



**THE DATASHEET OF
25CTQ040S**






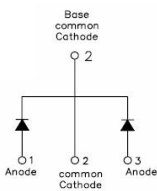
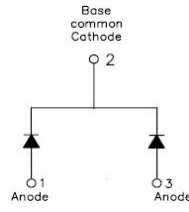
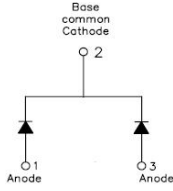
25CTQ.../25CTQ...S /25CTQ...-1 SCHOTTKY RECTIFIER

Features

- 150°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
- 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

Applications

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

| 25CTQ... | 25CTQ...S | 25CTQ...-1 |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |
|  |  |  |
| TO-220AB | D ² PAK | TO-262 |

Maximum Ratings@T_c=25°C unless otherwise specified

| Characteristics | Symbol | Condition | Max. | Units |
|------------------------------------------------------|--------------------|-----------------------------------------------------------------|-------------------------------|-------|
| Peak Repetitive Reverse Voltage | V _{RRM} | - | 35(25CTQ035) | V |
| Working Peak Reverse Voltage | V _{RWM} | | 40(25CTQ040) | |
| DC Blocking Voltage | V _R | | 45(25CTQ045) | |
| Average Rectified Forward Current | I _{F(AV)} | 50% duty cycle @T _c =102°C, rectangular wave form | 15(Per Leg) 30(Per Device) | A |
| Peak One Cycle Non-Repetitive Surge Current(Per Leg) | I _{FSM} | 8.3ms, Half Sine pulse | 300 | A |

Electrical Characteristics:

| Characteristics | Symbol | Condition | Typ. | Max. | Units |
|----------------------------------------|-----------------|-------------------------------------------------------------------------|------|--------|-------|
| Forward Voltage Drop (Per Leg)* | V _{F1} | @ 15A, Pulse, T _J = 25 °C | 0.51 | 0.56 | V |
| | | @ 30A, Pulse, T _J = 25 °C | 0.63 | 0.71 | |
| | V _{F2} | @ 15A, Pulse, T _J = 125 °C | 0.45 | 0.50 | V |
| | | @ 30A, Pulse, T _J = 125 °C | 0.60 | 0.64 | |
| Reverse Current (Per Leg)* | I _{R1} | @V _R = rated V _R T _J = 25 °C | 0.05 | 1.0 | mA |
| | I _{R2} | @V _R = rated V _R T _J = 125 °C | 27 | 70 | mA |
| Junction Capacitance(Per Leg) | C _T | @V _R = 5V, T _C = 25 °C f _{SIG} = 1MHz | 702 | 900 | pF |
| Typical 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:

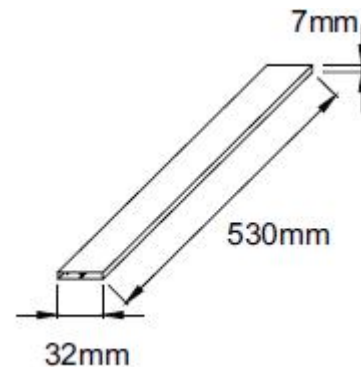
| Characteristics | Symbol | Condition | Specification | Units |
|-----------------------------------------------|------------------------------------|--------------|---------------|-------|
| Junction Temperature | T _J | - | -55 to +150 | °C |
| Storage Temperature | T _{stg} | - | -55 to +150 | °C |
| Typical Thermal Resistance Junction to Case | R _{θJC} | DC operation | 3.25 | °C/W |
| Typical Thermal Resistance, Case to Heat Sink | R _{θJL} | DC operation | 0.50 | °C/W |
| Case Style | TO-220AB D ² PAK TO-262 | | | |

Tube Specification

| Device | Package | Weight | Shipping |
|------------|--------------------|--------|---------------|
| 25CTQ... | TO-220AB | 1.8g | 50pcs / tube |
| 25CTQ...S | D ² PAK | 1.85g | 800pcs / reel |
| 25CTQ...-1 | TO-262 | 1.85g | 50pcs / tube |

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/TO-262)



Ratings and Characteristics Curves

Figure 1 Typical Forward Characteristics

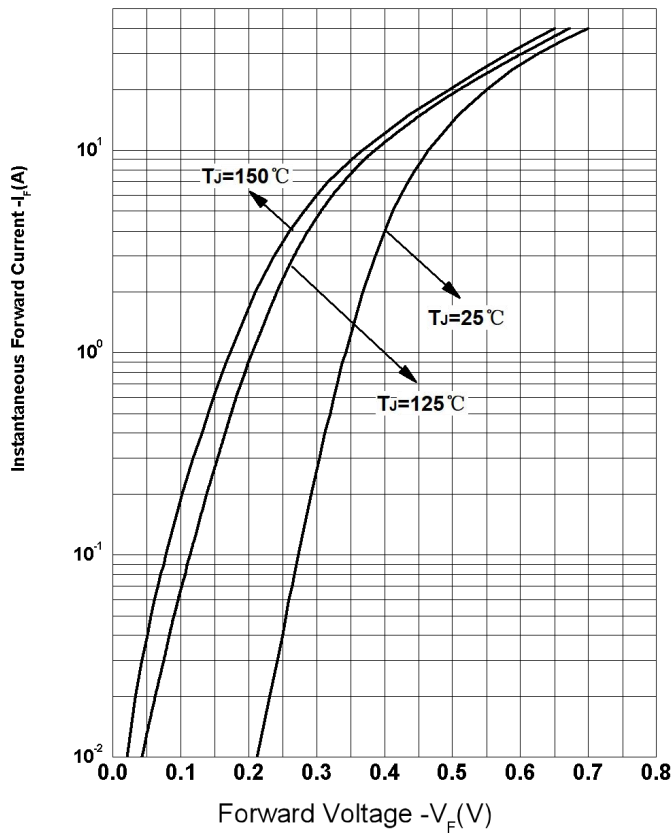


Figure 2 Typical Reverse Characteristics

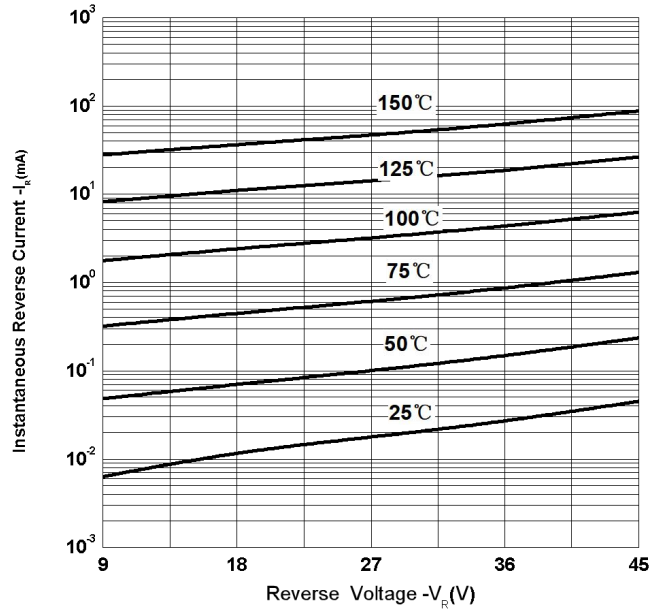
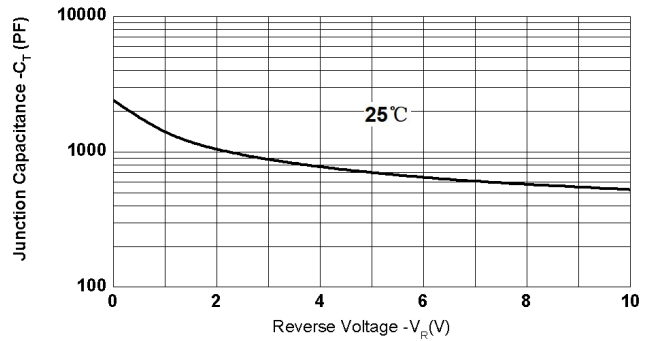
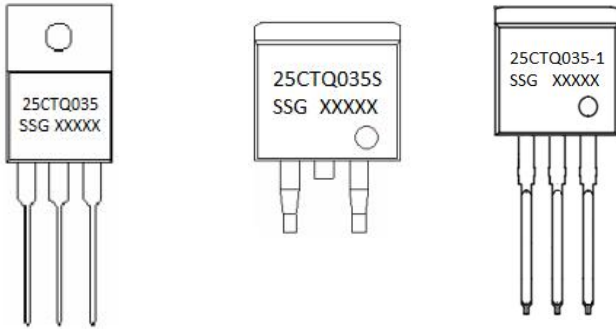


Figure 3 Typical Junction Capacitance



Marking Diagram

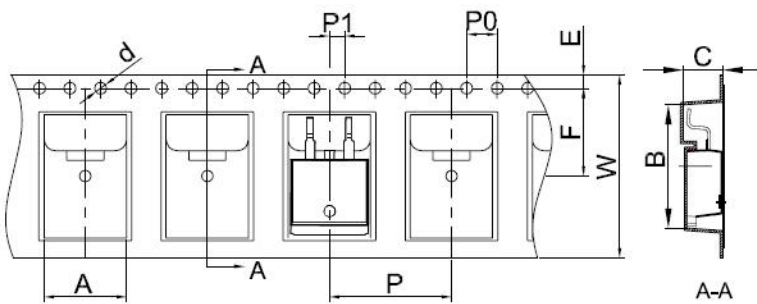


Where XXXXX is YYWWL

25 = Forward Current (25A)
C = Configuration
TQ = Device Type
35/40/45 = Reverse Voltage (35V/40V/45V)
S/-1 = Package type
SSG = SSG
YY = Year
WW = Week
L = Lot Number

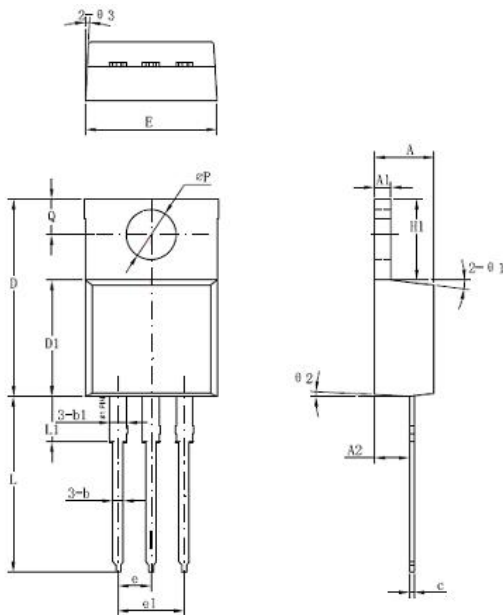
Cautions: Molding resin
Epoxy resin UL:94V-0

Carrier Tape Specification D²PAK



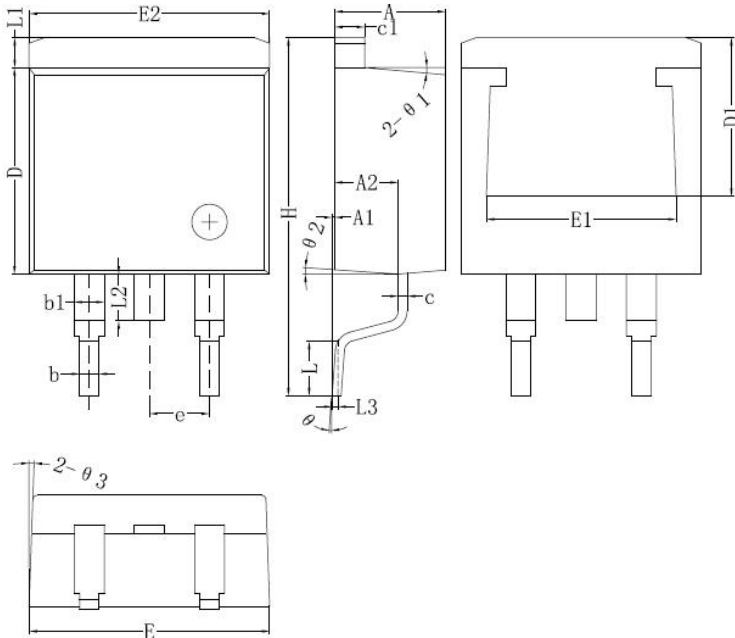
| Symbol | Millimeters | |
|--------|-------------|-------|
| | Min. | Max. |
| A | 10.70 | 10.90 |
| B | 16.03 | 16.23 |
| C | 5.11 | 5.31 |
| d | 1.45 | 1.65 |
| E | 1.65 | 1.85 |
| F | 11.40 | 11.60 |
| P0 | 3.90 | 4.10 |
| P | 15.90 | 16.10 |
| P1 | 1.90 | 2.10 |
| W | 23.90 | 24.30 |

Mechanical Dimensions TO-220AB



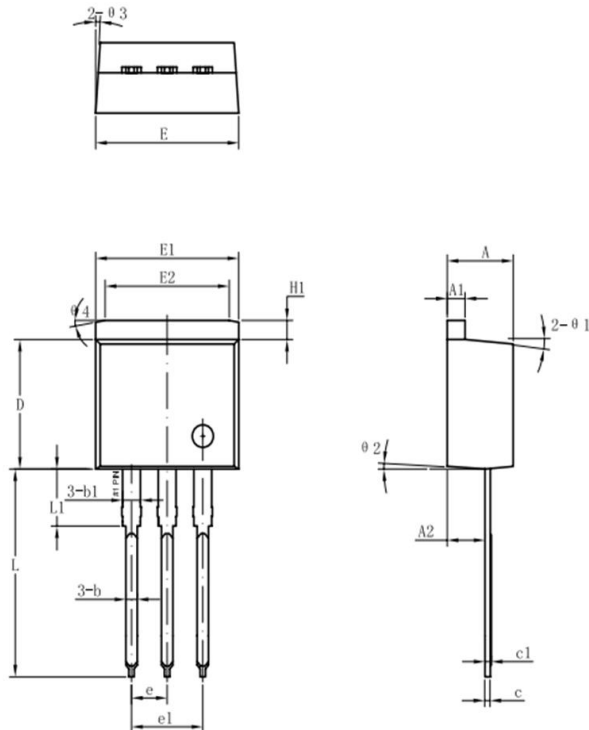
| Symbol | Dimensions in millimeters | | |
|--------|---------------------------|---------|-------|
| | Min | Typical | Max |
| A | 3.56 | - | 4.83 |
| A1 | 0.51 | - | 1.4 |
| A2 | 2.03 | - | 2.92 |
| b | 0.38 | - | 1.02 |
| b1 | 1.14 | - | 1.78 |
| c | 0.31 | - | 0.61 |
| D | 14.22 | - | 16.51 |
| D1 | 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 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° |

Mechanical Dimensions TO-262



| Symbol | 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 | 1.22 | 1.37 | 1.47 |
| b | 0.71 | 0.81 | 0.96 |
| b1 | | 1.27 | |
| c | 0.36 | 0.38 | 0.61 |
| D | 8.55 | 8.70 | 8.85 |
| E | 10.01 | 10.16 | 10.31 |
| E1 | 9.88 | 10.08 | 10.28 |
| e | | 2.54 | |
| e1 | | 5.08 | |
| H1 | 1.17 | 1.27 | 1.37 |
| L | 13.00 | 13.86 | 14.08 |
| L1 | | 3.8 | |
| Θ1 | | 5° | |
| Θ2 | | 4° | |
| Θ3 | | 4° | |
| Θ4 | | 10° | |

Technical Data
Data Sheet N0024, Rev. A





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