

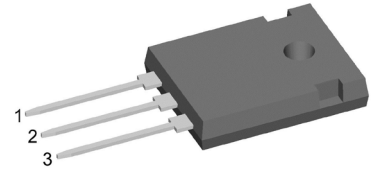
SiC Schottky Diode

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

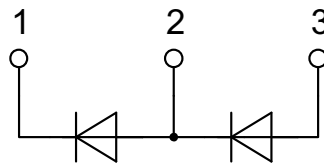
$$I_{FAV} = 12.5 \text{ A}$$

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

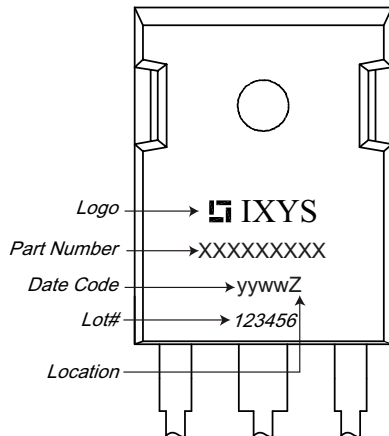
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SiC Diode (per diode)				Ratings				
Symbol	Definitions	Conditions	min.	typ.	max.			
V_{RSM}	max. non-repetitive reverse blocking voltage				1200	V		
V_{RRM}	max. repetitive reverse blocking voltage				1200	V		
I_R	reverse current	$V_R = V_{RRM}$	$T_{VJ} = 25^\circ\text{C}$		30	250	μA	
			$T_{VJ} = 175^\circ\text{C}$		55	350	μA	
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	
		$I_F = 10\text{ A}$ $I_F = 20\text{ A}$	$T_{VJ} = 175^\circ\text{C}$					V
								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 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 MHz		755	pF		
					45	pF		
					38	pF		
R_{thJC}	thermal resistance junction to case				1.9	K/W		
R_{thJH}	thermal resistance junction to heatsink	with heatsink compound; IXYS test setup			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
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
$d_{Spb/Appb}$	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

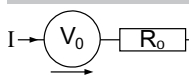


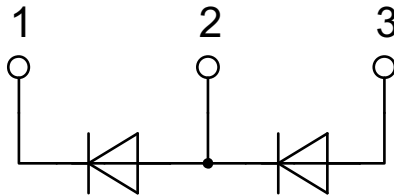
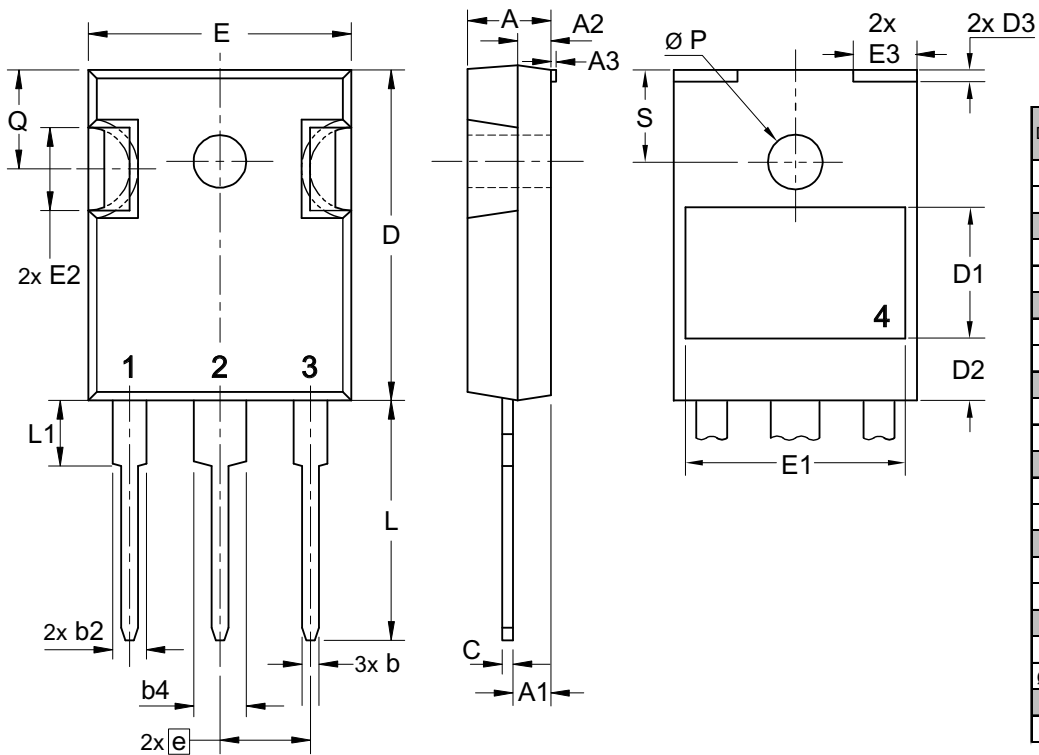
Part description

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


SiC Diode (per diode)

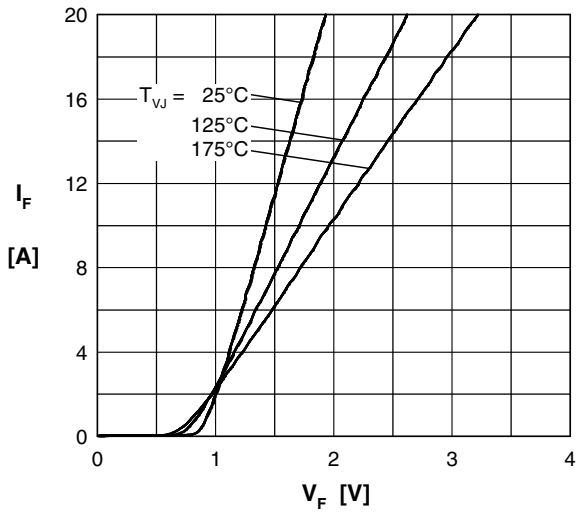


Fig. 1 Typ. forward characteristics.

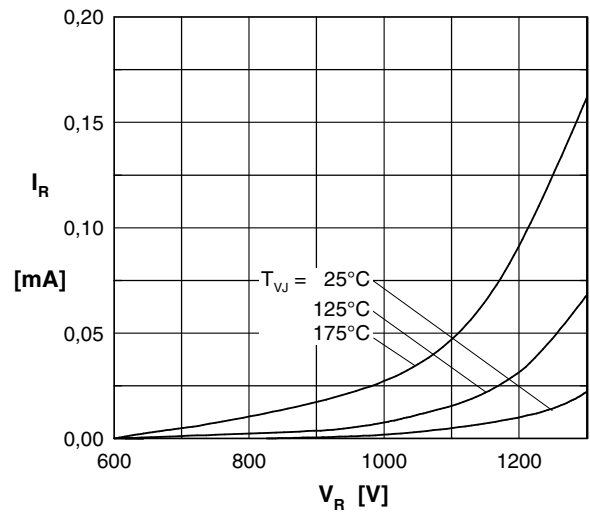


Fig. 2 Typ. reverse characteristics

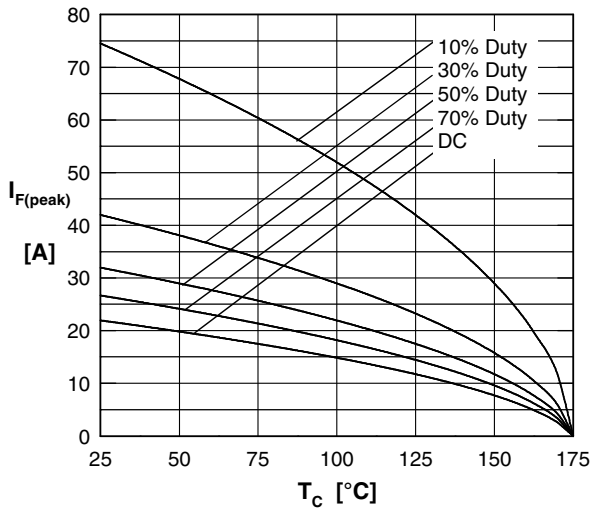


Fig. 3 Typ. current derating

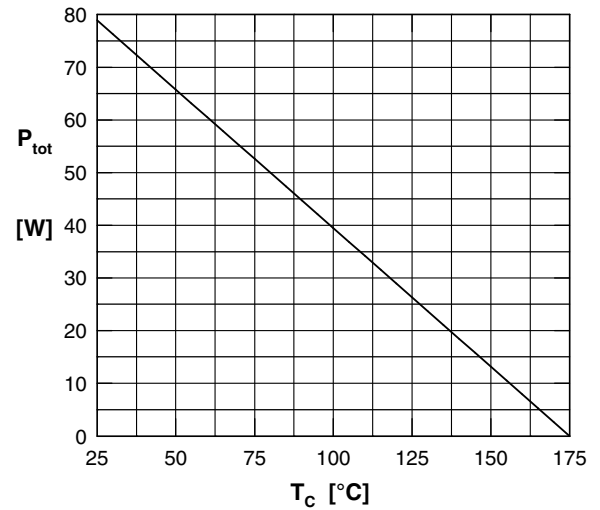


Fig. 4 Power derating

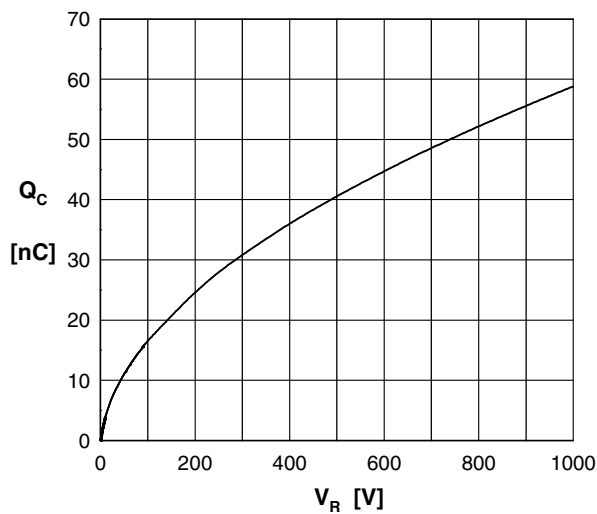


Fig. 5 Typ. recovery charge vs. reverse voltage

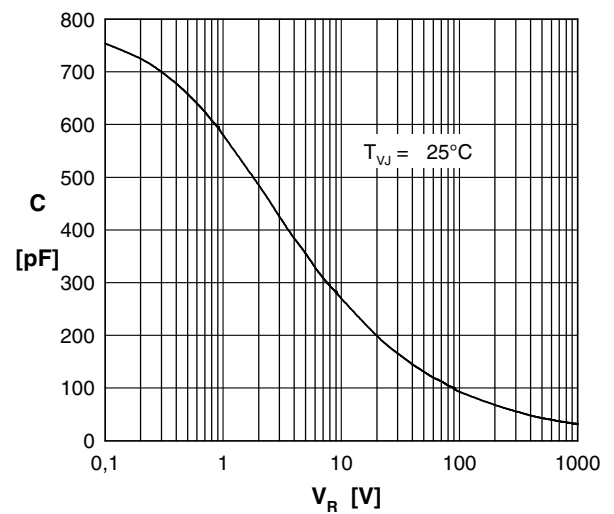


Fig. 6 Typ. junction capacitance vs. reverse Voltage

SiC Diode (per diode)

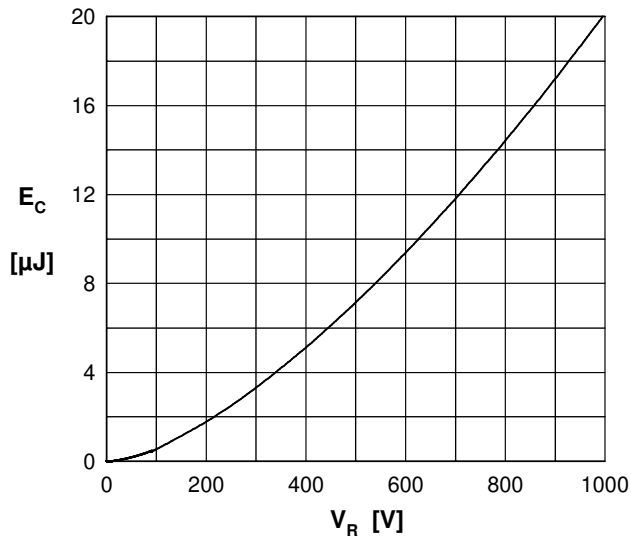


Fig. 7 Typical capacitance stored energy

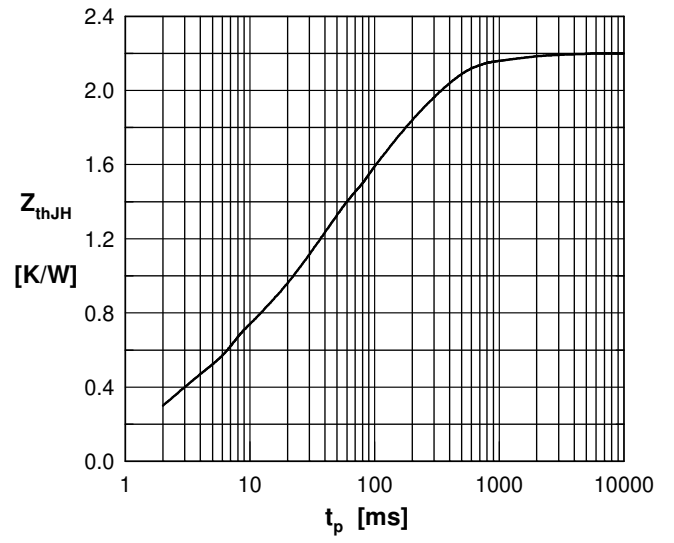


Fig. 8 Typ. transient thermal impedance junction to heatsink