

1200V SiC Schottky Diode

VDC	1200 V
Q _C	56 nC
I _F	10 A
T _{j,max}	175 °C

Amp+™ Features

- Unipolar rectifier with surge current
- Zero reverse recovery current
- Fast, temperature-independent switching
- Avalanche tested to 125mJ*
- All parts tested to greater than 1,400V

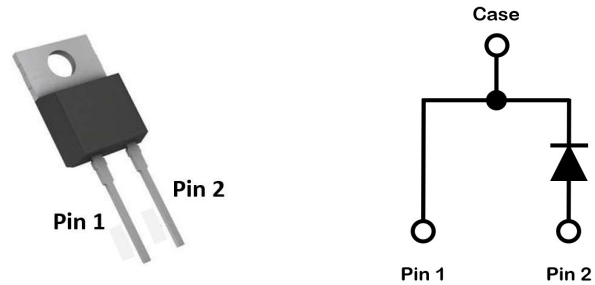
Amp+™ Benefits

- Near zero switching loss
- Higher efficiency
- Smaller heat sink
- Easy to parallel

Amp+™ Applications

- Solar Inverters
- Switch mode power supplies, UPS
- Power factor correction
- EV charging stations

Package



Part #	Package	Marking
GP3D010A120A	TO-220-2L	3D010A120



Maximum Ratings, at T_j=25 °C, unless otherwise specified

Characteristics	Symbol	Conditions	Values	Unit
Continuous forward current	I _{F**}	T _C =25 °C, T _J =175 °C	33	A
		T _C =125 °C, T _J =175 °C	18	
		T _C =150 °C, T _J =175 °C	12	
Surge non-repetitive forward current sine halfwave	I _{FSM}	T _C =25 °C, t _p =8.3 ms	120	A
		T _C =110 °C, t _p =8.3 ms	110	
Non-repetitive peak forward current	I _{F,max}	T _C =25 °C, t _p =10 μs	700	A
i ² t value	∫i ² dt	T _C =25 °C, t _p =8.3 ms	60	A ² s
		T _C =110 °C, t _p =8.3 ms	50	
Repetitive peak reverse voltage	V _{RRM}	T _J =25 °C	1200	V
Diode dv/dt ruggedness	dv/dt	Turn-on slew rate, repetitive	200	V/ns
Power dissipation	P _{tot**}	T _C =25 °C	174	W
Operating junction & storage temperature	T _j , T _{storage}	Continuous	-55...175	°C
Soldering temperature	T _{solder}	Wave soldering leads	260	°C
Mounting torque		M3 Screw	1	N-m

Notes:

* EAS of 125 mJ is based on starting T_j = 25°C, L = 1.0 mH, I_{AS} = 15.81 A, V = 50 V.

** Typical R_{thJC} used

Electrical Characteristics, at T_j=25 °C, unless otherwise specified

Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
DC blocking voltage	V _{DC}	T _j =25 °C	1200	-	-	V
Breakdown voltage	V _{BR}	I _R =1.00mA, T _j =25 °C	1400	-	-	V
Diode forward voltage	V _F	I _F =10A, T _j =25 °C	-	1.50	1.65	V
		I _F =10A, T _j =125 °C	-	1.83	-	
		I _F =10A, T _j =175 °C	-	2.11	2.70	
Reverse current	I _R	V _R =1,200V, T _j =25 °C	-	2	20	μA
		V _R =1,400V, T _j =25 °C	-	7	-	
		V _R =1,200V, T _j =125 °C	-	11	-	
		V _R =1,200V, T _j =175 °C	-	39	300	
Total capacitive charge	Q _C	V _R =800V, T _j =25 °C	-	56	-	nC
Total capacitance	C	V _R =1V, f=1 MHz	-	608	-	pF
		V _R =400V, f=1 MHz	-	53	-	
		V _R =800V, f=1 MHz	-	39	-	

Thermal Characteristics

Characteristics	Symbol	Conditions	Values			Unit
			min.	typ.	max.	
Thermal resistance, junction-case	R _{thJC}	-	-	0.86	1.11	°C/W

Typical Performance

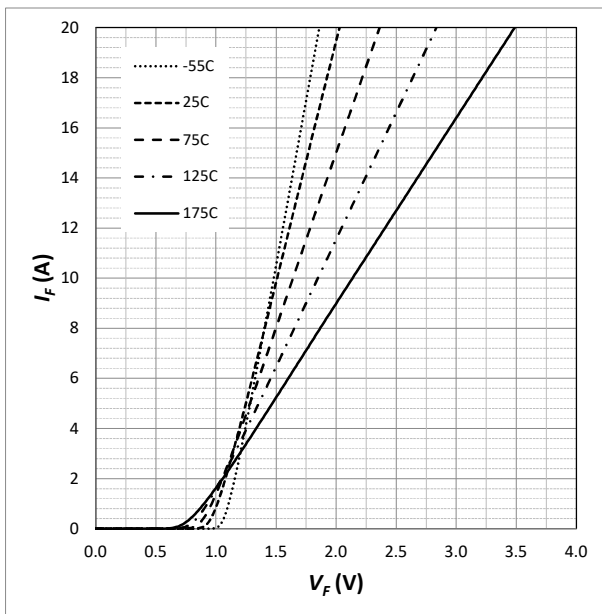


Fig. 1 Forward Characteristics (parameterized on T_j)

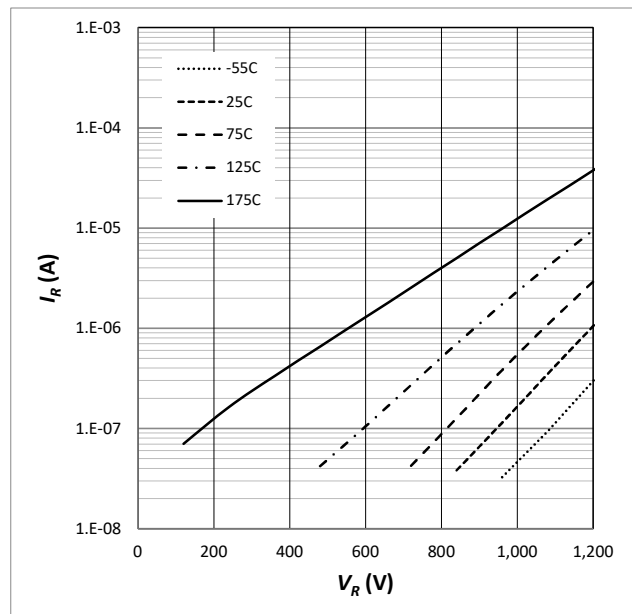


Fig. 2 Reverse Characteristics (parameterized on T_j)

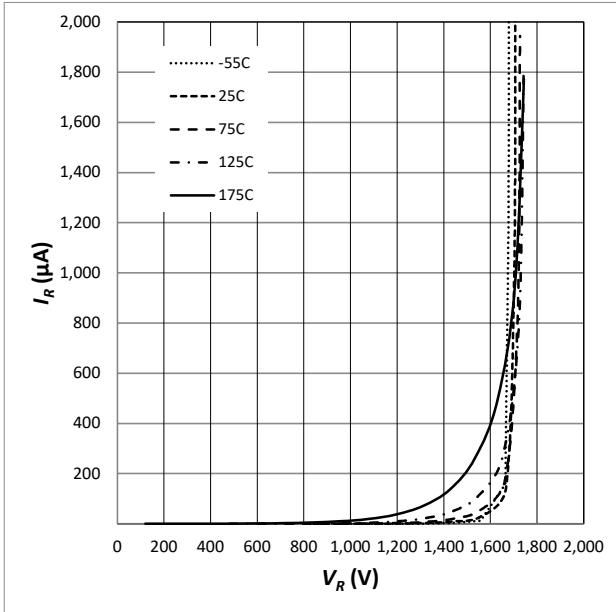


Fig. 3 Reverse Characteristics (parameterized on T_j)

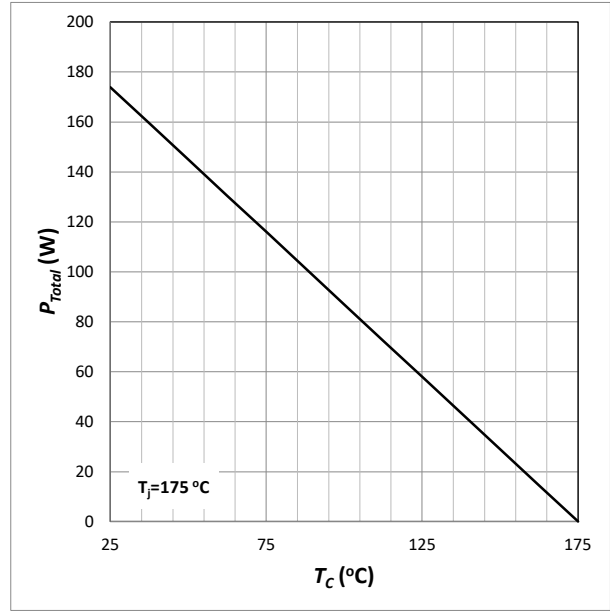


Fig. 4 Power Derating

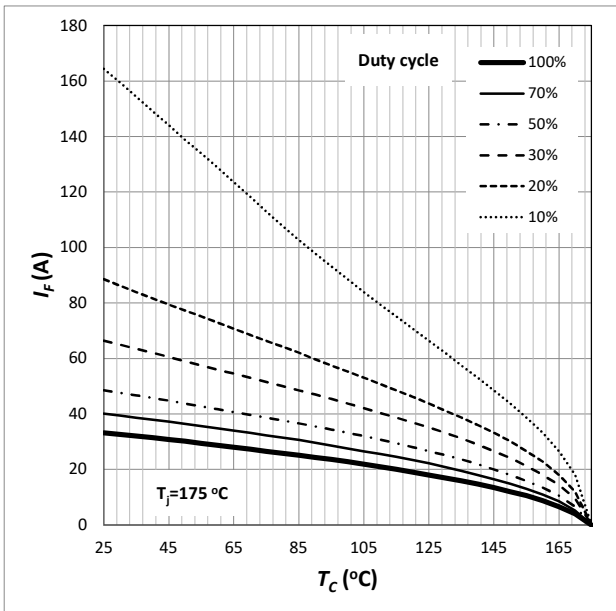


Fig. 5 Capacitance

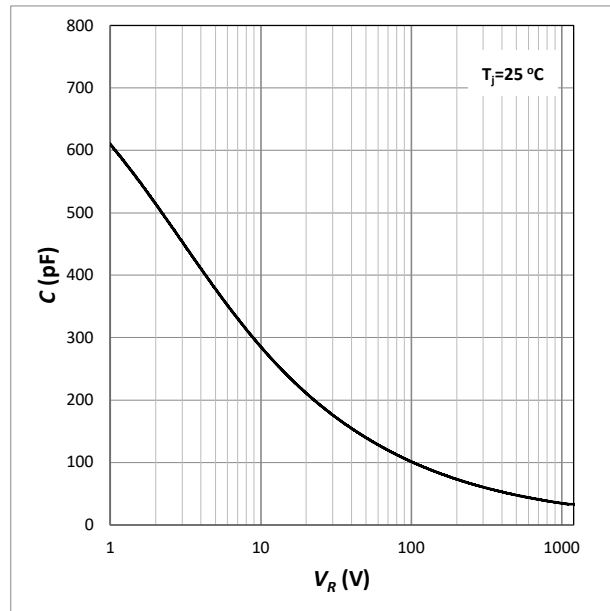


Fig. 6 Capacitance

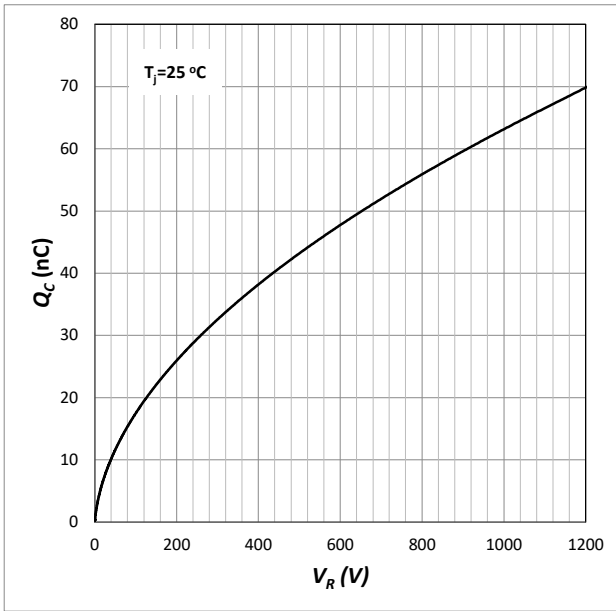


Fig. 7 Capacitive Charge

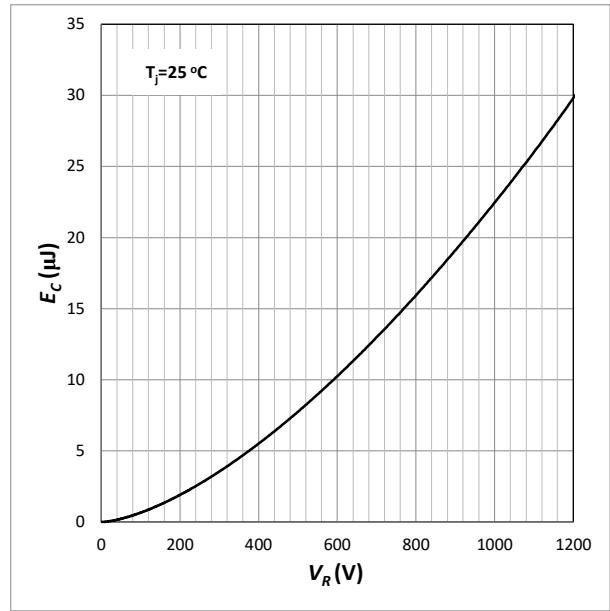


Fig. 8 Typical Capacitance Stored Energy

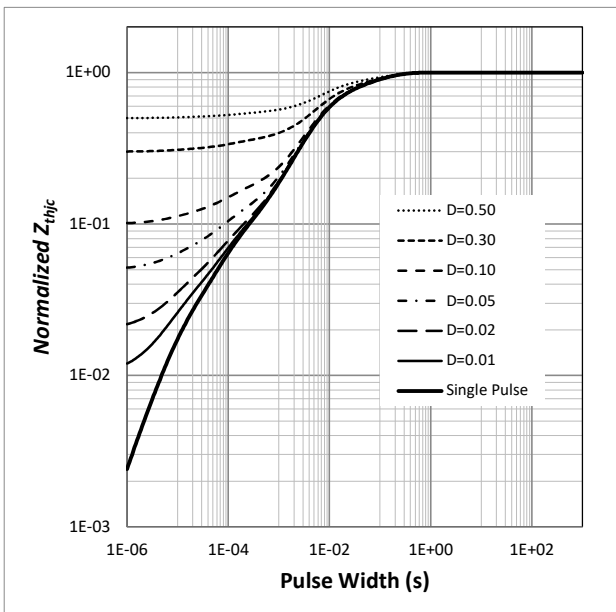


Fig. 9 Transient Thermal Impedance