

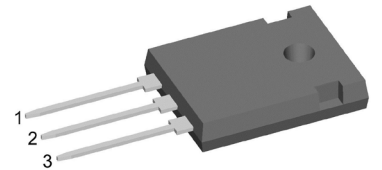
SiC Schottky Diode

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

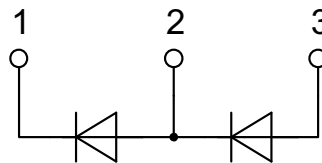
$$I_{FAV} = 12.5 \text{ A}$$

Ultra fast switching
 Zero reverse recovery
 Phase leg

Part number
DCG10P1200HR



Backside: isolated
 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

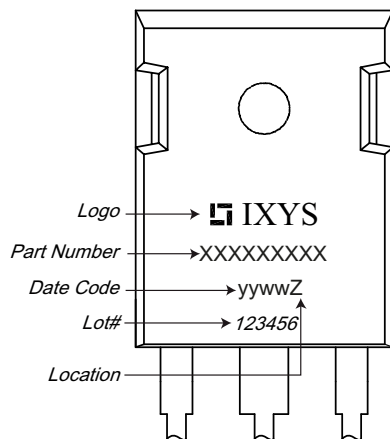
Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.



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 I _F = 20 A	T _{VJ} = 25°C		1.5	1.8	V V	
			T _{VJ} = 175°C		2.2	3.0	V V	
		I _F = 10 A I _F = 20 A						
I _{FAV}	average forward current	T _C = 80°C T _C = 100°C	rectangular, d = 0.5 T _{VJ} = 175°C			12.5 11.0	A A	
I _{F25}	forward current	based on typ. V _{F0} and r _F		T _C = 25°C			22	A
I _{F80}			T _C = 80°C			17	A	
I _{F100}			T _C = 100°C			15	A	
I _{FSM}	max forward surge current	t = 10 ms, half sine (50 Hz) t _p = 10 μs, pulse	T _{VJ} = 25°C V _R = 0V			750	A A	
V _{F0}	threshold voltage	for power loss calculation		T _{VJ} = 125°C 175°C		0.77 0.69		V V
r _F	slope resistance		T _{VJ} = 125°C 175°C		107 133		mΩ 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 V _R = 400 V V _R = 800 V	T _{VJ} = 25°C, f = 1 MHz		755 45 38		pF pF pF	
R _{thJC} R _{thJH}	thermal resistance junction to case thermal resistance junction to heatsink	with heatsink compound; IXYS test setup			2.2	1.9	K/W 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	50/60 Hz; RMS; I _{ISOL} < 1 mA		3600		V
		t = 1 minute			3000		V

Product Marking



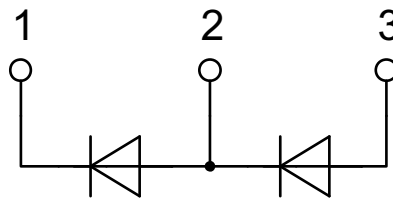
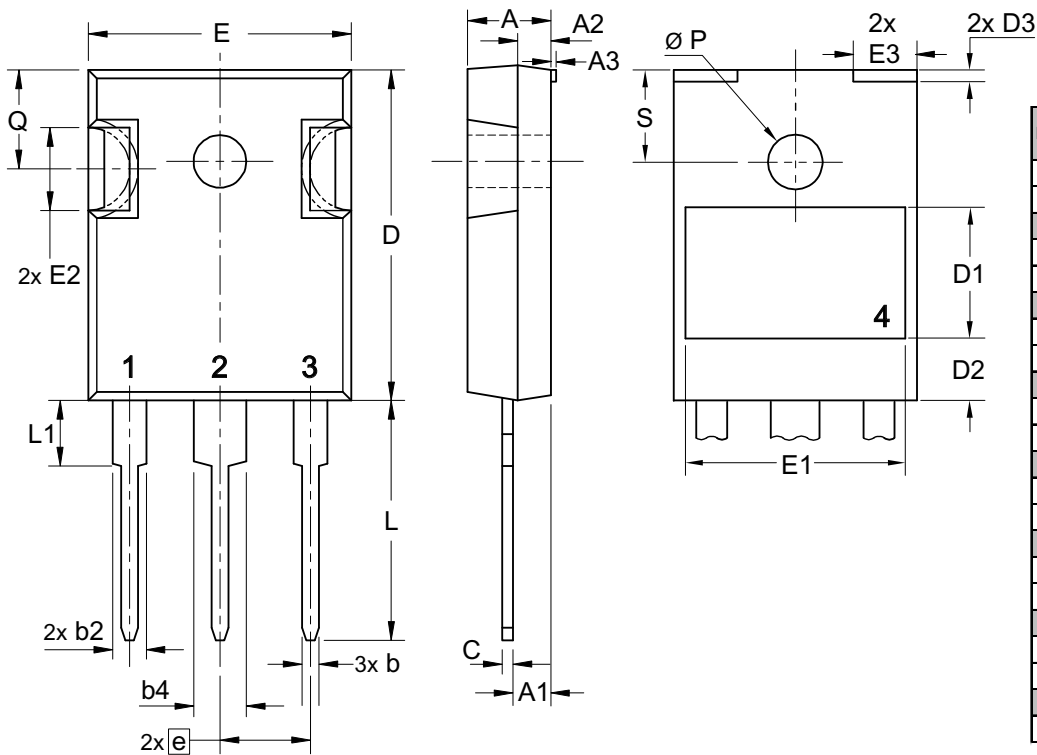
Part description

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



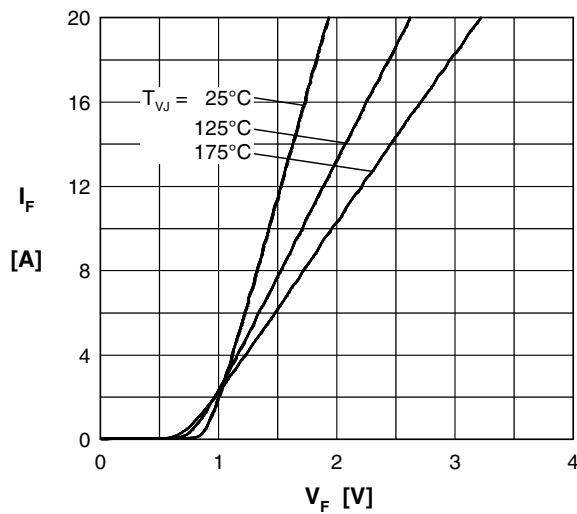
SiC Diode (per diode)


Fig. 1 Typ. forward characteristics.

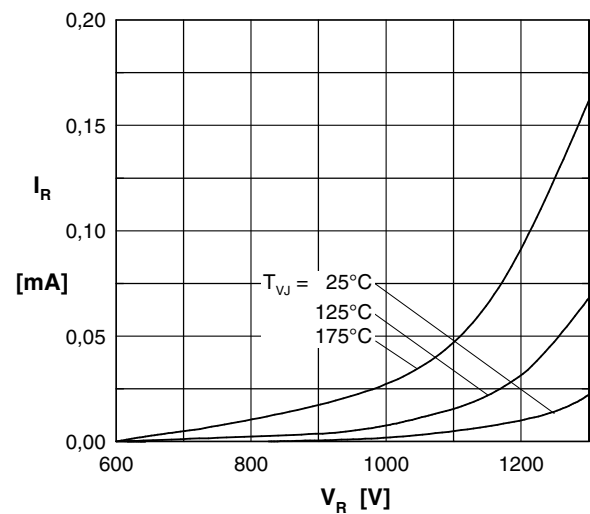


Fig. 2 Typ. reverse characteristics

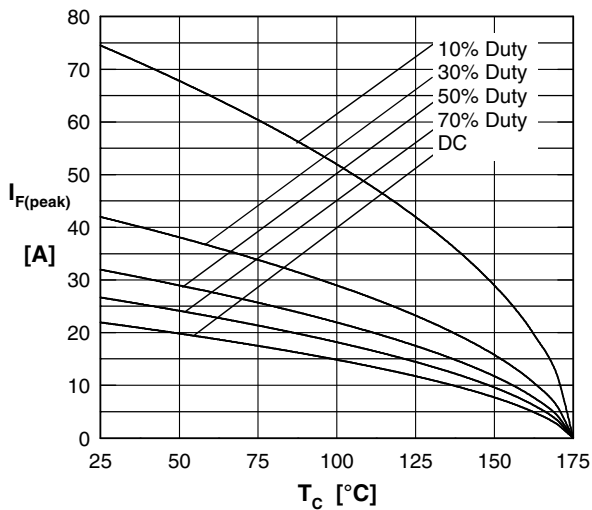


Fig. 3 Typ. current derating

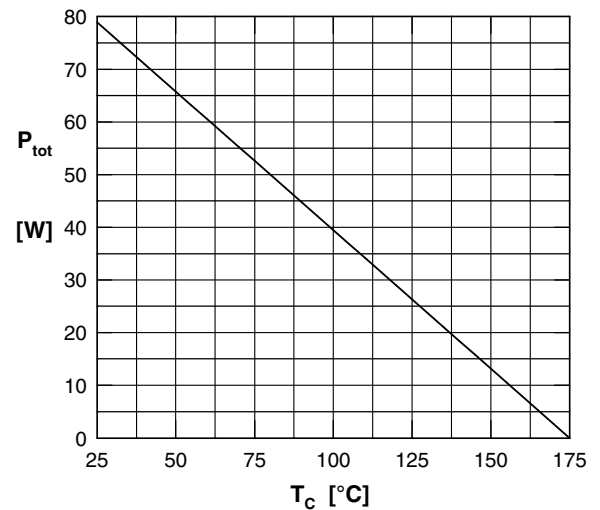


Fig. 4 Power derating

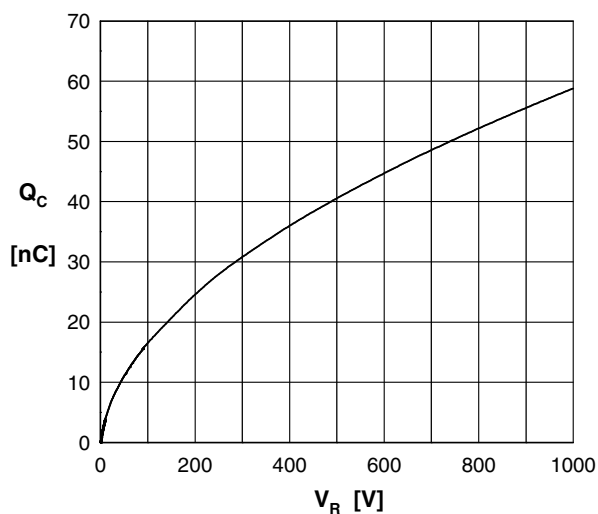


Fig. 5 Typ. recovery charge vs. reverse voltage

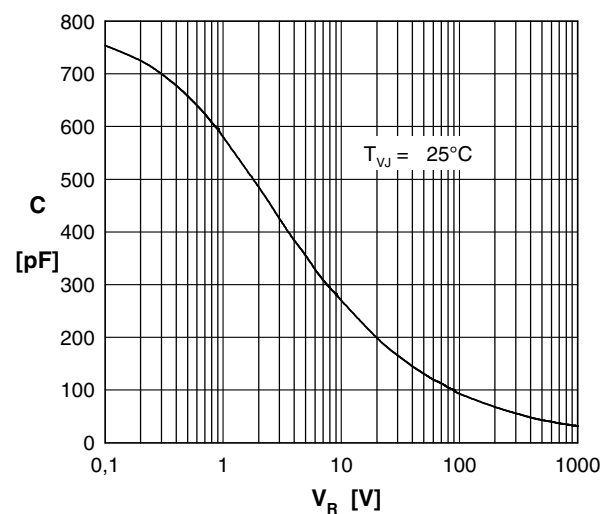


Fig. 6 Typ. junction capacitance vs. reverse Voltage



SiC Diode (per diode)

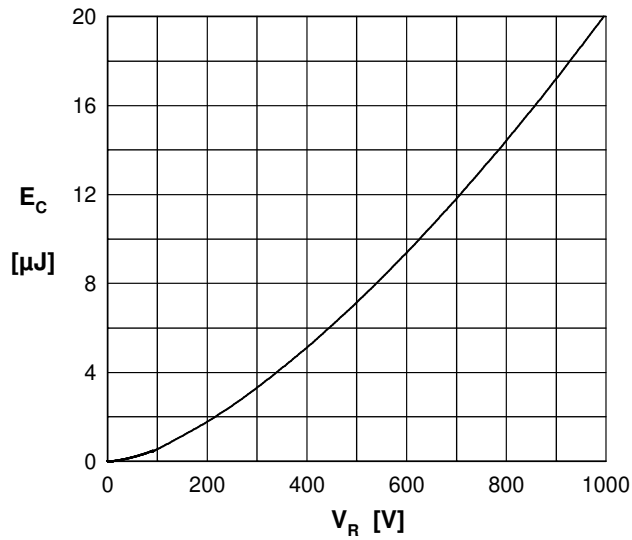


Fig. 7 Typical capacitance stored energy

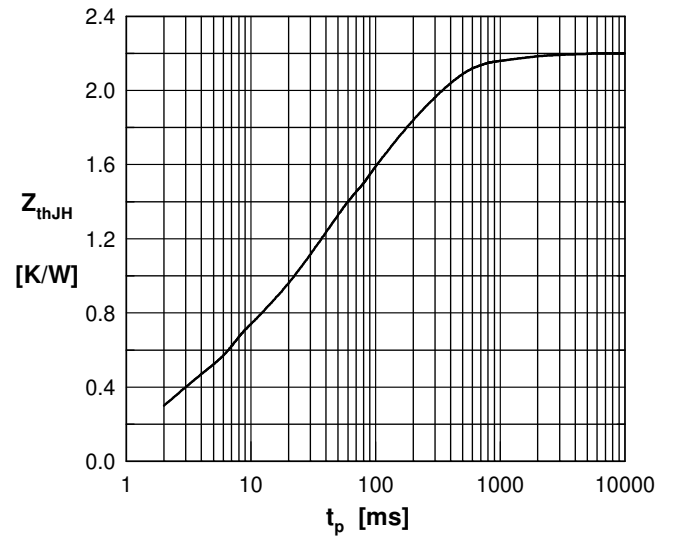


Fig. 8 Typ. transient thermal impedance
junction to heatsink