

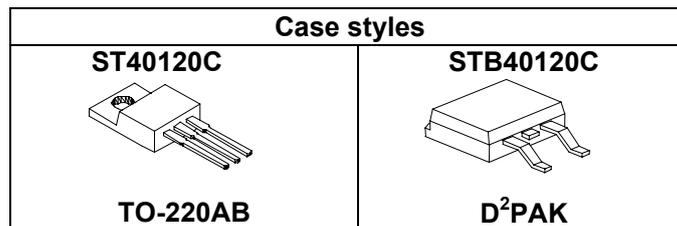
ST40120C/STB40120C SCHOTTKY RECTIFIER

Applications:

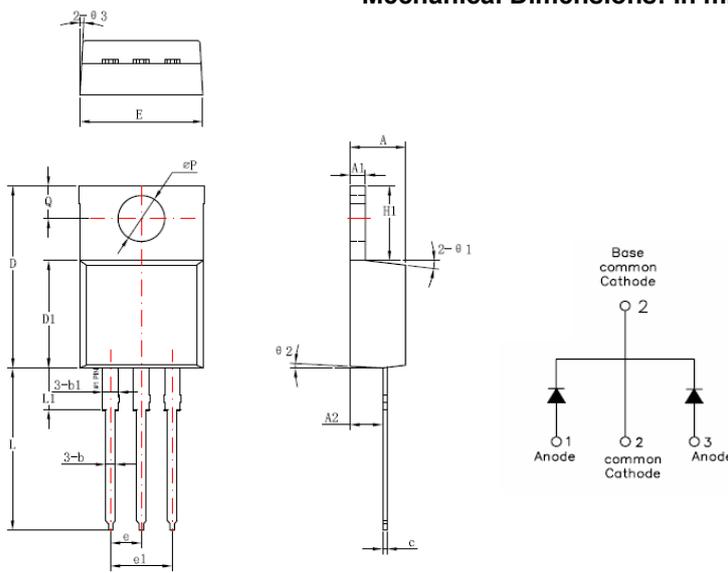
- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection

Features:

- 150 °C T_J operation
- Center tap configuration
- Ultralow forward voltage drop
- High purity, high temperature epoxy encapsulation for enhanced mechanical strength and moisture resistance
- High frequency operation
- Guard ring for enhanced ruggedness and long term reliability
- This is a Pb – Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

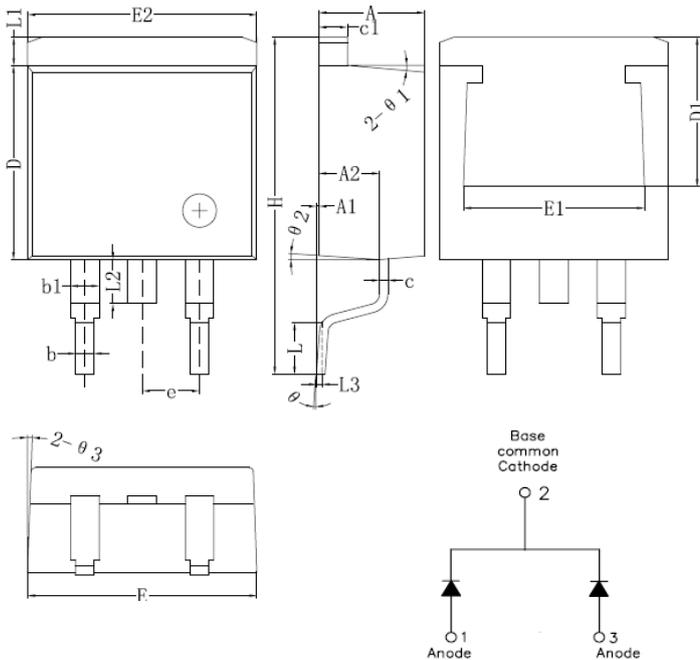


Mechanical Dimensions: In mm



| Symbol | Dimensions in millimeters | | |
|--------|---------------------------|---------|-------|
| | Min | Typical | Max |
| A | 4.42 | 4.57 | 4.72 |
| A1 | 1.17 | 1.27 | 1.37 |
| A2 | 2.59 | 2.69 | 2.89 |
| b | 0.71 | 0.81 | 0.96 |
| b1 | | 1.27 | |
| c | 0.36 | 0.38 | 0.61 |
| D | 14.94 | 15.24 | 15.54 |
| D1 | 8.85 | 9.00 | 9.15 |
| E | 10.01 | 10.16 | 10.31 |
| e | | 2.54 | |
| e1 | | 5.06 | |
| H1 | 6.04 | 6.24 | 6.44 |
| L | 12.7 | 13.56 | 13.78 |
| L1 | | 3.5 | |
| ΦP | 3.74 | 3.84 | 4.04 |
| Q | 2.54 | 2.74 | 2.94 |
| Ø1 | | 7° | |
| Ø2 | | 3° | |
| Ø3 | | 4° | |

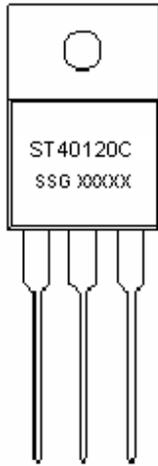
TO-220AB



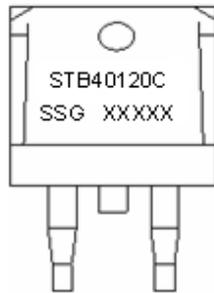
| Symbol | Dimensions in millimeters | | |
|--------|---------------------------|---------|-------|
| | Min. | Typical | Max. |
| A | 4.55 | 4.70 | 4.85 |
| A1 | 0 | 0.10 | 0.25 |
| A2 | 2.59 | 2.69 | 2.89 |
| b | 0.71 | 0.81 | 0.96 |
| b1 | | 1.27 | |
| c | 0.36 | 0.38 | 0.61 |
| c1 | 1.17 | 1.27 | 1.37 |
| D | 8.55 | 8.70 | 8.85 |
| D1 | 6.40 | | |
| E | 10.01 | 10.16 | 10.31 |
| E1 | 7.6 | | |
| E2 | 9.98 | 10.08 | 10.18 |
| e | | 2.54 | |
| H | 14.6 | 15.1 | 15.6 |
| L | 2.00 | 2.30 | 2.70 |
| L1 | 1.17 | 1.27 | 1.40 |
| L2 | | | 2.20 |
| L3 | | 0.25BSC | |
| e | 0 | - | 8° |
| e1 | | 5° | |
| e2 | | 4° | |
| e3 | | 4° | |

D²PAK

Marking Diagram:



ST40120C



STB40120C

Where XXXXX is YYWWL

ST = Device Type
 B = Package type
 40 = Forward Current (40A)
 120 = Reverse Voltage (120V)
 C = Configuration
 SSG = SSG
 YY = Year
 WW = Week
 L = Lot Number

Cautions: Molding resin
 Epoxy resin UL:94V-0

Ordering Information:

| Device | Package | Shipping |
|-----------|-----------------------------|---------------|
| ST40120C | TO-220AB(Pb-Free) | 50pcs / tube |
| STB40120C | D ² PAK(Pb-Free) | 800pcs / reel |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specification.

Maximum Ratings:

| Characteristics | Symbol | Condition | Max. | Units |
|---|-------------|---|------|-------|
| Peak Inverse Voltage | V_{RWM} | - | 120 | V |
| Average Forward Current | $I_{F(AV)}$ | 50% duty cycle @ $T_C = 100^\circ\text{C}$, rectangular wave form | 40 | A |
| Peak One Cycle Non-Repetitive Surge Current (per leg) | I_{FSM} | 8.3 ms, half Sine pulse | 250 | A |

Electrical Characteristics:

| Characteristics | Symbol | Condition | Typ. | Max. | Units |
|--------------------------------------|-----------------|---|------|------|-------|
| Forward Voltage Drop (per leg) * | V _{F1} | @ 5A, Pulse, T _J = 25 °C | 0.50 | - | V |
| | | @ 10A, Pulse, T _J = 25 °C | 0.64 | - | |
| @ 20A, Pulse, T _J = 25 °C | | 0.87 | 0.97 | | |
| | V _{F2} | @ 5A, Pulse, T _J = 125 °C | 0.46 | - | V |
| | | @ 10A, Pulse, T _J = 125 °C | 0.57 | - | |
| | | @ 20A, Pulse, T _J = 125 °C | 0.68 | 0.76 | |
| Reverse Current (per leg)* | I _{R1} | @V _R = rated V _R T _J = 25 °C | 33 | 500 | uA |
| | I _{R2} | @V _R = rated V _R T _J = 125 °C | 6 | 45 | mA |
| Junction Capacitance (per leg) | C _T | @V _R = 5V, T _C = 25 °C f _{SIG} = 1MHz | 608 | - | pF |

* Pulse Width < 300µs, Duty Cycle <2%

Thermal-Mechanical Specifications:

| Characteristics | Symbol | Condition | Specification | Units |
|--|------------------------------|--------------|---------------|-------|
| Junction Temperature | T _J | - | -55 to +150 | °C |
| Storage Temperature | T _{stg} | - | -55 to +150 | °C |
| Maximum Thermal Resistance Junction to Case(per leg) | R _{θJC} | DC operation | 1.8 | °C/W |
| Approximate Weight | wt | - | 2/1.85 | g |
| Case Style | TO-220AB/ D ² PAK | | | |

Figure 1
Typical Forward Characteristics

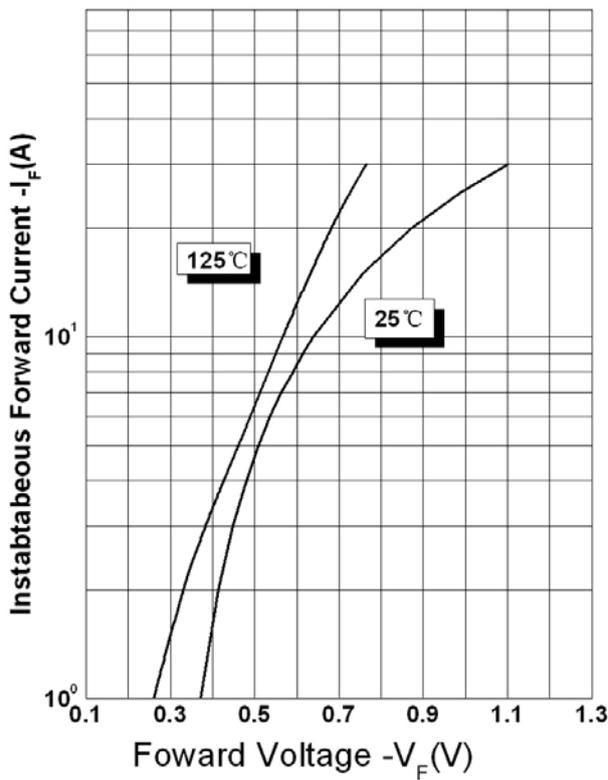


Figure 2
Typical Reverse Characteristics

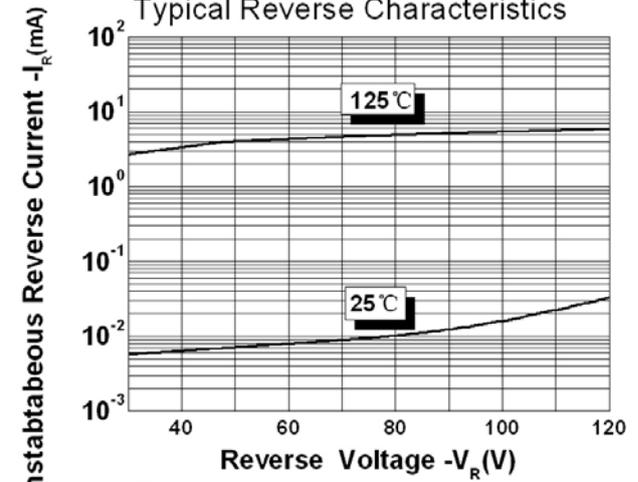
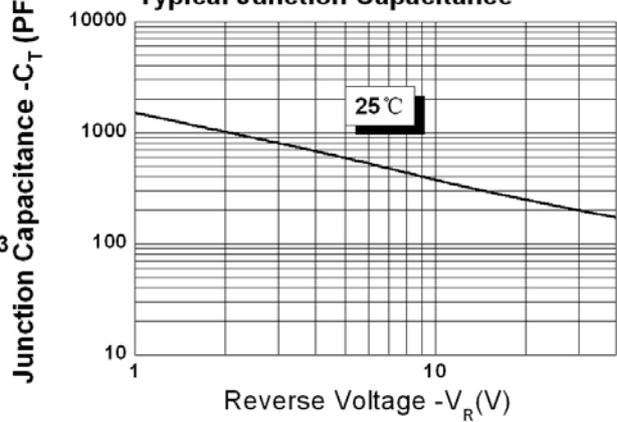


Figure 3
Typical Junction Capacitance





ST40120C
STB40120C

Technical Data
Data Sheet N1381, Rev. B

Green Products

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