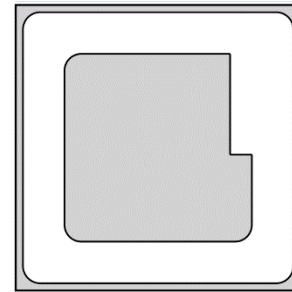


# CPW6-1200-Z005A

## Gen 6 Silicon Carbide Schottky Diode

### Description

This is the 6th generation of high voltage, high performance Z-Rec<sup>®</sup> silicon carbide Schottky diode in a packageless bare die format to be implemented into any custom module design. The lower forward voltage, smaller reverse leakage current, zero reverse recovery, and high thermal conductivity make this Schottky diode ideal for high frequency switching applications including high density DC to DC converters. This Schottky diode can be used in conjunction with either IGBT or MOSFET as an anti-parallel diode, or as a rectifier.



Package Type: Bare Die  
Representative Image Shown

### Features

- Low Forward Voltage ( $V_F$ ) Drop with Positive Temperature Coefficient
- Zero Reverse Recovery Current / Forward Recovery Voltage
- Temperature-Independent Switching Behavior

### Typical Applications

- Solar Inverters
- Motor Drives
- EV Chargers
- UPS
- Industrial Power Supplies

### Absolute Maximum Ratings

Stress beyond those listed under absolute maximum ratings may damage the device.

Parameter	Symbol	Rating	Unit
Repetitive Peak Reverse Voltage	$V_{RRM}$	1200	V
Continuous Forward Current	$I_F$	$T_c = 25^\circ\text{C}$	22
		$T_c = 125^\circ\text{C}$	12
		$T_c = 150^\circ\text{C}$	7
Repetitive Peak Forward Surge Current, assumes $t_p = 10\text{ms}$ , Half Sine Wave Pulse	$I_{FRM}$	$T_c = 25^\circ\text{C}$	28
		$T_c = 110^\circ\text{C}$	16
Non-Repetitive Forward Surge Current, assumes $t_p = 10\text{ms}$ , Half Sine Wave Pulse	$I_{FSM}$	$T_c = 25^\circ\text{C}$	57
		$T_c = 110^\circ\text{C}$	52
Virtual Junction and Storage Temperature	$T_{VJ}, T_{stg}$	-55 to +175	$^\circ\text{C}$
Maximum Processing Temperature, in non-reactive ambient	$T_{proc}$	325	$^\circ\text{C}$

Note: All above notation to  $T_c$  specifies case temperature from die packaged in TO-247, with  $R_{th(j-c)} < 1.46^\circ\text{C/W}$



## Electrical Characteristics ( $T_{VJ} = 25^{\circ}\text{C}$ )

Parameter	Symbol	Typ.	Max.	Unit	Test Conditions
Forward Voltage	$V_f$	1.3	1.8	V	$I_F = 5\text{ A}$
		1.7			$I_F = 5\text{ A}, T_{VJ} = 175^{\circ}\text{C}$
Reverse Current	$I_R$	4		$\mu\text{A}$	$V_R = 1200\text{ V}$
		27			$V_R = 1200\text{ V}, T_{VJ} = 175^{\circ}\text{C}$
Total Capacitive Charge	$Q_C$	38		nC	$V_R = 800\text{ V}, I_F = 5\text{ A}$
Total Capacitance	C	553		pF	$V_R = 0\text{ V}, f = 1\text{ Mhz}$
		33			$V_R = 400\text{ V}, f = 1\text{ Mhz}$
		27			$V_R = 800\text{ V}, f = 1\text{ Mhz}$
Capacitance Stored Energy	$E_C$	10.9		$\mu\text{J}$	$V_R = 800\text{ V}$

## Thermal Characteristics

Parameter	Symbol	Typical	Unit
Thermal Resistance from Junction to Case <sup>1</sup>	$R_{th(j-c)}$	1.46	$^{\circ}\text{C}/\text{W}$

<sup>1</sup>Tested in TO-247 Package



### Typical Performance

All the graphs are based on a die placed in a TO-247 package.

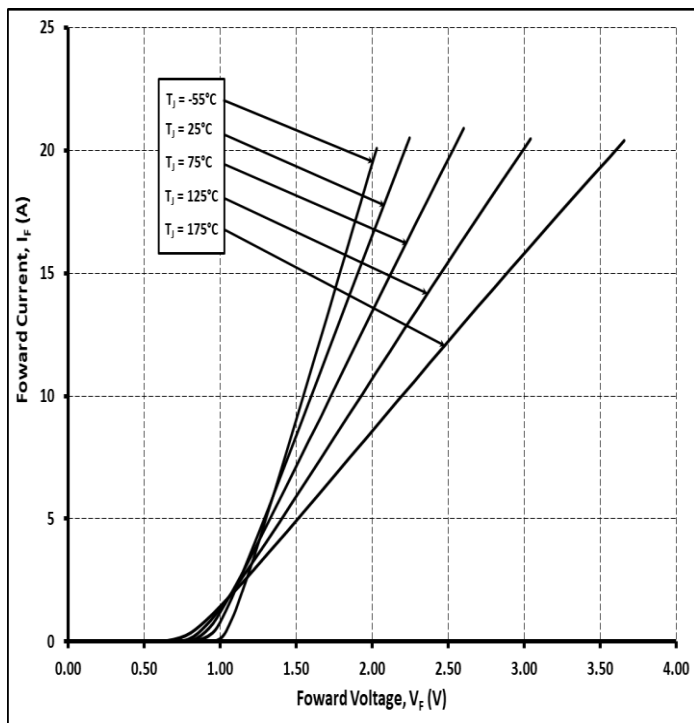


Figure 1.

Typical Forward Characteristics

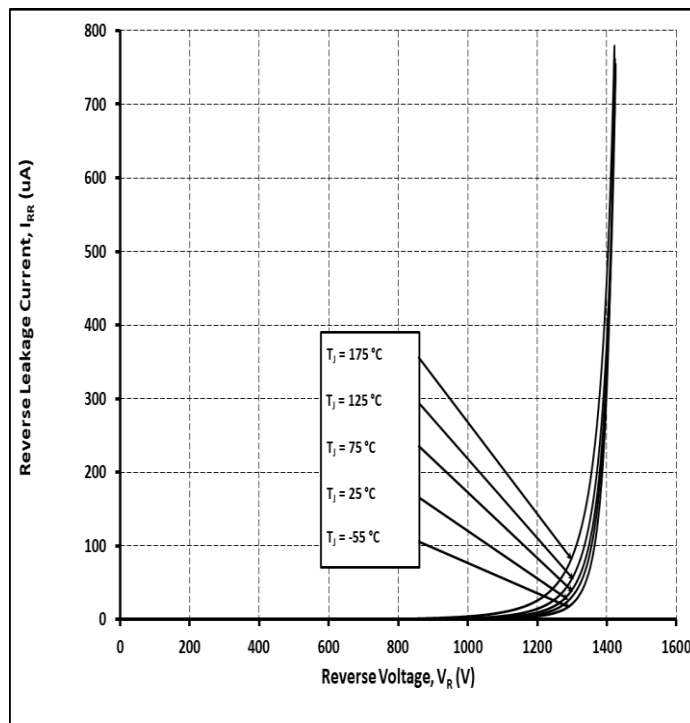


Figure 2.

Typical Reverse Characteristics

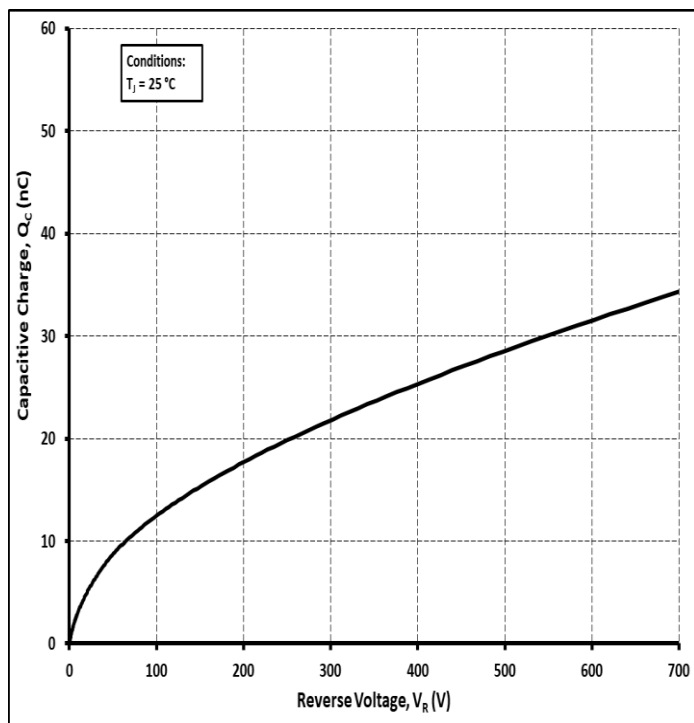


Figure 3.

Total Capacitance Charge vs Reverse Voltage

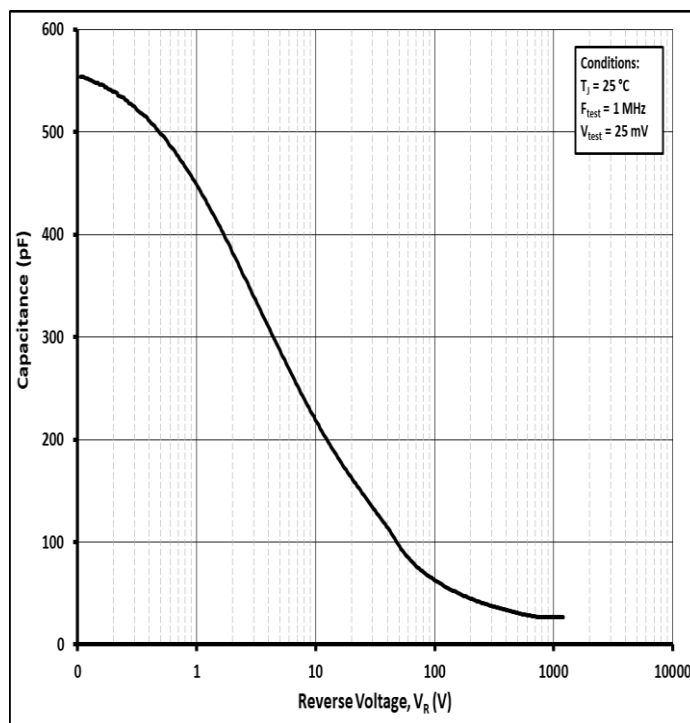


Figure 4.

Capacitance vs Reverse Voltage



## Product Ordering Information

Order Number	Description	Package
CPW6-1200-Z005A-FU6	SiC DIODE G6 IND 1200V/5A FULL MLT	Bare Die Product

## Revision History

Revision History	Date of Change	Brief Summary
1	7/31/2024	Initial release
2	11/5/2024	<ul style="list-style-type: none"><li>• Updated “Typical Applications”</li><li>• Updated disclaimers</li><li>• Updated Titles for Figures 3 and 4</li></ul>



## Notes & Disclaimers

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