GE04MPS06Q
650V 4A SiC Schottky MPS™ Diode

GeneSiC SEMICONDUCTOR

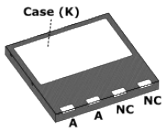
Silicon Carbide Schottky Diode

V_{RRM}	=	650 V
I_F (T_C = 163°C)	=	4 A
Q_C	=	9 nC

Features

- Benchmark Low Built-In Voltage (V_{BI})
- Superior Figure of Merit Q_C * V_F
- Gen5 Thin Chip Technology for Low V_F
- Enhanced Surge Current & UIS Robustness
- Low Thermal Resistance
- Zero Reverse Recovery
- Excellent dV/dt Ruggedness

Package



QFN8x8

RoHS

REACH

Advantages

- Low Conduction Losses for All Load Conditions
- Optimal Price Performance
- Increased System Power Density
- High System Reliability
- Reduced Cooling Requirements
- Temperature Independent Fast Switching
- Easy to Parallel without Thermal Runaway

Applications

- Switched Mode Power Supply (SMPS)
- Boost Power Factor Correction (PFC)
- Server and Telecom Power Supply
- LLC Clamping
- Uninterruptible Power Supply (UPS)

Absolute Maximum Ratings (At T_C = 25°C Unless Otherwise Stated)

Parameter	Symbol	Conditions	Values	Unit	Note
Repetitive Peak Reverse Voltage	V_{RRM}		650	V	
Continuous Forward Current	I_F	T_C = 100°C, D = 1	11	A	
		T_C = 135°C, D = 1	8		
		T_C = 163°C, D = 1	4		
Non-Repetitive Peak Forward Surge Current, Half Sine Wave	$I_{F,SM}$	T_C = 25°C, t_P = 10 ms	24	A	
		T_C = 150°C, t_P = 10 ms	20		
Repetitive Peak Forward Surge Current, Half Sine Wave	$I_{F,RM}$	T_C = 25°C, t_P = 10 ms	TBD	A	
		T_C = 150°C, t_P = 10 ms	TBD		
Non-Repetitive Peak Forward Surge Current	$I_{F,MAX}$	T_C = 25°C, t_P = 10 µs	TBD	A	
i^2t Value	$\int i^2dt$	T_C = 25°C, t_P = 10 ms	2.88	A^2s	
Non-Repetitive Avalanche Energy	E_{AS}	L = 2.6 mH, I_{AS} = 4 A	21	mJ	
Diode Ruggedness	dV/dt	V_R = 0 ~ 520 V	100	V/ns	
Power Dissipation	P_{TOT}	T_C = 25°C	81	W	
Operating and Storage Temperature	T_j , T_{stg}		-55 to 175	°C	

Electrical Characteristics

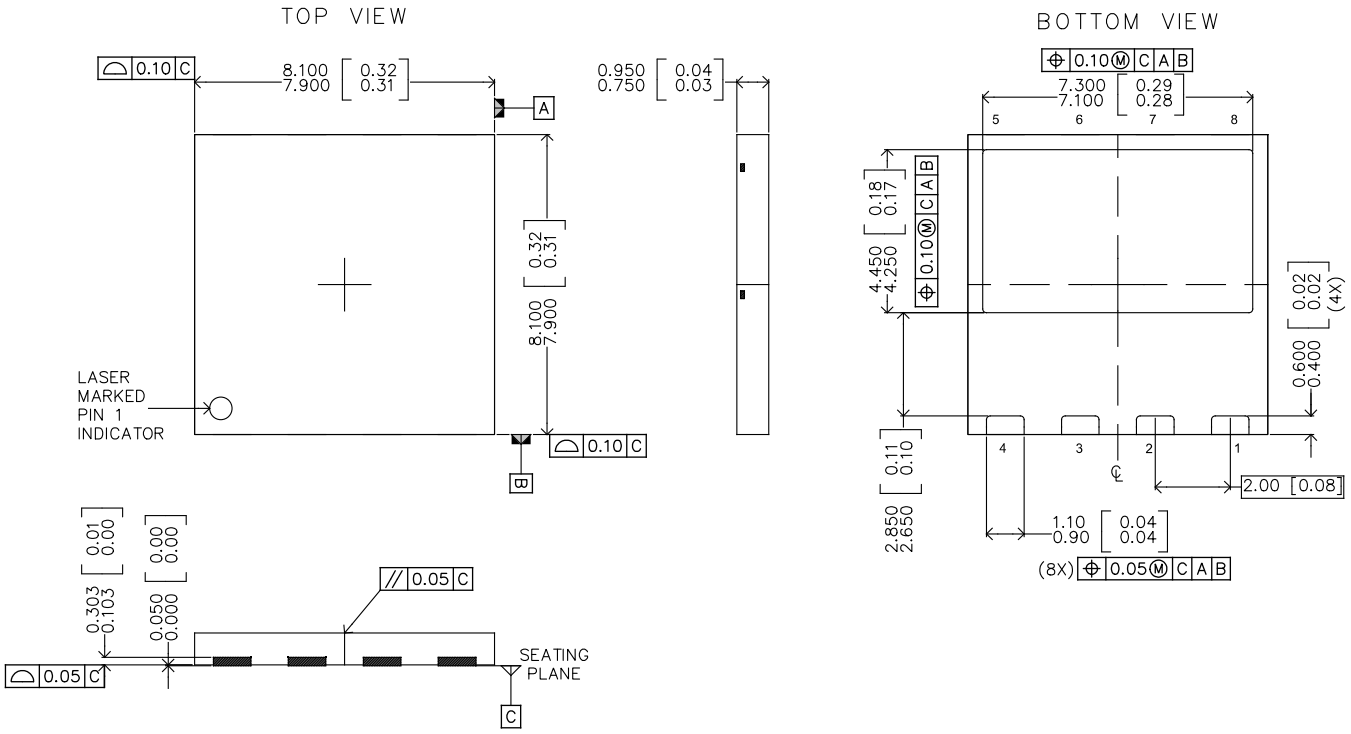
Parameter	Symbol	Conditions		Values			Unit	Note
				Min.	Typ.	Max.		
Diode Forward Voltage	V_F	I_F = 4 A, T_j = 25°C			1.3	1.5	V	
		I_F = 4 A, T_j = 125°C			1.48			
Reverse Current	I_R	V_R = 650 V, T_j = 25°C			1		µA	
		V_R = 650 V, T_j = 125°C			TBD			
Total Capacitive Charge	Q_C	$I_F \leq I_{F,MAX}$ dI_F/dt = 200 A/µs	V_R = 200 V		6		nC	
			V_R = 400 V		9			
Switching Time	t_S		V_R = 200 V		< 10		ns	
			V_R = 400 V					
Total Capacitance	C	V_R = 1 V, f = 1MHz			175		pF	
		V_R = 400 V, f = 1MHz			12			

Thermal/Package Characteristics

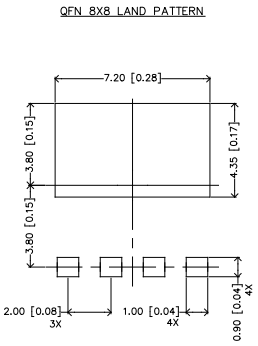
Parameter	Symbol	Conditions	Values			Unit	Note
			Min.	Typ.	Max.		
Thermal Resistance, Junction - Case	R_{thJC}				1.86	°C/W	
Weight	W_T			-		g	

Package Dimensions

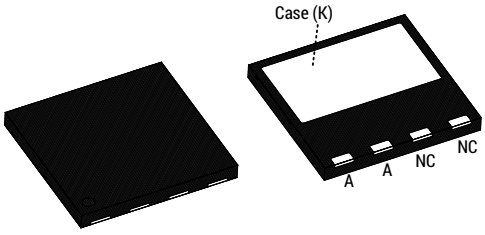
QFN8x8 Package Outline



Recommended Solder Pad Layout



Package View



NOTE

1. CONTROLLED DIMENSION IS INCH. DIMENSION IN BRACKET IS MILLIMETER.
2. DIMENSIONS DO NOT INCLUDE END FLASH, MOLD FLASH, MATERIAL PROTRUSIONS.

Compliance

RoHS Compliance

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 (RoHS 2), as adopted by EU member states on January 2, 2013 and amended on March 31, 2015 by EU Directive 2015/863. RoHS Declarations for this product can be obtained from your GeneSiC representative.

REACH Compliance

REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, please contact a GeneSiC representative to insure you get the most up-to-date REACH SVHC Declaration. REACH banned substance information (REACH Article 67) is also available upon request.

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