

1200V SiC Schottky Diode

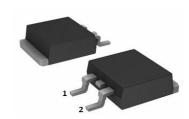
mp®

GP2D005A120C

VDC 1200 V Q_C 22 nC I_E 5 A

Amp+™ Features

- High surge current capable
- Zero reverse recovery current
- · High bandwidth
- Fast, temperature-independent switching



Amp+™ Benefits

- Unipolar rectifier
- Zero switching loss
- · Higher efficiency
- Smaller heat sink
- Parallel devices with thermal stability

Amp+™ Applications

- Motor drives
- Switch mode power supplies
- Power factor correction

Part #	Package	Marking
GP2D005A120C	TO-252-2L	2D005A120





Maximum Rating	Symbol	Conditions	Value	Unit
		T _C =25 °C, T _j =175 °C	17	
Continuous forward current	I _F	T _C =125 °C, T _j =175 °C	10	
		T _C =150 °C, T _j =175 °C	6	Α
Surge non-repetitive forward current	l	T_{C} =25 °C, t_{p} =8.3 ms	40	A
sine halfwave	I _{F,SM}	T_{C} =150 °C, t_{p} =8.3 ms	25	
Non-repetitive peak forward current	$I_{F,max}$	T_C =25 °C, t_p =10 μs	100	
i^2t value	∫i²dt	T_{C} =25 °C, t_{p} =8.3 ms	7	A ² s
/ t value	Ji at	$T_C=150 ^{\circ}\text{C}, t_p=8.3 \text{ms}$	3	AS
Repetitive peak reverse voltage	V_{RRM}	T _j =25 °C	1200	V
Diode dv/dt ruggedness	dv/dt	Turn-on slew rate, repetitive	50	V/ns
Power dissipation	P _{tot}	T _C =25 °C	100	W
Operating & storage temperature	T _J , T _{storage}	Continuous	-55175	°C
Soldering temperature	T _{solder}	Wave soldering leads	260	°C
Mounting torque		M3 Screw	1	N-m

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

Static Characteristics	Symbol	Conditions	Values			Unit
	Syllibol		min.	typ.	max.	Oilit
DC blocking voltage	V_{DC}	I _R =0.1mA	1200	-	-	
Diode forward voltage	V _F	I _F =5A, T _j =25 °C	-	1.60	1.80	V
	VF	I _F =5A, T _j =175 °C	-	2.20	2.70	
Reverse current	1	V _R =1,200V, T _j =25 °C	-	1.0	10	μΑ
	IR	V _R =1,200V, T _i =175 °C	-	30	300	

1200V SiC Schottky Diode Amp+™

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Parameter	Symbol	Symbol Conditions		Values		
i didiletei	Symbol	Conditions	min.	typ.	max.	Unit
AC Characteristics						
Total capacitive charge	Q _C	V _R =1,200V, T _j =25 °C	-	22	-	nC
Switching time	t _C	di_F/dt =200 A/ μ s T_j =150 °C	-	-	<10	ns
		V _R =1 V, f=1 MHz	-	317	-	

V_R=600V, f=1 MHz

V_R=1,200V, f=1 MHz

Thermal Characteristics

Total capacitance

Thermal resistance, junction-case	R_{thJC}	Package (flange) mount	-	1.50	-	°C/W

С

Typical Performance

Fig. 1 Forward Characteristics (parameterized on T_i)

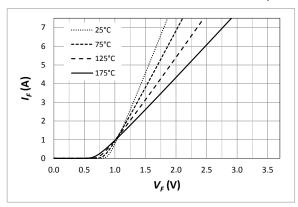


Fig. 2 Reverse Characteristics (parameterized on Tj)

19

18

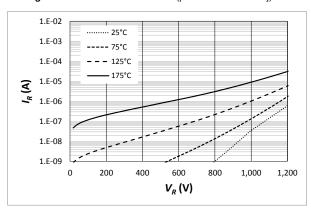


Fig. 3 Power Derating

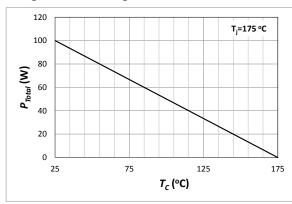


Fig. 4 Current Derating

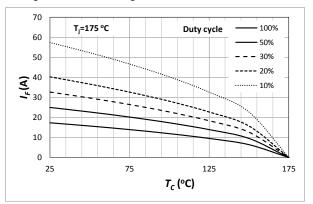


Fig. 5 Capacitance

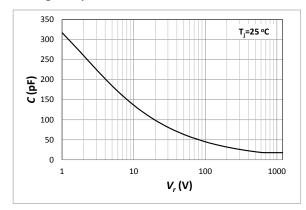
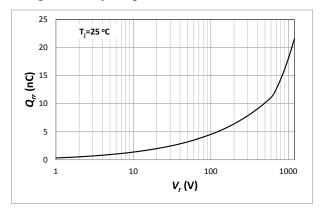
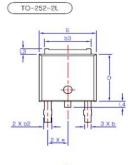


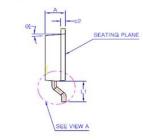
Fig. 6 Recovery Charge

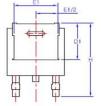


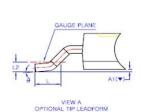
Package Dimensions

Package TO-252-2L (DPAK)









SYMBOL	MIN	NOM	MAX			
A	2.20	2.30	2.40			
A1 (▼)	0.00	_	0.127			
b	0.66	0.76	0.86			
b2		-	0.96			
b3	5.04	5.34	5.64			
c2	0.40	0.50	0.60			
D	5.90	6.10	6.30			
D1		(4.75)				
Ε	6.40	6.60	6.80			
E1	(5.04)					
e	2.30 BSC					
н	9.20	9.50	9.80			
L	1.27	1.47	1.67			
L1	2.50	2.70	2.90			
L2	0.508 BSC					
L3	0.50	0.70	0.90			
L4	0.60	0.80	1.00			
9	0°	T-1	10°			
91	(5°)					

(* NOTE

- 1. THESE DIMENSIONS DO NOT INCLUDE PROTRUSIONS OF THE MOLD. 2. THE "()" MARK IS THE REFERENCE 3. COPLANARITY: MAX. () IONNO 4. THE "L4" SYMBOL IS A PROTRUSION OF THE LEAD FRAME.

The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/EC (RoHS2), as implemented March, 2013. RoHS Declarations for this product can be obtained from the Product Documentation sections of www.gptechgroup.com.

REACH Compliance
REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemi- cal Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, please contact our office at GPTG Headquarters in Lake Forest, California to insure you get the most up-to-date REACh SVHC Declaration. REACh banned substance information (REACh Article 67) is also available upon request.

This product has not been designed or tested for use in, and is not intended for use in, applications implanted into the human body nor in applications in which failure of the product could lead to death, personal injury or property damage, including but not limited to equipment used in the operation of nuclear facilities, life-support machines, cardiac defibrillators or similar emergency medical equipment, aircraft navigation or communication or control systems, or air traffic control.

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