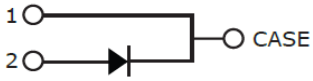
# LSIC2SD120A10A

Silicon Carbide Schottky Diode

## General Description

This product family offers state of the art performance.It is designed for high frequency applications where high efficiency and high reliability are required.


TO-220-2L




## Features

- Low conduction loss due to low $V_F$
- Extremely low switching loss by tiny $Q_C$
- Highly rugged due to better surge current
- Industrial standard quality and reliability

## Applications

- UPS
- Power Inverter
- High performance SMPS
- Power factor correction

AEC-Q101 Qualified

| Part Number | Package | Marking |
|---|---|---|
| LSIC2SD120A10A | TO-220-2L | L2120B7 |

## Maximum Ratings ($T_C$ = 25 ˚C unless otherwise specified)

| Symbol | Parameter | Value | Unit | Test Conditions |
|---|---|---|---|---|
| $V_{RRM}$ | Repetitive Peak Reverse Voltage | 1200 | V | |
| $V_{RSM}$ | Surge Peak Reverse Voltage | 1200 | V | |
| $V_R$ | DC Blocking Voltage | 1200 | V | |
| $I_F$ | Continuous Forward Current | 39<br>20<br>12 | A | $T_C$=25˚C<br>$T_C$=135˚C<br>$T_C$=153˚C |
| $I_{FRM}$ | Repetitive Peak Forward Surge Current | 84<br>63 | A | $T_C$=25˚C, $t_P$= 10 ms, Half Sine Wave<br>$T_C$=110˚C, $t_P$=10 ms, Half Sine Wave |
| $I_{FSM}$ | Non-Repetitive Peak Forward Surge Current | 130<br>108 | A | $T_C$=25˚C, $t_p$ = 10 ms, Half Sine Wave<br>$T_C$=110˚C, $t_p$ = 10 ms, Half Sine Wave |
| $\int i^2dt$ | $i^2dt$ value | 84.5<br>58 | $A^2s$ | $T_C$ = 25°C,$t_p$=10ms,Half Sine Pulse<br>$T_C$ = 110°C,$t_p$=10ms,Half Sine Pulse |
| $P_{tot}$ | Power Dissipation | 150<br>65 | W | $T_C$=25˚C<br>$T_C$=110˚C |
| $T_J$ , $T_{stg}$ | Operating Junction and Storage Temperature | -55 to +150 | ˚C | |
| $T_J$ | Operating junction Range | -55 to +175 | ˚C | |

## Electrical Characteristics

| Parameter | Symbol | Value | | | Unit | Test Condition |
|---|---|---|---|---|---|---|
| | | min. | typ. | max. | | |
| Forward Voltage | $V_F$ | - | 1.35 | 1.7 | V | $I_F$=12A<br>$T_j$=25°C |
| | | - | 2.0 | | | $T_j$=175°C |
| Reverse Current | $I_R$ | - | - | 150 | μA | $V_R$=1200V<br>$T_j$=25°C |
| | | - | - | 300 | | $T_j$=175°C |
| Total Capacitive Charge | $Q_C$ | - | 75.6 | - | nC | $V_R$=800V，$T_j$=25℃<br>$Q_C = \int_0^{V_R} C(V)dV$ |
| Total Capacitance | C | - | 1022 | - | pF | $T_j$=25℃, f=1MHz<br>$V_R$=0V |
| | | - | 71 | - | | $V_R$=400V |
| | | - | 55 | - | | $V_R$=800V |

## Thermal Characteristics

| Symbol | Parameter | Typ. | Unit |
|---|---|---|---|
| $R_{\theta JC}$ | Thermal Resistance from Junction to Case | 1.0 | °C/W |

## Characteristics Curve

Fig 1: Forward Characteristics

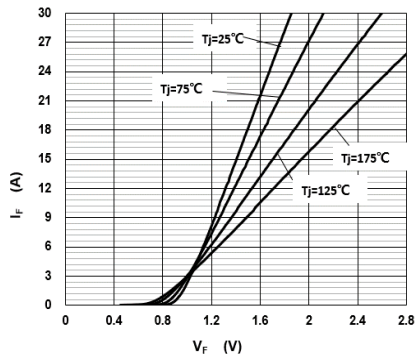



Fig 2: Reverse Characteristics

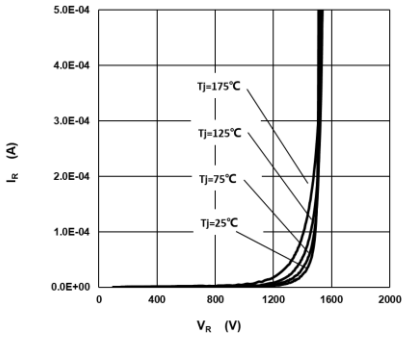


Fig 3: Current Derating

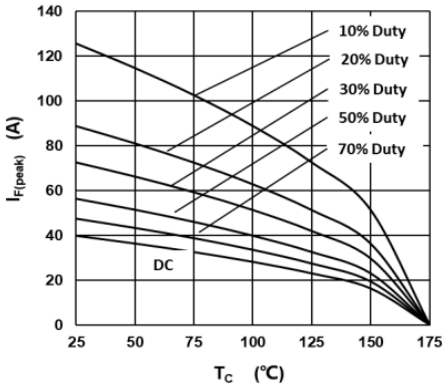



Fig 4: Power Derating

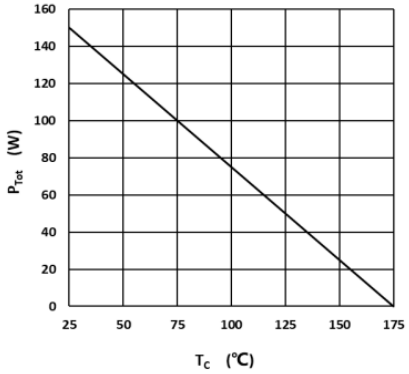



Fig 5: Capacitance vs. Reverse Voltage

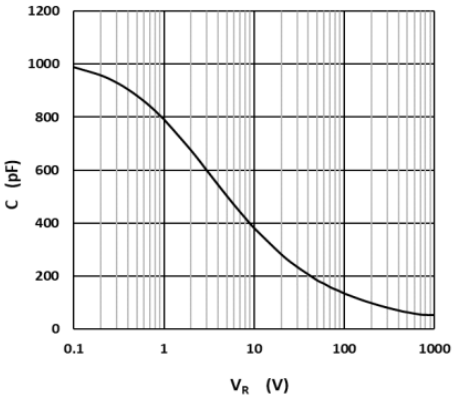



Fig 6: Reverse Charge vs. Reverse Voltage

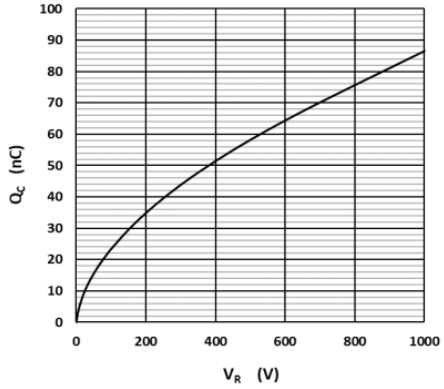



Fig 7: Typical Capacitance Stored Energy

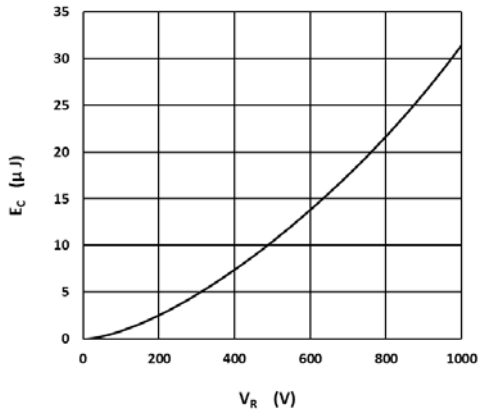
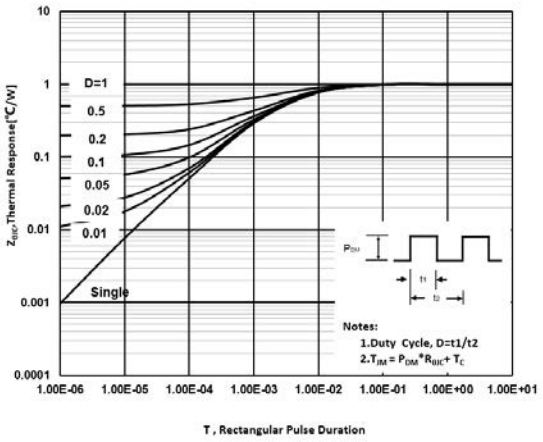
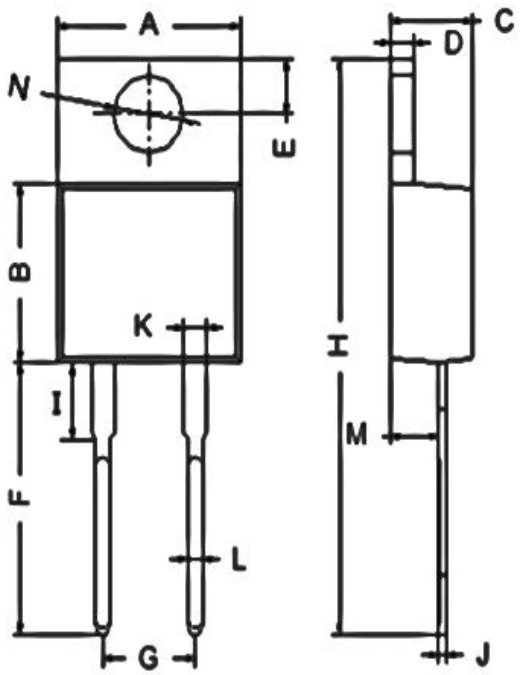



Fig 8: Transient Thermal Impandance



## Package Information
**TO-220-2L**




| POS | Millimeters | |
|---|---|---|
| | Min. | Max. |
| A | 9.80 | 10.50 |
| B | 8.60 | 9.20 |
| C | 4.37 | 4.77 |
| D | 1.07 | 1.47 |
| E | 2.40 | 3.00 |
| F | 13.14 | 14.20 |
| G | 4.90 | 5.24 |
| H | 28.00 | 29.20 |
| I | 3.50 | 4.00 |
| J | 0.28 | 0.50 |
| K | 1.20 | 1.50 |
| L | 0.70 | 0.90 |
| M | 2.40 | 2.90 |
| N | 3.70 | 4.00 |

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