

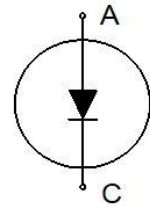
EDT3 1200V Diode for Automotive Applications

Diode

Quality Requirement Category: Automotive

Features

- 1200V Emitter Controlled Diode technology
- Soft, fast switching
- Low reverse recovery charge
- 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
IDC52D120Y8A	1200V	230A	52.0mm ²	Sawn on foil

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1 Parameters and Characteristics

Table 1 Mechanical Parameters

Raster size	10.00 x 5.20	mm ²
Area total	52.00	mm ²
Anode pad size	See chip drawing	
Silicon thickness	94	μm
Wafer size	200	mm
Maximum possible chips per wafer	506	
Passivation frontside	Photoimide	
Pad metal	AlSiCu	
Backside metal	Ni – Ag system	
Die bond ¹	Soft solder	
Frontside interconnect ¹	Wire bond: Al, ≤500μm	
Reject ink dot size	Inkless	
Storage environment (<6 months)	For original and sealed MBB bags	Ambient atmosphere air, temperature 17°C – 25°C
	For open MBB bags	Acc. IEC 62258-3 Section 9.4 Storage Environment

Table 2 Maximum Ratings²

Parameter	Symbol	Conditions	Value	Unit
Maximum reverse voltage	V_{RRM}	$-40^{\circ}\text{C} \leq T_{vj} \leq 185^{\circ}\text{C}$	1200	V
Continuous forward current, limited by $T_{vj\max}$	I_F		³	A
Pulsed forward current, t_p limited by $T_{vj\max}$	$I_{F,pulse}$		690	A
Virtual junction temperature	T_{vj}		-40 ... +185	°C
Safe operating area	SOA^4	$I_{F,max} = 460\text{A}, V_{R,max} = V_{RRM}, -40^{\circ}\text{C} \leq T_{vj} \leq 185^{\circ}\text{C}$		

¹ Depending on customer specific assembly process

² Not subject to production test - verified by design/characterization.

³ Depending on thermal properties of assembly.

⁴ Allowed $P_{d,max}$ of up to 240kW for 25°C and $P_{d,max}$ up to 200kW for 185°C

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	$I_F = 69\text{A}$	-	1.46	tbd	V
Reverse leakage current	I_R	$V_R = 1200\text{V}$	-	-	100	μA

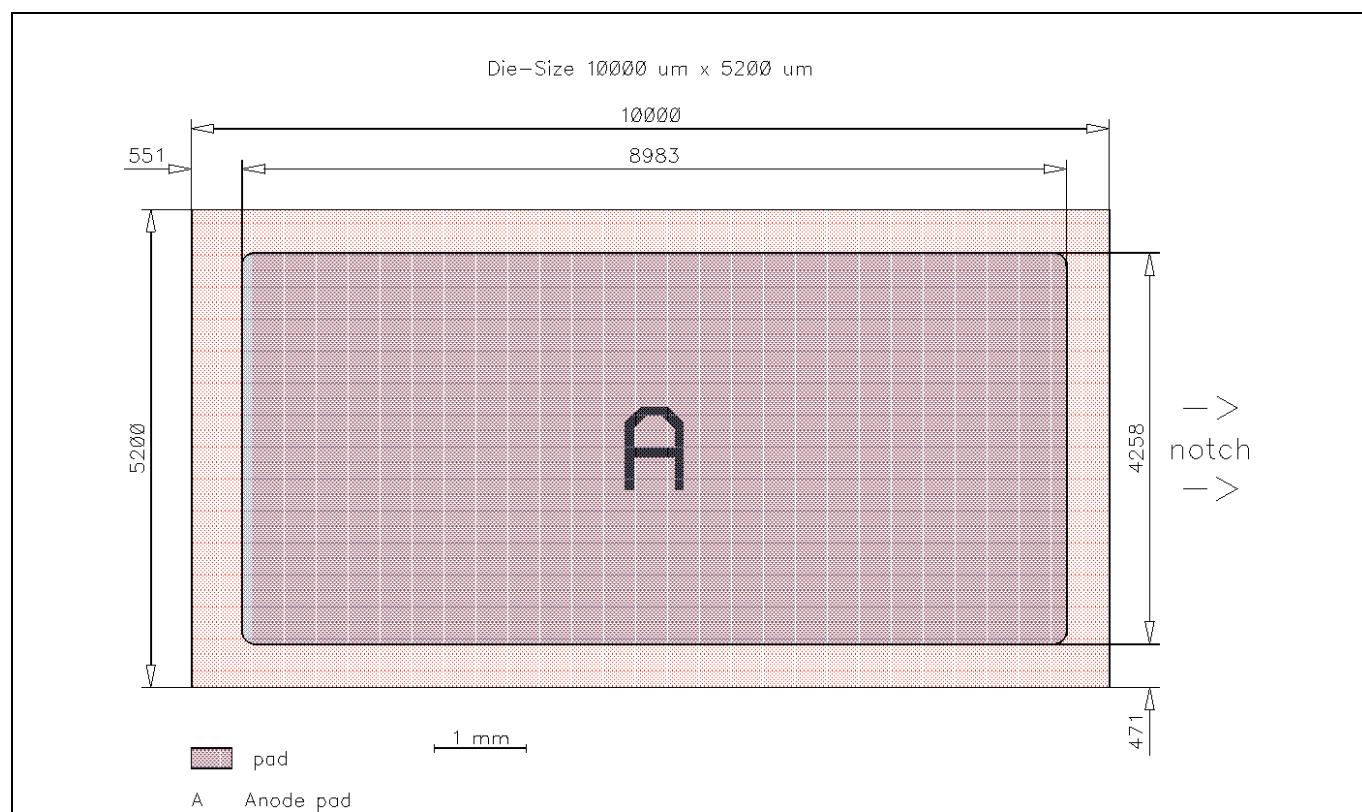
Table 4 Electrical Characteristics¹

Parameter	Symbol	Conditions		Value			Unit
				min.	typ.	max.	
Forward voltage drop	V_F	$I_F = 230\text{A}$	$T_{vj} = 25^{\circ}\text{C}$	-	1.98	tbd	V
			$T_{vj} = 185^{\circ}\text{C}$	-	2.00	-	

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.

3 Chip Drawing



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

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
V0.10	2024-NOV-18	Initial Target Datasheet
V0.90	2025-SEPT-19	Preliminary Datasheet

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