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PCRKA30065F8M1

650V / 300A Extremefast Diode

Features

- Automotive Qualified
- Maximum Junction Temperature 175°C
- Extremefast technology with Soft Recovery
- Low Forward Voltage ($V_F = 1.3V$ (Typ) @ $I_F = 300A$)

Applications

- Automotive Traction Modules
- General Power Modules



Order Information

P/N	PCRKA30065F8	
Packing	Wafer (Sawn-on-foil)	
	mils	μm
Die Size	283 X 394	7,200 X 10,000
Anode Area	235 X 345	5,970 X 8,770
Scribe Lane	3.14	80
Die thickness	3	77
Top metal	Al (0.5% Cu)	
Back metal	NiV/Ag	
Topside Passivation	SiN and Polyimide	
Wafer diameter	200mm	
Max. Possible Die per Wafer	331	

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

Symbol	Parameter	Ratings	Units
V_R	Voltage Cathode to Anode	650	V
I_F	Continuous Forward Current	(Note 1)	A
T_J	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
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Static Characteristics (Tested on wafers)

I_R	Reverse Leakage Current	$V_R = 650\text{V}$	-	-	30	μA
V_{BR}	Breakdown Voltage	$I_R = 1\text{mA}$	650	-	-	V
V_F	Forward Voltage	$I_F = 100\text{A}$	-	1.1	1.65	V

Electrical Characteristics (Not subject to production test - verified by design characterization)

I_R	Reverse Leakage Current	$V_R = 650\text{V}, T_{VJ} = 175^{\circ}\text{C}$	-	-	-	mA
V_F	Forward Voltage	$I_F = 300\text{A}$	-	1.3	1.9	V
		$I_F = 300\text{A}, T_{VJ} = 175^{\circ}\text{C}$	-	1.2	-	V
Q_{rr}	Reverse Recovery Charge	$I_F = 300\text{A}, V_R = 300\text{V}$	-	5.29	-	μC
I_{rr}	Reverse Recovery Current	$dI_F/dt = 1000\text{A}/\mu\text{s}$	-	57.15	-	A
T_{rr}	Reverse Recovery Time	$dI_F/dt = 1000\text{A}/\mu\text{s}$	-	159.1	-	ns

For ordering, technique and other information on Onsemi automotive bare die products, please contact automotivedie@onsemi.com

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