


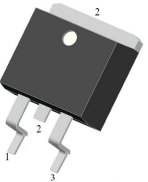
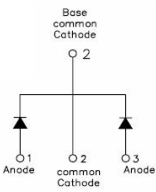
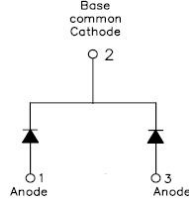
12CTQ.../12CTQ...S SCHOTTKY RECTIFIER

Features

- 175 °C T_J operation
- Center tap configuration
- Low 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

Applications

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

| 12CTQ... | 12CTQ...S |
|---|---|
|  |  |
|  |  |
| TO-220AB | D ² PAK |

Maximum Ratings:

| Characteristics | Symbol | Condition | Max. | Units |
|--|--------------------|--|------------------------------|-------|
| Peak Repetitive Reverse Voltage | V _{RRM} | - | 35(12CTQ035) | V |
| Working Peak Reverse Voltage | V _{RWM} | | 40(12CTQ040) | |
| DC Blocking Voltage | V _R | | 45(12CTQ045) | |
| Average Rectified Forward Current | I _{F(AV)} | 50% duty cycle @T _c =105°C, rectangular wave form | 6(per leg) 12(per device) | A |
| Peak One Cycle Non-Repetitive Surge Current(per leg) | I _{FSM} | 8.3ms, Half Sine pulse | 160 | A |

Electrical Characteristics:

| Characteristics | Symbol | Condition | Typ. | Max. | Units |
|------------------------------------|-----------------|---|--------------|--------------|-------|
| Forward Voltage Drop (per leg)* | V _{F1} | @ 6A, Pulse, T _J = 25 °C @ 12A, Pulse, T _J = 25 °C | 0.54 0.62 | 0.60 0.73 | V |
| | V _{F2} | @ 6A, Pulse, T _J = 125 °C @ 12A, Pulse, T _J = 125 °C | 0.46 0.55 | 0.53 0.64 | V |
| Reverse Current (per leg)* | I _{R1} | @V _R = rated V _R T _J = 25 °C | 0.004 | 0.8 | mA |
| | I _{R2} | @V _R = rated V _R T _J = 125 °C | 5 | 7.0 | mA |
| Junction Capacitance (per leg) | C _T | @V _R = 5V, T _C = 25 °C f _{SIG} = 1MHz | 360 | 400 | pF |
| Series Inductance (per leg) | L _S | Measured lead to lead 5 mm from package body | 8.0 | - | nH |
| Voltage Rate of Change | dv/dt | - | - | 10,000 | V/μs |

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

Thermal-Mechanical Specifications:

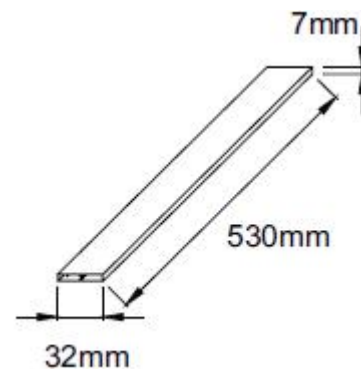
| Characteristics | Symbol | Condition | Specification | Units |
|--|-----------------------------|--------------------------------------|---------------|-------|
| Junction Temperature | T _J | - | -55 to +175 | °C |
| Storage Temperature | T _{stg} | - | -55 to +175 | °C |
| Typical Thermal Resistance Junction to Case(per leg) | R _{θJC} | DC operation | 3.5 | °C/W |
| Typical Thermal Resistance, case to Heat Sink | R _{θCS} | Mounting surface, smooth and greased | 0.50 | °C/W |
| Case Style | TO-220AB D ² PAK | | | |

Tube Specification

| Device | Package | Weight | Shipping |
|-----------|--------------------|--------|---------------|
| 12CTQ... | TO-220AB | 1.8g | 50pcs / tube |
| 12CTQ...S | D ² PAK | 1.85g | 800pcs / reel |

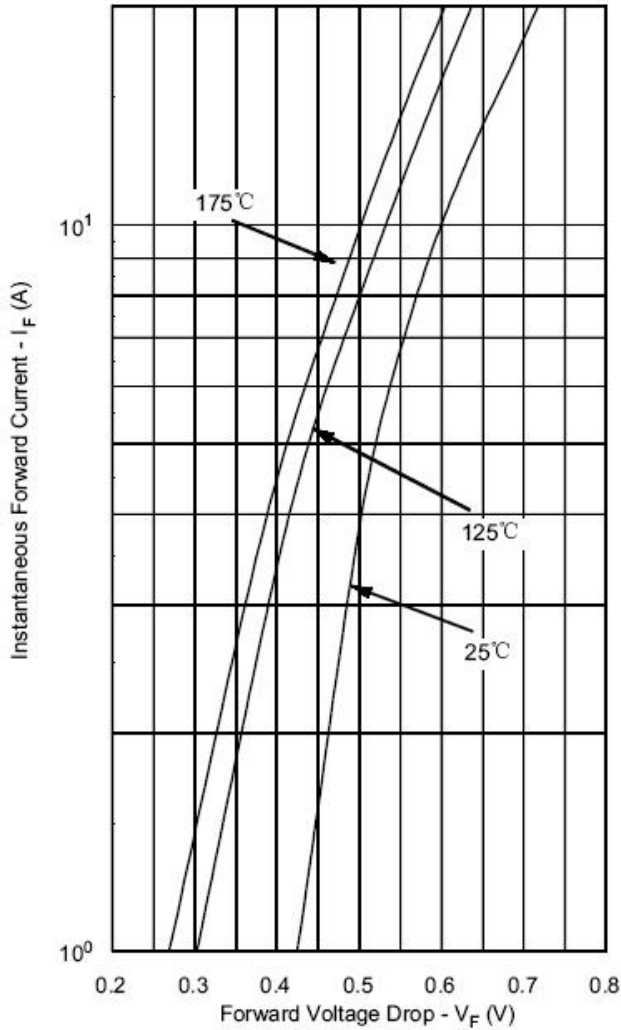
For information on tape and reel specifications, including part orientation and tape sizes, please refer to our tape and reel packaging specification.

Tube Specification(TO-220AB)

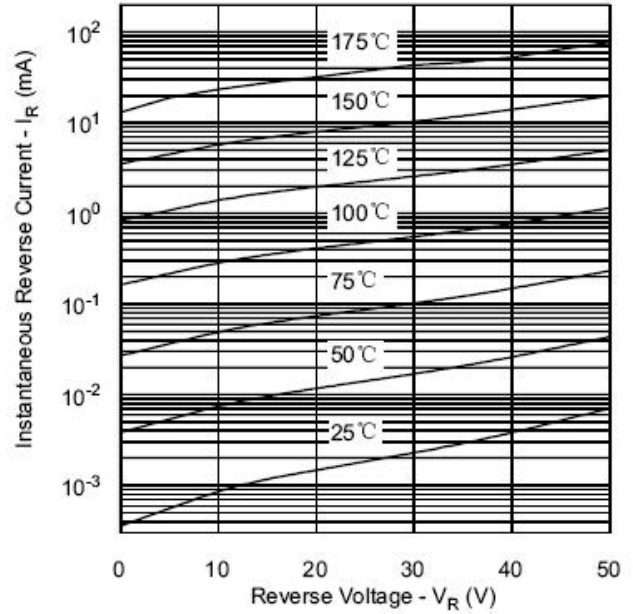


Ratings and Characteristics Curves

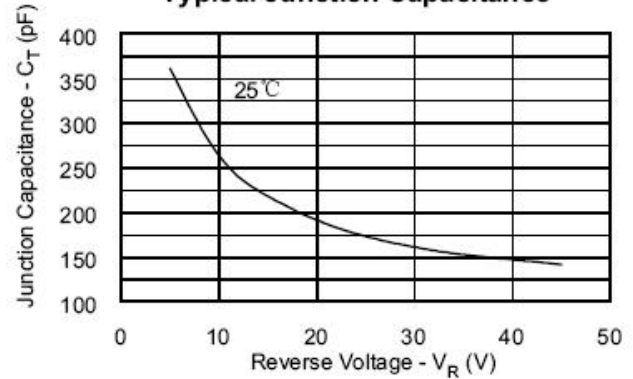
Typical Forward Characteristics



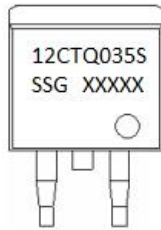
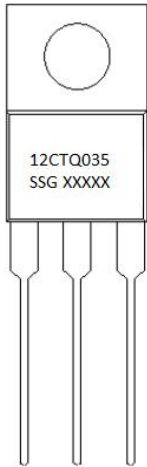
Typical Reverse Characteristics



Typical Junction Capacitance



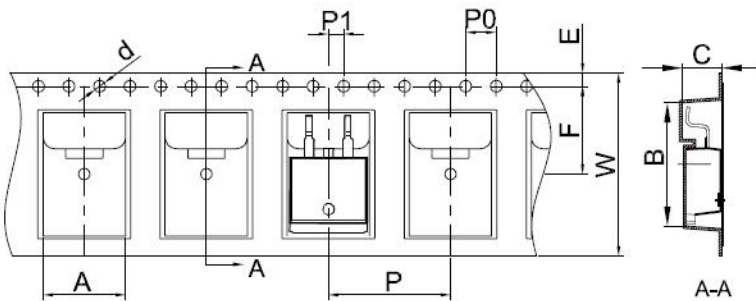
Marking Diagram



Where XXXXX is YYWWL

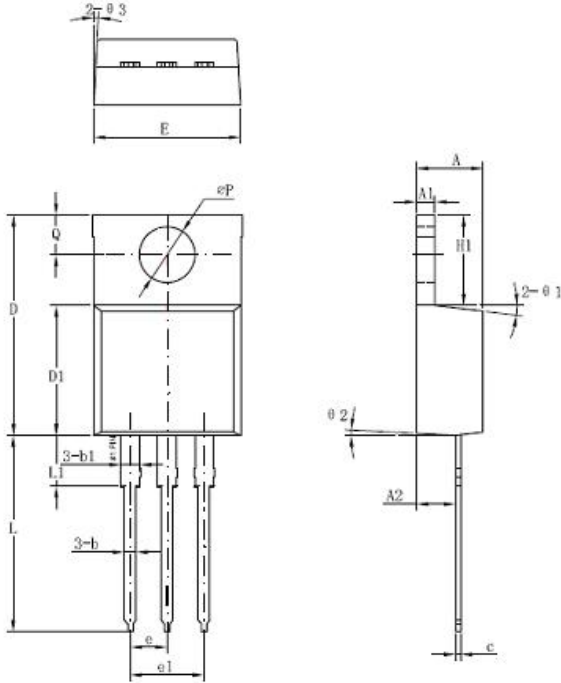
12CTQ035/S = Part Name
SSG = SSG
YY = Year
WW = Week
L = Lot Number

Carrier Tape Specification D²PAK



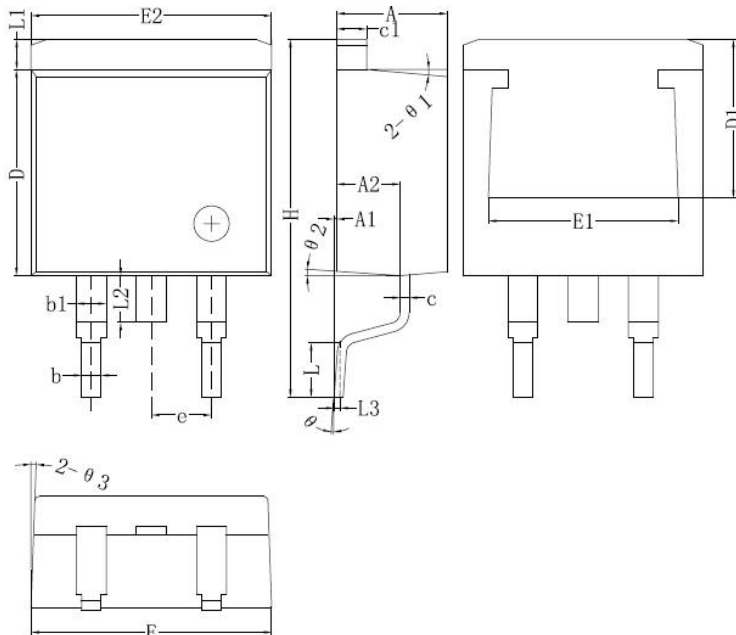
| Symbol | Millimeters | |
|--------|-------------|-------|
| | Min. | Max. |
| A | 10.70 | 10.90 |
| B | 16.03 | 16.23 |
| C | 5.11 | 5.31 |
| d | 1.45 | 1.65 |
| E | 1.65 | 1.85 |
| F | 11.40 | 11.60 |
| P0 | 3.90 | 4.10 |
| P | 15.90 | 16.10 |
| P1 | 1.90 | 2.10 |
| W | 23.90 | 24.30 |

Mechanical Dimensions TO-220AB



| Symbol | Millimeters | | |
|------------|-------------|---------|-------|
| | Min. | Typical | Max. |
| A | 4.42 | 4.57 | 4.72 |
| A1 | 1.17 | 1.27 | 1.37 |
| A2 | 2.52 | 2.69 | 2.89 |
| b | 0.71 | 0.81 | 0.96 |
| b1 | 1.17 | 1.27 | 1.37 |
| c | 0.31 | 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 | 4.98 | 5.06 | 5.18 |
| H1 | 6.04 | 6.24 | 6.44 |
| L | 12.7 | 13.56 | 13.80 |
| L1 | 3.56 | 3.5 | 3.96 |
| ΦP | 3.74 | 3.84 | 4.04 |
| Q | 2.54 | 2.74 | 2.94 |
| $\theta 1$ | | 7° | |
| $\theta 2$ | | 3° | |
| $\theta 3$ | | 4° | |

Mechanical Dimensions D²PAK



| Symbol | Millimeters | | |
|--------|-------------|---------|-------|
| | Min. | Typical | Max. |
| A | 4.47 | 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 | 1.17 | 1.27 | 1.37 |
| c | 0.31 | 0.38 | 0.61 |
| c1 | 1.17 | 1.27 | 1.37 |
| D | 8.50 | 8.70 | 8.90 |
| D1 | 6.40 | | |
| E | 10.01 | 10.16 | 10.31 |
| E1 | 7.6 | | |
| E2 | 9.98 | 10.08 | 10.31 |
| e | | 2.54 | |
| H | 14.6 | 15.1 | 15.6 |
| L | 2.00 | 2.30 | 2.74 |
| L1 | 1.12 | 1.27 | 1.42 |
| L2 | 1.30 | | 2.20 |
| L3 | | 0.25BSC | |
| e | 0 | - | 8° |
| e1 | | 5° | |
| e2 | | 4° | |
| e3 | | 4° | |

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