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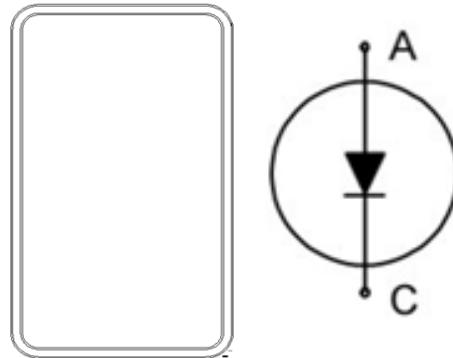
PCRKA16065F8 650V/160A Extremefast Diode

# PCRKA16065F8

## 650V / 160A Extremefast Diode

### Features

- AEC-Q101 Qualified
- Maximum Junction Temperature 175°C
- Extremefast Technology with Soft Recovery
- Low Forward Voltage ( $V_F = 1.4V$  (Typ) @ $I_F = 160A$ )



### Applications

- Automotive Traction Modules
- General Power Modules

### Ordering Information

P/N	PCRKA16065F8	
Packing	Wafer (Saw-On-Foil)	
	mils	$\mu m$
Die Size	165 X 283	4,200 X 7,200
Anode Area	145 x 263	3,678 x 6,678
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	788	

**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	$^{\circ}\text{C}$
Tstg	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 specified)

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	1.21	1.75	V

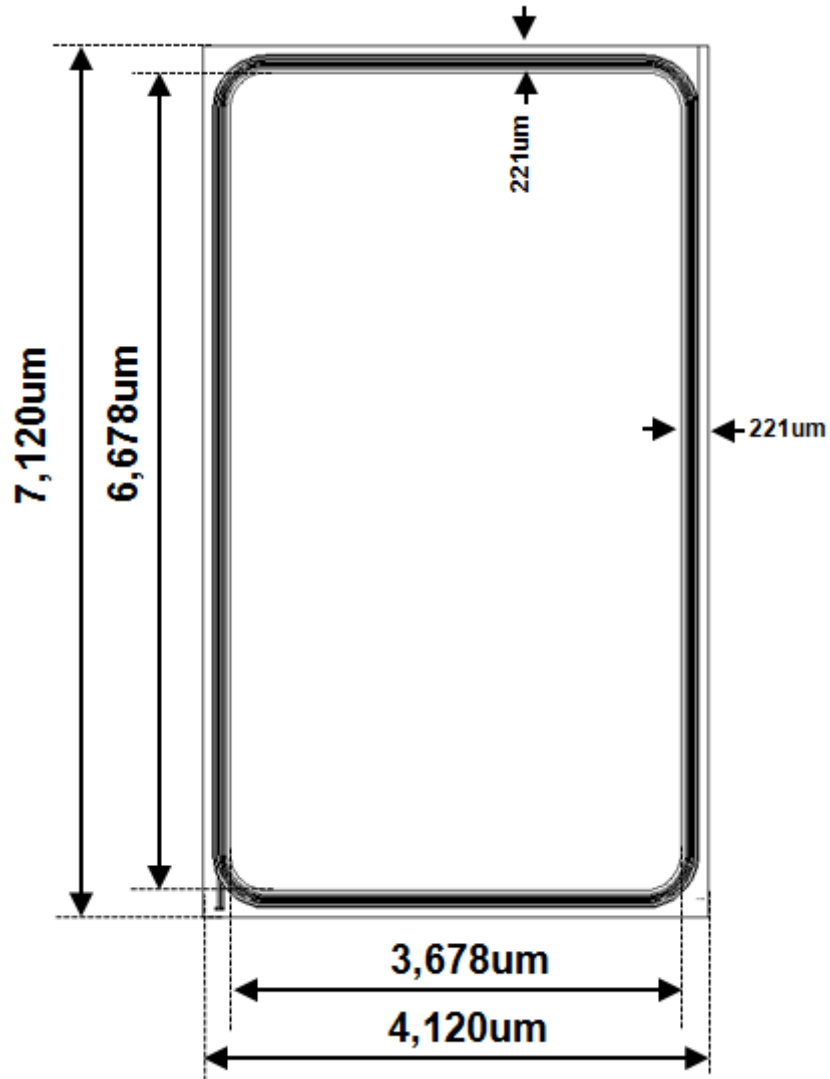
**Electrical Characteristics** (Not subject to production test, verified by design /characterization)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
$I_R$	Reverse Current	$V_R = 650\text{V}$ , $T_{VJ} = 175^{\circ}\text{C}$	-	600	-	$\mu\text{A}$
$V_F$	Forward Voltage	$I_F = 160\text{A}$	-	1.4	1.9	V
		$I_F = 160\text{A}$ , $T_{VJ} = 175^{\circ}\text{C}$	-	1.35	-	V
$Q_{rr}$	Reverse Recovery Charge	$I_F = 160\text{A}$ , $V_R = 400\text{V}$ , $di_F/dt = 1000\text{A}/\mu\text{s}$ , $T_{VJ} = 25^{\circ}\text{C}$	-	3.3	-	$\mu\text{C}$
$I_{rr}$	Reverse Recovery Current		-	50	-	A
$T_{rr}$	Reverse Recovery Time		-	132	-	ns
$Q_{rr}$	Reverse Recovery Charge	$I_F = 160\text{A}$ , $V_R = 400\text{V}$ , $di_F/dt = 1000\text{A}/\mu\text{s}$ , $T_{VJ} = 175^{\circ}\text{C}$	-	12.5	-	$\mu\text{C}$
$I_{rr}$	Reverse Recovery Current		-	101.7	-	A
$T_{rr}$	Reverse Recovery Time		-	245	-	ns

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



Physical Dimensions








PCRKA16065F8 650V/160A Extremefast Diode



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