



General Description

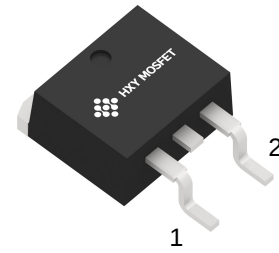
This product family offers state of the art performance. It is designed for high frequency applications where high efficiency and high reliability are required.

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



TO-263



Ordering Part Number	Package	Marking
C1D20120G	TO-263-2L	HC1D20120G





Maximum Ratings (at T_c = 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 = 153°C	I _F	54 27 20	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}	86 58	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}	160 130	A
i ² dt value T _C = 25°C, t _p = 10ms, Half Sine Pulse T _C = 110°C, t _p = 10ms, Half Sine Pulse	∫i ² dt	128 84	A ² s
Power dissipation T _C = 25°C T _C = 110°C	P _{tot}	214 93	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}	0.7	°C/W



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

Parameter	Symbol	Value			Unit	Test Condition
		min.	typ.	max.		
Forward Voltage	V _F	-	1.4	1.7	V	I _F =20A T _j =25°C T _j =175°C
Reverse Current	I _R	-	-	200	μA	V _R =1200V T _j =25°C T _j =175°C
Total Capacitive Charge	Q _C	-	97	-	nC	V _R =800V, T _j =25°C $Q_C = \int_0^{V_R} C(V) dV$
Total Capacitance	C	-	1318	-	pF	T _j =25°C, f=1MHz V _R =0V V _R =400V V _R =800V

Characteristics Curve

Fig 1: Forward Characteristics

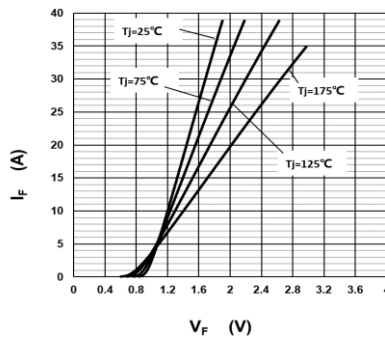


Fig 2: Reverse Characteristics

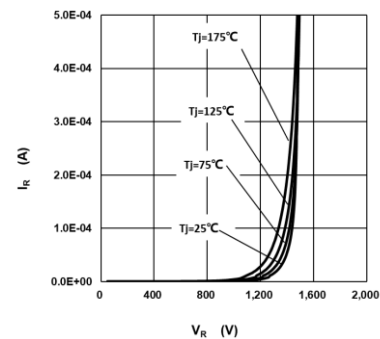


Fig 3: Current Derating

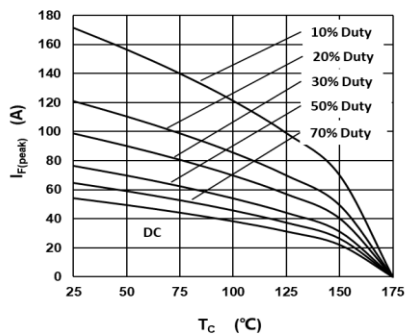


Fig 4: Power Derating

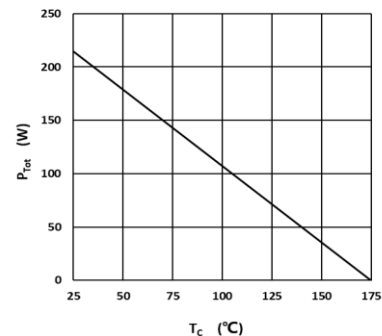




Fig 5: Capacitance vs. Reverse Voltage

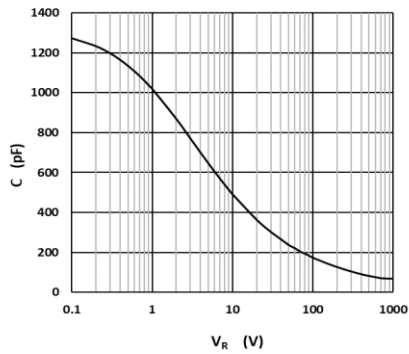


Fig 6: Reverse Charge vs. Reverse Voltage

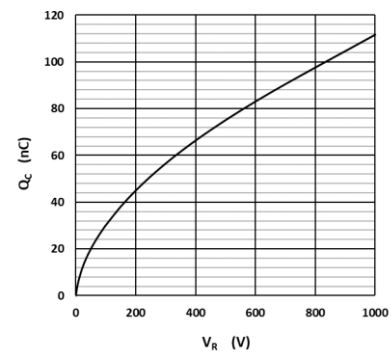


Fig 7: Typical Capacitance Stored Energy

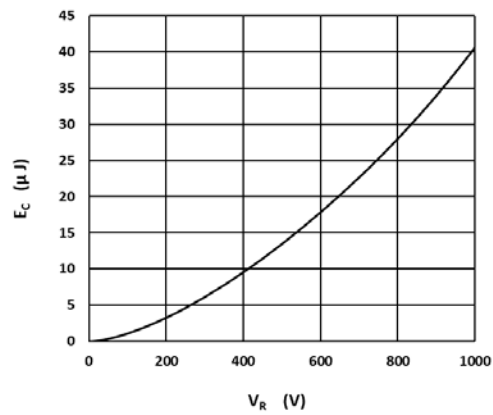
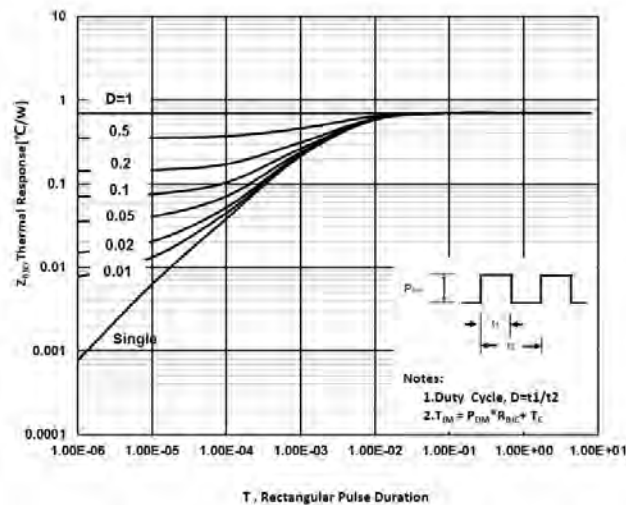


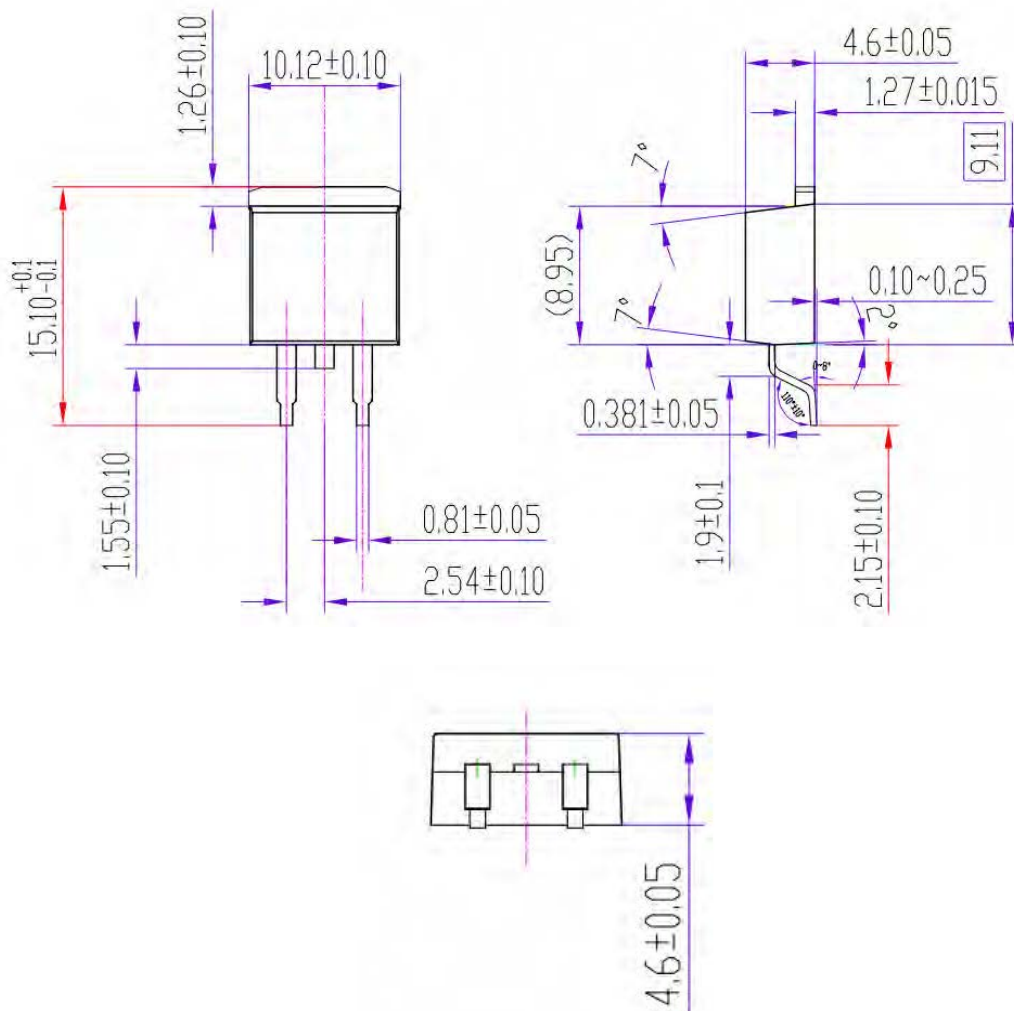
Fig 8: Transient Thermal Impedance





Package Dimensions

Package TO-263





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