

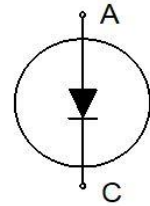
EDT3 Diode for Automotive Applications

Diode

Quality Requirement Category: Automotive

Features

- 750V Emitter Controlled Diode technology
- Soft, fast switching
- Low reverse recovery charge
- Improved commutation behavior for reduced IGBT turn-on losses
- Small temperature coefficient
- Solderable/sinterable front side pads¹
- 185°C maximum junction temperature



Applications

- Drives

Description

- Recommended for power modules

Product Validation

- Technology qualified for Automotive Applications. Product validation according to AEC-Q101.

Key Performance Parameters

Chip Type	V_{RRM}	I_{Fn}	Die Size	Package
IDC52D75H8DA	750V	320A	51.68mm ²	Sawn on foil

¹ Depending on customer specific assembly process

Table of Contents

Features 1

Applications..... 1

Description 1

Product Validation..... 1

Key Performance Parameters 1

Table of Contents 2

1 Parameters and Characteristics..... 3

2 Further Electrical Characteristics 4

3 Chip Drawing..... 5

4 Bare Die Product Specifics 6

Revision History 6

1 Parameters and Characteristics

Table 1 Mechanical Parameters

Raster size	9.50 x 5.44	mm ²
Area total	51.68	mm ²
Anode pad size	See chip drawing	
Silicon thickness	68	μm
Wafer size	200	mm
Maximum possible chips per wafer	513	
Passivation frontside	Photoimide	
Pad metal	NiP/Pd	
Backside metal	NiP/Pd	
Die bond ¹	Soft solder or sinter	
Frontside interconnect ¹	Soft solder or sinter	
Reject ink dot size	Inkless	
Storage environment (<6 months)	For original and sealed MBB bags ²	Ambient atmosphere air, temperature 17°C – 25°C

Table 2 Maximum Ratings³

Parameter	Symbol	Conditions	Value	Unit
Maximum reverse voltage	V_{RRM}	$25^{\circ}\text{C} \leq T_{vj} \leq 185^{\circ}\text{C}$	750	V
		$T_{vj} = -40^{\circ}\text{C}^4$	710	
Continuous forward current, limited by $T_{vj\ max}$	I_F		.. ⁵	A
Pulsed forward current, t_p limited by $T_{vj\ max}$	$I_{F,pulse}$		960	A
Virtual junction temperature	T_{vj}		-40 ... +185	°C
Safe operating area	SOA	$I_{F,max} = 640\text{A}$, $V_{R,max} = V_{RRM}$, $-40^{\circ}\text{C} \leq T_{vj} \leq 185^{\circ}\text{C}$		

¹ Depending on customer specific assembly process

² https://www.infineon.com/dgdl/Storage_of_Products_Supplied_by_Infineon_Technologie.pdf?fileId=5546d461641369bf01643b95d8500011

³ Not subject to production test - verified by design/characterization.

⁴ V_{RRM} increases linearly between -40°C and 25°C.

⁵ Depending on thermal properties of assembly.

Table 3 Static Characteristics (Tested on Wafer), $T_{vj}=25^{\circ}\text{C}$

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Forward voltage drop	V_F	$I_F = 64\text{A}$	-	1.35	1.5	V
Reverse leakage current	I_R	$V_R = 750\text{V}$	-	-	100	μA

Table 4 Electrical Characteristics¹

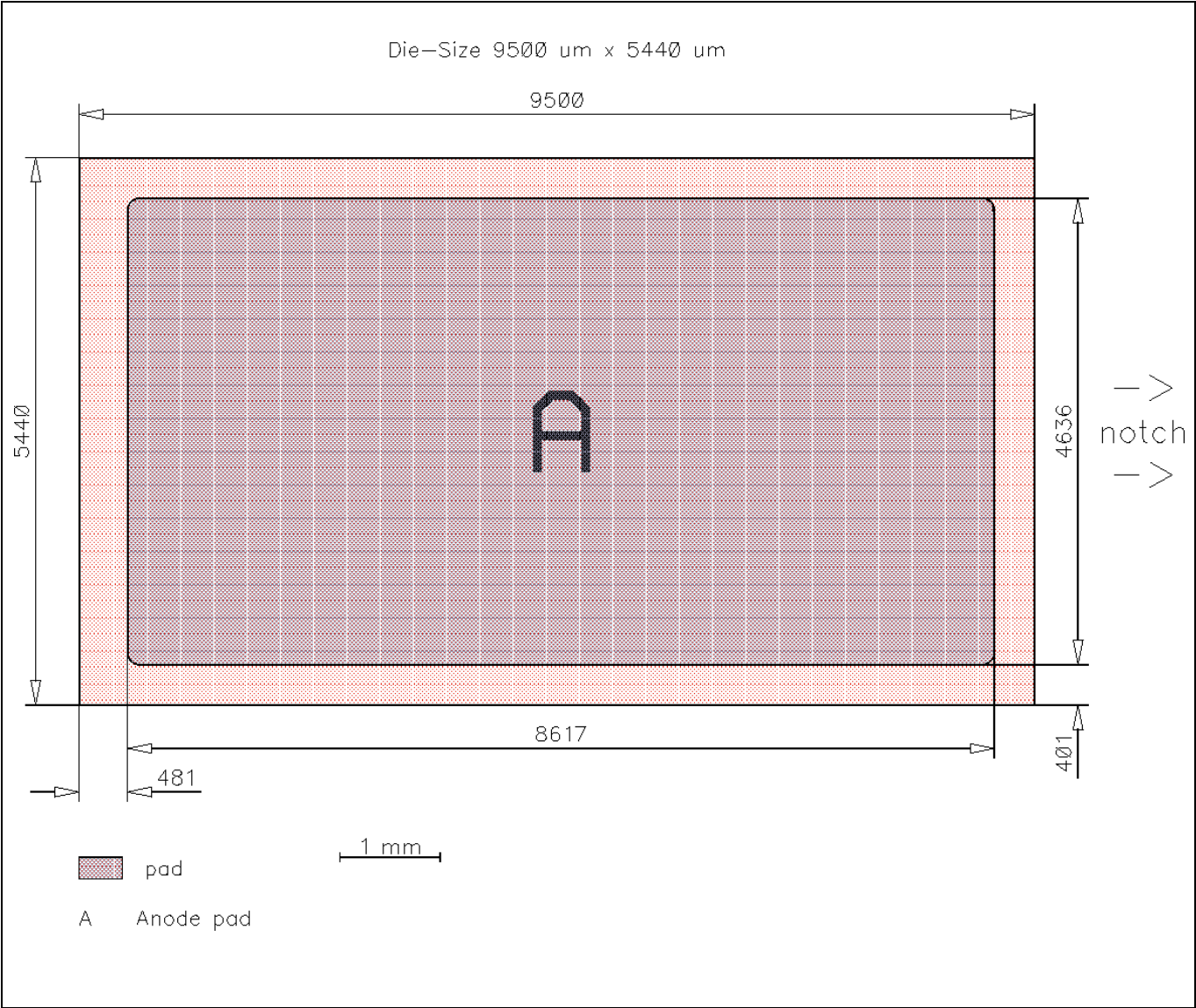
Parameter	Symbol	Conditions		Value			Unit
				min.	typ.	max.	
Forward voltage drop	V_F	$I_F = 200\text{A}$	$T_{vj} = 25^{\circ}\text{C}$	-	1.75	1.98	
			$T_{vj} = 185^{\circ}\text{C}$	-	1.45	-	
		$I_F = 320\text{A}$	$T_{vj} = 25^{\circ}\text{C}$	-	2.00	2.3	V
			$T_{vj} = 185^{\circ}\text{C}$	-	1.70	-	

2 Further Electrical Characteristics

Note: Switching characteristics and thermal properties are dependent on module design and mounting technology and can therefore not be specified for a bare die.

¹ Not subject to production test - verified by design/characterization.

3 **Chip Drawing**



4 Bare Die Product Specifics

Note: Test coverage at wafer level for diodes cannot cover the full range of customer application conditions. Therefore it is the responsibility of the customer to test all performance characteristics, which are relevant for their specific application, at the package level, including SOA.

Description

- AQL 0.1 for visual inspection according to failure catalogue

Revision History

Document version	Date of release	Description of changes
V1.00	2024-May-03	Initial datasheet

Trademarks

All referenced product or service names and trademarks are the property of their respective owners.

Edition 2024-May-03

Published by

Infineon Technologies AG

81726 München, Germany

© 2024 Infineon Technologies AG.

All Rights Reserved.

Do you have a question about this document?

Email: erratum@infineon.com

Document reference

IMPORTANT NOTICE

The information given in this document shall in no event be regarded as a guarantee of conditions or characteristics ("Beschaffenheitsgarantie").

With respect to any examples, hints or any typical values stated herein and/or any information regarding the application of the product, Infineon Technologies hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

In addition, any information given in this document is subject to customer's compliance with its obligations stated in this document and any applicable legal requirements, norms and standards concerning customer's products and any use of the product of Infineon Technologies in customer's applications.

The data contained in this document is exclusively intended for technically trained staff. It is the responsibility of customer's technical departments to evaluate the suitability of the product for the intended application and the completeness of the product information given in this document with respect to such application.

For further information on the product, technology delivery terms and conditions and prices please contact your nearest Infineon Technologies office (www.infineon.com).

WARNINGS

Due to technical requirements products may contain dangerous substances. For information on the types in question please contact your nearest Infineon Technologies office.

Except as otherwise explicitly approved by Infineon Technologies in a written document signed by authorized representatives of Infineon Technologies, Infineon Technologies' products may not be used in any applications where a failure of the product or any consequences of the use thereof can reasonably be expected to result in personal injury.