

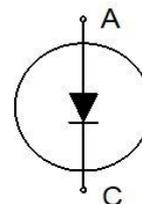
EDT3 Diode for Automotive Applications

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

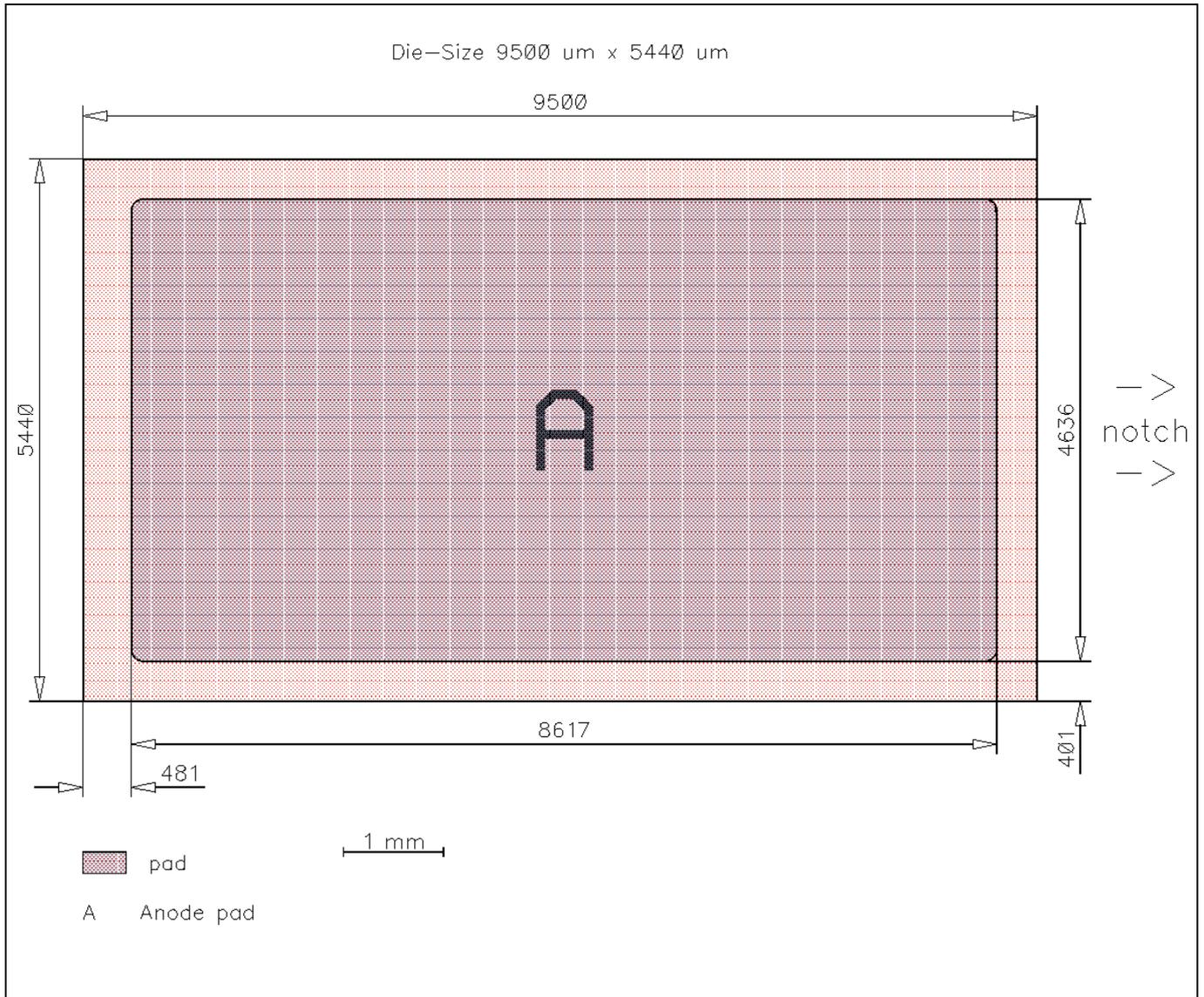
Parameter	Symbol	Conditions	Value			Unit	
			min.	typ.	max.		
Forward voltage drop	V_F	$I_F = 200\text{A}$	$T_{vj} = 25^{\circ}\text{C}$	-	1.75	1.98	V
			$T_{vj} = 185^{\circ}\text{C}$	-	1.45	-	
		$I_F = 320\text{A}$	$T_{vj} = 25^{\circ}\text{C}$	-	2.00	2.3	
			$T_{vj} = 185^{\circ}\text{C}$	-	1.70	-	

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

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