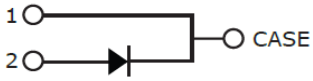
General Description

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
HC4D12120A	TO-220-2L	H4121TJ

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 20 12	A	T_C=25˚C T_C=135˚C T_C=153˚C
I_{FRM}	Repetitive Peak Forward Surge Current	84 63	A	T_C=25˚C, t_P = 10 ms, Half Sine Wave T_C=110˚C, t_P=10 ms, Half Sine Wave
I_{FSM}	Non-Repetitive Peak Forward Surge Current	130 108	A	T_C=25˚C, t_p = 10 ms, Half Sine Wave T_C=110˚C, t_p = 10 ms, Half Sine Wave
$\int i^2dt$	i^2dt value	84.5 58	A^2s	T_C = 25°C,t_p=10ms,Half Sine Pulse T_C = 110°C,t_p=10ms,Half Sine Pulse
P_{tot}	Power Dissipation	150 65	W	T_C=25˚C 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 T_j=25°C
		-	2.0			T_j=175°C
Reverse Current	I_R	-	-	150	μA	V_R=1200V T_j=25°C
		-	-	300		T_j=175°C
Total Capacitive Charge	Q_C	-	75.6	-	nC	V_R=800V，T_j=25℃ $Q_C = \int_0^{V_R} C(V)dV$
Total Capacitance	C	-	1022	-	pF	T_j=25℃, f=1MHz 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

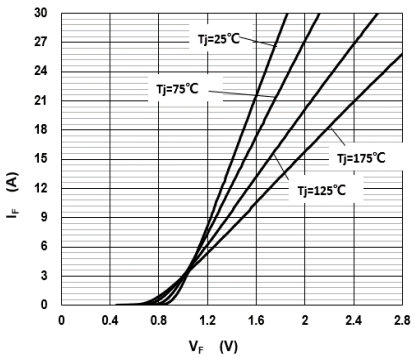


Fig 2: Reverse Characteristics

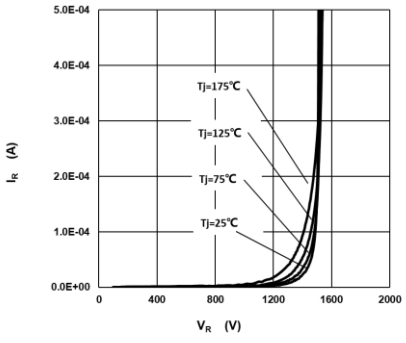


Fig 3: Current Derating

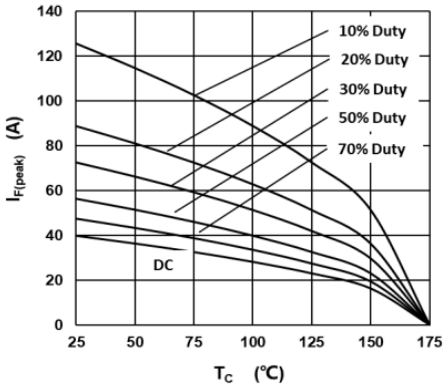


Fig 4: Power Derating

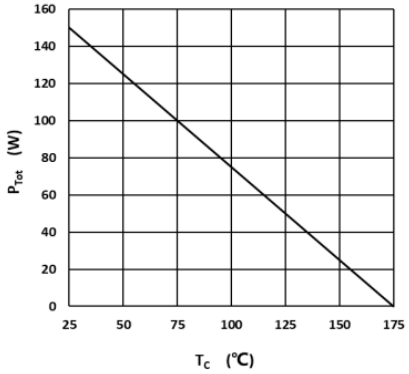


Fig 5: Capacitance vs. Reverse Voltage

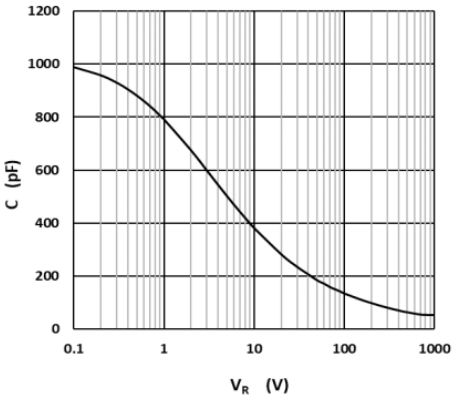


Fig 6: Reverse Charge vs. Reverse Voltage

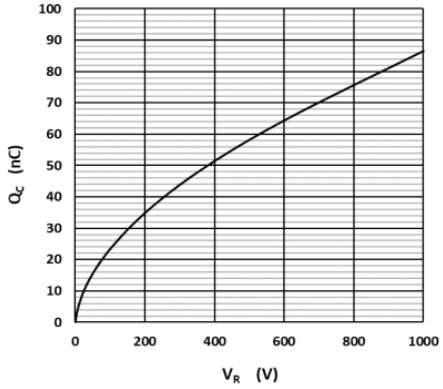


Fig 7: Typical Capacitance Stored Energy

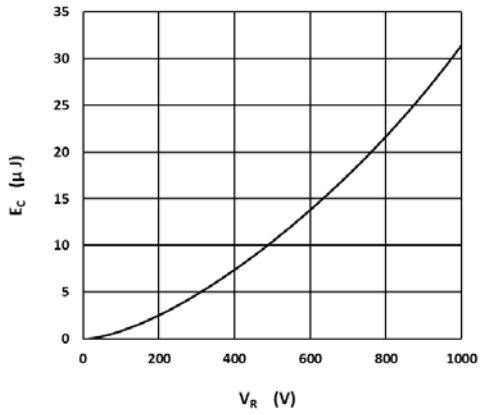
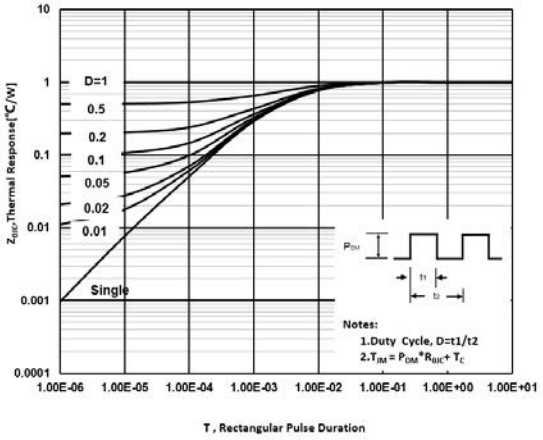
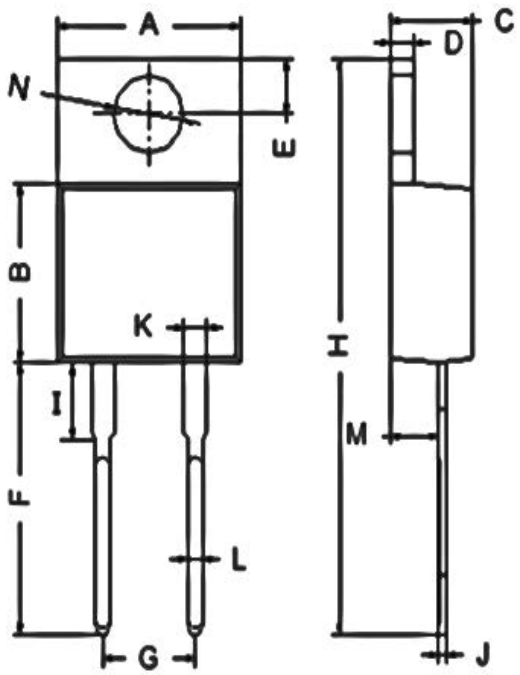


Fig 8: Transient Thermal Impandance



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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