

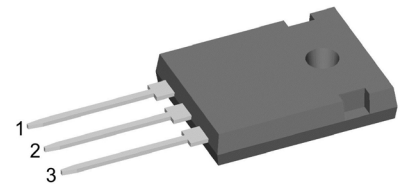
SiC Schottky Diode

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

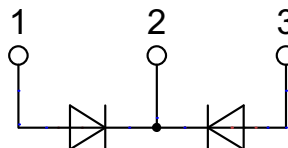
$$I_{FAV} = 2 \times 12.5 \text{ A}$$

Ultra fast switching
 Zero reverse recovery
 Common Cathode

Part number
DCG20C1200HR



Backside: isolated
 E72873



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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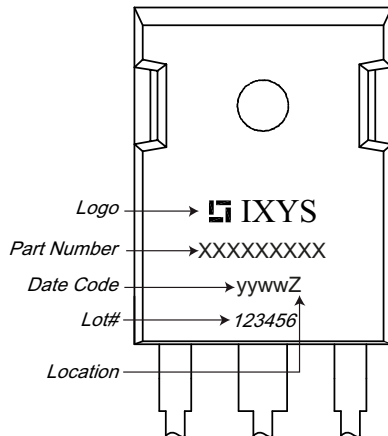


SiC Diode (per diode)				Ratings					
Symbol	Definitions	Conditions		min.	typ.	max.			
V _{RSM}	max. non-repetitive reverse blocking voltage					1200	V		
V _{RRM}	max. repetitive reverse blocking voltage	T _{VJ} = 25°C				1200	V		
I _R	reverse current	V _R = V _{RRM}	T _{VJ} = 25°C T _{VJ} = 175°C		30 55	250 350	μA μA		
V _F	forward voltage	I _F = 10 A	T _{VJ} = 25°C		1.5	1.8	V		
		I _F = 20 A						V	
		I _F = 10 A	T _{VJ} = 175°C				2.2		3.0
		I _F = 20 A						V	
I _{FAV}	average forward current	T _C = 80°C	rectangular, d = 0.5 T _{VJ} = 175°C			12.5	A		
		T _C = 100°C				11.0	A		
I _{F25}	forward current	based on typ. V _{F0} and r _F		T _C = 25°C		22	A		
T _C = 80°C				17		A			
I _{F80}				T _C = 100°C		15	A		
I _{F100}									
I _{FSM}	max forward surge current	t = 10 ms, half sine (50 Hz)	T _{VJ} = 25°C V _R = 0V			750	A		
		t _p = 10 μs, pulse					A		
V _{F0}	threshold voltage	for power loss calculation		T _{VJ} = 125°C		0.77	V		
r _F	slope resistance			175°C		0.69	V		
				T _{VJ} = 125°C		107	mΩ		
			175°C			133	mΩ		
Q _C	total capacitive charge	V _R = 800 V, I _F = 10A dI/dt = 200 A/μs	T _{VJ} = 25°C		52		nC		
C	total capacitance	V _R = 0 V	T _{VJ} = 25°C, f = 1 MHz		755		pF		
		V _R = 400 V			45		pF		
		V _R = 800 V			38		pF		
R _{thJC}	thermal resistance junction to case	with heatsink compound; IXYS test setup			2.2	1.9	K/W		
R _{thJH}	thermal resistance junction to heatsink						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
Weight					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/Apb}	striking distance through air	terminal to backside		4.1			mm
V _{ISOL}	isolation voltage	t = 1 second t = 1 minute	50/60 Hz; RMS; I _{ISOL} < 1 mA		3600 3000		V V

Product Marking



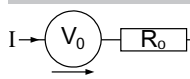
Part description

D = Diode
 C = SiC
 G = Extreme fast
 20 = Current Rating [A]
 C = Common Cathode
 1200 = Reverse Voltage [V]
 HR = ISO247 (3)

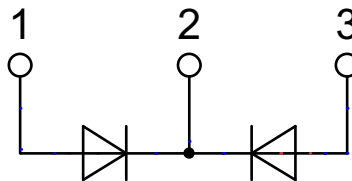
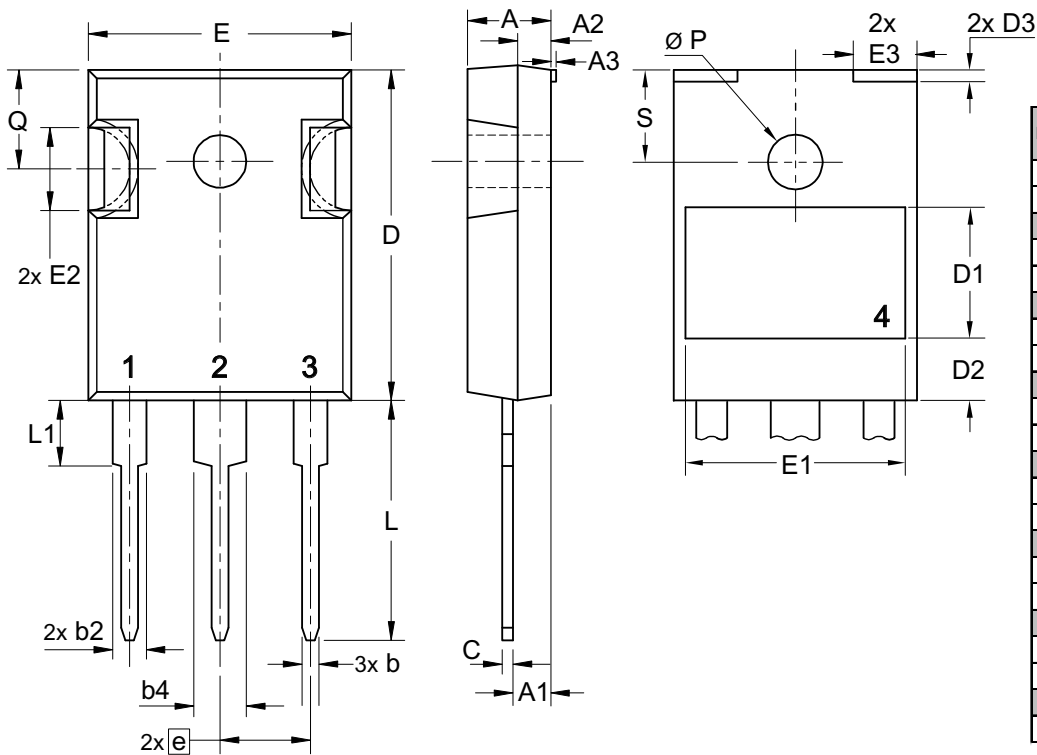
Ordering	Part Name	Marking on Product	Delivering Mode	Base Qty	Ordering Code
Standard	DCG20C1200HR	DCG20C1200HR	Tube	30	DCG20C1200HR

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



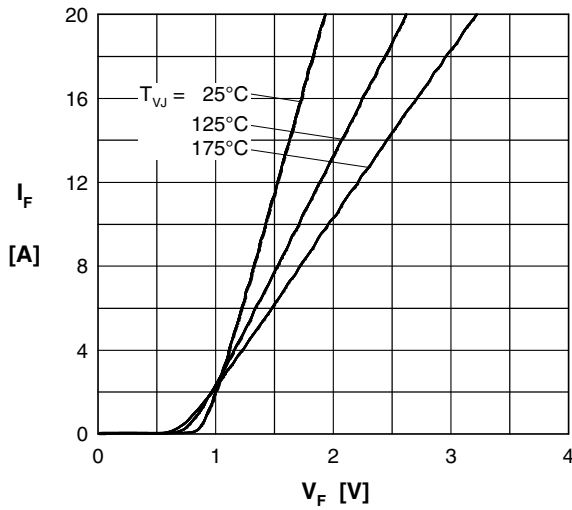
SiC Diode (per diode)


Fig. 1 Typ. forward characteristics.

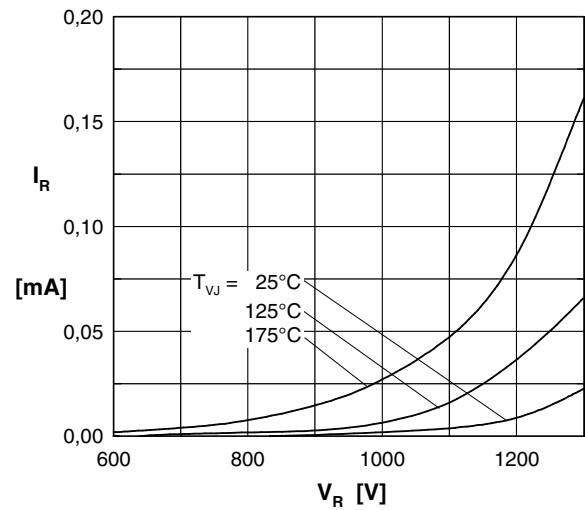


Fig. 2 Typ. reverse characteristics

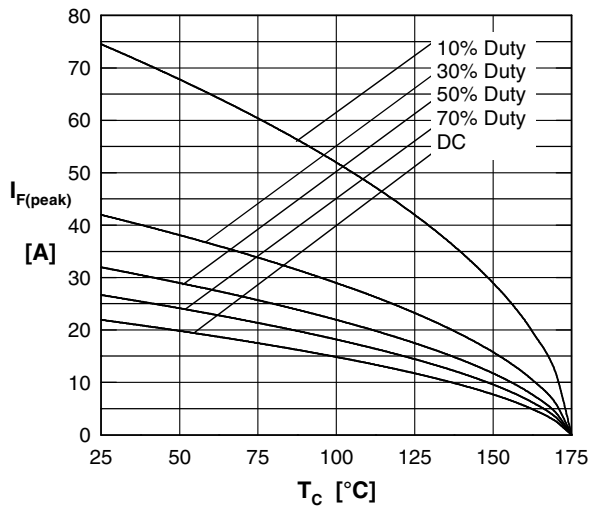


Fig. 3 Typ. current derating

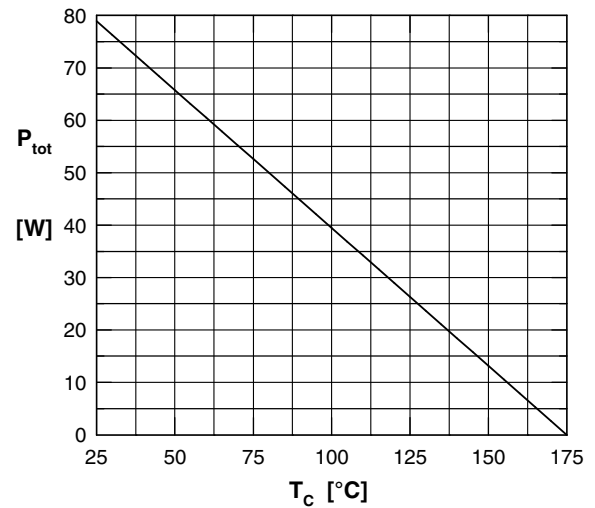


Fig. 4 Power derating

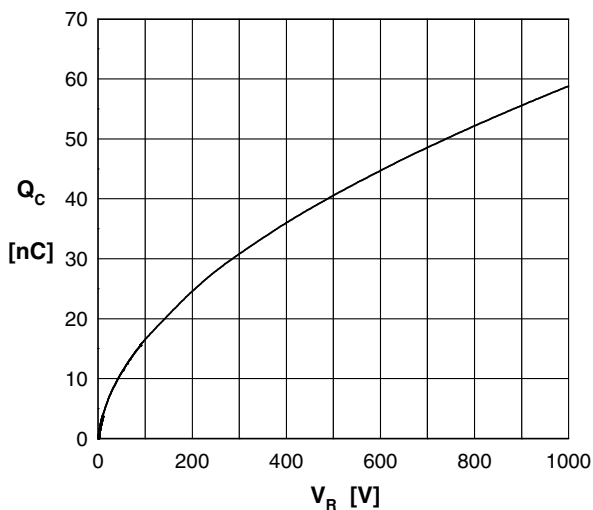


Fig. 5 Typ. recovery charge vs. reverse voltage

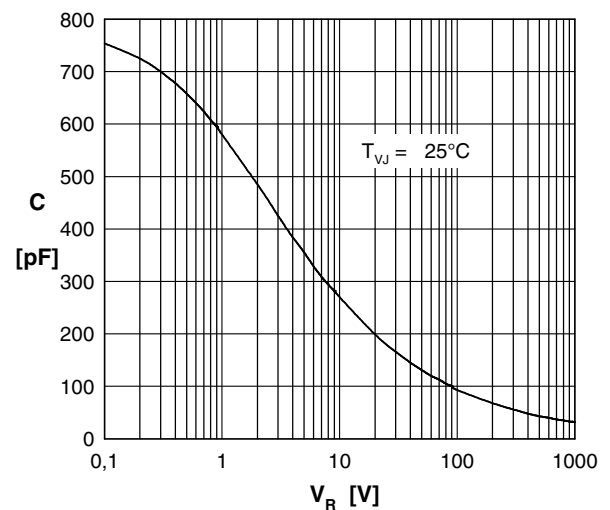


Fig. 6 Typ. junction capacitance vs. reverse Voltage

SiC Diode (per diode)

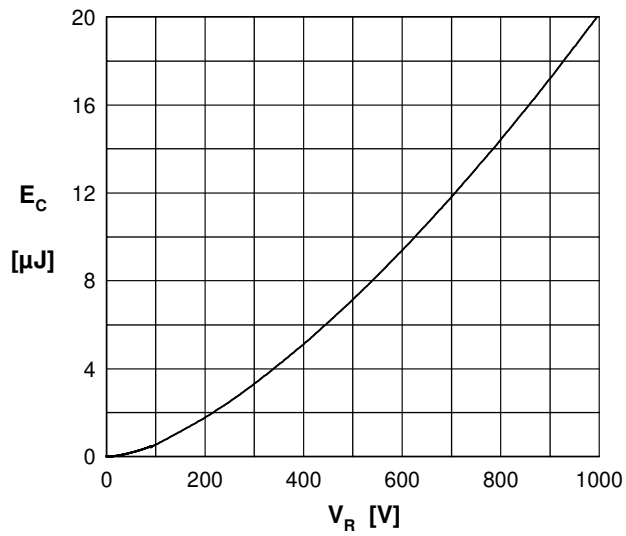


Fig. 7 Typical capacitance stored energy

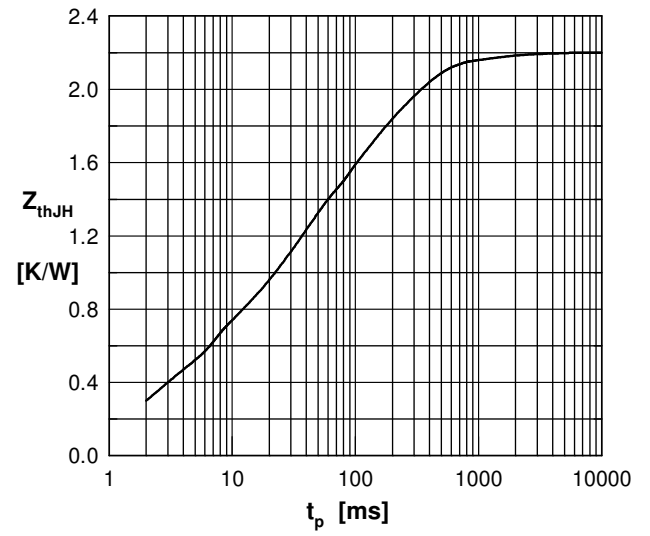


Fig. 8 Typ. transient thermal impedance
junction to heatsink