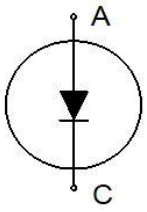
EDT3 Diode for Automotive Applications

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
- 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
IDC62D75H8A	750V	400A	62 mm^2	Sawn on foil

Table of Contents

1 Parameters and Characteristics

Table 1 Mechanical Parameters

Raster size		10 x 6.2	mm^2
Area total		62	mm^2
Anode pad size		See chip drawing	
Silicon thickness		68	µm
Wafer size		200	mm
Maximum possible chips per wafer		424	
Passivation frontside		Photoimide	
Pad metal		AlSiCu	
Backside metal		Ni Ag system	
Die bond[1]		Soft solder	
Frontside interconnect[1]		Wire bond: Al, ≤ 500 µm	
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 Ratings[3]

Parameter	Symbol	Conditions	Value	Unit
Maximum reverse voltage	V_{RRM}	25°C ≤ T_{vj} ≤ 185°C	750	V
		T_{vj} = -40°C[4]	710	
Continuous forward current, limited by $T_{vj\,max}$	I_F		-[5]	A
Pulsed forward current, t_p limited by $T_{vj\,max}$	$I_{F,pulse}$		1200	A
Virtual junction temperature	T_{vj}		-40 ... +185	°C
Safe operating area	*SOA*	$I_{F,max}$ = 800 A, $V_{R,max}$ = V_{RRM}, -40°C ≤ T_{vj} ≤ 185°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°C

Parameter	Symbol	Conditions	Value			Unit
			min.	typ.	max.	
Forward voltage drop	V_F	I_F = 80A	-	1.35	1.5	V
Reverse leakage current	I_R	V_R = 750V	-	-	100	µA

Table 4 Electrical Characteristics[1]

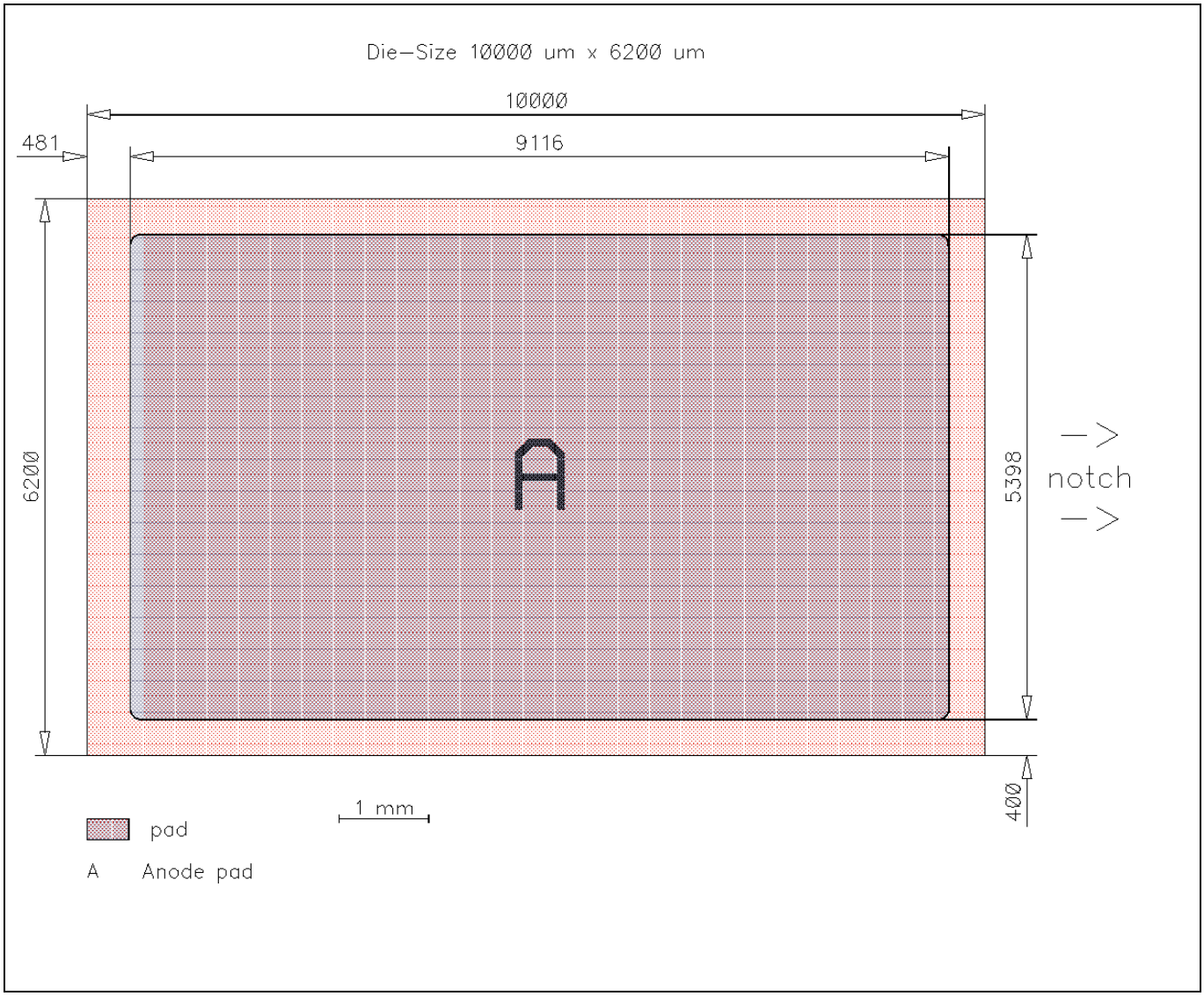
Parameter	Symbol	Conditions		Value			Unit
				min.	typ.	max.	
Forward voltage drop	V_F	I_F = 400A	T_{vj} = 25°C	-	2.00	2.3	V
			T_{vj} = 185°C	-	1.70	-	

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	2025-September-10	Initial datasheet

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