



**SANGDEST**  
**MICROELECTRONICS**

**ST1060**  
**STB1060**  
**STF1060**  
**STD1060**

Technical Data  
Data Sheet N1415, Rev. -

*Green Products*

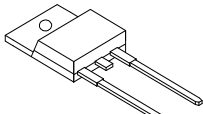
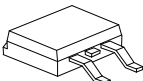
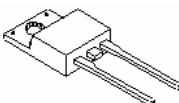
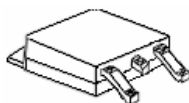
## ST1060/STB1060/STF1060/STD1060 SCHOTTKY RECTIFIER

### Applications:

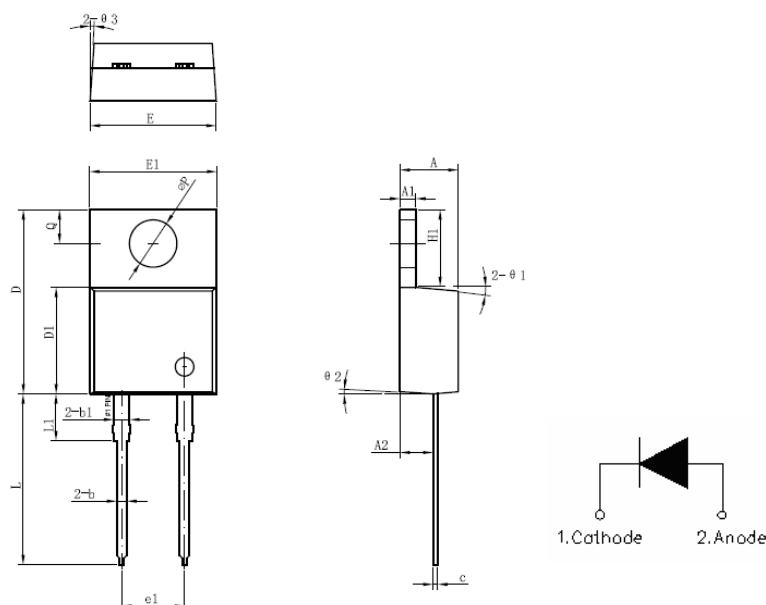
- Switching power supply
- Converters
- Free-Wheeling diodes
- Reverse battery protection
- Center tap configuration

### Features:

- 150°C T<sub>J</sub> 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

| ST1060                                                                              | STB1060                                                                             | STF1060                                                                              | STD1060                                                                               |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |
| TO-220AC                                                                            | D² PAK                                                                              | ITO-220AC                                                                            | DPAK                                                                                  |

Mechanical Dimensions: In Inches / mm



| Symbol | Dimensions in millimeters |         |       |
|--------|---------------------------|---------|-------|
|        | Min.                      | Typical | Max.  |
| A      | 4.55                      | 4.70    | 4.85  |
| 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      | 14.64                     | 14.94   | 15.24 |
| D1     | 8.55                      | 8.07    | 8.85  |
| E      | 10.01                     | 10.16   | 10.31 |
| E1     | 9.98                      | 10.18   | 10.38 |
| e1     |                           | 5.08    |       |
| H1     | 6.04                      | 6.24    | 6.44  |
| L      | 13.00                     | 13.86   | 14.08 |
| L1     |                           | 3.80    |       |
| ΦP     | 3.74                      | 3.84    | 4.04  |
| Q      | 2.54                      | 2.74    | 2.94  |
| Ø1     |                           | 5°      |       |
| Ø2     |                           | 4°      |       |
| Ø3     |                           | 4°      |       |

### TO-220AC

• Weiqi Street, Airport Development Zone, Jiangning District, Nanjing, China 211113 ☎ (86) 25-87123907 •  
• FAX (86) 25-87123900 • World Wide Web Site - <http://www.sangdest.com.cn> • E-Mail Address - [sales@sangdest.com.cn](mailto:sales@sangdest.com.cn) •

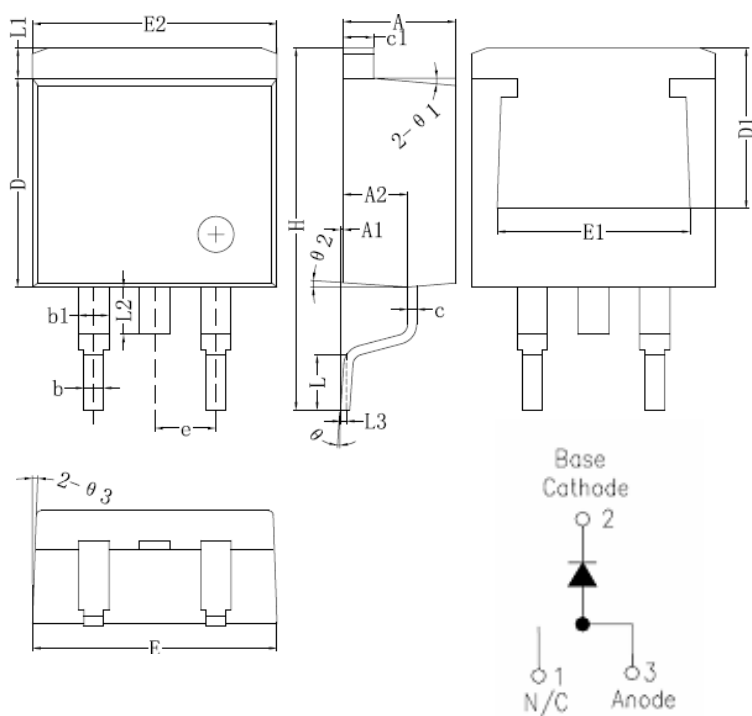


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| Symbol | Dimensions in millimeters |         |       |
|--------|---------------------------|---------|-------|
|        | Min.                      | Typical | Max.  |
| A      | 4.55                      | 4.70    | 4.85  |
| A1     | 0                         | 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°      |       |

**D<sup>2</sup>PAK**

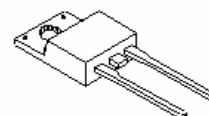
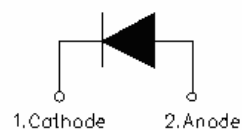
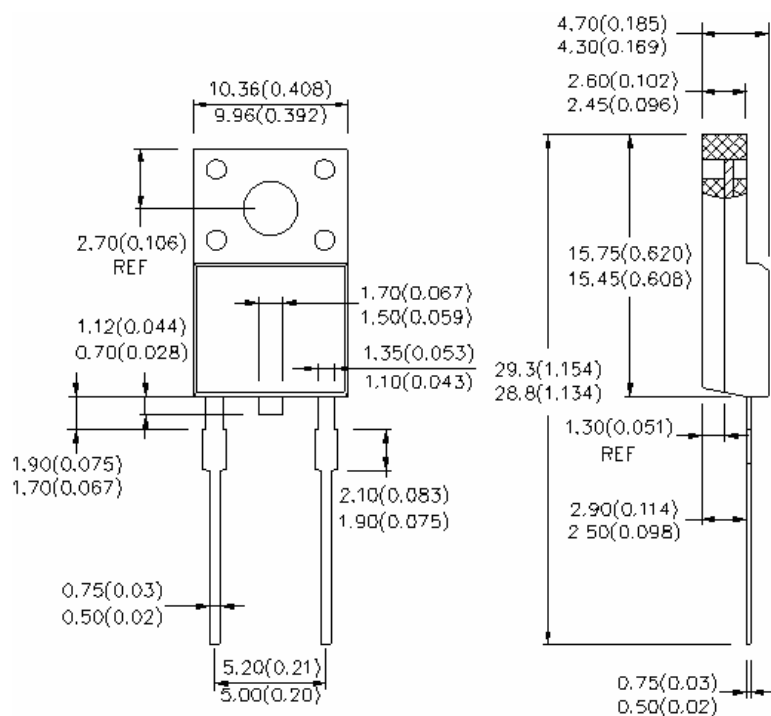


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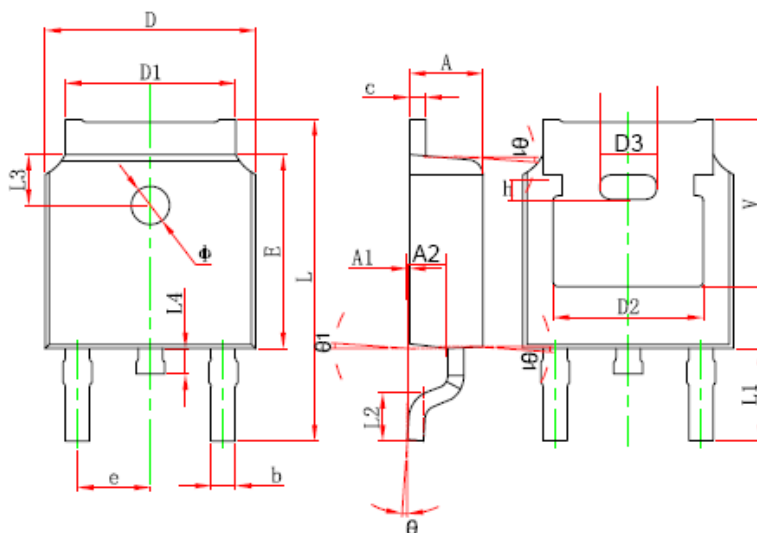
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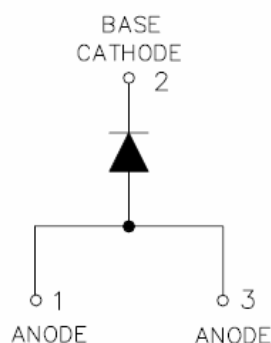
**Green Products**



**ITO-220AC**



| Symbol | Dimensions In Millimeters |        | Dimensions In Inches |       |
|--------|---------------------------|--------|----------------------|-------|
|        | Min.                      | Max.   | Min.                 | Max.  |
| A      | 2.200                     | 2.380  | 0.087                | 0.094 |
| A1     | 0.000                     | 0.100  | 0.000                | 0.004 |
| b      | 0.710                     | 0.810  | 0.028                | 0.032 |
| c      | 0.460                     | 0.560  | 0.018                | 0.022 |
| D      | 6.500                     | 6.700  | 0.256                | 0.264 |
| D1     | 5.130                     | 5.460  | 0.202                | 0.215 |
| D2     | 4.830 REF.                |        | 0.190 REF.           |       |
| E      | 6.000                     | 6.200  | 0.236                | 0.244 |
| e      | 2.186                     | 2.386  | 0.086                | 0.094 |
| L      | 9.800                     | 10.400 | 0.386                | 0.409 |
| L1     | 2.900 REF.                |        | 0.114 REF.           |       |
| L2     | 1.400                     | 1.700  | 0.055                | 0.067 |
| L3     | 1.600 REF.                |        | 0.063 REF.           |       |
| L4     | 0.600                     | 1.000  | 0.024                | 0.039 |
| Φ      | 1.100                     | 1.300  | 0.043                | 0.051 |
| θ      | 0°                        | 8°     | 0°                   | 8°    |
| A2     | 0.910                     | 1.110  | 0.036                | 0.044 |
| V      | 5.350 REF.                |        | 0.211 REF.           |       |
| D3     | 1.778 REF.                |        | 0.070 REF.           |       |
| h      | 0.762 REF.                |        | 0.030 REF.           |       |
| θ1     | 7°                        |        | 7°                   |       |



**DPAK**



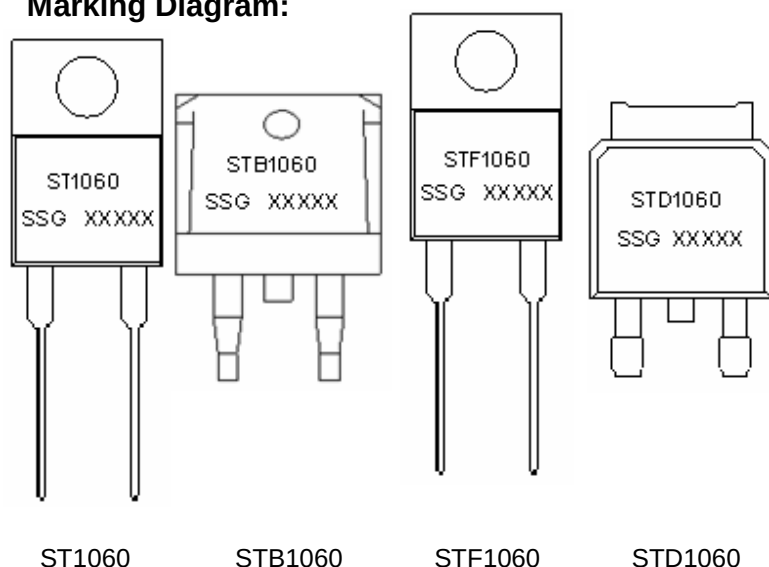
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### Marking Diagram:



Where XXXXX is YYWWL

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

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

### Ordering Information:

| Device  | Package                     | Shipping       |
|---------|-----------------------------|----------------|
| ST1060  | TO-220AC(Pb-Free)           | 50pcs / tube   |
| STB1060 | D <sup>2</sup> PAK(Pb-Free) | 800pcs / reel  |
| STF1060 | ITO-220AC(Pb-Free)          | 50pcs / tube   |
| STD1060 | DPAK(Pb-Free)               | 2500pcs / 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                                        | $V_{RWM}$   | -                                                                     | 60   | V     |
| Average Forward Current                                     | $I_{F(AV)}$ | 50% duty cycle @ $T_C=100^{\circ}\text{C}$ ,<br>rectangular wave form | 10   | A     |
| Peak One Cycle<br>Non-Repetitive Surge Current<br>(per leg) | $I_{FSM}$   | 8.3 ms, half Sine pulse                                               | 150  | A     |

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## Electrical Characteristics:

| Characteristics                   | Symbol          | Condition                                                               | Max.   | Units |
|-----------------------------------|-----------------|-------------------------------------------------------------------------|--------|-------|
| Forward Voltage Drop*             | V <sub>F1</sub> | @ 10A, Pulse, T <sub>J</sub> = 25 °C                                    | 0.65   | V     |
|                                   | V <sub>F2</sub> | @ 10A, Pulse, T <sub>J</sub> = 125 °C                                   | 0.59   | V     |
| Reverse Current*                  | I <sub>R1</sub> | @V <sub>R</sub> = rated V <sub>R</sub><br>T <sub>J</sub> = 25 °C        | 0.85   | mA    |
|                                   | I <sub>R2</sub> | @V <sub>R</sub> = rated V <sub>R</sub><br>T <sub>J</sub> = 125 °C       | 40     | mA    |
| Junction Capacitance<br>(per leg) | C <sub>T</sub>  | @V <sub>R</sub> = 5V, T <sub>C</sub> = 25 °C<br>f <sub>sig</sub> = 1MHz | 550    | pF    |
| Voltage Rate of Change            | dv/dt           | -                                                                       | 10,000 | V/μs  |

\* Pulse Width < 300μs, Duty Cycle <2%

## Thermal-Mechanical Specifications:

| Characteristics                                             | Symbol                                        | ST1060      | STB1060 | STD1060 | STF1060 | Units |
|-------------------------------------------------------------|-----------------------------------------------|-------------|---------|---------|---------|-------|
| Junction Temperature                                        | T <sub>J</sub>                                | -55 to +150 |         |         |         | °C    |
| Storage Temperature                                         | T <sub>stg</sub>                              | -55 to +150 |         |         |         | °C    |
| Maximum Thermal<br>Resistance Junction to<br>Case(per leg)* | R <sub>θJC</sub>                              | 3           | 3       | 2.4     | 6.0     | °C/W  |
| Approximate Weight                                          | wt                                            | 1.8         | 1.85    | 0.39    | 1.8     | g     |
| Case Style                                                  | TO-220AC/ D <sup>2</sup> PAK/ DPAK/ ITO-220AC |             |         |         |         |       |



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