LJP10120

Silicon Carbide Schottky Diode 1200 V, 10 A

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.

Product Summary

V_{RRM}	1200 V
I_F (T_C 157℃)	10 A
V_F (T_j 25℃)	1.5 V

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

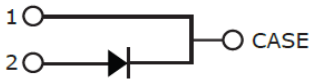
RoHS

Halogen Free

Applications

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

Equivalent circuit



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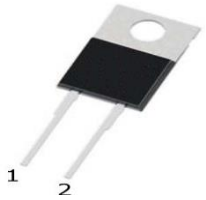

Maximum Ratings (at Tc = 25 °C, unless otherwise specified)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	1200	V
Surge Peak Reverse Voltage	V_{RSM}	1200	V
DC Peak Reverse Voltage	V_R	1200	V
Continuous Forward Current T_C = 25°C T_C = 135°C T_C = 157°C	I_F	 30 15 10	A
Repetitive Peak Forward Surge Current T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p=10ms,Half Sine Pulse	I_{FRM}	 57 41.5	A
Non-Repetitive Forward Surge Current T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p=10ms,Half Sine Pulse	I_{FSM}	 90 69.5	A
i^2dt value T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p=10ms,Half Sine Pulse	$\int i^2dt$	 40.5 24	A^2s
Power dissipation T_C = 25°C T_C = 110°C	P_{tot}	 115 50	W
Operating junction Range	T_j	-55 to +175	°C
Storage temperature Range	T_{stg}	-55 to +150	°C

Thermal Resistance

Parameter	Symbol	Typ.	Unit
Thermal resistance, junction – case.	R_{thJC}	1.3	°C/W

Electrical Characteristic (at Tc = 25 °C, unless otherwise specified)

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Forward Voltage	V_F	-	1.4	1.5	V	I_F=10A, T_j=25°C
		-	2.0			T_j=175°C
Reverse Current	I_R	-	-	100	μA	V_R=1200V, T_j=25°C
		-	-	200		T_j=175°C
Total Capacitive Charge	Q_C	-	48	-	nC	V_R=800V，T_j=25℃ $Q_C = \int_0^{V_R} C(V)dV$
Total Capacitance	C	-	695	-	pF	T_j=25℃, f=1MHz, V_R=0V
		-	46	-		V_R=400V
		-	35	-		V_R=800V

Characteristics Curve:

Fig 1: Forward Characteristics

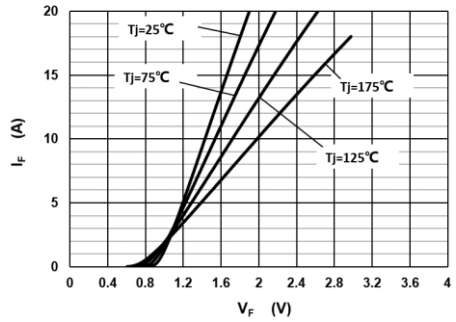

Fig 2: Reverse Characteristics

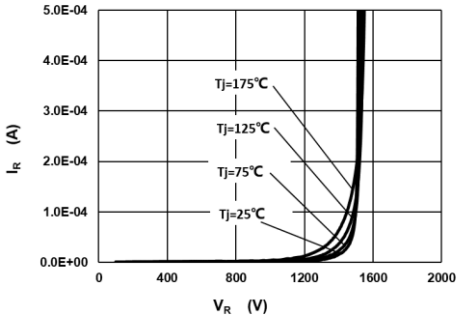

Fig 3: Current Derating

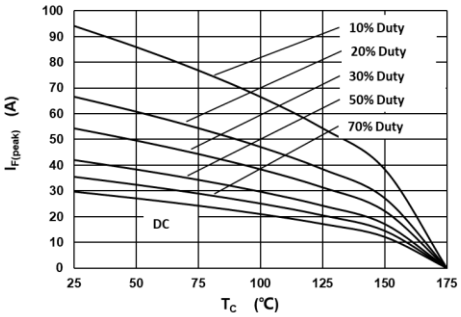

Fig 4: Power Derating

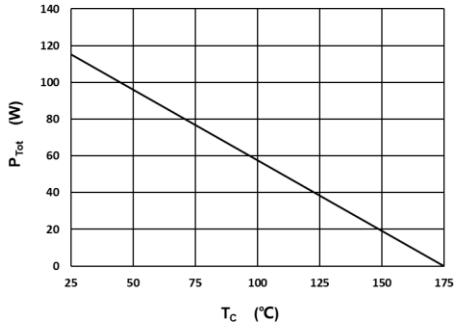

Fig 5: Capacitance vs. Reverse

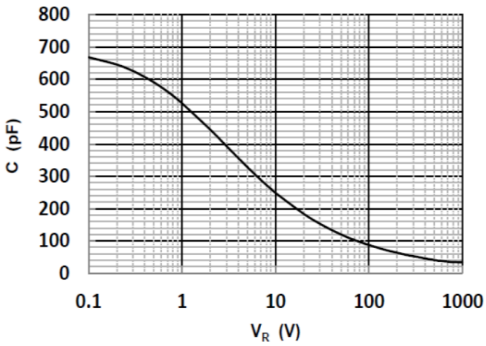

Fig 6: Reverse Charge vs. Reverse

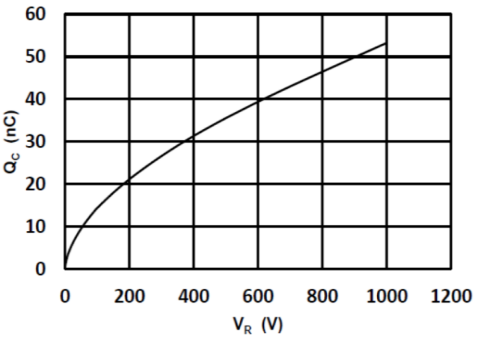

Fig 7: Typical Capacitance Stored Energy

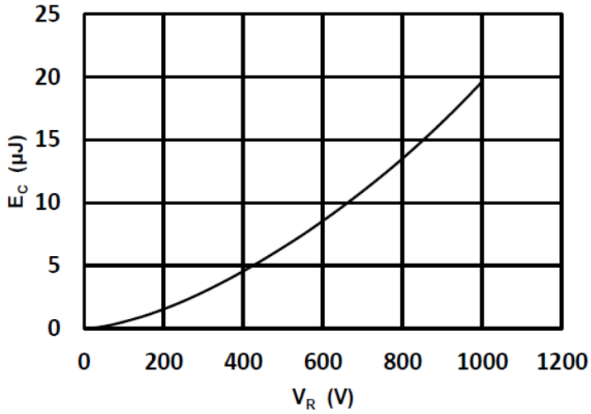

Fig 8: Transient Thermal Impandance