Technical Data
Data Sheet N1416, Rev. A

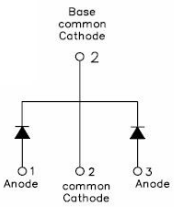
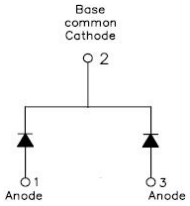
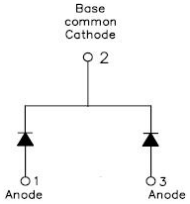
# ST1060C/STB1060C/STD1060C
# SCHOTTKY RECTIFIER

## 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
- Trench MOS Schottky technology
- Terminals finish: Tin Lead-free plated
- This is a Pb − Free Device
- All SMC parts are traceable to the wafer lot
- Additional testing can be offered upon request

| ST1060C | STB1060C | STD1060C |
|---|---|---|
|  |  |  |
|  |  |  |
| TO-220AB | $D^2PAK$ | DPAK |

## Maximum Ratings(limiting values, at 25 °C unless otherwise specified)

| Characteristics | Symbol | Condition | Max. | Units |
|---|---|---|---|---|
| Peak Repetitive Reverse Voltage<br>Working Peak Reverse Voltage<br>DC Blocking Voltage | $V_{RRM}$<br>$V_{RWM}$<br>$V_R$ | - | 60 | V |
| Average Rectified Forward Current | $I_{F\ (AV)}$ | Tc=138°C(TO-220AB, D2PAK)<br>Tc=141°C(DPAK), In DC | 5(Per Leg)<br>10(Per Device) | A |
| Peak One Cycle Non-Repetitive Surge Current(Per Leg) | $I_{FSM}$ | 8.3ms, Half Sine pulse | 100 | A |

**Technical Data**
**Data Sheet N1416, Rev.** A

RoHS

## Electrical Characteristics:

| Characteristics | Symbol | Condition | Typ. | Max. | Units |
|---|---|---|---|---|---|
| Forward Voltage Drop(Per Leg)* | $V_{F1}$ | @ 5A, Pulse, $T_J$ = 25℃ | 0.45 | 0.70 | V |
| | $V_{F2}$ | @ 5A, Pulse, $T_J$ = 125℃ | 0.37 | 0.60 | V |
| Reverse Current(Per Leg)* | $I_{R1}$ | @$V_R$ = rated $V_R$ $T_J$ = 25℃ | 24 | 0.7 | mA |
| | $I_{R2}$ | @$V_R$ = rated $V_R$ $T_J$ = 125℃ | 16 | 25 | mA |
| Junction Capacitance(Per Leg) | $C_T$ | @$V_R$ = 5V, $T_C$ = 25 °C $f_{SIG}$ = 1MHz | 1041 | - | pF |

* Pulse width < 300 μs, duty cycle < 2%

## Thermal-Mechanical Specifications:

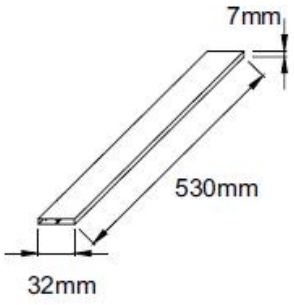
| Characteristics | Symbol | ST1060C | STB1060C | STD1060C | Units |
|---|---|---|---|---|---|
| Junction Temperature | $T_J$ | -55 to +150 | | | °C |
| Storage Temperature | $T_{stg}$ | -55 to +150 | | | °C |
| Typical Thermal Resistance Junction to Case | $R_{\theta JC}$ | 3.5 | 3.5 | 2.6 | °C/W |

## Tube Specification

| Device | Package | Weight | Shipping |
|---|---|---|---|
| ST1060C | TO-220AB | 2.0 | 50pcs / tube |
| STB1060C | $D^2$ PAK | 1.85 | 800pcs / reel |
| STD1060C | DPAK | 0.39 | 2500pcs / reel |

For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

## Tube Specification(TO-220AB)



**Technical Data**
**Data Sheet N1416, Rev.** A

## Ratings and Characteristics Curves

Figure1 Typical Forward Characteristics

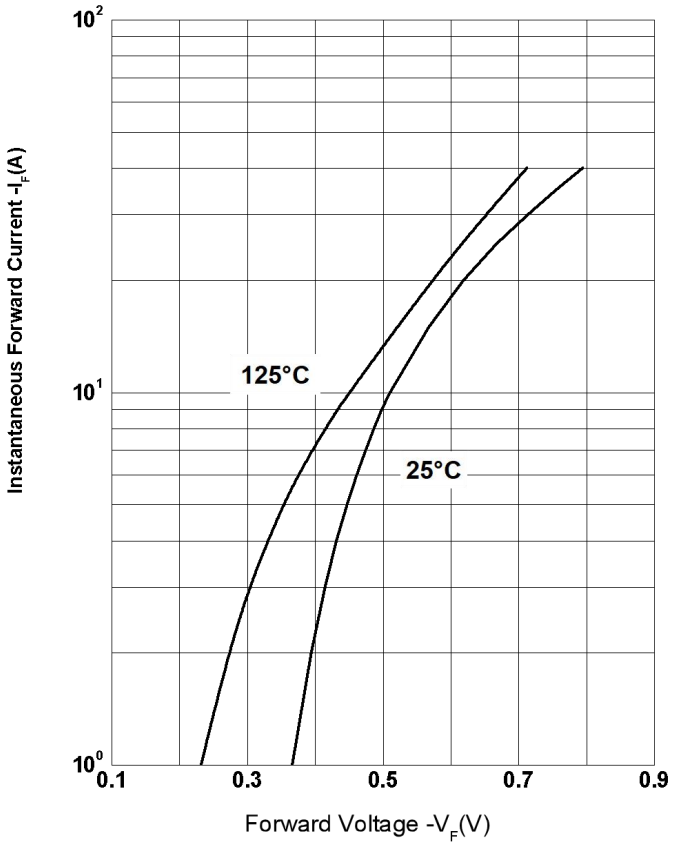



Figure 2 Typical Reverse Characteristics

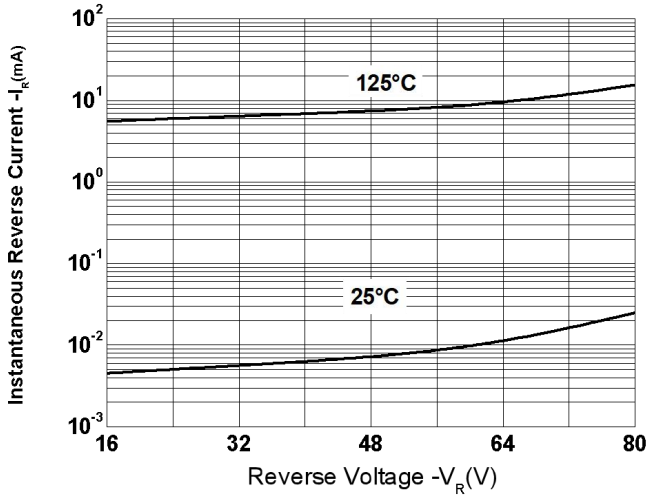
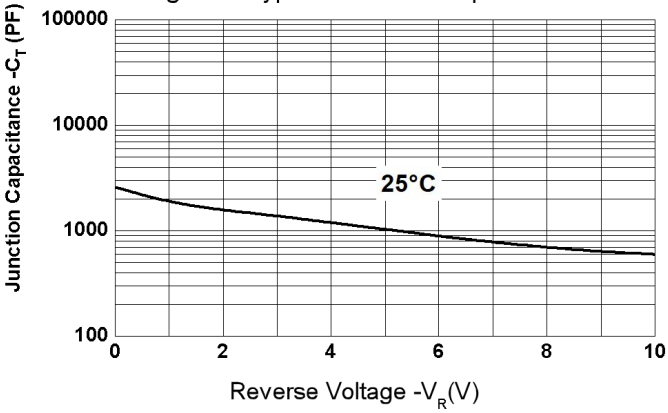


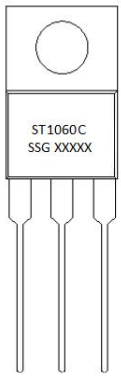

Figure 3 Typical Junction Capacitance

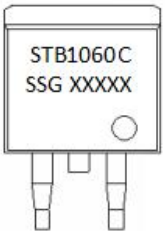


**ST1060C**
**STB1060C**
**STD1060C**

**Technical Data**
**Data Sheet N1416, Rev.** A

## Marking Diagram



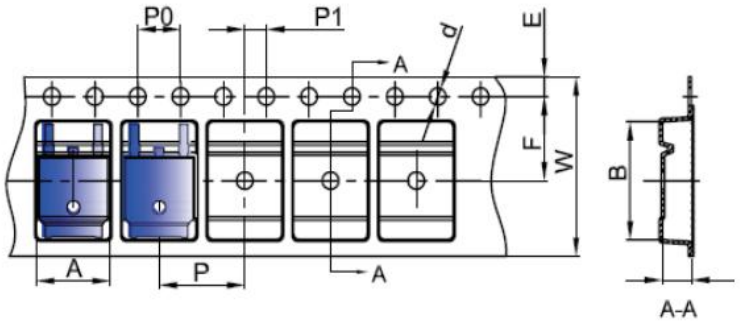


Where XXXXX is YYWWL

| | |
|---|---|
| ST | = Device Type |
| B/D | = Package type |
| 10 | = Forward Current (10A) |
| 60 | = Reverse Voltage (60V) |
| C | = Configuration |
| SSG | = SSG |
| YY | = Year |
| WW | = Week |
| L | = Lot Number |

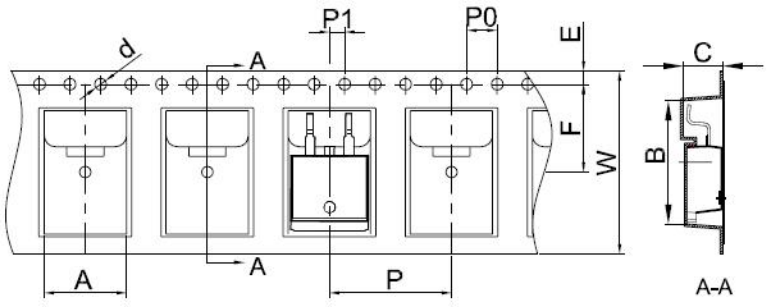
**Cautions:** Molding resin
Epoxy resin UL:94V-0

## Carrier Tape Specification DPAK




| SYMBOL | Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 6.80 | 7.00 |
| B | 10.40 | 10.60 |
| C | 2.60 | 2.80 |
| d | Φ1.45 | Φ1.65 |
| E | 1.65 | 1.85 |
| F | 7.40 | 7.60 |
| P0 | 3.90 | 4.10 |
| P | 7.90 | 8.10 |
| P1 | 1.90 | 2.10 |
| W | 15.90 | 16.30 |

## Carrier Tape Specification D2PAK

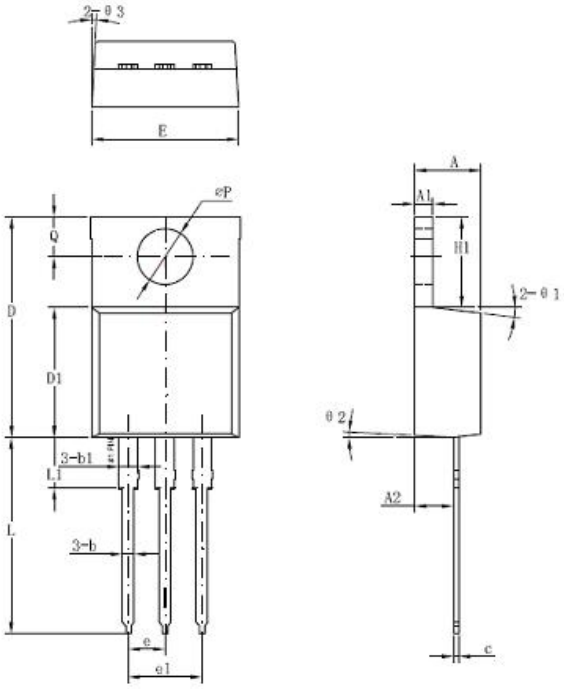



| SYMBOL | Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 10.70 | 10.90 |
| B | 16.03 | 16.23 |
| C | 5.11 | 5.31 |
| d | 1.45 | 1.65 |
| E | 1.65 | 1.85 |
| F | 11.40 | 11.60 |
| P0 | 3.90 | 4.10 |
| P | 15.90 | 16.10 |
| P1 | 1.90 | 2.10 |
| W | 23.90 | 24.30 |

**ST1060C**
**STB1060C**
**STD1060C**

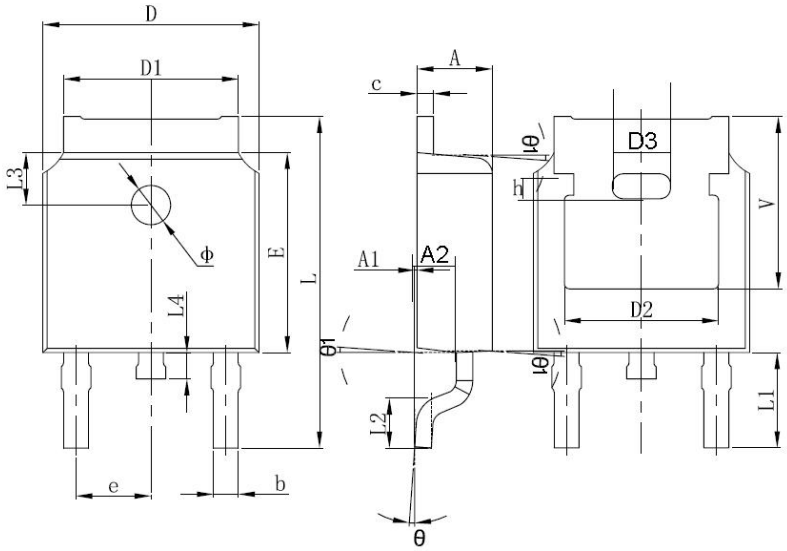
**Technical Data**
**Data Sheet N1416, Rev.** A

## Mechanical Dimensions TO-220AB



| Symbol | Dimensions in millimeters | | |
|---|---|---|---|
| | Min | Typical | Max |
| A | 3.56 | - | 4.83 |
| A1 | 0.51 | - | 1.4 |
| A2 | 2.03 | - | 2.92 |
| b | 0.38 | - | 1.02 |
| b1 | 1.14 | - | 1.78 |
| c | 0.31 | - | 0.61 |
| D | 14.22 | - | 16.51 |
| D1 | 8.38 | - | 9.42 |
| E | 9.65 | - | 10.67 |
| e | - | 2.54 | - |
| e1 | - | 5.08 | - |
| H1 | 5.84 | - | 6.86 |
| L | 12.7 | - | 14.73 |
| L1 | - | - | 6.35 |
| ΦP | - | 3.56 | - |
| Q | 2.54 | - | 3.43 |

## Mechanical Dimensions DPAK

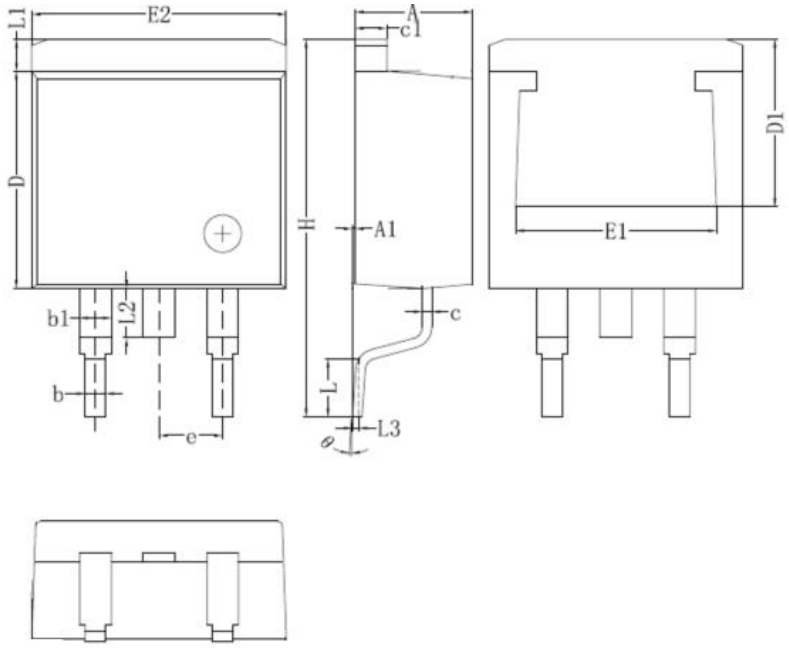


| Symbol | Dimensions in millimeters | | |
|---|---|---|---|
| | Min. | Typical | Max. |
| A | 2.18 | - | 2.39 |
| A1 | - | - | 0.13 |
| b | 0.64 | - | 0.89 |
| c | 0.46 | - | 0.89 |
| D | 6.35 | - | 6.73 |
| D1 | 4.95 | - | 5.46 |
| D2 | 4.32 | - | - |
| E | 5.97 | 6.1 | 6.22 |
| e | | 2.29BSC | |
| L | 9.4 | - | 10.41 |
| L1 | | 2.90 REF. | |
| L2 | 1.4 | 1.52 | 1.78 |
| L3 | | 1.60 REF. | |
| L4 | - | - | 1.02 |
| Φ | 1.1 | - | 1.3 |
| Θ | 0° | - | 10° |
| V | 5.21 | - | - |

The outline from different package houses may have slight differences. So the outline above is just schematic. The dimensions are controlled per specifications.

**Technical Data**
**Data Sheet N1416, Rev.** A

## Mechanical Dimensions D²PAK




| Symbol | Dimensions in millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 4.06 | 4.83 |
| A1 | 0 | 0.26 |
| b | 0.51 | 0.99 |
| b1 | 1.14 | 1.78 |
| c | 0.31 | 0.74 |
| c1 | 1.14 | 1.65 |
| D | 8.38 | 9.65 |
| D1 | 6.4 | |
| E1 | 6.22 | |
| E2 | 9.65 | 10.67 |
| e | 2.54BSC | |
| H | 14.6 | 15.88 |
| L | 1.78 | 2.8 |
| L1 | - | 1.68 |
| L2 | - | 2.2 |
| L3 | 0.255BSC | |
| Θ | 0 | 8° |

**Technical Data**
**Data Sheet N1416, Rev.** A

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