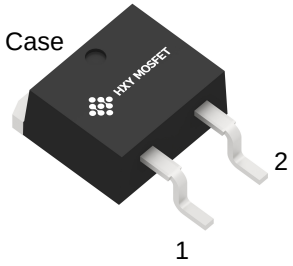
# KXJL120C10T3

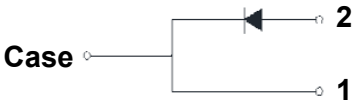
Silicon Carbide Schottky Diode

## Features

- 1200-Volt Schottky Rectifier
- Zero Reverse Recovery Current
- Zero Forward Recovery Voltage
- High-Frequency Operation
- Temperature-Independent Switching Behavior
- Extremely Fast Switching
- Positive Temperature Coefficient on $V_F$




TO-263N




## Benefits

- Replace Bipolar with Unipolar Rectifiers
- Essentially No Switching Losses
- Higher Efficiency
- Reduction of Heat Sink Requirements
- Parallel Devices Without Thermal Runaway

## Applications

- Switch Mode Power Supplies
- Power Factor Correction
- Motor Drives

| Part Number | Package | Qty(PCS) |
|---|---|---|
| KXJL120C10T3 | TO-263N | 800 |

## Maximum Ratings (Tc = 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 | |
| $I_F$ | Continuous Forward Current | 29.2<br>13.7<br>10 | A | $T_C$=25˚C<br>$T_C$=135˚C<br>$T_C$=151.5˚C |
| $I_{FRM}$ | Repetitive Peak Forward Surge Current | 60 | A | $T_C$=25˚C, $t_p$ = 10 ms, Half Sine Wave |
| $I_{FSM}$ | Non-Repetitive Peak Forward Surge Current | 120 | A | $T_C$=25˚C, $t_p$ = 10 ms, Half Sine Wave |
| $P_{tot}$ | Power Dissipation | 120<br>52 | W | $T_C$=25˚C<br>$T_C$=110˚C |
| $T_J$ , $T_{stg}$ | Operating Junction and Storage Temperature | -55 to +175 | ˚C | |
| $\int i^2dt$ | i²dt value | 72 | $A^2s$ | $T_C$=25˚C, $t_p$ = 10 ms, Half Sine Wave |

## Electrical Characteristics

| Symbol | Parameter | Min. | Typ. | Max. | Unit | Test Conditions |
|---|---|---|---|---|---|---|
| $V_{DC}$ | DC Blocking Voltage | 1200 | | | V | |
| $V_F$ | Forward Voltage | | 1.39<br>1.89 | 1.7<br>2.5 | V | $I_F$ = 10 A $T_J$=25°C<br>$I_F$ = 10 A $T_J$=175°C |
| $I_R$ | Reverse Current | | 4<br>25 | 50<br>100 | μA | $V_R$ = 1200 V $T_J$=25°C<br>$V_R$ = 1200 V $T_J$=175°C |
| $Q_C$ | Total Capacitive Charge | | 55 | | nC | $V_R$ = 800 V $T_J$ = 25°C |
| C | Total Capacitance | | 834<br>51<br>43.8 | | pF | $V_R$ = 0 V, $T_J$ = 25°C, f = 1 MHz<br>$V_R$ = 400 V, $T_J$ = 25°C, f = 1 MHz<br>$V_R$ = 800 V, $T_J$ = 25°C, f = 1 MHz |
| $E_C$ | Capacitance Stored Energy | | 28 | | μJ | $V_R$ = 800 V |

## Thermal Characteristics

| Symbol | Parameter | Typ. | Unit |
|---|---|---|---|
| $R_{\theta JC}$ | Thermal Resistance from Junction to Case | 1.25 | °C/W |

## Typical Performance

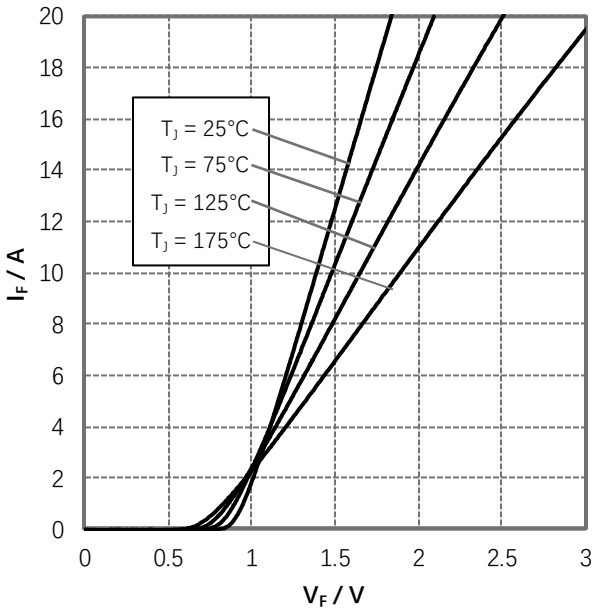



Figure 1. Forward Characteristics

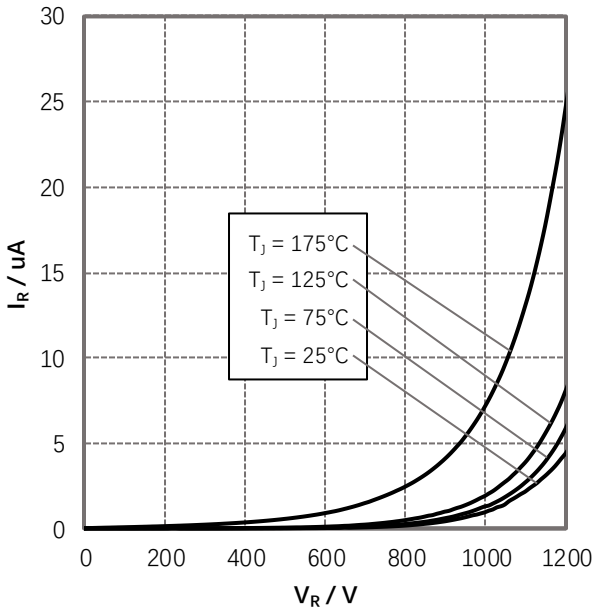



Figure 2. Reverse Characteristics

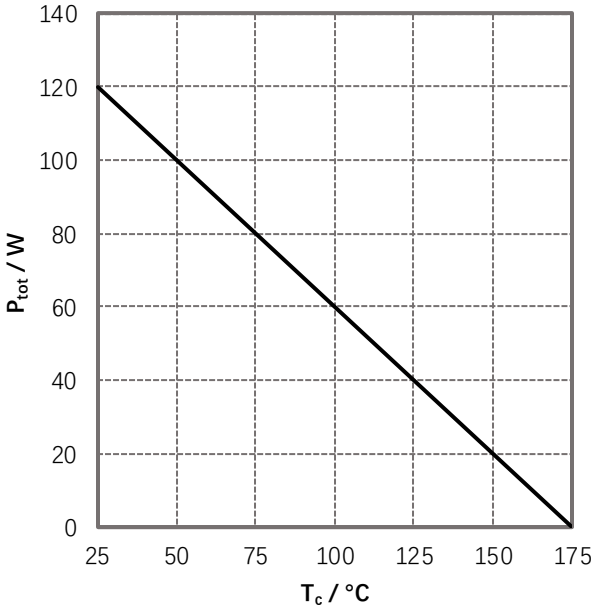



Figure 3. Power Derating

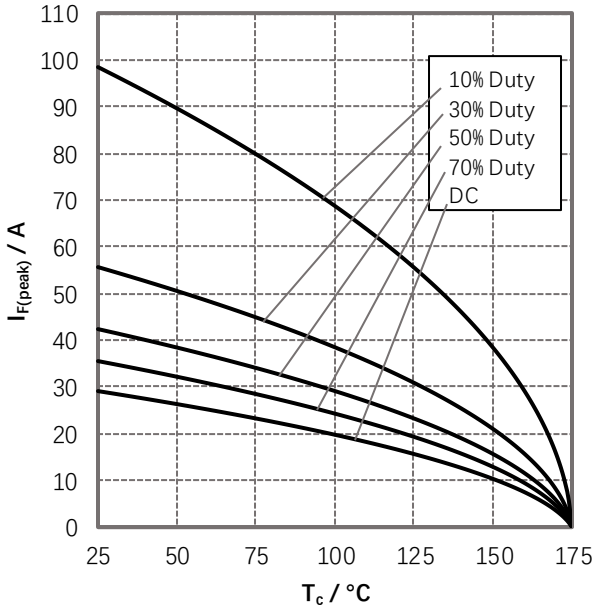



Figure 4. Current Derating

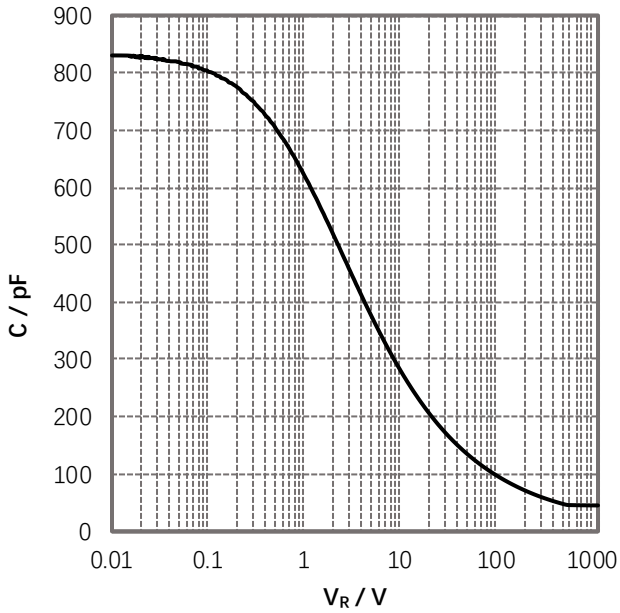



Figure 5. Capacitance vs. Reverse Voltage

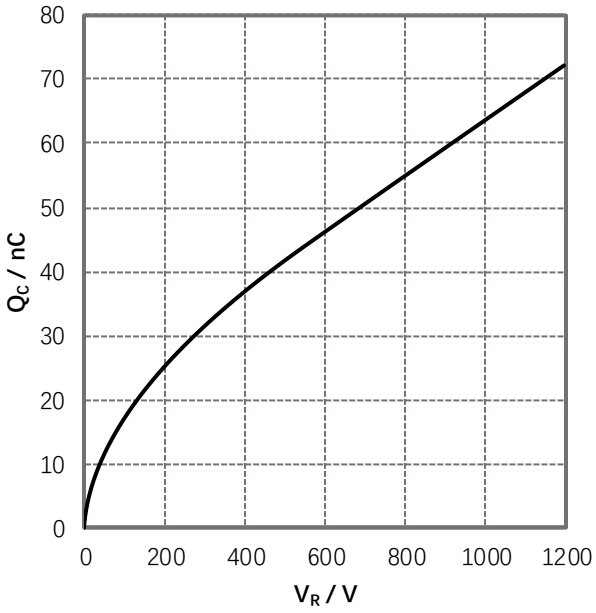



Figure 6. Total Capacitance Charge vs. Reverse Voltage

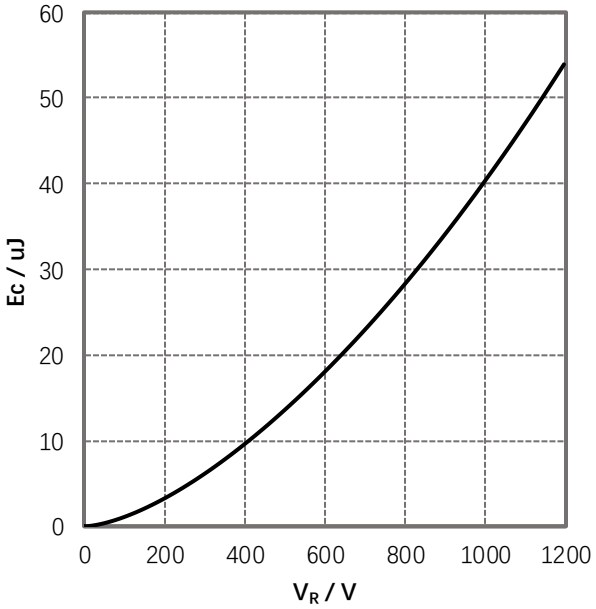



Figure 7. Capacitance Stored Energy

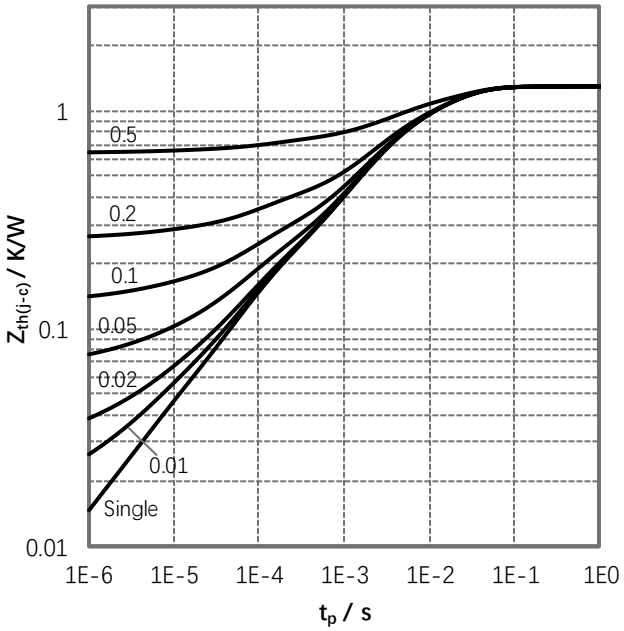
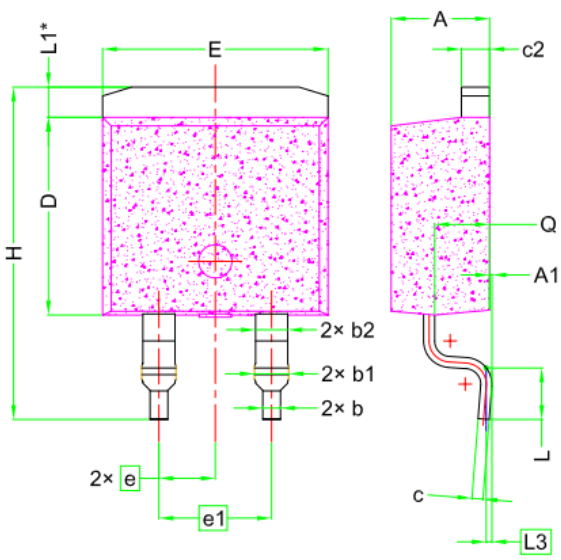
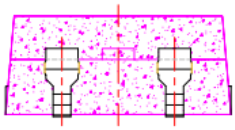


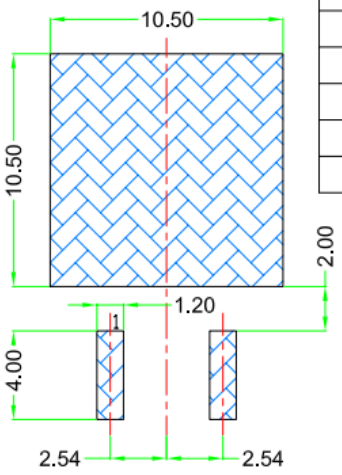

Figure 8. Transient Thermal Impedance

## Package Information
## TO-263N



Land Pattern
(Only for Reference)




| SYMBOL | DIMENSIONS | | |
|---|---|---|---|
| | MIN. | NOM. | MAX. |
| A | 4.24 | 4.44 | 4.64 |
| A1 | 0.00 | 0.10 | 0.25 |
| b | 0.70 | 0.80 | 0.90 |
| b1 | 1.20 | 1.55 | 1.75 |
| b2 | 1.20 | 1.45 | 1.70 |
| c | 0.40 | 0.50 | 0.60 |
| c2 | 1.15 | 1.27 | 1.40 |
| D | 8.82 | 8.92 | 9.02 |
| D1 | 6.86 | 7.65 | — |
| E | 9.96 | 10.16 | 10.36 |
| E1 | 6.89 | 7.77 | 7.89 |
| e | 2.54 BSC | | |
| e1 | 5.08 BSC | | |
| H | 14.61 | 15.00 | 15.88 |
| L | 1.78 | 2.32 | 2.79 |
| L1 | 1.36 REF. | | |
| L3 | 0.25 BSC | | |
| Q | 2.30 | 2.48 | 2.70 |

Note:
1. All Dimensions Are In mm.
2. Dimension D & E Do Not Include Mold Flash.
   Mold Flash Shall Not Exceed 0.127mm Pre Side.
   These Dimensions Are Measured At The Outermost
   Extreme Of The Plastic Body.
3. Thermal Pad Contour Optional Within Dimensions E, L1, D1 & E1.
4. Dimension D1 & E1 Establish A Minmum Mounting Surface for
   The Thermal Pad.
5. "*" is reference .

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