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# PCRKA20065F8

## 650V / 200A Extremefast Diode

### Features

- AEC-Q101 Qualified
- Maximum Junction Temperature 175°C
- Extremefast Technology with Soft Recovery
- Low Forward Voltage (VF = 1.35V (Typ) @IF = 200A)

### Applications

- Automotive Traction Modules
- General Power Modules



### Ordering Information

P/N	PCRKA20065F8	
Packing	Wafer (Saw-On-Foil)	
	mils	µm
Die Size	197 X 394	5,000 X 10,000
Anode Area	176 X 373	4,478 X 9,475
Scribe Lane	3.14	80
Die thickness	3	77
Top Metal	Al (0.5% Cu)	
Back Metal	VNi/Ag	
Topside Passivation	Silicon Nitride Plus Polyimide	
Wafer diameter	200mm	
Max. Possible Die per Wafer	487	

**Absolute Maximum Ratings** ( $T_{VJ} = 25^{\circ}\text{C}$  unless otherwise specified)

Symbol	Parameter	Ratings	Units
$V_R$	Voltage Cathode to Anode	650	V
$I_F$	Continuous forward current	(Note 1)	A
$T_{VJ}$	Junction Temperature Range	-55 to +175	$^{\circ}\text{C}$
	Operating Junction Temperature	-55 to +150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature Range	+17 to +25	$^{\circ}\text{C}$

**Notes:**

1: Depends on the thermal properties of assembly

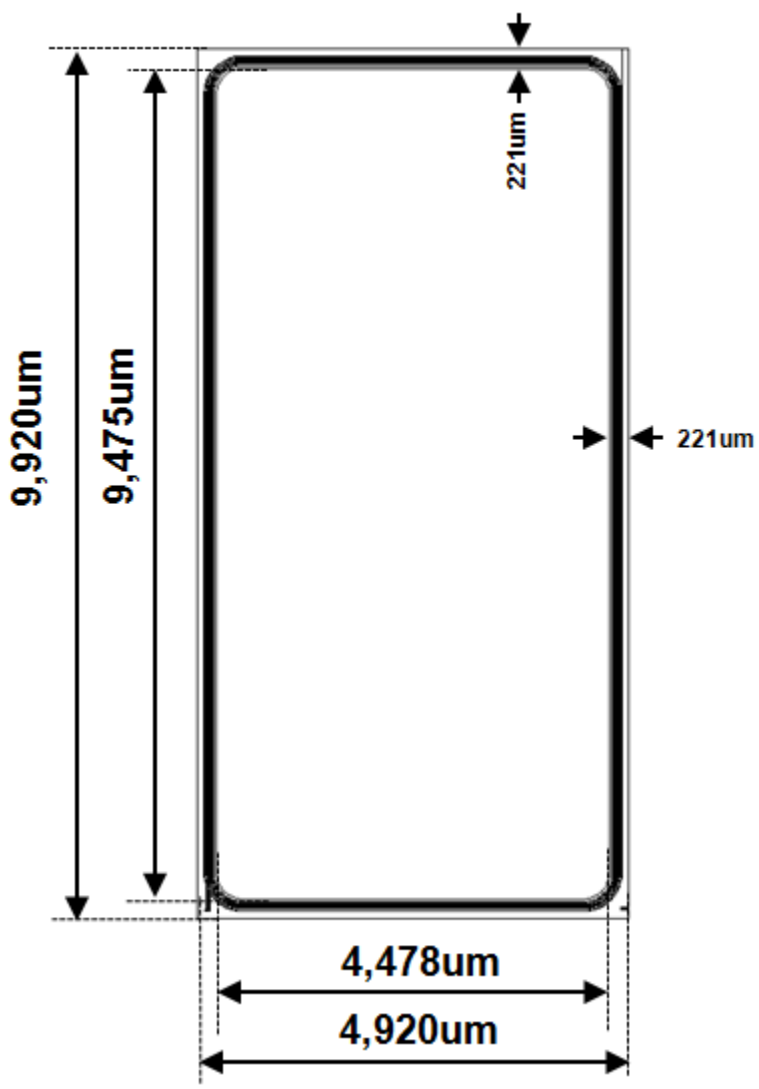
**Electrical Characteristics of the Diode** ( $T_{VJ} = 25^{\circ}\text{C}$  unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
<b>Static Characteristics</b> (tested on wafer)						
$I_R$	Reverse Current	$V_R = 650\text{V}$	-	-	30	$\mu\text{A}$
$V_{BR}$	Breakdown Voltage	$I_R = 1\text{mA}$	650	-	-	V
$V_F$	Forward Voltage	$I_F = 100\text{A}$	0.7	1.15	1.7	V
<b>Electrical Characteristics</b> (not subject to production test, verified by design / characterization)						
$I_R$	Reverse Current	$V_R = 650\text{V}, T_{VJ} = 175^{\circ}\text{C}$	-	850	-	$\mu\text{A}$
$V_F$	Forward Voltage	$I_F = 200\text{A}$	-	1.35	1.9	V
		$I_F = 200\text{A}, T_{VJ} = 175^{\circ}\text{C}$	-	1.30	-	V
$Q_{rr}$	Reverse Recovery Charge	$I_F = 200\text{A}, V_R = 400\text{V},$ $dI_F/dt = 1000\text{A}/\mu\text{s}, T_{VJ} = 25^{\circ}\text{C}$	-	3.2	-	$\mu\text{C}$
$I_{rr}$	Reverse Recovery Current		-	55	-	A
$T_{rr}$	Reverse Recovery Time		-	117	-	ns
$Q_{rr}$	Reverse Recovery Charge	$I_F = 200\text{A}, V_R = 400\text{V},$ $dI_F/dt = 1000\text{A}/\mu\text{s}, T_{VJ} = 175^{\circ}\text{C}$	-	15.1	-	$\mu\text{C}$
			$I_{rr}$	Reverse Recovery Current	-	122
$T_{rr}$	Reverse Recovery Time				-	247

For ordering, technique and other information on Fairchild automotive bare die products, please contact [automotivedie@fairchildsemi.com](mailto:automotivedie@fairchildsemi.com)



### Physical Dimensions








PCRKA20065F8 650V/200A Extremefast Diode



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