

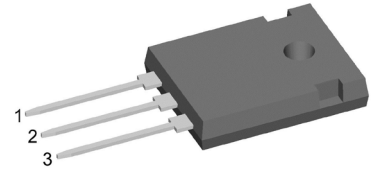
# SiC Schottky Diode

$$V_{RRM} = 2 \times 1200 \text{ V}$$

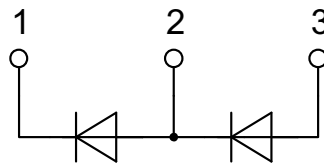
$$I_{FAV} = 12.5 \text{ A}$$

Ultra fast switching  
 Zero reverse recovery  
 Phase leg

Part number  
**DCG10P1200HR**



Backside: isolated  

### Features / Advantages:

- Ultra fast switching
- Zero reverse recovery
- Zero forward recovery
- Temperature independent switching behavior
- Positive temperature coefficient of forward voltage
- $T_{VJM} = 175^{\circ}\text{C}$

### Applications:

- Solar inverter
- Uninterruptible power supply (UPS)
- Welding equipment
- Switched-mode power supplies
- Medical equipment
- High speed rectifier

### Package: ISO247

- Isolation Voltage: 3000 V~
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0
- Soldering pins for PCB mounting
- Backside: DCB ceramic
- Reduced weight
- Advanced power cycling

### Disclaimer Notice

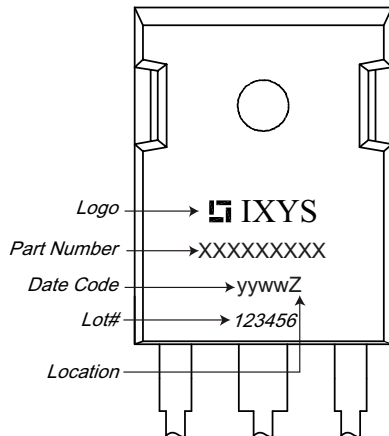
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SiC Diode (per diode)				Ratings			
Symbol	Definitions	Conditions	min.	typ.	max.		
$V_{RSM}$	max. non-repetitive reverse blocking voltage				1200	V	
$V_{RRM}$	max. repetitive reverse blocking voltage				1200	V	
$I_R$	reverse current	$V_R = V_{RRM}$	$T_{VJ} = 25^\circ\text{C}$		30	250	$\mu\text{A}$
			$T_{VJ} = 175^\circ\text{C}$		55	350	$\mu\text{A}$
$V_F$	forward voltage	$I_F = 10\text{ A}$ $I_F = 20\text{ A}$	$T_{VJ} = 25^\circ\text{C}$		1.5	1.8	V
			$T_{VJ} = 175^\circ\text{C}$		2.2	3.0	V
$I_{FAV}$	average forward current	$T_C = 80^\circ\text{C}$ $T_C = 100^\circ\text{C}$	rectangular, $d = 0.5$ $T_{VJ} = 175^\circ\text{C}$		12.5	A	
					11.0	A	
$I_{F25}$	forward current	based on typ. $V_{F0}$ and $r_F$	$T_C = 25^\circ\text{C}$		22	A	
$I_{F80}$			$T_C = 80^\circ\text{C}$		17	A	
$I_{F100}$			$T_C = 100^\circ\text{C}$		15	A	
$I_{FSM}$	max forward surge current	$t = 10\text{ ms, half sine (50 Hz)}$ $t_p = 10\ \mu\text{s, pulse}$	$T_{VJ} = 25^\circ\text{C}$ $V_R = 0\text{V}$				
						750	A
$V_{F0}$	threshold voltage	} for power loss calculation	$T_{VJ} = 125^\circ\text{C}$		0.77	V	
$r_F$	slope resistance		$T_{VJ} = 175^\circ\text{C}$		0.69	V	
			$T_{VJ} = 125^\circ\text{C}$		107	$\text{m}\Omega$	
		$T_{VJ} = 175^\circ\text{C}$		133	$\text{m}\Omega$		
$Q_C$	total capacitive charge	$V_R = 800\text{ V, } I_F = 10\text{ A}$ $di/dt = 200\text{ A}/\mu\text{s}$	$T_{VJ} = 25^\circ\text{C}$		52	nC	
$C$	total capacitance	$V_R = 0\text{ V}$ $V_R = 400\text{ V}$ $V_R = 800\text{ V}$	$T_{VJ} = 25^\circ\text{C, } f = 1\text{ MHz}$		755	pF	
					45	pF	
					38	pF	
$R_{thJC}$	thermal resistance junction to case	with heatsink compound; IXYS test setup			1.9	K/W	
$R_{thJH}$	thermal resistance junction to heatsink			2.2	K/W		

Package ISO247				Ratings		
Symbol	Definitions	Conditions	min.	typ.	max.	
$I_{RMS}$	RMS current	per terminal			70	A
$T_{stg}$	storage temperature		-40		150	°C
$T_{op}$	operation temperature		-40		150	°C
$T_{VJ}$	virtual junction temperature		-40		175	°C
<b>Weight</b>				6		g
$M_D$	mounting torque		0.8		1.2	Nm
$F_C$	mounting force with clip		40		120	N
$d_{Spp/App}$	creepage distance on surface /	terminal to terminal	2.7			mm
$d_{Spb/Appb}$	striking distance through air	terminal to backside	4.1			mm
$V_{ISOL}$	isolation voltage	$t = 1$ second $t = 1$ minute		3600 3000		V V
						50/60 Hz; RMS; $I_{ISOL} < 1$ mA

### Product Marking

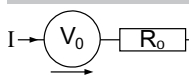


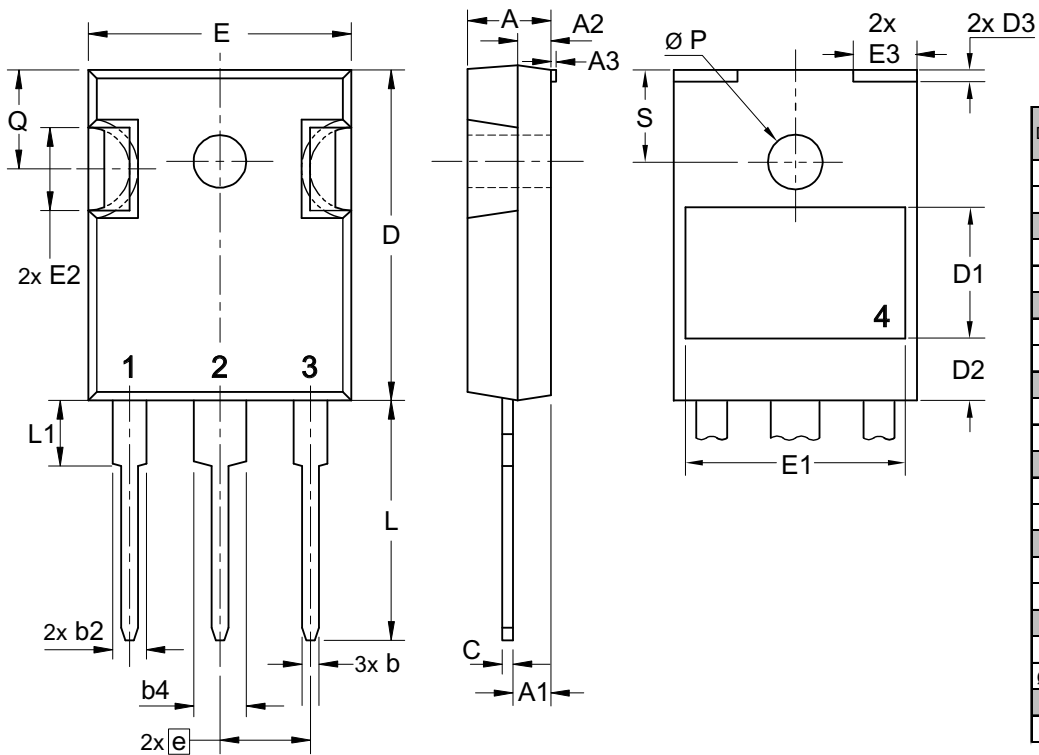
### Part description

D = Diode  
 C = SiC  
 G = Extreme fast  
 10 = Current Rating [A]  
 P = Phase leg  
 1200 = Reverse Voltage [V]  
 HR = ISO247 (3)

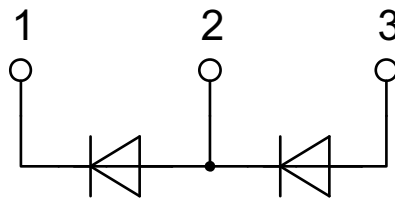
Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Ordering Code
Standard	DCG10P1200HR	DCG10P1200HR	Tube	30	DCG10P1200HR

### Equivalent Circuits for Simulation \*on die level, typical

		$T_{VJ} = 125^\circ\text{C}$	$T_{VJ} = 175^\circ\text{C}$	
$V_{0\max}$	threshold voltage	0.77	0.68	V
$R_{0\max}$	slope resistance *	107	133	mΩ

**Outlines ISO247**


Dim.	Millimeter		Inches	
	min	max	min	max
A	4.70	5.30	0.185	0.209
A1	2.21	2.59	0.087	0.102
A2	1.50	2.49	0.059	0.098
A3	typ. 0.05		typ. 0.002	
b	0.99	1.40	0.039	0.055
b2	1.65	2.39	0.065	0.094
b4	2.59	3.43	0.102	0.135
c	0.38	0.89	0.015	0.035
D	20.79	21.45	0.819	0.844
D1	typ. 8.90		typ. 0.350	
D2	typ. 2.90		typ. 0.114	
D3	typ. 1.00		typ. 0.039	
E	15.49	16.24	0.610	0.639
E1	typ. 13.45		typ. 0.530	
E2	4.31	5.48	0.170	0.216
E3	typ. 4.00		typ. 0.157	
e	5.46 BSC		0.215 BSC	
L	19.80	20.30	0.780	0.799
L1	-	4.49	-	0.177
ØP	3.55	3.65	0.140	0.144
Q	5.38	6.19	0.212	0.244
S	6.14 BSC		0.242 BSC	



**SiC Diode (per diode)**

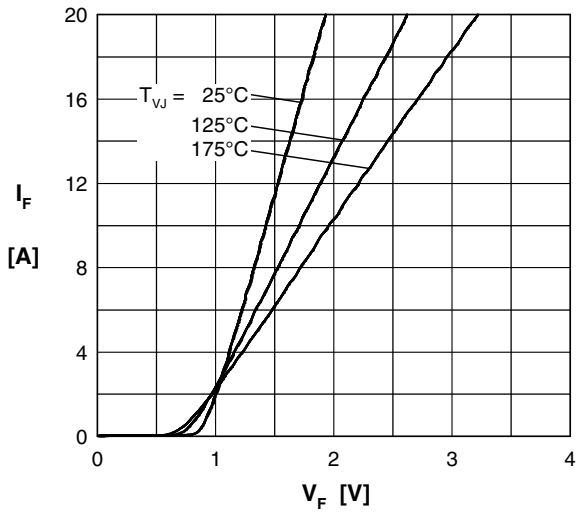


Fig. 1 Typ. forward characteristics.

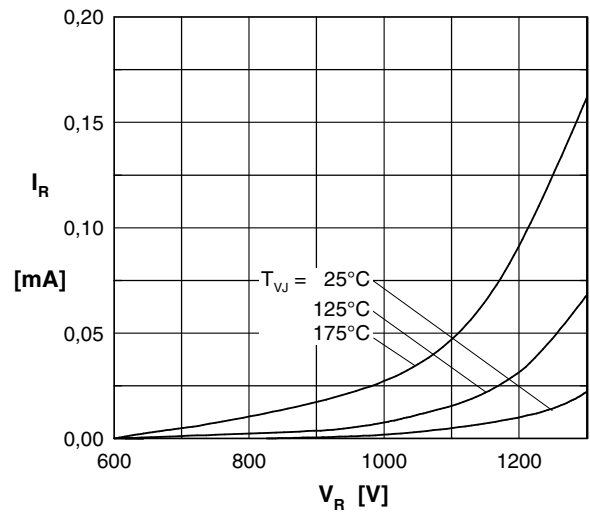


Fig. 2 Typ. reverse characteristics

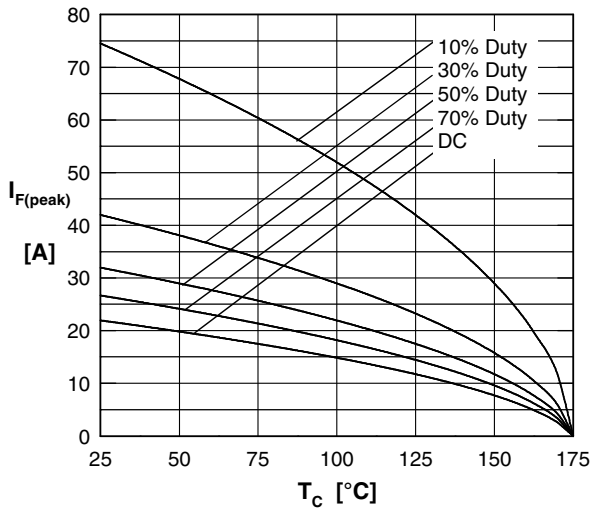


Fig. 3 Typ. current derating

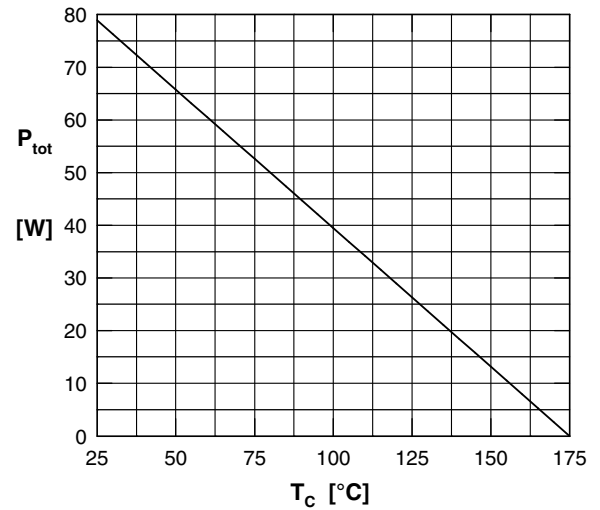


Fig. 4 Power derating

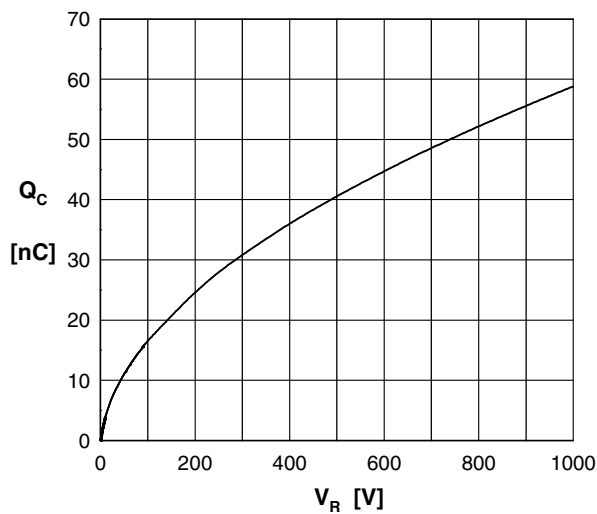


Fig. 5 Typ. recovery charge vs. reverse voltage

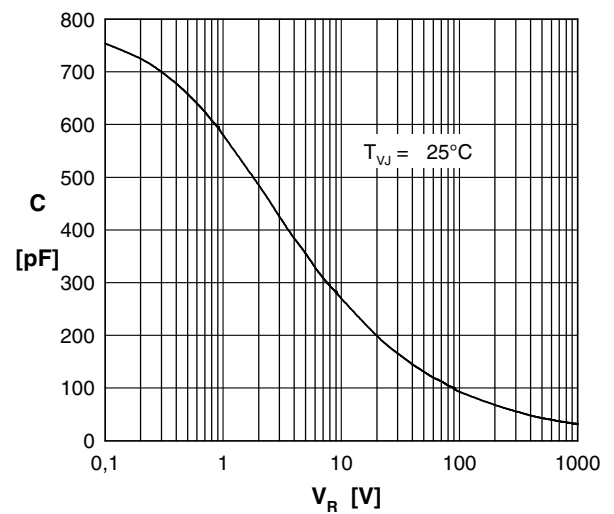


Fig. 6 Typ. junction capacitance vs. reverse Voltage

**SiC Diode (per diode)**

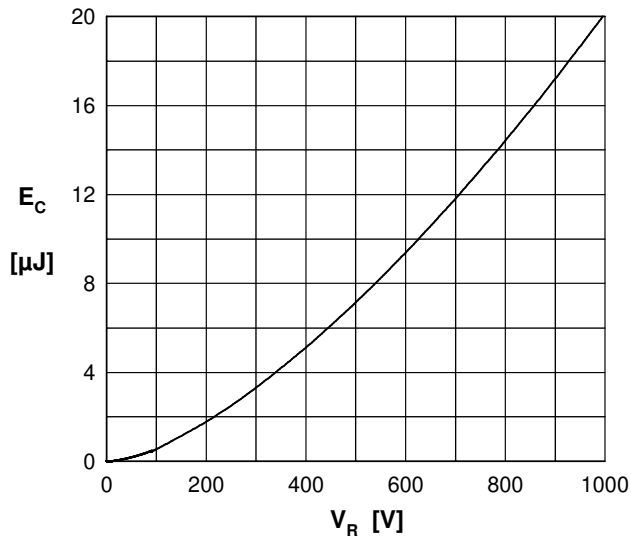


Fig. 7 Typical capacitance stored energy

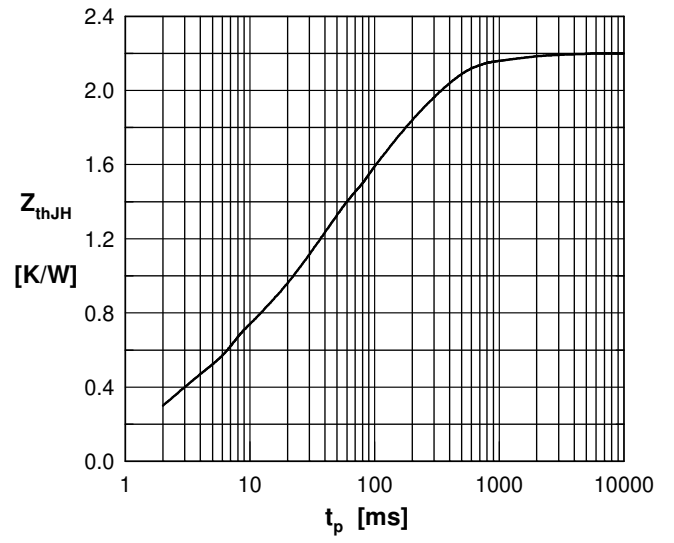


Fig. 8 Typ. transient thermal impedance junction to heatsink