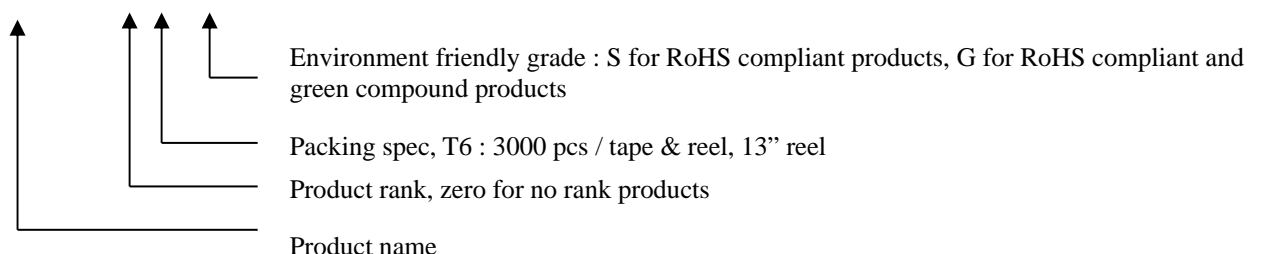
- For surface mounted applications.
- For use in low voltage, high frequency inverters, free wheeling, and polarity protection applications
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-0
- Low leakage current
- High surge capability
- Exceeds environmental standards of MIL-S-19500/228

Mechanical Data

- Case: Molded plastic, SMB/JEDEC DO-214AA.
- Terminals: Solder plated, solderable per MIL-STD-750 method 2026
- Polarity: Indicated by cathode band.
- Mounting Position : Any.
- Weight: 0.0878 gram

Ordering Information

| Device | Package | Shipping |
|------------------|--|------------------------|
| SK5X0SB - 0-T6-G | SMB (Pb-free lead plating and halogen-free package) | 3000 pcs / Tape & Reel |



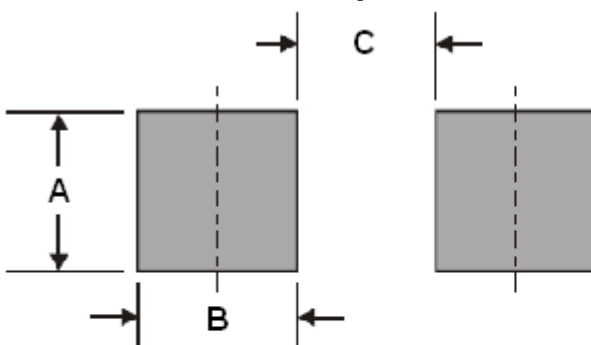
Maximum Ratings and Electrical Characteristics

(Rating at 25°C ambient temperature unless otherwise specified.)

| Parameter | Symbol | Type | | | | | | | Units |
|---|--------------------|------------|-----------|-----------|------------|-----------|-----------|------------|----------|
| | | SK 520 | SK 530 | SK 540 | SK 550 | SK 560 | SK 580 | SK 5100 | |
| Repetitive peak reverse voltage | V _{RRM} | 20 | 30 | 40 | 50 | 60 | 80 | 100 | V |
| Maximum RMS voltage | V _{RMS} | 14 | 21 | 28 | 35 | 42 | 56 | 70 | V |
| Maximum DC blocking voltage | V _R | 20 | 30 | 40 | 50 | 60 | 80 | 100 | V |
| Maximum instantaneous forward voltage, I _F =5A (Note 1) | V _F | 0.55 | 0.55 | 0.55 | 0.7 | 0.7 | 0.85 | 0.85 | V |
| Average forward rectified current | I _O | 5 | | | | | | | A |
| Peak forward surge current @8.3ms single half sine wave superimposed on rated load (JEDEC method) | I _{FSM} | 150 | | | | | | | A |
| Maximum DC reverse current V _R =V _{RRM} , T _A =25°C (Note) V _R =V _{RRM} , T _A =125°C (Note) | I _R | 0.5 50 | | | | | | | mA mA |
| Maximum thermal resistance, Junction to Lead | R _{th,JL} | 12 (typ) | | | | | | | °C/W |
| Diode junction capacitance @ f=1MHz and applied 4VDC reverse voltage | C _J | 380(typ) | | | | | | | pF |
| Storage temperature | T _{stg} | -55 ~ +150 | | | | | | | °C |
| Operating temperature | T _J | -55 ~ +125 | | | -55 ~ +150 | | | | °C |

Notes : Pulse test, pulse width=300 μ sec, 2% duty cycle

Recommended Footprint

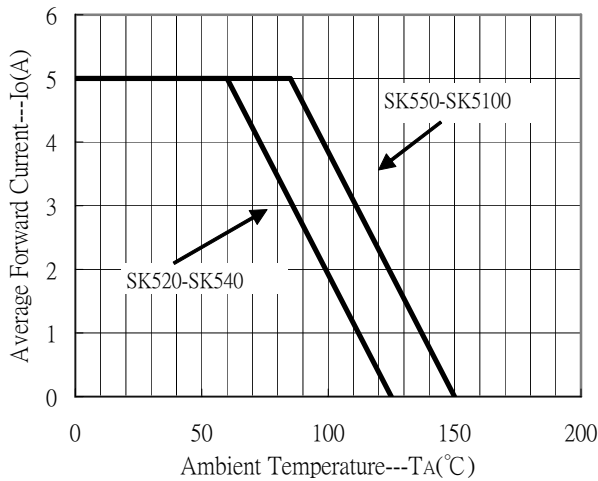


Dimensions in inches and (millimeter)

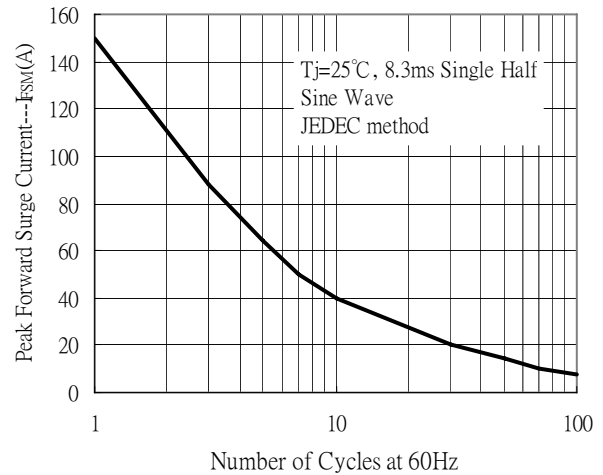
| DIM | Inches | Millimeters |
|-----|--------|-------------|
| | Typ | Typ |
| A | 0.142 | 3.60 |
| B | 0.059 | 1.50 |
| C | 0.118 | 3.00 |

Typical Characteristics

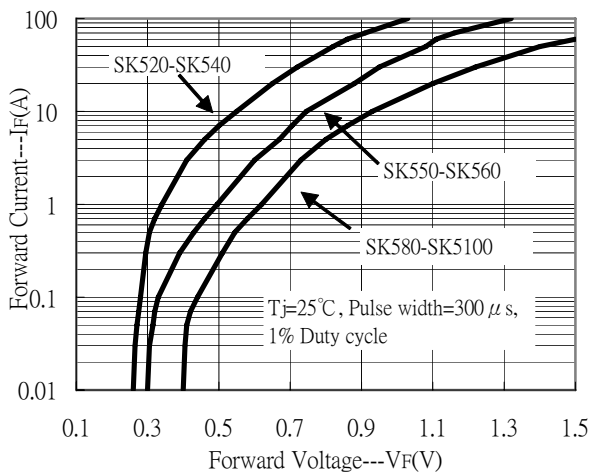
Forward Current Derating Curve



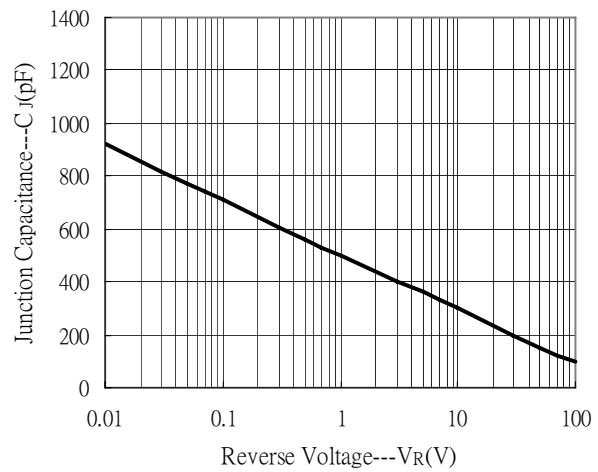
Maximum Non-Repetitive Forward Surge Current



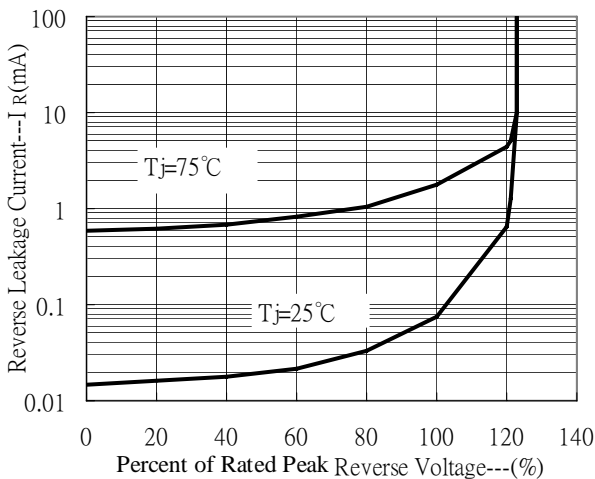
Forward Current vs Forward Voltage



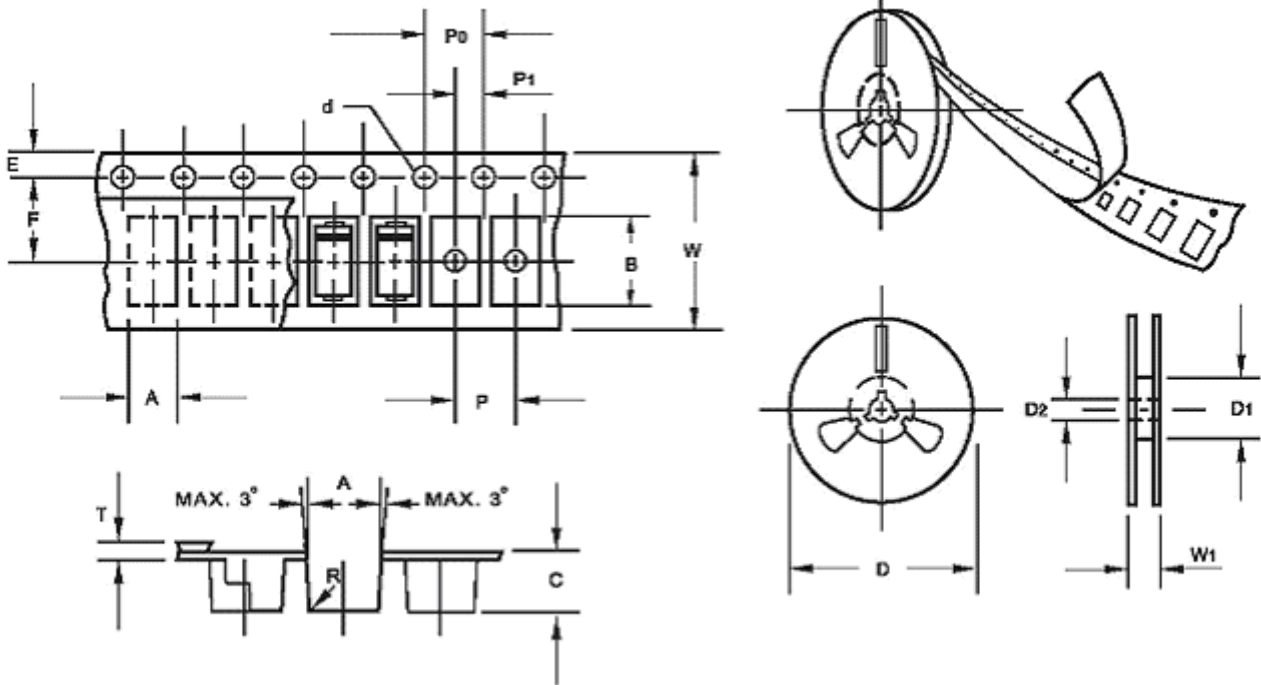
Junction Capacitance vs Reverse Voltage



Reverse Leakage Current vs Reverse Voltage



Taping Reel Dimension



unit : mm

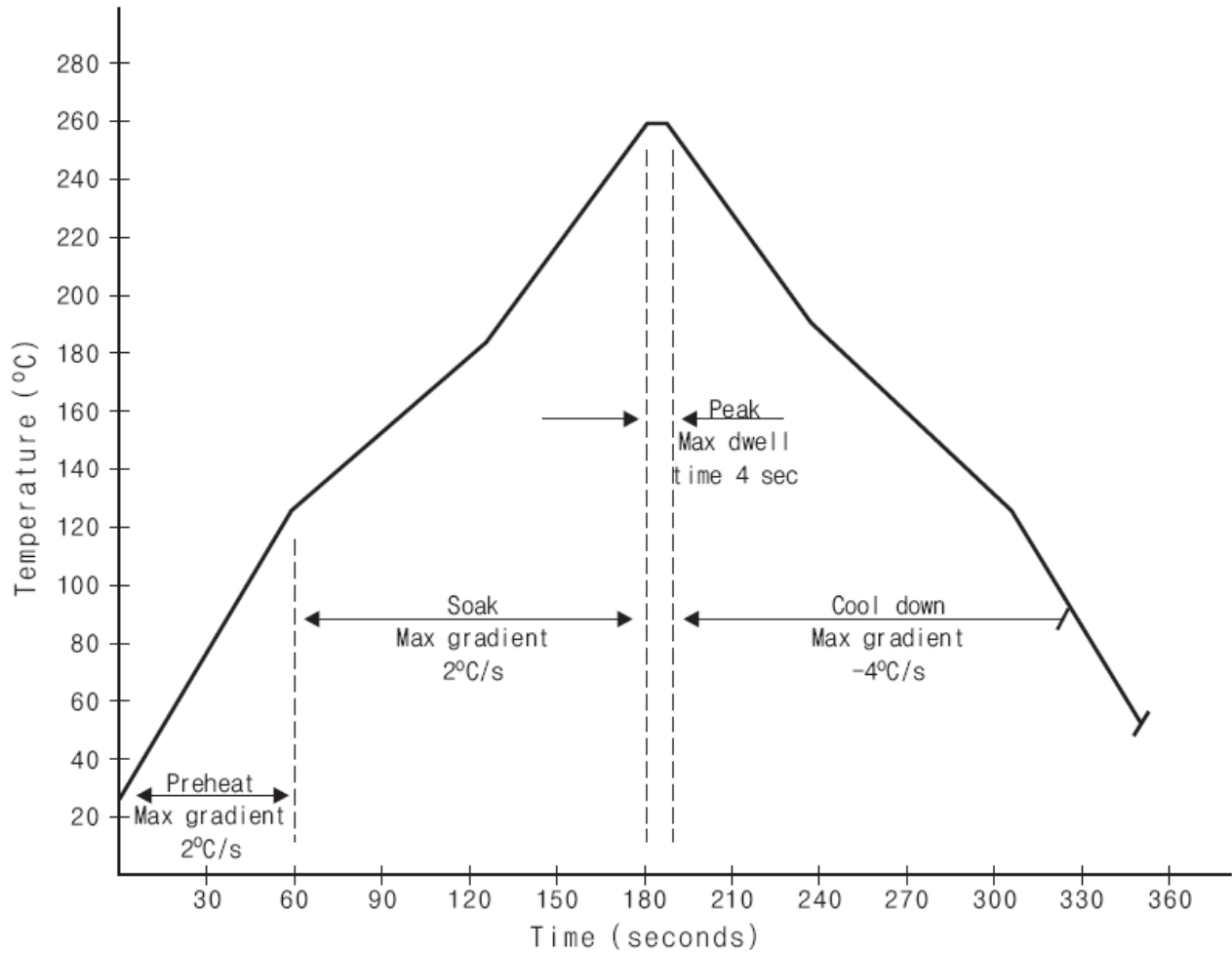
| Item | Tolerance | Symbol | |
|---------------------------|-----------|--------|------------|
| Carrier width | 0.10 | A | SEE NOTE 2 |
| Carrier length | 0.10 | B | |
| Carrier depth | 0.10 | C | |
| Sprocket hole | 0.10 | d | 1.50 |
| 13" Reel outside diameter | 2.00 | D | 330.0 |
| 13" Reel inner diameter | min. | D1 | 50.0 |
| 7" Reel outside diameter | 2.00 | D | 178.0 |
| 7" Reel inner diameter | min. | D1 | 62.0 |
| Feed hole diameter | 0.50 | D2 | 13.00 |
| Sprocket hole position | 0.10 | E | 1.75 |
| Punch hole position | 0.10 | F | 5.50 |
| Punch hole pitch | 0.10 | P | 8.00 |
| Sprocket hole pitch | 0.10 | P0 | 4.00 |
| Embossment center | 0.10 | P1 | 2.00 |
| Tape width | 0.30 | W | 12.00 |
| Reel width | 1.00 | W1 | 16.80 |

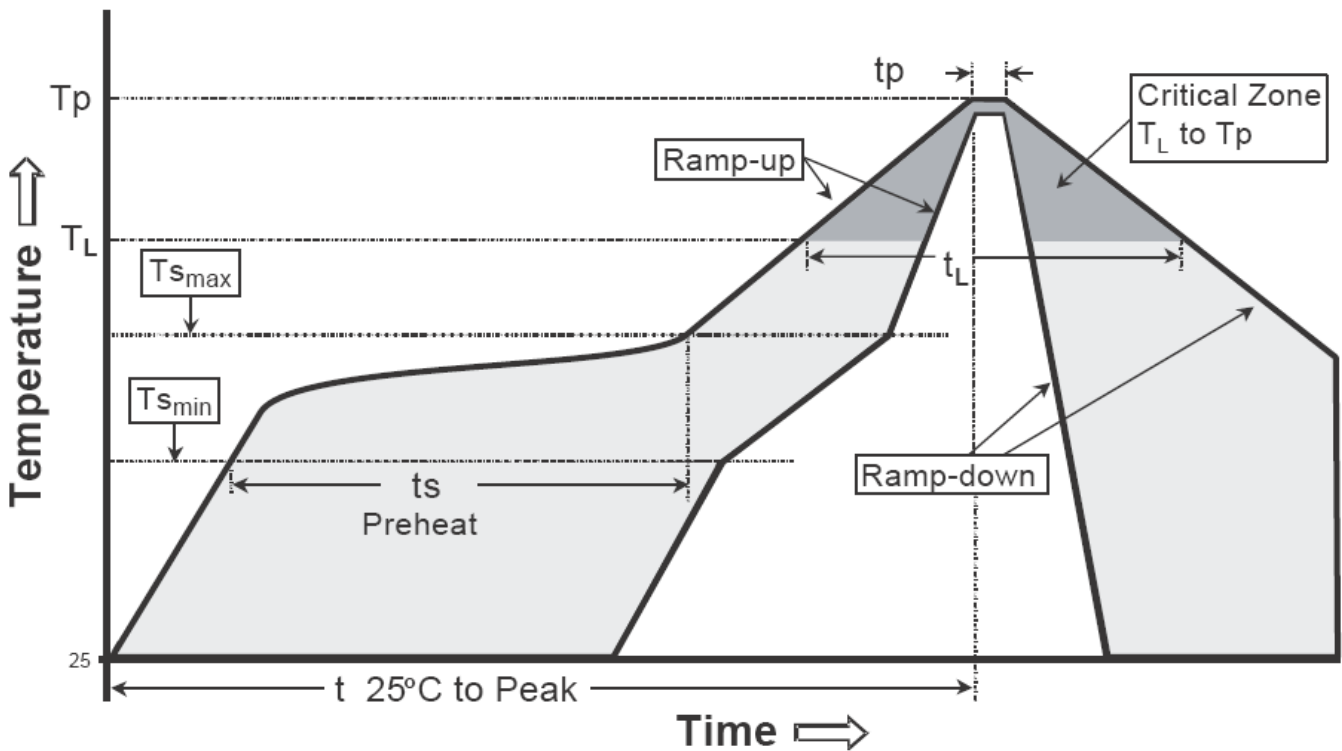
NOTE: 1. Devices are packed in accordance with EIA standard RS-481-A and specification given above

2. A, B, and C are determined by the maximum dimensions of the component size.

The clearance between the component and the cavity must be within
 0.05mm (0.002") min. to 0.5mm (0.02") max. for 8mm tape and 12mm tape,
 0.15mm (0.066") min. to 0.90mm (0.035") max. for 16mm tape and
 0.15mm (0.066") min. to 1.0mm (0.59") max. for 24mm tape.

Recommended Wave Soldering Profile

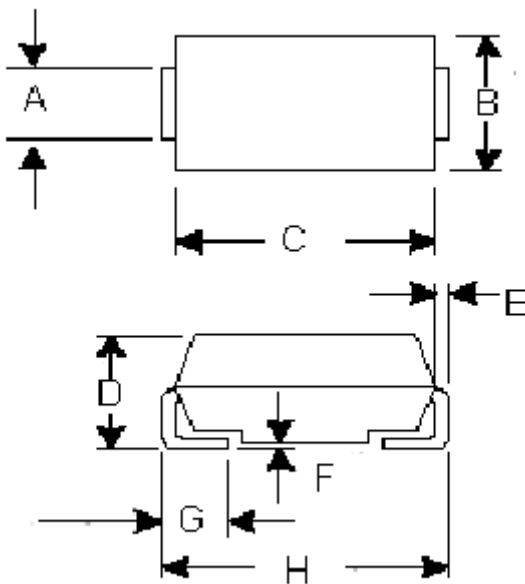


Recommended temperature profile for IR reflow


| Profile feature | Sn-Pb eutectic Assembly | Pb-free Assembly |
|---|-------------------------|------------------|
| Average ramp-up rate (T _{smax} to T _p) | 3°C/second max. | 3°C/second max. |
| Preheat | | |
| -Temperature Min(T _{s min}) | 100°C | 150°C |
| -Temperature Max(T _{s max}) | 150°C | 200°C |
| -Time(t _{s min} to t _{s max}) | 60-120 seconds | 60-180 seconds |
| Time maintained above: | | |
| -Temperature (T _L) | 183°C | 217°C |
| - Time (t _L) | 60-150 seconds | 60-150 seconds |
| Peak Temperature(T _P) | 240 +0/-5 °C | 260 +0/-5 °C |
| Time within 5°C of actual peak temperature(tp) | 10-30 seconds | 20-40 seconds |
| Ramp down rate | 6°C/second max. | 6°C/second max. |
| Time 25 °C to peak temperature | 6 minutes max. | 8 minutes max. |

Note : All temperatures refer to topside of the package, measured on the package body surface.

DO-214AA/SMB Dimension



Marking Code :

| | | |
|----------|---------|---------|
| SK520SB | SK530SB | SK540SB |
| SS52 | SS53 | SS54 |
| SK550SB | SK560SB | SK580SB |
| SS55 | SS56 | SS58 |
| SK5100SB | | |
| S510 | | |

DO-214AA/SMB Plastic
 Surface Mounted Package
 CYStek Package Code : SB

*:Typical

| DIM | Inches | | Millimeters | | DIM | Inches | | Millimeters | |
|-----|--------|-------|-------------|------|-----|--------|-------|-------------|------|
| | Min. | Max. | Min. | Max. | | Min. | Max. | Min. | Max. |
| A | 0.076 | 0.082 | 1.93 | 2.08 | E | 0.006 | 0.012 | 0.15 | 0.31 |
| B | 0.137 | 0.147 | 3.48 | 3.73 | F | 0.004 | 0.008 | 0.10 | 0.20 |
| C | 0.167 | 0.187 | 4.25 | 4.75 | G | 0.035 | 0.056 | 0.90 | 1.41 |
| D | 0.078 | 0.103 | 1.99 | 2.61 | H | 0.207 | 0.215 | 5.26 | 5.46 |

Notes : 1.Controlling dimension : millimeters.
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material :

- Lead : Pure tin plated.
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0.

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